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HDI PNP 2024-005

10 CFR 50.90
10 CFR 50.54(q)

May 1, 2024

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

Palisades Nuclear Plant
NRC Docket Nos. 50-255 and 72-007
Renewed Facility Operating License No. DPR-20

Subject: License Amendment Request to Revise the Palisades Nuclear Plant Site Emergency Plan to Support Resumption of Power Operations

In accordance with Title 10 of the Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), *Application for amendment of license, construction permit, or early site permit*, Holtec Decommissioning International, LLC (HDI) on behalf of Holtec Palisades LLC, hereby requests U.S. Nuclear Regulatory Commission (NRC) review and approval of a proposed license amendment request (LAR) to revise the Palisades Nuclear Plant (PNP) Renewed Facility Operating License (RFOL) DPR-20. The proposed LAR would revise the PNP Site Emergency Plan (SEP) and emergency classification scheme to reflect the resumption of power operations at PNP.

In Reference 1, Entergy Nuclear Operations, Inc. notified the NRC that it had permanently ceased operations and permanently removed fuel from the reactor vessel at PNP. Upon docketing the 10 CFR 50.82, *Termination of license*, paragraph a, subparagraph 1, 10 CFR 50.82(a)(1) certifications, 10 CFR 50.82(a)(2) no longer authorizes operation of the reactor, or emplacement or retention of fuel into the reactor vessel. Shortly after PNP transitioned to a decommissioning facility, Holtec Palisades LLC assumed ownership of PNP (Reference 2) and given the support from the Governor of the State of Michigan, HDI commenced a project to return PNP to a power operations plant. In a letter dated March 13, 2023, HDI presented to the NRC a regulatory path to reinstate the power operations licensing basis (POLB) allowing resumption of power operations through a series of licensing submittals referred to as a "regulatory framework" (Reference 3). In this submittal HDI proposes to restore the PNP power operations SEP (POSEP) and emergency classification scheme, which is a part of this regulatory framework.

The PNP repower regulatory framework consists of this LAR, a LAR to revise the RFOL and Permanently Defueled Technical Specifications (PDTS) (Reference 4), a LAR to revise PDTS administrative requirements (Reference 5), an exemption to 10 CFR 50.82(a)(2) (Reference 6),

a license transfer order for PNP operating authority (Reference 7), and a power operations quality assurance plan. As discussed in Reference 5, HDI is proposing to submit to the NRC, approximately four weeks in advance of the date that PNP plans to transition to a power operations plant (transition date), a readiness letter that will state the planned transition date and HDI's satisfaction that the implementation conditions for license transfer, 10 CFR 50.82(a)(2) exemption, and license amendments are met. Additionally, on the designated transition date, HDI will submit a notification letter to docket that PNP has transitioned from a facility in decommissioning to a power operations plant.

HDI is currently targeting the implementation of the POSEP in the third quarter of 2025. To support this schedule, HDI respectfully requests that the NRC review the enclosed LAR on a schedule that that will permit approval of the proposed LAR by May 31, 2025, and that the proposed amendment become effective upon docketing the transition notification letter, with a 30-day implementation period.

The proposed POSEP was developed using the guidance contained in Revision 2 of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," and is in accordance with 10 CFR 50.47, *Emergency plans*, and Appendix E to 10 CFR Part 50. The proposed POSEP is primarily a reorganization and enhancement of the content of PNP SEP Revision 32 (effective date of October 10, 2019) (Reference 8), that was in effect just prior to the 10 CFR 50.82(a)(1) certifications, to align with Revision 2 of NUREG-0654/FEMA-REP-1.

The enclosure to this letter provides a description and evaluation of the proposed PNP POSEP. Attachment 1 to the enclosure contains a crosswalk detailing the relocation and modification of content from PNP SEP Revision 32 used in the development of the proposed POSEP. Attachment 2 to the enclosure contains the proposed POSEP.

The proposed changes in this amendment request include reinstating the version of the PNP power operations emergency classification scheme that was in effect just prior to the 10 CFR 50.82(a)(1) certifications (Reference 1). This EAL scheme consists of the last power operations emergency classification scheme approved by the NRC (Reference 9), plus subsequent revisions to the NRC-approved scheme made by PNP using the 10 CFR 50.54(q) change process. The revisions made by PNP using the 10 CFR 50.54(q) change process were evaluated against the PNP POLB. Additionally, PNP intends to retain the current Permanently Defueled Emergency Plan (PDEP) EAL associated with radiological events at the Independent Spent Fuel Storage Installation (ISFSI) (Reference 10), rather than reinstate the corresponding ISFSI EAL in effect just prior to the 10 CFR 50.82(a)(1) certifications.

Attachment 3 to the enclosure contains the proposed power operations Emergency Action Level (EAL) Technical Bases. Attachment 4 to the enclosure contains the proposed power operations EAL Wall Chart. Attachment 5 to the enclosure contains a summary of changes to the Power Operations EAL Technical Bases made by PNP using the 10 CFR 50.54(q) change process evaluated against the PNP POLB since the last NRC-approved PNP power operations emergency classification scheme.

Attachment 6 to the enclosure contains comparisons of the proposed PNP POSEP on-shift staffing and augmentation Emergency Response Organization (ERO) to Table B-1, "Emergency Response Organization (ERO) Staffing and Augmentation Plan," of Revision 2 of

NUREG-0654/FEMA-REP-1 and the PNP SEP that was in place when PNP ceased power operations.

This letter contains no new and no revised regulatory commitments.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a), *Notice for public comment*, subparagraph (1), using the standards in 10 CFR 50.92, *Issuance of amendment*, paragraph (c), and it has been determined that the changes involve no significant hazards consideration. The basis for this determination is included in the enclosure.

In accordance with 10 CFR 50.91(b), *State consultation*, HDI is notifying the State of Michigan of this proposed LAR by transmitting a copy of this letter, with its enclosure, to the designated State of Michigan official.

If you have any questions regarding this submittal, please contact Jim Miksa, Regulatory Assurance Manager, at (269) 764-2945.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 1, 2024.

Respectfully,

Jean A. Fleming

Digitally signed by Jean A. Fleming
DN: cn=Jean A. Fleming, c=US, o=Holtec Decommissioning International, LLC, ou=Regulatory and Environmental Affairs, email=J.Fleming@Holtec.com
Date: 2024.05.01 10:23:39 -04'00'

Jean A. Fleming
Vice President of Licensing and Regulatory Affairs
Holtec International

References:

1. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, "Certifications of Permanent Cessation of Power Operations and Permanent Removal of Fuel from the Reactor Vessel," dated June 13, 2022 (ADAMS Accession No. ML22164A067)

2. U.S. Nuclear Regulatory Commission letter to Holtec International, “Palisades Nuclear Plant and Big Rock Point Plant – Issuance of Amendment Nos. 129 and 273 re: Order Approving Transfer of Licenses and Conforming Administrative License Amendments,” dated June 28, 2022 (ADAMS Accession No. ML22173A173)

3. Holtec Decommissioning International, LLC letter to U.S. Nuclear Regulatory Commission, "Regulatory Path to Reauthorize Power Operations at the Palisades Nuclear Plant," dated March 13, 2023 (ADAMS Accession No. ML23072A404)

4. Holtec Decommissioning International, LLC letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Renewed Facility Operating License and Permanently Defueled Technical Specifications to Support Resumption of Power Operations," dated December 14, 2023 (ADAMS Accession No. ML23348A148)

5. Holtec Decommissioning International, LLC letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Selected Permanently Defueled Technical Specifications Administrative Controls to Support Resumption of Power Operations," dated February 9, 2024 (ADAMS Accession No. ML24040A089)

6. Holtec Decommissioning International, LLC letter to U.S. Nuclear Regulatory Commission, "Request for Exemption from Certain Termination of License Requirements if 10 CFR 50.82," dated September 28, 2023 (ADAMS Accession No. ML23271A140)

7. Holtec Decommissioning International, LLC letter to U.S. Nuclear Regulatory Commission, "Application for Order Consenting to Transfer of Control of License and Approving Conforming License Amendments," dated December 6, 2023 (ADAMS Accession Nos. ML23340A161, ML23340A162)

8. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “Palisades Nuclear Plant Site Emergency Plan, Revision 32,” dated November 5, 2019

9. U.S. Nuclear Regulatory Commission letter to Entergy, “Palisades Nuclear Plant – Change to Emergency Action Level Scheme (TAC No. ME3977),” dated May 26, 2011 (ADAMS Accession No. ML111300431)

10. U.S. Nuclear Regulatory Commission letter to Holtec International, LLC., “Palisades Nuclear Plant – Issuance of Amendment No. 274 Regarding the License Amendment Request for Changes to the Permanently Defueled Emergency Plan and Permanently Defueled Emergency Action Level Scheme (EPID: L-2022-LLA-0099),” dated December 27, 2023 (ADAMS Accession No. ML23236A004)

Enclosure: Description and Evaluation of Proposed Changes

Enclosure Attachments:

1. Crosswalk Detailing the Relocation of Content from PNP SEP Revision 32 to the Proposed POSEP

2. Proposed Palisades Nuclear Plant Power Operations Site Emergency Plan

3. Proposed Power Operations Emergency Action Level Technical Bases

4. Proposed Power Operations Emergency Action Level Wall Chart

5. Summary of EAL Technical Bases Changes (Revisions 5 thru 8)

6. On-Shift and Augmentation Emergency Response Organization Staffing Plan Comparison Table

cc: NRC Region III Regional Administrator
NRC Decommissioning Inspector – PNP
NRC Project Manager – PNP
Designated Michigan State Official

Enclosure

HDI PNP 2024-005

Description and Evaluation of Proposed Changes

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Enclosure - Description and Evaluation of Proposed Changes

1.0 SUMMARY DESCRIPTION

In accordance with Title 10 of the Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), *Application for amendment of license, construction permit, or early site permit*, Holtec Decommissioning International, LLC (HDI), on behalf of Holtec Palisades, LLC, hereby requests U.S. Nuclear Regulatory Commission (NRC) review and approval of a license amendment request (LAR) to revise the Palisades Nuclear Plant (PNP) Renewed Facility Operating License (RFOL) DPR-20.

The PNP site emergency plan (SEP) 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, *"Emergency plans,"* and 10 CFR Part 50 Appendix E, *"Emergency Planning and Preparedness for Production and Utilization Facilities,"* 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. The proposed changes detailed in this amendment request would revise the PNP RFOL to adopt the proposed PNP power operations site emergency plan (POSEP) and reinstate the PNP power operations emergency classification scheme that was in effect just prior to the 10 CFR 50.82(a)(1) certifications. This EAL scheme consists of the last power operations emergency classification scheme approved by the NRC, plus subsequent revisions to the NRC-approved scheme made by PNP using the 10 CFR 50.54(q) change process. The revisions made by PNP using the 10 CFR 50.54(q) change process were previously evaluated against the PNP power operations licensing basis (POLB). Additionally, PNP intends to retain the current Permanently Defueled Emergency Plan (PDEP) EAL associated with radiological events at the Independent Spent Fuel Storage Installation (ISFSI), rather than reinstate the corresponding ISFSI EAL in effect just prior to the 10 CFR 50.82(a)(1) certifications.

The proposed changes presented in this amendment request were reviewed considering the requirements of 10 CFR 50.54(q), paragraph (b) of 10 CFR 50.47, 10 CFR 50 Appendix E, and RIS 2005-02, Revision 1, *"Clarifying the Process for Making Emergency Plan Changes."*

2.0 DETAILED DESCRIPTION

2.1 Reason for Proposed Changes

In Reference 1, Entergy Nuclear Operations, Inc. notified the NRC that it decided to permanently cease operations at PNP no later than May 31, 2022. Certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel were submitted to the NRC in accordance with 10 CFR 50.82(a)(1)(i) and (ii), respectively, and were docketed (Reference 2). Upon docketing the 10 CFR 50.82(a)(1) certifications, 10 CFR 50.82(a)(2) no longer authorizes operation of the reactor, or emplacement or retention of fuel into the reactor vessel.

The regulatory framework for the reauthorization of power operations at PNP includes submitting a request for exemption from 10 CFR 50.82(a)(2) to remove the restriction that prohibits operation of the PNP reactor, or emplacement or retention of fuel into the

PNP reactor vessel (Reference 3). This restriction, imposed by the voluntary docketing of the 10 CFR 50.82(a)(1) certifications, was used as the basis for licensing actions that allowed relaxation of power operation license requirements at PNP. Implementation of the NRC-approved licensing actions included revising the PNP licensing basis to accurately reflect the status and reduced risk of a facility in decommissioning. This LAR along with the referenced exemption, a license transfer order for PNP operating authority (Reference 4), and LARs to revise the RFOL and Permanently Defueled Technical Specifications (PDTS) (Reference 5) and PDTS administrative requirements (Reference 6), and a power operations quality assurance plan are required to support reinstatement of the PNP POLB that was in effect just prior to the 10 CFR 50.82(a)(1) certifications.

As described above, this LAR is necessary to replace the PDEP and the current defueled emergency classification scheme with an emergency plan and an emergency classification scheme that support plant power operations, consistent with those that were in effect just prior to the 10 CFR 50.82(a)(1) certifications.

2.2 Description of Proposed Changes

The changes proposed in this LAR support a return of the PNP plant to power operations and remove relaxations to the PNP SEP that were made to reflect a permanently defueled facility taken through a series of license amendments and exemptions. PNP has entered the decommissioning process and subsequently transitioned to a PDEP commensurate with possible emergencies in its current defueled condition. The proposed PNP POSEP presented in this amendment request proposes to reinstate a power operations emergency plan appropriate for an operating nuclear power plant.

The proposed PNP POSEP provides the basis for response actions that would be implemented in an emergency and the requirements for maintenance and administration of the PNP emergency preparedness program in accordance with the requirements of 10 CFR 50.47, related sections of 10 CFR Part 50, Appendix E, and the associated planning standards and evaluation elements of Revision 2 of NUREG-0654/FEMA-REP-1, "*Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*" (Reference 7) (NUREG-0654/FEMA-REP-1). Subsequent mentions of NUREG-0654/FEMA-REP-1 in this LAR are references to Revision 2 of the document, unless otherwise identified.

The proposed POSEP is a complete replacement of the current PDEP, that was approved by the NRC via letter dated December 27, 2023 (Reference 8) 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 Revision 32 (effective date of October 10, 2019) (Reference 9), 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. PNP SEP Revision 32 serves as the source of the content for the POSEP and provides the majority of the content presented in the POSEP. Attachment 1 to this Enclosure contains a crosswalk detailing the relocation of content from PNP SEP Revision 32 to the proposed POSEP. The proposed PNP POSEP is provided as Attachment 2 to this Enclosure.

The proposed POSEP also contains information related to the response provided by local agencies and support organizations, site-specific agreements, response facilities and equipment, and commitments. Differences between the proposed PNP POSEP and the guidance provided in NUREG-0654/FEMA-REP-1, have been identified in this document as “alternatives to NRC guidance.” Justification for these alternative approaches to meeting guidance in NUREG-0654/FEMA-REP-1 is provided in Section 4.0, Technical Evaluation, to document that the proposed PNP POSEP continues to provide an adequate basis to respond to radiological emergencies.

Because the current PNP PDEP reflects NRC-approved exemptions and PNP’s permanently defueled condition following a sufficient decay of the spent fuel, this amendment request provides a proposed replacement emergency plan; therefore, a comparison between the proposed PNP POSEP and the content of NUREG-0654/FEMA-REP-1 is more appropriate than a description of the changes from the PNP PDEP currently in effect.

The PNP POSEP incorporates the following documents by reference:

- Emergency Action Level (EAL) Technical Bases
- On-Shift Staffing Analysis
- Evacuation Time Estimate (ETE) Report
- Alert and Notification System (ANS) Design Report

PNP has transitioned to a PDEP that incorporated an emergency classification scheme appropriate for its defueled condition, based on the methodology and guidance appropriate for a decommissioning plant contained in Revision 6 of NEI 99-01, “*Development of Emergency Action Levels for Non-Passive Reactors*” (Reference 10). The guidance in Revision 6 of NEI 99-01 was endorsed by the NRC, by letter dated March 28, 2013 (Reference 11). 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 (Reference 12). 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 (Reference 13). It is based on the guidance provided in NEI 99-01, Revision 5 (Reference 14), includes subsequent revisions made using the 10 CFR 50.54(q) change process evaluated against the PNP POLB, and retains the current PDEP EAL associated with radiological events at the ISFSI (Reference 8). NEI 99-01, Revision 5 was endorsed by the NRC (Reference 15), as an acceptable approach to meeting the requirements of 10 CFR 50.47(b)(4), related sections of 10 CFR Part 50, Appendix E, and the associated planning standard evaluation elements of NUREG-0654/FEMA -REP-1.

The proposed power operations EAL Technical Bases is provided as Attachment 3 to this Enclosure. The proposed power operations EAL Wall Chart is provided as Attachment 4 to this Enclosure.

The proposed power operations emergency classification scheme provides clearly defined and readily observable EALs and threshold values. PNP has adopted industry-standard instructions for emergency classification (e.g., transient events, classification of multiple events, upgrading, downgrading, etc.), and incorporation of features to improve human performance. The emergency classification scheme is appropriate to the risk posed to plant workers and the public, and is consistent with other NEI 99-01 user plants in response to similar events.

With respect to the documents listed above:

- HDI has reviewed Revision 4 of the On-Shift Staffing Analysis (Reference 16), in place prior to cessation of power operations, and determined that it satisfies the requirements of Section IV.A.9 of Appendix E to 10 CFR Part 50. PNP is not proposing any changes to the on-shift positions outlined in PNP SEP Revision 32. Because the on-shift staffing and the required emergency planning functions detailed in the proposed PNP POSEP are unchanged from those evaluated in Revision 4 of the On-Shift Staffing Analysis, the analysis adequately evaluates the capability of the on-shift staff to perform the actions for the key functional areas in accordance with PNP POSEP, and no changes to the analysis are required to implement the proposed PNP POSEP.

- On September 7, 2022, in accordance with Paragraph 4 of Appendix E to 10 CFR Part 50, HDI submitted an updated ETE to the NRC (Reference 17). The updated ETE was undertaken to incorporate the population data resulting from the 2020 U.S. Census. In addition to incorporating new census data from the U.S. Census Bureau (UCSB), the updated ETE evaluated roadway changes (relative to the 2012 ETE) and updated demographic information not contained in the USCB data. By letter dated March 13, 2023 (Reference 18), the NRC found the ETE update to be generally consistent with the guidance contained in NUREG/CR-7002, "*Criteria for Development of Evacuation Time Estimate Studies*," Revision 1 (Reference 19). Because the ETE results are independent of PNP's operational status, the updated ETE remains valid with the planned resumption of power operations, and implementation of the proposed PNP POSEP.

- PNP is currently exempt from the requirement to maintain an ANS (Reference 20). HDI, in cooperation with Van Buren, Berrien, and Allegan Counties, is developing an ANS Evaluation Report to satisfy planning standards E and F of 10 CFR 50.47(b), 44 CFR 350.5(a), and the associated guidance in NUREG-0654/FEMA-REP-1 to support the POSEP. The ANS report will be submitted to the U.S. Federal Emergency Management Agency (FEMA) for review and approval.

In addition to the reorganization of the content of the PNP emergency plan discussed above, the proposed PNP POSEP identifies an emergency response organization (ERO) staff that aligns with the functions and major task delineations, specifically the minimum augmenting ERO assigned within the functional areas. Consistent with the NUREG-0654/FEMA-REP-1, the proposed augmenting ERO staffing describes the minimum augmenting ERO positions. Non-minimum augmenting ERO positions will be identified in the applicable implementing procedures.

PNP is not proposing changes to the on-shift or the minimum augmenting ERO positions outlined in PNP SEP Revision 32 and the proposed staffing is consistent with guidance provided in Table B-1 of NUREG-0654/FEMA-REP-1.

3.0 BACKGROUND

By letter dated June 13, 2022, Entergy certified to the NRC that power operations ceased at PNP on May 20, 2022, in accordance with 10 CFR 50.82, *Termination of License*, paragraphs (a)(1)(i) and (a)(1)(ii) (Reference 2).

To address the initial transition from an operating facility to a permanently defueled facility, by letter dated September 24, 2018, the NRC issued Amendment No. 267 (Post-Shutdown Emergency Plan (PSEP) (Reference 21), approving changes to the PNP SEP to support the planned permanent cessation of operations and permanent removal of fuel from the reactor vessel. Upon implementation of the PSEP, on June 15, 2022, the PNP ERO on-shift and augmented staffing were revised commensurate with the reduced spectrum of credible accidents for a permanently shut down and defueled nuclear power reactor facility.

By letter dated July 11, 2022 (Reference 22), HDI requested exemptions from portions of 10 CFR 50.47(b), 10 CFR 50.47(c)(2), and Appendix E to 10 CFR Part 50. Upon approval by the NRC, the requested exemptions would allow HDI to make changes to the PSEP as the risk and radiological consequences of credible accidents at PNP continued to decrease.

By letter dated July 12, 2022 (Reference 23), HDI proposed an amendment to the PNP operating license that would revise the PNP PSEP and EAL scheme for the permanently defueled condition. The PDEP and Permanently Defueled emergency classification scheme proposed in the July 12, 2022, amendment request were predicated on the NRC granting approval of the exemptions requested in Reference 22.

By letter dated December 22, 2023 (Reference 20), the NRC approved the exemptions requested in Reference 2. By letter dated December 27, 2023 (Reference 8), the NRC issued Amendment No. 274 for PNP revising the PNP PSEP and emergency classification scheme proposed in Reference 23. PNP subsequently implemented the PDEP and Permanently Defueled emergency classification scheme on January 4, 2024.

Upon implementation of the PDEP and the associated Permanently Defueled emergency classification scheme, the scope of offsite and onsite emergency planning was reduced commensurate with the exemptions approved by the NRC considering the radiological consequences of the remaining postulated design basis and beyond design

basis accidents that could result in significant offsite radiological release. The current PDEP and Permanently Defueled emergency classification scheme satisfy the applicable standards of 10 CFR 50.47(b) and the requirements of Appendix E to 10 CFR Part 50 for a permanently defueled reactor, as modified by the exemptions approved in Reference 20.

As indicated in Reference 20, the authorized exemptions will terminate if the status of the PNP reactor changes such that the certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel are no longer applicable. Therefore, the exemptions authorized in Reference 20 will terminate upon PNP's transition from a permanently defueled licensing basis to a power operations licensing basis (i.e., the "transition date").

3.1 Emergency Plan

A licensee's emergency plan provides the necessary information to demonstrate to the NRC that "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency" are in place.

The PNP PDEP currently in effect recognizes exemptions from portions of 10 CFR 50.47(b), 10 CFR 50.47(c)(2), and Appendix E to 10 CFR Part 50 that allowed PNP to make changes commensurate with the credible site-specific risks that are present during decommissioning. The PNP POSEP presented in this amendment request is intended to replace the PDEP. The proposed PNP POSEP was developed based on NRC guidance provided in NUREG-0654/FEMA-REP-1, incorporating the content from PNP SEP Revision 32, and is applicable to power operations. The proposed PNP POSEP considers the radiological consequences of postulated design basis accidents and transient scenarios applicable to PNP during power operations, contained in Chapter 14 of the PNP Final Safety Analysis Report Update (UFSAR), Revision 35 (Reference 24). As noted in Reference 5, the UFSAR will be reinstated to Revision 35, which is the last docketed version of the UFSAR that was in effect prior to the 10 CFR 50.82(a)(1) certifications. This includes reinstatement of the Design Basis Accident (DBA) and transient scenarios in Chapter 14. These scenarios and analyses are expected to be reinstated as they existed in Revision 35 of the UFSAR. Any changes to these analyses will be evaluated via the 10 CFR 50.59, "*Changes, tests, and experiments,"* process as part of the return to POLB for PNP.

3.2 Emergency Action Level Technical Bases

The EAL Technical Bases provide an explanation and rationale for each EAL for the PNP POSEP. The EAL Bases facilitate review of the PNP EALs and provide historical documentation for future reference. Decision-makers responsible for implementation of emergency classification and response actions may use the document as a technical reference in support of EAL interpretation. The information may assist the Site Emergency Director in making classifications, particularly those involving judgment or multiple events. The basis information may also be useful in training and for explaining event classifications to off-site officials.

The emergency classification scheme provides a methodology to support the expectation that emergency classifications are to be made as soon as conditions are present and recognizable for the classification, but within 15 minutes in all cases of conditions present. The emergency classification scheme recognizes that during an event, manual actions may be underway that can restore parameters within classification limits and thus preclude the need for emergency classification or escalation. Use of the EAL Technical Bases document for assistance is not intended to delay the emergency classification.

The emergency classification scheme in effect just prior to shut down of PNP, which PNP is proposing to reinstate (with one change noted in this LAR) to support power operations, is based on the guidance provided in Revision 5 of NEI 99-01. The EAL scheme was submitted to the NRC by letter dated May 6, 2010 (non-public) (Reference 25), and supplemented by letter dated March 9, 2011 (non-public) (Reference 26). The emergency classification scheme was approved by the NRC in Reference 13. Subsequent to NRC approval of the PNP emergency classification scheme, which was implemented as Revision 4 of PNP's EAL Technical Bases, PNP made a number of revisions to the EAL Technical Bases using the change process in 10 CFR 50.54(q). These changes were documented in Revisions 5 through 8 of the PNP EAL Technical Bases. The table provided in Attachment 5 to this Enclosure summarizes the changes to the PNP EAL Technical Bases since the NRC approved the last PNP power operations EAL scheme in Reference 13. PNP proposes to reinstate Revision 8 of the EAL Technical Bases, which documents the EAL scheme in effect just prior to shut down of PNP.

As stated previously, PNP intends to retain the PDEP EAL currently in place associated with radiological events at the ISFSI, rather than reinstate the corresponding EAL approved by the NRC in Reference 13. The Technical Bases included in Attachment 3 to this Enclosure and the EAL Wall Chart provided in Attachment 4 to this Enclosure include this update.

4.0 TECHNICAL EVALUATION

4.1 Technical Advancements and Program Enhancements

Industry-wide improvements to processes, procedures, equipment, and training that historically resulted in a significant increase in on-shift and augmented ERO knowledge and capability were incorporated into the PNP SEP prior to permanent cessation of power operations. Supporting the overall conclusion that PNP can effectively respond to an emergency, the proposed PNP POSEP reinstates these capabilities as they existed in PNP SEP Revision 32, including historical enhancements to emergency preparedness in response to Three Mile Island, Chernobyl, the September 11th terrorist attacks, and Fukushima that address:

- Plant systems and procedures, including:
  - Severe Accident Management Guidelines (SAMG)
  - FLEX Support Guidelines (FSG)

    - Extensive Damage Mitigation Guidelines (EDMG)
    - Emergency Operating Procedures (EOPs) and Abnormal Operating Procedures (AOPs)
    - Plant computer, control, and instrumentation systems
- Emergency preparedness programs, processes, and equipment, including:
    - Communication and notification systems (Plant and public)
    - Dose Assessment programs and processes
    - EALs
    - NRC Emergency Response Data System (ERDS) system
- Operator, ERO, and General Employee Training (GET) training
- Radiological monitoring systems
- Computer and internet usage
- Work Control – Risk Assessment

In addition, the NRC updated and improved regulations and guidance over the past several decades. Specifically, the Emergency Preparedness Final Rule (published in the Federal Register (FR) on November 23, 2011 (76 FR 72560)), codified Emergency Preparedness program enhancements for security and non-security event related topics (Reference 27). The Final Rule included improvements and clarity based upon technological advances and lessons learned from drills/exercises and actual events. The Final Rule addressed the following, all of which had been addressed in the PNP SEP prior to permanent cessation of power operations:

- On-Shift Staffing Analysis
- ERO Augmentation at Alternate Facility
- Licensee Coordination with Offsite Response Organizations
- Protective Actions for Onsite Personnel
- Challenging Drills and Exercises
- Emergency Declaration Timeliness
- Emergency Operations Facility (EOF) – Performance-Based Approach
- Backup Means for ANS
- Offsite Response Organization (ORO) Event Response Integration with Nuclear Power Plants
- EALs for Security Events

- Amended Emergency Plan Change Process
- Updating of ETEs

The following subsections discuss the capabilities of PNP systems, procedures, emergency planning equipment and programs, and training to support the PNP POSEP.

4.1.1 Information Gathering and Display Systems

The Palisades Plant Process Computer (PPC) is provided to display, print, and store plant process information. Functions provided include Sequence of Events (SOE) monitoring, Safety Parameter Display System (SPDS) and ERDS.

The PPC includes and conforms to Critical Functions Monitoring System (CFMS) design, and provides concise display of important parameters to Control Room Operators. The PPC is designed to provide the same information to the Technical Support Center (TSC) and Emergency Operations Facility (EOF) to aid in emergency response management. The CFMS is a SPDS as described in Supplement 1 to NUREG-0737. In a letter dated April 19, 1990, the NRC found PNP's SPDS to be acceptable on the basis that it satisfies NUREG-0737 Supplement 1 (Reference 28).

4.1.2 Dose Assessment and Protective Action Recommendations

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*," December 2012 (Reference 29). 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 EPA-400/R-17/001 dose conversion factors and provided as: (1) the total effective dose equivalent (TEDE), and (2) the committed dose equivalent to the thyroid (CDE thyroid).

URI dose projection results are provided for various locations within the PNP plume exposure pathway EPZ from the site boundary to 10 miles. URI can provide dose assessment results for multiple release points from the site. URI dose projection results and field monitoring readings are used in assessing radiological EALs and Protective Action Recommendations (PARs).

Implementing procedures contain two methods for calculating offsite dose to the population from accidental releases. These methods are:

a. Computer Method - Implements the above method using a personal computer to speed the process.

b. Backup (Manual) Method - A manual method for calculating offsite dose using precalculated diffusion factors and a straight-line Gaussian methodology.

The above methods have been developed in cooperation with state agencies and provide methods for rapid and accurate dose estimates.

Implementing procedures provide basic instruction for performing offsite dose assessment using the URI dose assessment method during an emergency involving an actual or potential release of radioactivity to the environment.

Implementing procedures also provide the backup (manual) method to the automated dose assessment program to calculate whole body and thyroid dose rates. The above dose assessment methods enable the PNP ERO to assess plant conditions quickly and efficiently, with minimal distraction.

The PNP ERO uses NUREG-0654/FEMA-REP-1, Revision 1, Supplement 3 based flowcharts to determine the appropriate PAR to provide to offsite authorities, which allow for rapid determination of a PAR based on plant conditions, wind direction and radiological assessments.

4.1.3 Procedures

a. Emergency Operating Procedures

EOPs generally use a symptom-based approach that minimize assessment and interpretation of plant conditions by the on-shift staff. In addition, the EOPs are human factored to have an improved layout allowing for more consistent implementation.

EOPs interface well with updated technology such as the PPC. The PPC system is capable of graphically displaying plant conditions to assist in EOP execution.

b. Abnormal Operating Procedures

AOPs also contain directional steps when a review of the classification procedure is required to determine potential classifiable conditions. This prompts the user to identify applicable EALs.

4.1.4 Training

a. Operations Training

PNP utilizes the Systematic Approach to Training (SAT) for operations personnel. This process ensures training is conducted consistent with industry-accepted standards and has led to accreditation of the Operations Training Programs by the Institute of Nuclear Power Operations (INPO) National Academy for Nuclear Training.

The PNP simulator is routinely used during operations training. Simulator requalification evaluations include the identification and declaration of emergencies and implementation of the PNP SEP. Simulator scenarios are designed to be realistic and reflect a wide range of plant conditions, including emergency conditions. During simulator-evaluated sessions the Control Room staff transitions from normal operations to accident conditions which require emergency classification. The operations staff performs emergency plan critical functions, such as classification, core damage assessment, accident mitigation, response prioritization, and communications without augmentation from additional responders. The proficiency of the Control Room staff in performing these functions, while maintaining situational

awareness, without additional support is assessed during evaluated simulator sessions.

The Licensed Operator Requalification program includes licensed operations performance evaluations that consider the scenario guidance attributes of INPO Operations Department Standing Instruction, ODSI-3, Operations Department Guidance for Conducting Crew Performance Evaluations.

INPO ODSI-3 provides guidance on the realistic integration of the emergency response into performance evaluations. The purpose is to ensure the challenges that the emergency plan responsibilities add to the staff's ability to respond to an event are realistically represented in training and performance evaluations.

b. Shift Technical Advisor (STA) Training

The Shift Technical Advisor (STA) was originally trained as an advisor to the operating shift per NUREG-0737, "*Clarification of TMI Action Plan Requirements*." In 2014, additional guidelines, detailed in ACAD 14-002, "*Guidelines for the Training and Qualification of the Shift Technical Advisor*," were developed by INPO for the training of STAs.

The ACAD 14-002 guidelines describe the role of the STA. The STA performs independent assessments of plant operating concerns, technical support, appropriate corrective actions, analysis of events and their effects, effectiveness of response(s) to emergent conditions, classifications of emergencies, protection of the public, and any other actions related to critical safety functions and plant safety during abnormal and emergency situations. By routine monitoring of equipment and plant operations, the STA can focus on preventative actions to mitigate the consequences of an accident.

The PNP STA training and qualification program adheres to the requirements of INPO 90-003 “*Training and Qualification of Shift Technical Advisors*,” and is implemented by training program procedures.

4.1.5 Radiation Protection

A summary of the technologies and tools used to support radiation protection aspects of the PNP POSEP are summarized below.

a. Access Control and Area Radiation Monitors

During a declared emergency, Radiation Work Permits (RWPs) and dose setpoints will change depending on the emergency and plant conditions. Worker dose margins and training qualifications are also automatically verified when the RWP access control system is used. If a worker's dose margin is inadequate or training is expired, the worker’s access would be precluded and the access control system would not allow issuance of an electronic dosimeter.

In an emergency, approval to exceed dose margins is required. During the log-in process, workers acknowledge their electronic dosimeter alarm setpoints and that they have read and understand their RWP. The electronic dosimeter provides the

worker with a continuous status of dose received and work area dose rates and will alarm at preset dose and dose rate alarms. Worker use of electronic dosimeters facilitates more efficient use of Radiation Protection (RP) Technicians to provide RP coverage while preserving the *as low as reasonably achievable* (ALARA) concept.

Access control is maintained because the worker must obtain an electronic dosimeter and enter a RWP number into the access control computer system prior to being allowed access into the Radiologically Controlled Area (RCA). No setup is required for the RWP access control computers, which allows RP Technicians to be used for more critical tasks during emergency response. Personnel are required to self-monitor for radioactive contamination whenever they exit the RCA. RP involvement is not necessary for this contamination monitoring activity because workers are trained to perform this task without supervision or oversight. However, contaminated personnel exiting the RCA will require RP oversight.

RP coverage is performed if the radiological status of a room is unknown and there is a definitive need for emergency workers to enter the room to perform a task. The decision to provide RP coverage may be based on plant radiological conditions as indicated by installed area radiation monitors (ARMs). If RP coverage is deemed necessary, multiple emergency teams can be covered by an RP Technician. If RP coverage is not provided (for entry into areas with low radiological risk or known radiological status), worker protection is ensured because emergency workers are required to wear electronic dosimeters (which will alarm at preset dose and dose rate setpoints) and because of the installed ARMs (which alarm locally and remotely at preset dose rates) located throughout the plant.

RP procedures establish controls and protective measures to be placed on work being conducted in radiation areas. Inclusive within the area of radiation control are the procedures that RP establishes for determining exposure through surveys, analysis, and various other avenues. RP procedures address the means to ensure worker protection if the electronic RWP access control system is not available.

b. Personnel Monitoring and Dosimetry

Personnel are issued dosimetry that are continuously worn for constant monitoring. Therefore, no RP support is needed for issuance of dosimetry to on-shift radiation workers.

Secondary dosimeters are issued through the electronic access control system. The secondary dosimeters are self-reading, alarming electronic dosimeters that provide readout of accumulated dose and ambient dose rate. RP support is not needed for the issuance of electronic dosimeters.

Automated whole-body and extremity monitors provide simplified contamination monitoring. All radiation workers are qualified to use the automated whole-body monitors without RP support or direction when exiting the RCA.

When automated whole-body monitors are not available, hand-held friskers can be used for personnel contamination monitoring. All radiation workers are qualified to use the hand-held friskers without RP support or direction.

Some RP support functions associated with in-plant protective actions such as access control, personnel monitoring, dose assessment, and dosimetry require less dedicated support time because they are covered by plant process enhancements (newer technology/tools). These technology/tools use available equipment such as portal monitors, self-alarming dosimeters, and an automated access control point.

All onsite ERO members expected to be dispatched into the plant for evaluation, operations, or repair activities are Radiation Worker qualified and are trained on how to use the available radiation protection technologies and tools.

4.1.6 Automated ERO Notification System

PNP uses an automated ERO notification system to notify ERO members of a declared emergency. Multiple redundancies are incorporated into the notification process, such that activation of the system can be performed by computer or from any phone system. Additionally, operation of the automated ERO call-out system can take place from more than one location.

PNP has previously demonstrated the acceptable performance of an automated ERO notification during numerous system tests, drills, and exercises. Table F-3 and Elements N.4.h and N.4.i of the proposed POSEP address testing requirements of the automated ERO notification system.

4.2 Emergency Action Levels

NRC Regulatory Issue Summary (RIS) 2003-18, with Supplements 1 and 2, "*Use of NEI 99-01, Methodology for Development of Emergency Action Levels*" (Reference 30), provides guidance for developing or changing a standard emergency classification and action level scheme. In addition, this RIS and its supplements provide recommendations to assist licensees, consistent with Section IV.B of Appendix E to Part 50, in determining whether to seek prior NRC approval of deviations from the guidance.

Regardless of the generic 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, the NRC will review the EAL scheme to ensure it meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4).

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 (PNP EAL Technical Bases, Revision 4) (Reference 12). This EAL scheme consists of the last power operations emergency classification scheme approved by the NRC in Reference 13 and subsequent revisions to the NRC-approved scheme made by PNP using the 10 CFR 50.54(q) change process (evaluated against the PNP POLB). Additionally, PNP intends to retain the current PDEP EAL associated with radiological

events at the ISFSI, approved in Reference 8, rather than reinstate the corresponding EAL in effect just prior to the 10 CFR 50.82(a)(1) certifications.

In Reference 13, the NRC approved the site-specific emergency classification scheme for PNP, providing the following summary:

> *The NRC staff has reviewed the technical basis for the proposed EAL scheme, the modifications from NEI 99-01, and the licensee's evaluation of the proposed changes to ensure the proposed EAL scheme continues to meet the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4) and is consistent with the NEI 99-01 guidance.*
>
> *The NRC staff's review has determined that the proposed EAL scheme is consistent with EAL schemes implemented at similarly designed plants, that it is uses objective and observable values, and that it is consistent with the guidance in NEI 99-01 in these areas.*
>
> *The NRC staff's review has determined that the proposed EAL scheme is worded in a manner that addresses human engineering and user friendliness concerns. The proposed EAL scheme uses procedure language, including specific tag numbers for instrument readings and alarms, and flow charts, critical safety function status trees, check lists, and combinations of the above. Based on this review, the NRC staff has concluded that the proposed EAL scheme is consistent with the guidance in NEI 99-01 in these areas.*
>
> *The NRC staff's review has determined that the proposed EAL scheme is technically complete and that classification upgrades are based upon an increasing threat to public health and safety, can effectively support upgrading and downgrading, and follows a logical progression for multiple events. Based on this review, the NRC staff concludes that the EAL scheme is consistent with the guidance in NEI 99-01 in these areas.*
>
> *The NRC staff review has also determined that the proposed EAL scheme is technically complete and accurate for each classification level. The proposed EAL scheme is based on risk assessment to set the boundaries of the emergency classification levels and assure that all EALs that trigger emergency classification are in the same range of relative risk. Precursor conditions of more serious emergencies also represent a potential risk to the public and are appropriately classified. The NRC staff has determined that the proposed EAL scheme is consistent with the guidance in NEI 99-01 in these areas.*
>
> *The NRC staff reviewed EALs in each category, and each EAL set within that category, to determine whether the proposed EAL scheme meets the requirements of Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b}(4}, as well as be consistent with the NEI 99-01, Revision 5, generic guidance to the extent possible. Note that the licensee chose to modify their EAL scheme from NEI 99-01 to adopt a format more in alignment with how they currently implement their EALs, as well as alignment with licensee specific writer's guides and licensee preferences. The NRC staff determined that many of*

> *these modifications are administrative and/or minor in nature and do not alter the intent of any specific EAL within an EAL set, EAL category, or within the entire EAL scheme.*

In Reference 13, the NRC concluded:

> *The NRC staff performed a technical and regulatory review of the proposed changes to the PNP EAL scheme and determined that the proposed changes meet the guidance in NEI 99-01, Revision 5, the requirements of 10 CFR 50,47(b)(4), and the standards in Appendix E to 10 CFR 50. This determination considered the many site-specific modifications reviewed by the NRC staff. Based on this determination, the NRC staff concludes that the proposed EAL scheme provides reasonable assurance that the licensee can and will take adequate protective measures in a radiological emergency. Therefore, the NRC staff approves the proposed change to the EAL scheme.*

Subsequent to NRC approval of the PNP emergency classification scheme, PNP made a number of revisions to the EAL Technical Bases Document using the change process in 10 CFR 50.54(q). The revisions made by PNP using the 10 CFR 50.54(q) change process were evaluated against the PNP POLB. Utilizing the change process in 10 CFR 50.54(q), PNP determined that these changes were administrative and/or minor in nature and did not alter the intent of any specific EAL within an EAL set, EAL category, or within the EAL scheme. PNP determined that these changes did not adversely affect the methods for assessment of radiological consequences or the responsibilities of ERO personnel. PNP concluded that the changes did not affect the purpose, scope, or intent of the PNP SEP and that, with the changes, the SEP continued to comply with the standards of 10 CFR 50.47(b), and the requirements of Appendix E to 10 CFR Part 50. Therefore, the changes did not represent a reduction in the effectiveness of the SEP in accordance with 10 CFR 50.54(q)(3), and were implemented without prior NRC approval. These changes are summarized in Attachment 5 to this Enclosure.

In Reference 13, the NRC approved PNP's use of EAL EU1.1 associated with damage to the confinement boundary of a loaded cask. EAL EU1.1 was developed based on the guidance provided for EAL E-HU1 in Reference 14. This Notification of Unusual Event emergency classification is categorized based on the occurrence of an event of sufficient magnitude that a loaded cask's confinement boundary is damaged or violated. This includes classification based on a confinement boundary loss of a loaded fuel storage cask leading to the degradation of the fuel during storage or damage that poses an operational safety problem with respect to its removal from storage.

In Reference 10, E-HU1 was modified to include indication of an on-contact radiation reading greater than 2 times the site-specific cask specific technical specification allowable radiation level on the surface of the spent fuel cask. When developing the PDEP EAL Scheme, PNP utilized the guidance in Reference 10 to develop site-specific EAL E-HU1. In Reference 8, the NRC approved PNP's PDEP EAL E-HU1, which utilizes cask-specific dose rates for the cask systems in use at the PNP ISFSI.

EAL E-HU1 has no relationship to the overall EAL scheme because the intent of E-HU1

is limited to radiological events at the ISFSI. While security-related events at the ISFSI are of concern, they are bounded by the EAL HA4 (Reference 13). Therefore, PNP intends to retain the version of EAL E-HU1 approved by the NRC in Reference 8.

There is the potential for EAL threshold values to change prior to returning to power operations, based on changes to plant configuration that may be necessary to support power operations (e.g., number of dilution water sources and pathways). Therefore, prior to transitioning PNP from a permanently defueled licensing basis to a power operations licensing basis, PNP intends to validate the EAL threshold values provided in the proposed POEAL Technical Bases Table A-1, Effluent Monitor Classification Thresholds, for EALs AU 1.1, AU 1.2, AA 1.1, AA 1.2, AS 1.1, and AG 1.1 and Table E-1, Cask Dose Rates, for EAL E-HU1. If changes are needed to EAL threshold values to support a return to power operations, these changes would be evaluated in accordance with 10 CFR 50.54(q).

4.3 Emergency Response Organization Key Function Analysis

The ERO Key Function Analysis compares the proposed PNP POSEP against the guidance provided in NUREG-0654/FEMA-REP-1. Differences between the proposed PNP POSEP and the guidance provided in NUREG-0654/FEMA-REP-1 have been evaluated to determine whether the capability to perform the emergency plan functions is maintained (no degradation or loss of function).

The Key Function Analysis establishes that no degradation, loss of function, misalignment, or loss of task assignment would occur because of differences between Table B-1 of NUREG-0654/FEMA-REP-1 and the staffing proposed in the PNP POSEP. The PNP staffing approach continues to support timely and effective performance of the Major Functional Areas and Major Tasks listed in Table B-1 of NUREG-0654/FEMA-REP-1.

Attachment 6, On-Shift and Augmentation Emergency Response Organization Staffing Plan Comparison Tables, contains comparisons of the proposed PNP POSEP on-shift staffing and augmentation Emergency Response Organization (ERO) to Table B-1 of NUREG-0654/FEMA-REP-1 and the PNP SEP Revision 32, in place when PNP ceased power operations.

PNP is not proposing any reductions in the number of on-shift or minimum augmenting ERO positions outlined in PNP SEP Revision 32. However, three deviations from guidance in NUREG-0654 are proposed. These deviations are addressed in the following section.

4.4 Proposed PNP POSEP to NUREG-0654/FEMA-REP-1, Revision 2 Comparison

Each element of NUREG-0654/FEMA-REP-1 is accounted for in the proposed PNP POSEP. The proposed PNP POSEP relies upon alternatives to NRC guidance provided in NUREG-0654/FEMA-REP-1 in three areas. These alternatives are described in the following subsections.

4.4.1 IT Technician ERO Positions

The proposed PNP POSEP does not assign IT Technicians to the TSC or the EOF/JIC. The proposed staffing deviates from the guidance in NUREG-0654/FEMA-REP-1. PNP proposes an alternative to the NRC guidance.

Prior to permanent plant shutdown, PNP SEP Revision 32 was based on Revision 1 of NUREG-0654/FEMA-REP-1 and, hence, did not identify the Information Technology function. Because the function was not identified, PNP SEP Revision 32 did not include an on-shift ERO position or augmenting positions to perform the function. Therefore, not including the positions in the PNP POSEP does not result in a deviation from the emergency plan staffing in place prior to shutdown and detailed in PNP SEP Revision 32 (Reference 9). PNP has, under SEP Revision 32, demonstrated the acceptable performance of digital equipment and the redundancy of communication systems and digital emergency plan assets during numerous drills and exercises.

PNP satisfies the intent of the guidance in NUREG-0654/FEMA-REP-1 Revision 2 because the PNP IT department provides continuous coverage and redundancy exists for communication systems and digital EP assets. Therefore, NUREG-0654/FEMA-REP-1 Revision 2 Evaluation Criterion B.1.a continues to be met.

The NUREG-0654/FEMA-REP-1 technical basis for the ERO staffing guidance states:

> *Advances in technology have led to significant enhancements in many areas of emergency response, such as communications, monitoring, displays, digital procedures, etc. Licensees should consider the use of this technology whenever it enhances their ability to protect the health and safety of the public. However, if the implementation of the emergency plan is so reliant on this technology that without it, the emergency plan could not be implemented, then an IT Lead should augment (support) the response within 60-minutes of an Alert ECL, or greater, if the TSC/OSC has this technology; and within 60-minutes of an SAE ECL, or greater, if the EOF or JIC/JIS has this technology. If the licensee has capable backup plans for if/when this technology fails, then this function is not necessary. In other words, if the ERO is reliant upon technology such that its loss would prevent the ERO from functioning, then a support position should be part of the ERO to assist in recovery of this technology. If the loss of this technology would lead to the implementation of backup strategies, then this position would not need to be part of the ERO and can be called upon as-needed. Licensees should consider using the listing of critical digital assets, identified in accordance with 10 CFR 73.54, as the basis for determining if this position should be considered part of the EROs augmented response.*

In accordance with the guidance provided in NUREG-0654/FEMA-REP-1, minimum staff ERO IT positions are 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*." Additionally, the guidance in NUREG-0654/FEMA-REP-1 indicates that other personnel may be assigned the information technology function if no collateral duties are assigned that are beyond the capability of that individual to perform at any given time. The guidance further states

that, for augmented ERO positions, a performance-based approach is acceptable for evaluating whether augmented personnel can adequately perform collateral functions without having competing priorities. The proposed PNP POSEP relies on computers for monitoring plant parameters, which have been determined to be CDAs. The IT process for remotely 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.

PNP evaluated EP-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*," EP Critical Digital Assets 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 EP function, should the digital component fail.

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 SEP 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 (CAP) or the drill and exercise critique process. Performance trends are monitored, corrective actions are issued, and compensatory measures are taken, as necessary, to address deficiencies.

Based on the IT department process for continuous remote monitoring and redundancy for communication systems and digital EP assets, PNP has identified that there is no need to maintain IT Technicians as minimum staff ERO positions.

4.4.2 Remote Response of Engineering and Dose Assessment Function

The proposed PNP POSEP includes remote response positions. The proposed PNP POSEP deviates from the guidance in NUREG-0654/FEMA-REP-1. PNP proposes an alternative to the NRC guidance.

PNP POSEP B.1.b states:

> *The remote emergency response organization (ERO) positions are defined. Resources necessary to perform the functions and tasks assigned to the remote response positions, as well as a backup capability, are described.*

Remote response positions are not required to physically manipulate plant equipment or take other physical actions at the site. Remote response positions are provided with the necessary resources to collaborate with ERO personnel in their assigned emergency facility. These resources include:

- the ability to communicate audibly/visually between 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 can perform all functions and tasks assigned to their position, including support provided to other ERO members, as described in the proposed PNP POSEP and implementing procedures. These positions support the on-shift staff prior to activation of the TSC and EOF.

1. Remote Responders Assigned to the TSC (refer to Element B.1.a Paragraph 2 of the proposed POSEP)

   The Reactor Engineer, Electrical/I&C Engineer, and Mechanical Engineer ERO minimum staff positions are remote responders assigned to the TSC. Multiple qualified individuals provide backup for this position.

2. Remote Responders Assigned to the EOF (refer to Element B.1.a Paragraph 4 of the proposed POSEP)

   The Remote Dose Assessor ERO minimum staff position is assigned to the EOF.

The PNP POSEP includes the following remote response ERO positions:

- Reactor Engineer
- Mechanical Engineer
- Electrical/I&C Engineer
- Remote Dose Assessor

10 CFR 50.47(b)(2) requires that an onsite emergency plan meet the following standard:

> *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.*

Providing the ability for specific augmenting ERO positions to participate remotely can enhance overall response efficiency through:

- Safer and faster response by ERO members because travel during various times, weather conditions, etc. is not necessary.
- Expanding the pool of potential ERO members with individuals possessing desirable expertise at the station.
- Providing greater ERO response because multiple ERO members in a position can be called upon to provide support.

The following were considered when determining the remote ERO response positions and capability:

- Identification of ERO positions with assigned functions and tasks that can be successfully performed from a remote response environment. The position has the capability of completing all functions and tasks assigned to the position, including support provided to other ERO members, as described in the POSEP and implementing procedures.
- Maintaining compliance with regulatory requirements applicable to the ERO.
- The impact that a remote response could have on the position's ability to effectively function within the reporting facility or team (e.g., a dose assessment team).
- The ERO response actions in various classified emergency events (example; Hostile Action event or severe weather).
- Overall enhancement and improvements to the ERO response and emergency plan.

The remote ERO positions are not required to respond to a physical location within the activation time, but if desired or necessary, the positions may respond to the applicable facility (EOF or TSC).

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 technology 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.

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.

The pre-established communication channels possess the following features:

- Audio/visual communication between users

- Ability to share screens/documents
- Ability to grant access to other ERO members and ORO agencies, if desired
- Transfer capacity to handle any reasonably expected data and communication needs
- Highly reliable
- Ability of software vendor or PNP IT department to provide software updates and notifications of system outages

Remote responders would be issued computers capable of remotely accessing the corporate network, providing them with the ability to obtain real-time plant information. In the event that remote responders are unable to access information remotely, they would respond to their designated reporting facility (either the TSC or EOF).

With respect to the dose assessment function, the ability to remotely access real-time plant information through the corporate network would reduce the need to communicate with Control Room personnel. The Shift Manager would be capable of maintaining command and control and overseeing the dose assessment function prior to arrival of the Emergency Plant Manager in the TSC. Following activation of the TSC and EOF, the TSC Operations Coordinator would be responsible for assisting with event classification and the Radiation Protection Coordinator in the EOF would be responsible for dose assessment and offsite protective action recommendations. Risk-significant functions would not be performed remotely.

PNP has a robust plant process computer system that is used to perform monitoring of the station as a matter of core business. This computer system is available to PNP staff continuously, locally and remotely, to review plant performance from any location. If detailed in-field information is needed, the information exchange will rely on currently established practices of craft workers and operations staff providing photos of what is seen in the field. This will allow for analysis and judgement to be used in an emergency response. Cell phone technology advancements allow communications from the field to be vocal and visual (pictures and video). This common practice is routinely used to communicate to the Control Room and/or Engineering staff. As necessary, this practice can be used for any ERO position which could benefit from pictures/video to and from the field, example applications:

- Pictures of a valve can be sent to the Engineer from an in-field Operator.
- Maps can be sent to the FMTs from the Remote Dose Assessor.

The reliability of the computer data systems provided for remote ERO response is similar to that of the PNP emergency response facilities. The reliability of non-PNP remote locations (home, etc.) is dependent upon local internet service. However, during the Covid-19 pandemic, PNP staff were able to work remotely effectively and efficiently. It has become a common practice to communicate, conduct multi-person meetings, and share documents while working remotely. Personnel utilize the local internet service and cell phone capabilities to connect to the internet. If necessary, personnel would respond

to their assigned facility to perform the function. Performing work from remote locations has become a common practice and used daily by the staff.

The remote ERO positions are designated and assigned to applicable personnel based on PNP's established ERO selection and qualification process. The process contains prerequisites and training to ensure competent personnel are responding to the emergency. The SAT process will be used to determine the initial and continuing training requirements. The training analysis is not limited or focused on the remote ERO responders, but it also addresses the ERO members interfacing with the remote responders.

NRC Inspection Procedures (IP) do not currently identify specific remote ERO response performance evaluation criteria. Thus, performance evaluation would be based upon the Risk-Significant Areas (IP 71114 Section 03.04) and Additional Areas for Inspection (IP 71114 Section 03.06) similar to Field Monitoring Team and JIS response activities, which are performed outside of the emergency response facilities.

To support the evaluation of the PNP POSEP and implementing procedures, PNP is required to conduct drills, exercises, tabletops, etc. to validate and demonstrate that the ERO, including the remote ERO, can respond successfully. Providing new (first-time) enhanced processes and abilities to protect the public should not be limited due to any existing abilities or inabilities to evaluate the enhancements. The PNP drill and exercise program will incorporate the demonstration and evaluation of the remote ERO capability. Evaluations will focus upon the remote ERO task performance results. As necessary, drill/exercise evaluator and controllers will monitor the communication channels; like evaluations and controls of current remote drill/exercise activities (such as field monitoring activities). Critiques conducted after these drills and exercises should identify any issues encountered with the remote response. Weaknesses identified from the critique will be entered into the appropriate site corrective action process.

During exercises, an acceptable performance determination of remote ERO positions is based upon task performance results and monitoring communication channels, as necessary. PNP will not perform any risk-significant functions remotely. Classification of events, development of PARs, and offsite dose assessment will not be performed remotely.

Administrative controls will ensure that remote ERO responders have access to any required data and any equipment necessary to perform their emergency response duties. Administrative controls will also require periodic tests/maintenance to verify the functionality of equipment used to perform a remote response.

Individuals filling remote response positions will adhere to the Fitness-for-Duty (FFD) requirements in 10 CFR Part 26 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.

4.4.3 TSC Dose Assessor Function

The proposed Emergency Plan does not assign a minimum staff TSC Dose Assessor ERO position to the Dose Assessments/Projections function. This deviates from NUREG-0654/FEMA-REP-1, Revision 2 guidance for minimum staff ERO positions.

While operating, the PNP SEP Revision 32, based on Revision 1 of NUREG-0654/FEMA-REP-1, did not include a TSC position to perform the dose assessment function. Therefore, not including the position in the PNP POSEP does not result in a difference from emergency plan staffing detailed in PNP SEP Revision 32 (Reference 9). PNP has previously demonstrated the acceptable performance of the dose assessment function during numerous drills and exercises.

The NUREG-0654/FEMA-REP-1 technical basis for ERO staffing states that:

> *The augmentation (relief) of this function should occur within 60-minutes of an Alert ECL, or greater, and is typically staffed in the TSC. For an SAE ECL, or greater, this position should be staffed in the EOF as the EOF is primarily intended to coordinate with offsite response officials when developing protective action strategies for the public.*

NUREG-0654/FEMA-REP-1 guidance designates the Dose Assessments/Projections function location as “typically” in the TSC based on TSC activation at the Alert emergency classification level and EOF activation at the Site Area Emergency classification level, and assigns one minimum staff TSC Dose Assessor ERO at the Alert emergency classification level. This function would then shift to the EOF at the Site Area Emergency classification level.

PNP SEP, Revision 32 and the proposed POSEP both assign a minimum staff ERO Dose Assessor position to the EOF (the position is a remote responder in the proposed POSEP) at the Alert emergency classification level. PNP SEP Revision 32 and the proposed POSEP both require 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. Both plans anticipate the Dose Assessments/Projections responsibility transfers from the on-shift Dose Assessor directly to the EOF Radiological Assessment Coordinator, but allow the TSC Radiological Assessment Coordinator to relieve the on-shift Dose Assessor if dose assessment cannot be performed in the EOF. The proposed POSEP continues to transfer 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, 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.

The intent of the NUREG-0654/FEMA-REP-1, Revision 2 staffing guidance for the Dose Assessments/Projections function is satisfied by providing a dedicated minimum staff EOF Dose Assessor at the Alert emergency classification level. This is an alternative to the NUREG-0654/FEMA-REP-1 guidance and continues to maintain the capability to perform the Dose Assessments/Projections function.

4.5 Impact of PNP POSEP Changes on Offsite Response Organizations

Because of the location of PNP, the planning and responsibilities at the State and County level involve coordination with the State of Michigan, Van Buren County, Berrien County, and Allegan County. PNP technical support staff is dispatched to the State and County Emergency Operations Centers (EOCs) when requested, as appropriate, or generally, during a Site Area Emergency or General Emergency to act as a liaison with the plant technical staff to clearly convey the magnitude of the emergency to the EOC staff. These positions are retained in the proposed PNP POSEP. The changes proposed in this amendment request do not reduce the ability of PNP to provide the necessary information regarding the status and progression of an event, nor in the frequency at which event information updates are provided. Nor do the changes impact the ability to dispatch additional technical support to the EOCs. As a result, the proposed changes do not impact the ability of PNP to communicate with the OROs, nor the ability of the State and County response organizations to effectively implement their emergency plans.

Section E and Table E-1 of the proposed PNP POSEP describe the extensive communications network maintained between PNP, Federal, State, and County agencies as a means of promptly notifying and maintaining communications with appropriate authorities. PNP initiates the coordination effort with offsite authorities by notifying the State of Michigan and Van Buren, Berrien, and Allegan Counties of an emergency declaration and providing key information regarding the emergency. The proposed changes to the PNP POSEP do not involve changes to this process, nor the communications network, and as a result, do not impact the ability of PNP to promptly notify and initiate coordination with the offsite authorities.

Formal offsite Radiological Emergency Preparedness (REP) plans, approved by FEMA in accordance with 44 CFR Part 350, *"Review and Approval of State and Local Radiological Emergency Plans and Preparedness,"* are required to be maintained in effect when PNP is authorized to operate. The changes proposed in this amendment request would reinstate the scope of emergency planning in place prior to shutdown. The only changes that could impact implementation of the State and County REP plans, are associated with changes to the ANS. HDI, in cooperation with Van Buren, Berrien, and Allegan Counties, is developing an updated ANS Evaluation Report to satisfy planning standards E and F of 10 CFR 50.47(b), 44 CFR 350.5(a), and the associated guidance in NUREG-0654/FEMA-REP-1. The ANS report will be submitted to FEMA for review and approval in support of the planned resumption of power operations.

Additional coordination will be conducted upon NRC approval of the proposed PNP POSEP, and prior to transitioning PNP from a permanently defueled licensing basis to a power operations licensing basis (i.e., the "transition date"). Revisions to the ORO

emergency preparedness programs will be developed during the requested implementation period, as necessary.

5.0 REGULATORY EVALUATION

5.1 Applicable Regulatory Requirements

The specific standards for establishing an emergency organization to respond to emergency events appear in 10 CFR 50.47(b) and Section IV of Appendix E to 10 CFR Part 50.

The proposed PNP POSEP establishes an updated licensing basis that complies with current NRC regulations in 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. In addition, the proposed PNP POSEP is formatted, and uses the guidance in NUREG-0654/FEMA-REP-1 and RIS 2016-10.

The PNP emergency classification scheme was developed using industry guidance endorsed by the NRC. Revision 5 of NEI 99-01 provides detailed guidance on developing a site-specific emergency classification scheme. Conceptually, the approach discussed in the EAL Technical Bases document mirrors the approach used to prepare EOPs based on generic material prepared for Combustion Engineering reactor designs that was converted into PNP EOPs.

The proposed changes have been evaluated against the applicable regulatory requirements and guidance. Each section of the proposed PNP POSEP identifies applicable regulations. Appendix 3 of the proposed PNP POSEP includes a cross-reference to applicable regulations in 10 CFR 50.47(b) and Section IV of Appendix E to 10 CFR Part 50. The proposed PNP POSEP provides assurance that applicable regulatory requirements and emergency planning standards associated with emergency response are met.

5.2 Precedent

NUREG-0654/FEMA-REP-1, Revision 2 was issued in December 2019 and reflects changes to both NRC and FEMA regulations, guidance, policies, and doctrine. It also acknowledges advancements in technology and best practices that have occurred since the document was originally issued in November 1980. Revision 2 also incorporates the four supplemental documents and addenda that have been issued in the intervening years and is intended to modernize and consolidate the guidance, making it easier for users to understand.

While there is no industry precedent for a licensee to transition from a Permanently Defueled Emergency Plan (PDEP) to an emergency plan that addresses an operating reactor, there is significant industry precedent related to changes to an emergency plan based on Revision 2 of NUREG-0654/FEMA-REP-1. Examples include:

- Duke Energy Corporation (Reference 31)
- South Texas Project Nuclear Operating Company (Reference 32)
- Southern Nuclear Operating Company (Reference 33)

5.3 No Significant Hazards Consideration Determination

Pursuant to 10 CFR 50.92, "*Issuance of amendment*," Holtec Decommissioning International, LLC (HDI) has reviewed the proposed changes to the Palisades Nuclear Plant (PNP) site emergency plan (SEP) and concludes that the changes do not involve a significant hazards consideration because the proposed changes satisfy the criteria in 10 CFR 50.92(c). These criteria require that operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (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.

The discussion below addresses each of these criteria and demonstrates that implementing the proposed PNP POSEP does not constitute a significant hazard.

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 changes do not create the possibility of a new or different kind of accident from any accident 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 changes do not involve a significant reduction in a margin of safety.

5.4 Conclusions

Based on the above, HDI concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

6.0 ENVIRONMENTAL CONSIDERATION

This amendment request meets the eligibility criteria for categorical exclusion from environmental review set forth in 10 CFR 51.22, “*Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review*,” paragraph (c)(9). In support of this conclusion, as described in Reference 3, an independent environmental review of potentially new and significant information, and environmental issues not addressed in the October 2006 *Generic*

Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 27, Regarding Palisades Nuclear Plant was performed. The review concluded that the proposed licensing actions environmental impacts are consistent with the findings in the PNP RFOL Supplemental Environmental Impact Statement (NUREG 1427, Supplement 27), and hence the NRC staff recommendation to the Commission is applicable to this activity. The 10 CFR 51.22(c)(9) criteria are met as follows:

(i) The amendment involves no significant hazards consideration.

As described in Section 5.3 of this evaluation, the proposed amendment involve no significant hazards consideration. There are no changes to the design configuration or operation of the plant as constructed. There are no relaxations in the criteria used to establish safety limits or safety system settings or TS Limiting Conditions of Operation that were in effect prior to the 10 CFR 50.82(a)(1) certifications.

(ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

There are no design configuration or operational changes proposed or required to support the reinstatement of the POLB that would change the type or amount of any effluents previously considered in the provisional, full-term, or renewed facility operating license environmental impact statements that considered power operations impacts through March 24, 2031. Reference 3 provides additional information. There are no expected changes in the types, characteristics, or quantities of effluents discharged to the environment associated with the proposed license amendment. The license amendment will not cause any materials or chemicals to be introduced into the plant that could affect the characteristics or types of effluents released offsite. Resumed power operations will be conducted under existing environmental permits. In addition, the method of operation of waste processing systems will not be affected by the proposed license amendment. The proposed license amendment will not result in changes to the desi

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

There are no design configuration or operational changes proposed or required to support reinstatement of the POLB that would change the cumulative public or occupational radiation exposure than previously considered in the provisional, full-term, or renewed facility operating license environmental impact statements that considered power operations impacts through March 24, 2031. Reference 3 provides additional information. Plant programs and processes to support an operating plant will be reinstated to ensure 10 CFR 20 limits are not exceeded for individual or cumulative occupational exposure. Since the proposed license amendment does not involve any physical change to the facility or in the procedures governing operation of the plant, the proposed license amendment does not involve a significant increase in individual or cumulative public or occupational radiation exposure.

Based on the above, HDI concludes that the proposed amendment meets the eligibility criteria for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no

environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

7.0 REFERENCES

1. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “Supplement to Certification of Permanent Cessation of Power Operations,” dated October 19, 2017 (ADAMS Accession No. ML17292A032)

2. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “Certifications of Permanent Cessation of Power Operations and Permanent Removal of Fuel from the Reactor Vessel.” Dated June 13, 2022 (ADAMS Accession No. ML22164A067)

3. Holtec Decommissioning International letter to U.S. Nuclear Regulatory Commission, “Request for Exemption from Certain Termination of License Requirements of 10 CFR 50.82,” dated September 28, 2023 (ADAMS Accession No. ML23271A140)

4. Holtec Decommissioning International, LLC letter to U.S. Nuclear Regulatory Commission, "Application for Order Consenting to Transfer of Control of License and Approving Conforming License Amendments," dated December 6, 2023 (ADAMS Accession Nos. ML23340A161, ML23340A162 (Non-Public))

5. Holtec Decommissioning International, LLC (HDI) letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Renewed Facility Operating License and Permanently Defueled Technical Specifications to Support Resumption of Power Operations," dated December 14, 2023 (ADAMS Accession No. ML23348A148)

6. Holtec Decommissioning International, LLC letter to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Selected Permanently Defueled Technical Specifications Administrative Controls to Support Resumption of Power Operations," dated February 9, 2024 (ADAMS Accession No. ML24040A089)

7. 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, December 2019 (ADAMS Accession No. ML19347D139)

8. U.S. Nuclear Regulatory Commission letter to Holtec International, LLC., “Palisades Nuclear Plant – Issuance of Amendment No. 274 Regarding the License Amendment Request for Changes to the Permanently Defueled Emergency Plan and Permanently Defueled Emergency Action Level Scheme (EPID: L-2022-LLA-0099),” dated December 27, 2023 (ADAMS Accession No. ML23236A004)

9. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “Palisades Nuclear Plant Site Emergency Plan, Revision 32,” dated November 5, 2019

10. Nuclear Energy Institute, NEI 99-01, Development of Emergency Action Levels for Non-Passive Reactors, Revision 6, November 2012 (ADAMS Accession No. ML12326A805)

11. U.S. Nuclear Regulatory Commission letter, Mark Thaggard to Susan Perkins-Grew (Nuclear Energy Institute), "U.S. Nuclear Regulatory Commission Review and

Endorsement of NEI 99-01, Revision 6, dated November 2012 (TAC No. D92368)," dated March 28, 2013 (ADAMS Accession No. ML12346A463)

12. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “Palisades Nuclear Plant Site Emergency Plan, Supplement 1 Rev. 4,” dated June 5, 2018 (ADAMS Accession No. ML18157A096 and ML18163A090)
13. U.S. Nuclear Regulatory Commission letter to Entergy Nuclear Operations, Inc., "Palisades Nuclear Plant – Change to Emergency Action Level Scheme (TAC No. ME3977)," dated May 26, 2011 (ADAMS Accession No. ML111300431)
14. Nuclear Energy Institute, NEI 99-01, Development of Emergency Action Levels for Non-Passive Reactors, Revision 5, February 2008 (ADAMS Accession No.ML080450149)
15. U.S. Nuclear Regulatory Commission, Letter to Alan Nelson, Nuclear Energy Institute, "U.S. Nuclear Regulatory Commission Review and Endorsement of NEI-99-01, Revision 5, dated February 22, 2008" (ADAMS Accession No. ML080430535)
16. Palisades Nuclear Station On-Shift Staffing Analysis, Revision 4 dated August 17, 2017 (ADAMS Accession No. ML17269A183)
17. Holtec Decommissioning International letter to U.S. Nuclear Regulatory Commission, “Palisades Nuclear Plant 2022 Evacuation Time Estimate Report,” dated September 7, 2022 (ADAMS Accession No. ML22250A524)
18. U.S. Nuclear Regulatory Commission letter to Federal Emergency Management Agency, “Calendar Year 2023 1st Quarter Report and Closeout of Activity Related to Updated Evacuation Time Estimates,” dated March 13, 2023 (ADAMS Accession No. ML23054A253)
19. NUREG/CR-7002, “Criteria for Development of Evacuation Time Estimate Studies,” Revision 1, February 2021 (ADAMS Accession No. ML21013A504)
20. U.S. Nuclear Regulatory Commission letter to Entergy Nuclear Operations, Inc., "Palisades Nuclear Plant – Exemption from Certain Emergency Planning Requirements and Related Safety Evaluation (EPID L-2022-LL#-0024)," dated December 22, 2023 (ADAMS Accession No. ML23263A977)
21. U.S. Nuclear Regulatory Commission letter to Entergy Nuclear Operations, Inc., "Palisades Nuclear Plant – Issuance of Amendment Re: Changes to the Emergency Plan for Permanently Defueled Condition (CAC No. MG0198; EPID L-2017-LLA-0305)," dated September 24, 2018 (ADAMS Accession No. ML18170A219)
22. Holtec Decommissioning International, LLC (HDI) letter to U.S. Nuclear Regulatory Commission (NRC), "Request for Exemptions from Certain Emergency Planning Requirements of 10 CFR 50.47 and 10 CFR Part 50, Appendix E," dated July 11, 2022 (ADAMS Accession No. ML22192A134)
23. Holtec Decommissioning International, LLC (HDI) letter to U.S. Nuclear Regulatory Commission (NRC), " License Amendment Request: Proposed Permanently Defueled

Emergency Plan and Permanently Defueled Emergency Action Level Scheme," dated July 12, 2022 (ADAMS Accession No. ML22193A090)

24. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “Final Safety Analysis Report Update – Revision 35,” dated April 14, 2021 (ADAMS Accession No. ML21125A285)

25. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “NEI 99-01, Revision 5, "Methodology for Development of Emergency Action Levels, February 2008,” dated May 6, 2010 (ADAMS Accession No. ML101440477) (Non-Public)

26. Entergy Nuclear Operations, Inc. letter to U.S. Nuclear Regulatory Commission, “Response to Request for Additional Information Re: Emergency Action Level Changes,” dated March 9, 2011 (ADAMS Accession No. ML110750097) (Non-Public)

27. Federal Register Volume 76, Number 226, Wednesday, November 23, 2011, Rules and Regulations, “Enhancements to Emergency Preparedness Regulations; Final Rule.”

28. U.S. Nuclear Regulatory Commission letter to Entergy Nuclear Operations, Inc., "Consumers Power Confirmation Related to Generic Letter 89-06 Safety Parameter Display System (TAC 73597)," dated April 19, 1990 (ADAMS Accession No. ML18054B569)

29. U.S. Nuclear Regulatory Commission, “RASCAL 4: Description of Models and Methods,” dated December 2012 (ADAMS Accession No. ML13031A448)

30. U.S. Nuclear Regulatory Commission, Regulatory Issue Summary 2003-18, with Supplements 1 and 2, "Use of NEI-99-01, 'Methodology for Development of Emergency Action Levels,' dated January 2003," dated October 8,2003 (ADAMS Accession Nos. ML032580518, ML041550395, and ML051450482)

31. U.S. Nuclear Regulatory Commission letter to Duke Energy Corporation – Catawba Nuclear Station, Units 1 and 2; McGuire Nuclear Station, Units 1 and 2; Oconee Nuclear Station, Units 1, 2 and 3; Brunswick Steam Electric Plant, Units 1 and 2; Shearon Harris Nuclear Power Plant, Unit 1; and H. B. Robinson Steam Electric Plant, Unit No. 2 – Issuance of Amendments for Common Emergency Plan Consistent with NUREG-0654, Revision 2, dated August 26, 2021 (ADAMS Accession No. ML21155A213)

32. U.S. Nuclear Regulatory Commission letter to STP Nuclear Operating Company – South Texas Project, Units 1 and 2 – Correction to Amendment Nos. 221 and 206 to Authorize Revision of the Emergency Plan Based on NUREG-0654/FEMA-REP-1, Revision 2, dated May 11, 2021 (ADAMS Accession No. ML21120A184)

33. U.S. Nuclear Regulatory Commission letter to Southern Nuclear Operating Company – Farley Nuclear Plant, Units 1 and 2; Hatch Nuclear Plant, Units 1 and 2; and Vogtle Generating Plant, Units 1 and 2 – Issuance of Amendments Regarding Revision to Emergency Plan to Change Staffing and Extend Staff Augmentation Times for Emergency Response Organization Positions, dated September 21, 2021 (ADAMS Accession No. ML21217A091)

Attachment 1 to Enclosure

HDI PNP 2024-005

Crosswalk Detailing the Relocation of Content from PNP SEP Revision 32 to the Proposed POSEP

133 pages follow

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
Planning Standard A – Assignment of Responsibility						
A.1	**The Federal, state, local, and tribal governments, licensee, and other private sector organizations that comprise the overall response for the EPZs are identified.**	Element A.1	The Palisades Nuclear Plant (PNP) plume exposure pathway emergency planning zone (EPZ) includes portions of Van Buren, Berrien, and Allegan Counties. This section of the PNP Site Emergency Plan (SEP) identifies the PNP, Federal, State, County, and private sector organizations that encompass the overall response to an emergency at PNP.	2.2 – Population Distribution and Evacuation Times 2.3 – Emergency Planning Zones 6.4.1.b.1 – Agency Responsibilities	The area within a 10-mile radius surrounding the Palisades Plant is designated as the plume exposure Emergency Planning Zone (EPZ). Two EPZs have been identified for the purpose of development and implementation of emergency planning. The plume exposure emergency planning zone has a 10 mile radius. The Palisades Nuclear Plant is located in Van Buren County (Covert Township), and the 10-mile emergency planning zone includes portions of Allegan and Berrien counties, including the city of South Haven.	Discussion of plant location moved to Section I. Introduction Background content of the POSEP. The specific information is not applicable to the NUEG-0654 Evaluation Criterion.
A.1.a	**The organizations having an operational role specify their concept of operations and relationship to the total effort.**	Element A.1.a	The principal organizations participating in emergency response activities at PNP include:	N/A	N/A	Text added to introduce the subsequent discussion addressing the Evaluation Criterion.
		Element A.1.a Paragraph 1 – Palisades Nuclear Plant	This section of the PNP SEP summarizes the PNP Emergency Response Organization (ERO) as it relates to the overall concept of operations. Normal plant operations at PNP are conducted under the authority of the Shift Manager and are directed from the Control Room. In the event of an abnormal condition, the Shift Manager assumes the role of Emergency Director and coordinates the activities of the plant staff to perform initial assessment, corrective actions, and protective functions. The Shift Manager determines if an emergency condition exists and, if so, identifies and declares the proper emergency classification in accordance with EPIP EI-1, "Emergency Classification and Actions." When an emergency is declared, the Shift Manager is responsible for taking immediate action to safeguard personnel and equipment. Utilizing the PNP EPIPs, the Shift Manager activates the necessary portions of this SEP. Augmentation of the on-shift ERO is required at the Alert emergency classification level or higher, and at the	N/A 3.4	N/A In all instances, when one of the classifications of the above emergencies occurs in the Plant, the Shift Manager is responsible for taking immediate action to safeguard personnel and equipment. Utilizing the Palisades Nuclear Plant Emergency Implementing Procedures, the Shift Manager shall activate the necessary portions of the	Discussion of normal plant operations added to fully address the Evaluation Criterion. Reorganization and expansion of the general content of SEP Rev. 32 to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			discretion of the Shift Manager for a Notification of Unusual Event (NOUE). Basic considerations for safe operation of the Plant, and for action in the event of an emergency, are summarized as follows: a. Protection of Plant personnel and the public is the highest priority. A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the reactor and perform the functions of this SEP. Plant system and equipment protection is secondary. b. When there is doubt as to the classification of the emergency condition, the more conservative case is considered. c. Instrumentation is assumed to be providing correct information unless it is clearly identified that an instrument is erroneous or out of service. d. Alarms are promptly acknowledged, any required response action is taken, and an immediate investigation of the cause that initiated the alarm is made.		Site Emergency Plan. The basic considerations for safe operation of the Plant, and for action in the event of an emergency in the Plant, are summarized as follows: a. In any event, protection of Plant personnel and the public is the highest priority. A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the reactor and perform the functions of the emergency plan. Plant system and equipment protection is secondary. b. When there is doubt as to the classification of the emergency condition, the more conservative case is considered. c. The instrumentation is assumed to be providing correct information unless it is clearly identified that an instrument is erroneous or out of service. d. All alarms are promptly acknowledged, any required response action is taken, and an immediate investigation of the cause that initiated the alarm is made.	
			When an emergency is declared, notifications are made to the appropriate offsite authorities, emergency response facilities (ERFs) are activated as described in Table A-1, "Guidelines for Plant, State and Local Actions," and the ERFs are staffed as described in Part II Section B of this SEP.	4.1.1 4.1.2 4.1.3 4.1.4	Guidelines for Plant, state, and local actions are listed in Table 4-1.	Reorganization of the content of SEP Rev. 32 to concisely address the Evaluation Criterion.
			For emergencies that result in the release of radioactive materials greater than specified levels, or the degradation of barriers to the release of radioactive materials, assessments of the offsite dose consequences or the projected offsite dose consequences are made. If necessary, protective action recommendations (PARs) are provided to offsite authorities responsible for alerting the public and issuing public protective actions.	3.0	For emergencies that result in (1) the release of radioactive materials greater than specified levels, or (2) the degradation of barriers to the release of radioactive materials, assessments of the offsite consequences, or the projected offsite consequences shall be made. These assessments will be transmitted to the offsite authorities responsible for taking protective actions on behalf of the general public. Recommendations to these offsite authorities will be based on the protective actions	Reorganization of the content of SEP Rev. 32 to concisely address the Evaluation Criterion. Protective Action Guidance, based on EPA 400/R-17/001 has been relocated to Table J-1 of the POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
					identified in Table 6-2 from the Palisades Site Emergency Plan.	
			_____ When the ERFs are staffed, the augmenting ERO relieves the on-shift personnel of emergency response functions that are not directly associated with Plant operations. PNP's overall concept of operations and responsibilities for event response include: • Recognizing and assessing plant conditions; • Classifying and declaring an emergency; • Notifying appropriate PNP personnel, Federal agencies, and State and local offsite response organizations (OROs); • Requesting additional support from Federal, State and local OROs, and private organizations; • Establishing and maintaining effective communications with onsite and offsite entities; • Continuously assessing the consequences of the accident, • Periodically communicating plant status, response actions, and assessment information, including a description of radiological conditions, to the appropriate groups and authorities; • Prioritizing and performing response actions to mitigate and terminate the event; • Taking protective actions onsite and communicating PARs to offsite authorities; • Monitoring and controlling radiation exposure of personnel responding to an emergency; • In conjunction with OROs, providing emergency information to the media and	_____ N/A	_____ N/A	_____ Reorganization and expansion of the general content of SEP Rev. 32 to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			public through periodic media briefings and media statements; and • Terminating an emergency. Based on the emergency classification and an assessment of plant conditions, the Emergency Director is responsible for the following. • Coordinating emergency response activities, including making or directing requests for required support from external organizations; • Making or directing initial notifications to affected plant staff, • Notifying Van Buren, Berrien, and Allegan Counties, the State of Michigan, and Federal authorities • Determining if activation of the ERFs is desirable or required [1,2,3] A detailed description of the PNP Emergency Response Organization (ERO) is provided in Element B.1.			
		Element A.1.a Paragraph 2 – Primary External Organizations	The Palisades ERO coordinates response actions with various Federal. State, and local OROs. Interface between PNP and the OROs is governed by their respective emergency plans, which are developed and maintained in coordination with the PNP SEP. Local organizations (i.e., local law enforcement support; medical and ambulance services, including hospital support; and fire/rescue support) may be requested to respond to an emergency at PNP. The Emergency Director is responsible for requesting and coordinating the response with the onsite activities. The organizations described in this SEP are capable of 24-hour	5.7 – Coordination with Governmental Agencies	The coordination between the state, county, and federal emergency plans and the Palisades Site Emergency Plan serves to ensure the safety and health of the public. The coordination of the emergency plans enables all organizations to participate without confusion or hesitation in regard to their responsibilities. All participating agencies should have a clear picture of the roles they play during an emergency situation. As a part of the coordination effort, each participating agency is assigned specific responsibilities and authority in regard to both emergency planning and emergency response. Written agreements with governmental agencies are included in Appendix A, "Agreement With	Reorganization and expansion of the general content of SEP Rev. 32 to fully address the Evaluation Criterion.

1 If an event is transient in nature such that staffing of the ERO is not practical prior to termination of the event, then the ERO may not be staffed. However, notifications to affected authorities are completed consistent with the requirements of this SEP.
2 Under some circumstances, such as unanticipated natural events or hostile action against the facility, the Emergency Director may judge that movement of personnel as needed to staff the ERFs may create undue hazards to plant personnel. Under such circumstances, the Emergency Director may elect to postpone staffing of the ERFs and implement compensatory measures as needed to ensure ongoing personnel and plant safety.
3 The ERO may be staffed prior to the declaration of an emergency, such as in anticipation of severe weather that is likely to result in the declaration of an emergency condition.

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			response. Details related to the anticipated support from each organization are described in Part II Section C, “Emergency Response Support and Resources,” of this SEP. Letters of Agreement (LOAs) are listed in Appendix 4 and are addressed in Part II, Section C of this Plan.		Offsite Individuals, Agencies, and Organizations."	
		Element A.1.a Paragraph 2.a – Federal Agencies	Control, responsibility, and interface of various Federal agencies is governed by the National Response Framework (NRF), including the Nuclear/Radiological Incident Annex (NRIA) to the NRF and various agency-specific documents (e.g., NRC’s Incident Response Plan) supporting the NRF when they are called to respond to an event at a nuclear power plant.	5.7.2 – Federal Agencies	N/A	Introductory text added to fully address the Evaluation Criterion.
		Element A.1.a Paragraph 2.a.i – U.S. Nuclear Regulatory Commission	The NRC may request the Federal Department of Energy (DOE) dispatch Federal Radiological Monitoring and Assessment Center (FRMAC) personnel to the scene in the event of an emergency who could perform radiological monitoring and dose assessment. The NRC is the Lead Federal Agency (LFA) for the FRMAC and will coordinate the efforts of all federal agencies involved. The Emergency Director has the authority to request NRC assistance. NRC Staff may also furnish advice and assistance to the Plant as deemed necessary. The NRC shall be notified within an hour, any time all or part of the PNP SEP is activated. Means of communications are described in Part II Section F, "Emergency Communications." Workspace and telephones are provided for NRC personnel in the Technical Support Center (TSC) and the Emergency Operations Facility (EOF). The EOF includes space for trailers for long term support capabilities.	5.7.2.a – Nuclear Regulatory Commission (NRC)	Nuclear Regulatory Commission for the State of Michigan may request the Federal Department of Energy dispatch Federal Radiological Monitoring and Assessment Center (FRMAC) personnel to the scene in the event of an emergency who could perform radiological monitoring and dose assessment. The Emergency Director has the authority to request NRC assistance. The office may also furnish advice and assistance to the Plant as deemed necessary. The NRC shall be notified within an hour, anytime all or part of the Site Emergency Plan is activated. Means of communications are described in the Site Emergency Plan, Section 7.0, "Emergency Facilities and Equipment." Facilities for the NRC are available in the Technical Support Center and the Emergency Operations Facility, including work space and telephones. The Emergency Operations Facility provides space for trailers for long term support capabilities.	Reorganization of the content of SEP Rev. 32 and additional text added to define the NRC’s role. Editorial changes.
		Element A.1.a Paragraph 2.b – State Agencies	State agencies function under the direction of the Governor of the State of Michigan.	5.7.1 – State of Michigan Agencies	State agencies are under the direction of the Governor of the State of Michigan.	Editorial changes.

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		Element A.1.a Paragraph 2.b.i – Michigan State Police Emergency Management and Homeland Security Division	The State Police Emergency Management and Homeland Security Division (MSP/EMHSD) is the lead state agency for emergency response planning and operations. This agency operates under the direction of the State Director of Emergency Management. _____ In emergency situations, the EMHSD is responsible for coordinating the support of other state agencies and political subdivisions and obtaining the assistance of federal agencies as required. The EMHSD will provide the following emergency support: a. Activation of the State Emergency Operations Center, as necessary b. Communications, radiological monitoring, and other available support to the affected local government c. Liaison with local, state, and federal agencies _____ Responsibilities of the EMHSD include: 1. Development and maintenance of the Michigan Emergency Management Plan and assistance to the counties in developing their individual emergency operations plans. 2. Recommendations to the Governor of the State of Michigan regarding emergency measures. 3. Arranging training programs for state and local agencies designed to promote effective response to radiological incidents.	5.7.1.a – Michigan State Police Emergency Management and Homeland Security Division (MSP/EMHSD) _____ 6.1.4 – Emergency Management and Homeland Security Division – Michigan State Police _____ 5.7.1.a – Michigan State Police Emergency Management and Homeland Security Division (MSP/EMHSD)	The State Police Emergency Management and Homeland Security Division is the leading state agency for emergency response planning and operations. This agency is under the direction of the State Director of Emergency Management. _____ In emergency situations, the Emergency Management and Homeland Security Division is responsible for coordinating the support of other state agencies and political subdivisions and obtaining the assistance of federal agencies as required. The Emergency Management Division will provide the following emergency support: a. Activation of the State Emergency Operations Center, as necessary b. Communications, radiological monitoring, and other available support to the affected local government c. Liaison with local, state, and federal agencies _____ Responsibilities of this group include: 1. Development and maintenance of the Michigan Emergency Management Plan and assistance to the counties in developing their individual emergency operations plans. 2. Recommendations to the Governor of the State of Michigan regarding emergency measures. 3. Arranging training programs for state and local agencies designed to promote effective response to radiological incidents. 4. Providing communications, radiological monitoring, and other available support to affected local governments.	Reorganization and consolidation of the content of SEP Rev. 32 sections 5.7.1.a and 6.1.4 to align with, and fully address, the Evaluation Criterion. Editorial changes.

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			4. Providing communications, radiological monitoring, and other available support to affected local governments. 5. Coordinating the support of other state agencies or political subdivisions near the affected area and obtaining the assistance of federal agencies as required. The normal point of contact for PNP is through the Operations Division of the MSP in Lansing. PNP will support the MSP by providing specific information relating to the nature of the emergency, recommendations on public protective actions, and other available information and technical guidance.		5. Coordinating the support of other state agencies or political subdivisions near the affected area and obtaining the assistance of federal agencies as required. The normal point of contact for the Palisades Plant is through the Operations Division of the Michigan State Police in Lansing.	
		Element A.1.a Paragraph 2.b.ii – Michigan State Police – Paw Paw Post	MSP is responsible for providing emergency traffic control and other available assistance. The MSP's nearest post is in Paw Paw, Michigan and maintains direct radio communications to Van Buren, Allegan, and Berrien Counties. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities.	5.7.1.b – Michigan State Police – Paw Paw Post	Michigan State Police (MSP) is responsible for providing emergency traffic control and other available assistance. The MSPs nearest post is located in Paw Paw, Michigan with direct radio communications to Van Buren, Allegan, and Berrien Counties. Communications are detailed in Palisades Site Emergency Plan, Section 7.0, "Emergency Facilities and Equipment."	Editorial changes.
		Element A.1.a Paragraph 2.b.iii – Michigan Department of Transportation	Michigan Department of Transportation (MDOT) assists in emergency traffic regulation and coordination with the MSP, the Sheriff, and the Road Commission of the affected county(ies).	5.7.1.c – Michigan Department of Transportation	Michigan Department of Transportation (MDOT) assists in emergency traffic regulation coordination with the Michigan State Police, the Sheriff, and the County Road Commission of the affected county.	Editorial changes.
		Element A.1.a Paragraph 2.b.iv – Michigan Department of Environment, Great Lakes, and Energy	The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Radiological Protection Section, located in Lansing, is responsible for administering and directing radiation control programs and activities within the State. _____ The Radiological Protection Section has the direct responsibility to provide the technical assistance necessary to evaluate the offsite consequences of a radiological incident, to provide protective action guidance to State and local authorities responsible for public safety, and to oversee offsite decontamination and reentry operations.	5.7.1.d – Michigan Department of Environment, Great Lakes, and Energy (EGLE) _____ 6.1.5 – Michigan Department of Environment, Great Lakes, and Energy (EGLE) Radiological	The Michigan Department of Environment, Great Lakes, and Energy, Radiological Protection Section located in Lansing is responsible for administering and directing radiation control programs and activities within the state. _____ The Michigan Department of Environment, Great Lakes, and Energy, Radiological Protection Section is responsible for administering and directing radiation control programs and activities within the State of Michigan.	Reorganization and consolidation of the content of SEP Rev. 32 sections 5.7.1.d and 6.1.5 to align with, and fully address, the Evaluation Criterion. Editorial changes.

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			_____ The Radcon Field Team provides direct radiological emergency response capability during emergency conditions. Responsibilities of the Radcon Field Team include: 1. Mobilizing immediately to the affected area and performing radiological monitoring, as appropriate. 2. Determining and reporting the nature and scope of the hazard. 3. Providing State government with technical guidance, recommending appropriate emergency countermeasures and recovery actions, and otherwise assisting the affected community. The EGLE, Radiological Protection Section is responsible for providing the public with health hazard evaluation, guidance, or protective actions and other pertinent information concerning radiological incidents	Protection Section _____ 5.7.1.d – Michigan Department of Environment, Great Lakes, and Energy (EGLE)	The Radiological Protection Section has the direct responsibility to provide the technical assistance necessary to evaluate the offsite consequences of a radiological incident, to provide protective action guidance to state and local authorities responsible for public safety, and to oversee offsite decontamination and reentry operations. _____ Their Radcon Field Team provides direct radiological emergency response capability during emergency conditions. The team's responsibilities include: 1. Moving immediately to the affected area and performing radiological monitoring, as appropriate. 2. Determining and reporting the nature and scope of the hazard. 3. Providing state government with technical guidance, recommending appropriate emergency countermeasures and recovery actions, and otherwise assisting the affected community. The Department of Environment, Great Lakes, and Energy, Radiological Protection Section is responsible for providing the public with health hazard evaluation, guidance, or protective actions and other pertinent information concerning radiological incidents.	
		Element A.1.a Paragraph 2.b.v – Michigan Department of Health and Human Services	The Michigan Department of Health and Human Services is responsible for coordinating emergency medical support of radiological incidents, as requested by EGLE, Radiological Protection Section, or local health authorities.	5.7.1.e – Michigan Department of Health and Human Service	The Michigan Department of Health and Human Services is responsible for coordinating emergency medical support of radiological incidents, as requested by EGLE, Radiological Protection Section, or local health authorities	Reorganization of the content of SEP Rev. 32 section 5.7.1.e to align with, and fully address, the Evaluation Criterion.
		Element A.1.a Paragraph 2.b.vi – Michigan Department of Agriculture	The Michigan Department of Agriculture and Rural Development acts on advice from the State Health Director for controlling agricultural products and production for the purpose of radiation health hazard abatement. Protective actions initiated by the Department of Agriculture and Rural Development may include any or all	5.7.1.f – Michigan Department of Agriculture and Rural Development	The Michigan Department of Agriculture and Rural Development acts on advice from the State Health Director for controlling agricultural products and production for the purpose of radiation health hazard abatement. Protective actions initiated by the Department of Agriculture and Rural Development may include any or all of the protective actions	Reorganization of the content of SEP Rev. 32 section 5.7.1.f to align with, and fully address, the Evaluation Criterion. Editorial change.

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		and Rural Development	protective actions recommended by the U.S. Environmental Protection Agency (EPA).		recommended by the Environmental Protection Agency.	
		Element A.1.a Paragraph 2.c – County Agencies	County Agencies Emergency responsibilities of county emergency management agencies include communication support to the responding county departments, providing alert and notification to the public, and assuring the continuation of vital services during the emergency.	6.1.6 – Affected Counties: Van Buren County, Berrien County, and Allegan County	Emergency responsibilities of County Emergency Management include communication support to the responding county departments, providing warning and notification to the public, and assuring the continuation of vital services during the emergency.	Reorganization of the content of SEP Rev. 32 section 6.1.6 to align with, and fully address, the Evaluation Criterion. Editorial changes.
		Element A.1.a. Paragraph 2.c.i – Van Buren County office of Domestic Preparedness	The Van Buren County Office of Domestic Preparedness is in the County Sheriff's Courthouse Annex, in Paw Paw, Michigan. In the event of an emergency, Van Buren County Sheriff's Department will disseminate information and recommendations initially supplied by PNP to the Chairman of the Van Buren County Board of Commissioners, Van Buren County Domestic Preparedness Director, and the Van Buren County Emergency Operations Center (EOC), if activated. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities. The Chairman of the Van Buren County Board of Commissioners is responsible for activation of the county's Emergency Operations Plan. The Van Buren County Domestic Preparedness Director is responsible for overall coordination and planning of emergency response activities within the county. The Director will implement the activation and operational aspects of the EOC and alert key officials and agencies. The Director will coordinate efforts with other agencies to inform the public in affected portions of the county to take protective actions when conditions warrant.	5.6.4 – Van Buren County Office of Domestic Preparedness	The Van Buren County Office of Domestic Preparedness is located in the County Sheriff's Courthouse Annex, Paw Paw, Michigan. In the event of an emergency, Van Buren County Sheriff's Department will disseminate information and recommendations initially supplied by Entergy Corporation to the Chairman of the Van Buren County Board of Commissioners, Van Buren County Domestic Preparedness Director, and the Emergency Operations Center (EOC), if activated. Section 7.0, "Emergency Facilities and Equipment," summarizes communications. The Chairman of the Van Buren County Board of Commissioners is responsible for activation of the county's Emergency Operations Plan. The Van Buren County Domestic Preparedness Director is responsible for overall coordination and planning of emergency response activities within the county. The Director will implement the activation and operational aspects of the EOC and alert key officials and agencies. The Director will coordinate efforts with other agencies to inform the public in affected portions of the county to take protective actions when conditions warrant.	Reorganization of the content of SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. Editorial changes.
		Element A.1.a. Paragraph 2.c.ii – Berrien County Emergency Management	The Berrien County EOC is in Benton Harbor, Michigan. The Chief of Staff (Director of Emergency Management) is responsible for overall coordination of emergency operations in Berrien County in the event of an emergency. The Chief of Staff operates under the direction of the Chief Executive (Chair, Berrien County Board of Commissioners). Berrien County Sheriff's Department will disseminate information and recommendations initially supplied by PNP to	5.6.5 - Berrien County Emergency Management	The Berrien County Emergency Operations Center (EOC) is located in Benton Harbor, Michigan. The Chief of Staff (Director of Emergency Management) is responsible for overall coordination of emergency operations in Berrien County in the event of an emergency. The Chief of Staff operates under the direction of the Chief Executive (Chair, Berrien County Board of Commissioners). Berrien County Sheriff's Department will disseminate information and	Reorganization of the content of SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. Editorial changes.

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			the Chief of Staff and/or the Emergency Management Coordinator and the Berrien County EOC, if activated. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities. The Chief Executive (Chair, Berrien County Board of Commissioners) is responsible for activation of the County's Emergency Operations Plan and for overall coordination and planning of emergency operations with Van Buren County until the State of Michigan provide information and direction. The Chief of Staff (Director of Emergency Management) is responsible for initiating the staffing of the EOC. By prior agreement between counties, communications between PNP and Berrien County will normally be directed through Van Buren County. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities.		recommendations initially supplied by Entergy Corporation to the Chief of Staff and/or the Emergency Management Coordinator and the Emergency Operations Center (EOC), if activated. Site Emergency Plan, Section 7.0, "Emergency Facilities and Equipment," summarizes communications. The Chief Executive (Chair, Berrien County Board of Commissioners) is responsible for activation of the County's Emergency Operations Plan and for overall coordination and planning of emergency operations with Van Buren County until this information and direction is provided by the State of Michigan. The Chief of Staff (Director of Emergency Management) is responsible for initiating the manning of the EOC. By prior agreement between counties, communications between the Plant and Berrien County will normally be directed through Van Buren County.	
		Element A.1.a Paragraph 2.c.iii – Allegan County Office of Emergency Preparedness	The Allegan County Office of Emergency Management is located at the Allegan County Office Complex, Allegan, Michigan. In the event of an emergency, Allegan County Sheriff's Department will disseminate information and recommendations initially supplied by PNP to the Chairperson of the Allegan County Board of Commissioners, Allegan County Emergency Management Director, and the Allegan County EOC, if activated. By prior agreement between the counties, communications between the Plant and Allegan County will normally be directed through Van Buren County. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities. The Chairperson of the Allegan County Board of Commissioners is responsible for the activation of the County's Emergency Operations Plan. The Allegan County Emergency Management Director is responsible for overall coordination and planning of emergency response activities within the county. The Emergency Management Director will implement activation of the EOC and alert key officials and agencies.	5.6.6 - Allegan County Office of Emergency Preparedness	The Allegan County Office of Emergency Management is located at the Allegan County Office Complex, Allegan, Michigan. In the event of an emergency, Allegan County Sheriff's Department will disseminate information and recommendations initially supplied by Entergy Corporation to the Chairperson of the Allegan County Board of Commissioners, Allegan County Emergency Management Director, and the Emergency Operations Center (EOC), if activated. By prior agreement between the counties, communications between the Plant and Allegan County will normally be directed through Van Buren County. Palisades Site Emergency Plan, Section 7.0, "Emergency Facilities and Equipment," summarizes communications. The Chairperson of the Allegan County Board of Commissioners is responsible for the activation of the County's Emergency Operations Plan. The Allegan County Emergency Management Director is responsible for overall coordination and planning of emergency response activities within the county. The Emergency Management Director will implement	Reorganization of the content of SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. Editorial changes.

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					activation of the EOC and alert key officials and agencies.	
		Element A.1.a. Paragraph 2.d – Other External Organizations	Other external organizations Other external organizations are used to provide hospital and medical transport support, law enforcement response, and fire/rescue services. Contractors and private organizations may be requested to provide technical assistance or logistics support. External organizations are described in Element B.5 of this Plan.	N/A	N/A	SEP Rev. 32 did not explicitly address other external response organizations in the same manner as Paragraph 2.d of Element A.1.a of the POSEP. This is new content with discussion and reference to other elements of the POSEP and address additional external organizations that would be involved in a response to an emergency at PNP.
		Element A.1.a Table A-1, Guidelines for Plant, State, and Local Actions	Table A-1, Guidelines for Plant, State, and Local Actions	4.2 – Classification of Accidents	Table 4-1, Guidelines for Plant, State, and Local Actions	Reorganization of the content of SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. Editorial changes.
A.1.b	**Each organization's emergency plan illustrates these interrelationships in a block diagram.**	Element A.1.b	Refer to Element B.4 for the interrelationships between the PNP ERO, Federal response organizations, and the OROs.	N/A	N/A	SEP Rev. 32 did not include a block diagram illustrating the interrelationships of emergency response organizations. This is new content with discussion and reference to other elements of the POSEP addressing the interfaces between PNP, NRC, offsite response organizations, local support organizations, and industry resources that would be involved in a response to an emergency at PNP.
A.1.c	**Each organization identifies the individual, by title/position, who will be in charge of the emergency response**	Element A.1.c	An individual having the authority and responsibility to initiate any emergency actions within the provisions of this SEP, including the exchange of information with authorities responsible for coordinating offsite emergency measures, is onsite at all times. This individual is the Shift Manager until relieved by the Emergency Director.	3.2 – Entergy Corporation Emergency Organization	An individual having the authority and responsibility to initiate any emergency actions within the provisions of this Emergency Plan, including the exchange of information with authorities responsible for coordinating offsite emergency measures, is onsite at all times. This individual is the Shift Manager until relieved by the Emergency Director.	Reorganization of the content of SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. Editorial changes.
		Element A.2	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans. In accordance with the Michigan Emergency Management Act (Public Act 390 of 1976, as amended), local emergency management coordinators may recommend that a local state of emergency be declared. The Governor may declare a state of emergency or state of disaster and activate applicable relief forces if an emergency or disaster or imminent threat exists.	N/A	N/A	This Evaluation Criterion is not applicable to the licensee emergency plan.

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		Element A.3	Refer to Element B.1.a and Table B-1 for a list of key PNP individuals responsible for command and control, alerting and notification, communications, public information, accident assessment, protective response (including authority to request federal assistance and to initiate other protective actions), and radiological exposure control. Individuals with state and local governments responsible for activation and implementation of offsite emergency plans are identified in element A.1.a of this Plan.	N/A	N/A	Reorganization and expansion of the general content of SEP Rev. 32 to fully address the Evaluation Criterion.
		Element A.4	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 potential consequences of some emergencies may require the support services of off-site individuals, organizations, and agencies. As a result, local support service arrangements have been made with offsite groups to provide onsite aid in the event of an emergency, including those resulting from hostile actions. Support services include medical assistance and ambulance service, law enforcement, fire and rescue, and support during an evacuation. 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 consistent with this SEP. Written agreements ensure individuals, agencies, or organizations are available and	5.6 – Off-Site Emergency Response Services	The potential consequences of some emergencies may require the support services of off-site individuals, organizations, and agencies. As a result, local support service arrangements have been made with offsite groups to provide onsite aid in the event of an emergency situation, including those resulting from hostile actions. Support services encompass such areas as medical assistance, fire control, evacuation, ambulance services, and law enforcement. Written agreements are entered into to assure these individuals'/agencies'/organizations' availability and capabilities. In the written agreements, the agencies have outlined their responsibilities or have agreed to their responsibilities as outlined in this section. A listing of the letters of agreement, contracts, or signature pages has been included in Appendix A. In those cases where agency assistance is mandated by law (ie, the State of Michigan), a letter of agreement may be excluded from the plan.	Reorganization and expansion of the content of SEP Rev. 32 to fully address the Evaluation Criterion.

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			capable of a response in support of PNP. In the written agreements, the agencies have outlined their responsibilities or have agreed to their responsibilities. A listing of the letters of agreement, contracts, or signature pages has been included in Appendix 4.			
		Element A.5	PNP maintains a depth to the ERO that can provide continuous (24 hour/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.	N/A	N/A	Reorganization and expansion of the general content of SEP Rev. 32 to fully address the Evaluation Criterion.

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Planning Standard B – Emergency Response Organization						
B.1	**The emergency plan specifies how the requirements of 10 CFR 50.47(b)(2) and the applicable sections of Appendix E to 10 CFR Part 50 are met.**	Element B.1	This SEP specifies how the requirements of 10 CFR 50.47(b)(2) and the applicable sections of Appendix E, Section IV.A, to 10 CFR Part 50 are met. Appendix 3 provides a cross-reference between this SEP and the applicable requirements of 10 CFR 50.47(b) the applicable sections of Appendix E to 10 CFR Part 50.	N/A	Appendix I provides a cross-reference between SEP Rev. 32 and NUREG-0654.	Reorganization and expansion of the general content of SEP Rev. 32 to fully address the Evaluation Criterion.
B.1.a	**The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.**	Element B.1.a	This SEP describes the PNP organization capable of responding to a spectrum of emergencies. The PNP operating and shift engineering activities are under the control of the General Manager, Plant Operations. The operating shift crew is initially responsible for implementing emergency action(s) in accordance with assigned response functions. The minimum on-shift staff required to conduct routine and immediate emergency operations are maintained as described in Chapter 13 of the PNP Updated Final Safety Analysis Report (UFSAR). _____ Upon declaration of an emergency, designated members of the on-shift staff fulfill corresponding roles within the PNP ERO. The PNP organization includes personnel encompassing both the management and operation of the Plant. The PNP on-shift staffing has been analyzed in accordance with Paragraph	3.2 – Entergy Corporation Emergency Organization _____ 5.0 – Organizational Control of Emergencies _____ 3.2 – Entergy Corporation Emergency Organization _____ 5.2 – Operating and Engineering Organization	This Emergency Plan establishes an organization capable of responding to the complete spectrum of incidents covered by this Emergency Plan. Provisions are made for rapid notification of appropriate portions of the response organization, and for expanding the response organization if the situation dictates. _____ Emergency planning must consider the capabilities of the normally present operating staff, augmented by support from other utility personnel and local and distant support. The initial phases of an emergency situation at an operating nuclear power plant will involve a relatively small number of individuals. These individuals must be capable of: (1) determining that an emergency exists, (2) providing initial classification and assessment, and (3) promptly notifying other groups and individuals in the emergency organization. The Palisades Plant Organization has complete capability, at all times, to perform the detection, classification, and notification functions required in the early phases of an emergency. These capabilities are augmented, as required, by the Palisades Emergency Response Organization (ERO). _____ The operating shift crew is responsible for implementing emergency action(s) in accordance with assigned response functions. _____ The Palisades Plant organization includes personnel encompassing both the management and operation of the unit. The	Reorganization and consolidation of the content of SEP Rev. 32 sections 3.2, 5.0, 5.2, 5.3, and 5.4 to align with, and fully address, the Evaluation Criterion. Editorial changes.

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			IV.A.9 of Appendix E to 10 CFR Part 50, and guidance in NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, dated June 2011. The PNP on-shift staffing analysis report is maintained as a separate document, and is provided as Reference 2 in Section III of this SEP. _____ 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 this SEP only when assigned an emergency preparedness function that is performed during an emergency. _____ Normal Plant staffing provides sufficient personnel for continuous protracted emergency operation. The extent to which the emergency organization is activated is dependent upon the classification of the emergency. The minimum on-shift staffing required to support emergency plan functions is presented in Table B-1 of this SEP. _____ Emergency response functions are also assigned to PNP personnel who are rapidly alerted and mobilized to augment or relieve the operating shift personnel of emergency duties as deemed appropriate by the Emergency Director, and in accordance with the implementing procedures of this SEP. Details of emergency staff augmentation are available in EPIP EI-2.2, "Emergency Staff Augmentation." In the event of an emergency declaration, all or a portion of this SEP will be activated. The assignment of responsibilities in the PNP ERO is ultimately the responsibility of the General Manager, Plant Operations. However, the ERO is predefined and alternate		minimum on-shift staffing is indicated in Figure 5-2. _____ N/A _____ 5.4 – Emergency Staffing _____ 3.2 – Entergy Corporation Emergency Organization	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			assignments to various positions are specified to provide for automatic, unambiguous staffing of the ERO within the time necessary to respond to an emergency. The augmented staffing required to support emergency planning functions is presented in Table B-1 of this SEP. _____ In general, the ERO operates from five ERFs: a. Control Room The Control Room is designed to be habitable under accident conditions and shall serve as the on-site Emergency Control Center. Emergency lighting, power, air filtration-ventilation system, and shielded walls enable the operators to remain in the Control Room to ensure that the reactor remains in a safe condition. b. TSC – described in Element H.1 c. OSC – described in Element H.2 d. EOF – described in Element H.3 e. Joint Information Center (JIC) – described in Element H.5 The on-shift ERO and minimum augmenting ERO positions required for activation of the TSC, OSC, and EOF are listed below. For those positions with multiple personnel responding, the number of responders is designated in parentheses.	_____ 5.3 – Palisades Emergency Response Organization	_____ In general, the emergency organization will be housed in five emergency response centers: a. Control Room b. Technical Support Center c. Operations Support Center d. Emergency Operations Facility e. Joint Information Center	
		Element B.1.a Paragraph 1 – On-Shift Positions Sub-paragraph a – Shift Manager	• Organizational Interface and Coordination • Command and Control • Facility/Group Management and Supervision • Contact and Use of External Support Services • Use of Medical, Fire, and Law Enforcement Support • NRC Notification and Communications • Event Classification • ERO Notification • State and Local Event Notification	1.1.8 – Command and Control _____ 3.2 – Entergy Corporate Emergency Organization	Resides with the Shift Manager or EOF Emergency Director following assumption of overall authority for Entergy Corporation emergency response. At minimum, this individual will assume responsibility for event classification, dose assessment, protective action recommendations, and notification of offsite authorities. _____ An individual having the authority and responsibility to initiate any emergency actions within the provisions of this Emergency Plan, including the exchange of	Reorganization and consolidation of the Shift Manager responsibilities identified throughout SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			• ERF Communications • Accident Detection and Assessment • Effluent Release and Dose Assessment • OSC Team Priorities, Dispatch, and Control • Site Assembly and Accountability • Site Evacuation • ERO Radiological Protection • Offsite Protective Action Recommendations • Emergency Exposure • First Aid • Event Termination		information with authorities responsible for coordinating offsite emergency measures, is onsite at all times. This individual is the Shift Manager until relieved by the Emergency Director. _____ In all instances, when one of the classifications of the above emergencies occurs in the Plant, the Shift Manager is responsible for taking immediate action to safeguard personnel and equipment. Utilizing the Palisades Nuclear Plant Emergency Implementing Procedures, the Shift Manager shall activate the necessary portions of the Site Emergency Plan. _____ Shift Manager activates appropriate teams (all emergency classification levels) _____ All emergency measures begin with the notification of the Shift Manager that a situation exists which presents a real or potential hazard. This is followed by assessment and evaluation by the Shift Manager, classification of the emergency, notifications, and activation and/or mobilization of the applicable emergency organizations. The Emergency Action Levels are not necessarily all inclusive. The Shift Manager/EOF Emergency Director shall declare an appropriate emergency classification whenever, in their personal judgment, the Plant status warrants such a declaration. _____ The Shift Manager, one of whom is on duty at all times, is responsible for the safe and efficient operation of the Plant during his assigned shift. He maintains control over Plant operations as the Senior Licensed Operator unless he is properly relieved by another member of the Plant staff who holds a valid Senior Operator's License. In an emergency condition, the Shift Manager	
				3.4 – Emergency Actions		
				Table 3-1, Emergency Classifications and the Level of Response by Participating Groups		
				4.1 – Emergency Classification System		
				5.2.6 – Shift Manager		

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
					initially assumes the role of Emergency Director.	
				5.3.4 – Emergency Operations Facility	Activation of the EOF is mandatory at the Alert, Site Area, and General Emergency Classifications. Activation of the EOF at an Unusual Event will be at the request of the Shift Manager.	
				5.4.1 – Shift Manager/EOF Emergency Director	The Shift Manager/EOF Emergency Director is responsible for the overall assessment of emergency conditions, especially where emergency conditions present a real or potential hazard to off-site persons or property. The Shift Manager/EOF Emergency Director will have the overall responsibility for operational decisions involving the safety of the Plant and its personnel, and for making recommendations based on technical information supplied by support personnel regarding the general public during an emergency situation. He will also implement the Palisades Site Emergency Plan through the use of specific Emergency Plan Implementing Procedures. The Shift Manager/EOF Emergency Director is responsible for ensuring the capability for continuous operation of emergency response centers, including personnel and material resources. In addition, the Shift Manager/EOF Emergency Director is responsible for providing off-site officials with pertinent information regarding the conditions at the Plant.	
				5.4.2 – Shift Manager/Emergency Plant Manager	The Shift Manager/Emergency Plant Manager may not delegate the decision to evacuate the site or the decision to authorize exposures that exceed the 10 CFR 20 regulatory exposure limits for emergency workers. Prior to activation of the EOF, the decision to recommend protective actions to off-site organizations also cannot be delegated. The EOF Director, in consultation with the Shift Manager, will assume this responsibility after the EOF is activated.	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
				5.6.1 – Medical Services	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.	
				_____	_____	
				6.1 – Activation of the Emergency Organization	The Shift Manager will initially classify the emergency and ensure required notifications are made. The Shift Manager shall ensure that an overall assessment of the emergency is performed in order to determine the most appropriate classification and, based on this determination, activate portions of the emergency organization as necessary.	
				_____	_____	
				6.1.1 – Control Room Personnel	The Shift Manager shall ensure that the General Manager, Plant Operations or Duty Station Manager on backshift and weekends is immediately informed of any possible emergency situation. If the situation requires activation of all or part of the Site Emergency Plan, the Shift Manager shall: (a) Initiate the applicable Emergency Implementing Procedures. (b) Initially classify the emergency. (c) Ensure the appropriate alarm is sounded. (d) Announce the location, type and classification of the emergency on the Plant public address system. (e) Notify the following personnel and agencies of the emergency condition(s): (Reference Emergency Implementing Procedure EI-3, "Communications and Notifications."). Message authentication may be used as deemed necessary. (1) Van Buren County (2) State of Michigan (3) NRC	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
					(4) The General Manager, Plant Operations or designated alternate (Duty Station Manager) _____ The Shift Manager will continue to perform the Command and Control actions of the Site Emergency Plan until relieved by the EOF Director. _____ If a fire is the reason for the declaration of an Unusual Event, the Shift Manager will make continuing assessments based on his knowledge and experience on whether offsite firefighting assistance is needed. _____ If a radiological accident is occurring, surveillance of the in-plant instrumentation is necessary to obtain meteorological and radiological data required for calculating or estimating projected doses. This dose assessment activity shall continue until termination of the emergency in order that the updating of initial assessments may be provided to all concerned offsite agencies, the Shift Manager, and EOF Emergency Director. _____ Radiological Monitoring Teams shall be activated at the direction of the Shift Manager or OSC Manager.	
		Element B.1.a Paragraph 1 – On-Shift Positions Sub-paragraph b – Radiation Protection Technicians (2)	• Radiological Monitoring Activities • ERO Radiological Protection • Emergency Exposure • Contamination Control Measures	Figure 5-2, Plant Staff and Augmentation Requirements	RP Tasks include: a) Offsite Surveys b) Onsite (Out-of-Plant Surveys) c) In-Plant Surveys d) Access Control e) RP Coverage f) Personnel Monitoring g) Dosimetry	The EP functions assigned to the on-shift Radiation Protection Technicians have been consolidated into a discrete list in the POSEP..
		Element B.1.a Paragraph 1 – On-Shift Positions Sub-paragraph c –	• Organizational Interface and Coordination • Use of Medical, Fire and Law Enforcement Support • NRC Notification and Communications • Site Assembly and Accountability • Site Evacuation	Figure 5-2, Plant Staff and Augmentation Requirements _____ 6.4.1.a.2 – Site Access Control	Major Security tasks include Security, fire fighting, communications, and personnel accountability _____ Provisions for control of access to the Palisades site have been included in the Safeguards Contingency Procedures to take	Reorganization and consolidation of the Security responsibilities identified throughout SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. The EP functions assigned to Security have been consolidated into a discrete list in the POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Security per Security Plan		6.4.1.a.4 – Egress Routes	care of personnel entering for business purposes and for those who might inadvertently enter. Access to the exclusion areas of the Plant is controlled by the Plant security force. Offsite support is provided by local and/or state law enforcement personnel. Security officers shall be dispatched by the Emergency Plant Manager to stop ingress from the access roads and to assist Plant personnel evacuating the site.	
		Element B.1.a Paragraph 1 – On-Shift Positions Sub-paragraph d – Shift Technical Advisor/Shift Engineer (SA/SE)	Note – Assigned as a collateral duty in accordance with Technical Specification. • Accident Detection and Assessment • Core Damage Assessment	5.2.7 – Shift Engineers/Shift Technical Advisors (SE/STA) 6.1 – Activation of the Emergency Organization	Shift Engineers/Shift Technical Advisors function in an oversight role for accident assessment and evaluation of operating conditions. While on duty, SE/STAs diagnose abnormal events and report to the Shift Manager. In an emergency condition, the SE/STA provides SEP oversight and may assist the Shift Manager in his role as Emergency Director. The Shift Manager will initially classify the emergency and ensure required notifications are made. The Shift Manager shall ensure that an overall assessment of the emergency is performed in order to determine the most appropriate classification and, based on this determination, activate portions of the emergency organization as necessary. The Shift Engineer/Shift Technical Advisor may assist the Shift Manager in performing these functions.	Reorganization and consolidation of the Shift Technical Advisor (STA)/Shift Engineer(SE) responsibilities identified throughout SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.
		Paragraph 1 – On-Shift Positions Sub-paragraph e – Shift Classification Advisor	Note – Assigned as a collateral duty to an on-shift SRO other than the Shift Manager. • Event Classification • State and Local Event Notification • Accident Detection and Assessment • Offsite Protective Action Recommendations	N/A	N/A	Collateral duty position added to conform to guidance in NUREG-0654, Rev. 2
		Paragraph 1 – On-Shift Positions Sub-paragraph f – Shift Communicator	• NRC Notification and Communications • ERO Notification • State and Local Event Notification • OSC Team Priorities, Dispatch, and Control • Effluent Release and Dose Assessment	N/A	N/A	Position identified in Figure 5-2 of Rev. 32.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Paragraph 1 – On-Shift Positions Sub-paragraph g – Shift Dose Assessor (Chemistry Technician)	• Effluent Release and Dose Assessment	N/A	N/A	Position identified in Figure 5-2 of Rev. 32.
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph a – Emergency Plant Manager	• Organizational Interface and Coordination • Federal Assistance • Continuous Emergency Response Operations • Command and Control • Facility/Group Management and Supervision • Contact and Use of External Support Services • Integration of Offsite Agency Personnel in the ERF • NRC Notification and Communications • Event Classification • State and Local Event Notification • ERF Communications • Facility Activation • Backup and Alternative Facilities • Accident Detection and Assessment • OSC Team Priorities, Dispatch and Control • Site Assembly and Accountability • Site Evacuation • ERO Radiological Protection • Offsite Protective Action Recommendations • Emergency Exposure • Event Termination • Recovery	6.1.2 – Emergency Plant Manager	The EPM has the responsibility for command of all accident mitigation actions at the site and performs these duties from the Technical Support Center (TSC). Responsibilities include: a. Assume command of the TSC and OSC and the onsite mitigation efforts b. Provide information and recommendations to the ED regarding the classification of an emergency c. Ensure timely ENS notifications d. Perform accident assessment to prioritize mitigation actions e. Coordinate the activities of the CR, TSC, and OSC f. Direct personnel evacuation, assembly and accountability of non-essential personnel g. Provide information and recommendations to the ED regarding plant activities h. Advise the ED on core damage and plant conditions for classification and PAR determination i. Direct the organization and coordination of repair corrective action teams j. Direct onsite protective actions k. Authorize emergency radiation exposure and issuance of KI to recommended personnel in the CR, TSC or OSC or to Security personnel l. Make operational decisions involving the safety of the plant and its personnel and make recommendations to the Control Room Personnel m. Initiate immediate corrective actions to limit or contain the emergency invoking the provisions of 10 CFR 50.54(x) if appropriate[1]	Reorganization and consolidation of the Emergency Plant Manager responsibilities identified throughout SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. The EP functions assigned to the Emergency Plant Manager have been consolidated into a discrete list in the POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
					n. Implement severe accident management procedure strategies o. Direct relocation to an alternate location p. Integrate offsite responders with on-site response efforts when required q. Perform emergency termination r. Maintain Plant security	
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph b – TSC Operations Coordinator (Classification Advisor)	• Facility/Group Management and Supervision • Assist with Event Classification • State and Local Event Notification • ERF Communications • Facility Activation • Facility Operation • Accident Detection and Assessment • ERO Radiological Protection • Offsite Protective Action Recommendations	N/A	N/A	Existing PNP ERO position of TSC Operations Coordinator fills the role of TSC Classification Advisor. This responsibility already resides with the TSC Operations Coordinator.
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph c – Reactor Engineer (Remote Responder)	• Facility Operation • Accident Detection and Assessment • Core Damage Assessment	Figure 5-2	N/A	Existing PNP ERO position of Reactor Engineer. Change to remote responder.
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph d – Electrical/I&C	• Facility Operation • Accident Detection and Assessment	Figure 5-2	N/A	Existing PNP ERO position of Electrical/I&C Engineer. Change to remote responder.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Engineer (Remote Responder)				
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph e – Mechanical Engineer (Remote Responder)	• Facility Operation • Accident Detection and Assessment	Figure 5-2	N/A	Existing PNP ERO position of Mechanical Engineer. Change to remote responder.
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph f – ORO Communicator	• State and Local Event Notification • ERF Communications	Figure 5-2	N/A	Reorganization and consolidation of the ORO Communicator responsibilities identified in SEP Rev. 32. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph g – ENS Communicator	• NRC Notification and Communications • ERF Communications	Figure 5-2	N/A	Reorganization and consolidation of the TSC ENS Communicator responsibilities identified in SEP Rev. 32. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.
		Element B.1.a Paragraph 2 – Minimum Technical Support	• Facility/Group Management and Supervision • Contact and Use of External Support Services • Event Classification • State and Local Event Notification	Figure 5-2	N/A	Reorganization and consolidation of the TSC Radiological Assessment Coordinator responsibilities identified in SEP Rev. 32. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Center (TSC) Positions Sub-paragraph h – Radiological Assessment Coordinator	• ERF Communications • Facility Activation • Facility Operation • Backup and Alternative Facilities • Accident Detection and Assessment • Effluent Release and Dose Assessment • OSC Team Priorities, Dispatch and Control • Site Evacuation • ERO Radiological Protection • Offsite Protective Action Recommendations • Emergency Exposure • Contamination Control Measures • Decontamination • Recovery			
		Element B.1.a Paragraph 2 – Minimum Technical Support Center (TSC) Positions Sub-paragraph i – Security Liaison	• Organizational Interface and Coordination • Use of Medical, Fire and Law Enforcement Support • NRC Notification and Communications • Backup and Alternative Facilities • OSC Team Priorities, Dispatch and Control • Site Assembly and Accountability • Site Evacuation	N/A	N/A	Reorganization and consolidation of the TSC Security Liaison responsibilities. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.
		Element B.1.a Paragraph 3 – Minimum Operations Support Center (OSC) Positions Sub-paragraph a – OSC Manager	• Facility/Group Management and Supervision • ERF Communications • Facility Activation • Facility Operation • Backup and Alternative Facilities • OSC Team Priorities, Dispatch and Control • Site Evacuation • ERO Radiological Protection • Radiation Protection Briefings • First Aid • Recovery	7.7.1 – Radiological Monitoring	N/A	Reorganization and consolidation of the OSC Manager responsibilities. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.
		Element B.1.a Paragraph 3 – Minimum Operations Support	• Facility/Group Management and Supervision • Contact and Use of External Support Services • Facility Activation • Backup and Alternative Facilities	NA	N/A	Reorganization and consolidation of the OSC Rad/Chem responsibilities. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Center (OSC) Positions Sub-paragraph b – Rad/Chem Coordinator	• ERO Radiological Protection • Radiation Protection Briefings • Accident Detection and Assessment • OSC Team Priorities, Dispatch and Control • Site Assembly and Accountability			
		Element B.1.a Paragraph 3 – Minimum Operations Support Center (OSC) Positions Sub-paragraph c – Craft Coordinators (2) (Electrical/I&C and Mechanical)	• Facility/Group Management and Supervision • Contact and Use of External Support Services • Facility Activation • Backup and Alternative Facilities • Accident Detection and Assessment • OSC Team Priorities, Dispatch and Control • Site Assembly and Accountability	Figure 5-2	N/A	Existing PNP ERO positions. No changes proposed form PNP Rev. 32 to POSEP.
		Element B.1.a Paragraph 3 – Minimum Operations Support Center (OSC) Positions Sub-paragraph d – Maintenance (Mechanical. Electrical, and I&C)	• OSC Team Priorities, Dispatch and Control	Figure 5-2	N/A	Existing PNP ERO positions. No changes proposed form PNP Rev. 32 to POSEP.
		Element B.1.a Paragraph 3 – Minimum Operations Support Center (OSC) Positions Sub-paragraph e –	• Radiological Monitoring Activities • OSC Team Priorities, Dispatch and Control • ERO Radiological Protection • Emergency Exposure • Contamination Control Measures • Decontamination • Radiation Protection Briefings	Figure 5-2	N/A	Existing PNP ERO positions. No changes proposed form PNP Rev. 32 to POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Radiation Protection Technicians (6)				
		Element B.1.a Paragraph 4 – Minimum Emergency Operations Facility (EOF) Positions Sub-paragraph a – Emergency Director	• Organizational Interface and Coordination • Continuous Emergency Response Operations • Federal Assistance • Command and Control • Facility/Group Management and Supervision • Contact and Use of External Support Services • Integration of Offsite Agency Personnel in the ERF • Dispatch and Control of Offsite EOC Liaisons • NRC Notification and Communications • Event Classification • State and Local Event Notification • ERF Communications • Facility Activation • Accident Detection and Assessment • Offsite Protective Action Recommendations • Emergency Exposure • Site Evacuation • Event Termination • Recovery	5.3.4 – Emergency Operations Facility (EOF) _____ 5.4.1 – Shift Manager/EOF Emergency Director _____ 6.1.3 – Emergency Director	Once activated and operational, the EOF Emergency Director will be responsible for management of overall emergency response. The EOF will coordinate emergency response activities with federal, state, and local agencies to mitigate the consequences of an emergency. _____ The Shift Manager/EOF Emergency Director is responsible for the overall assessment of emergency conditions, especially where emergency conditions present a real or potential hazard to off-site persons or property. The Shift Manager/EOF Emergency Director will have the overall responsibility for operational decisions involving the safety of the Plant and its personnel, and for making recommendations based on technical information supplied by support personnel regarding the general public during an emergency situation. He will also implement the Palisades Site Emergency Plan through the use of specific Emergency Plan Implementing Procedures. The Shift Manager/EOF Emergency Director is responsible for ensuring the capability for continuous operation of emergency response centers, including personnel and material resources. In addition, the Shift Manager/EOF Emergency Director is responsible for providing off-site officials with pertinent information regarding the conditions at the Plant. _____ The Emergency Director provides overall command and control of the emergency response. Responsibilities include: a. Receive turnover from the SM/ED and assume command/control of EOF and activities outside the area controlled by the TSC b. Direct the activation, operation and deactivation of the EOF	Reorganization and consolidation of the Emergency Director responsibilities identified throughout SEP Rev. 32 to align with, and fully address, the Evaluation Criterion. The EP functions assigned to this position have been consolidated into a discrete list in the POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
					c. Determine to what extent the offsite and onsite emergency organization shall be activated d. Upgrade the emergency classification level (cannot delegate) e. Make Protective Action Recommendations (PAR) to offsite agencies (cannot delegate) f. Direct and approve offsite notification to State and local agencies (cannot delegate) g. Communicate within and between the emergency response facilities h. Ensure event information is communicated to other organizations (NRC, Entergy Corp, etc) to keep them informed of the emergency situation i. Direct the activities of the EOF organization in support of the TSC and offsite response agencies (Counties, and the State of Michigan) j. Direct protective actions for offsite monitoring teams, EOF ERO and offsite resources k. Request assistance from offsite agencies, excluding requests for offsite medical/fire, security assistance (Coordinate request for Federal assistance through the State) l. Authorize issuance of KI and radiation exposure in excess of 10CFR 20 limits for ERO members outside of the protected area m. Conduct turnover of command and control to relief ED n. Dispatch Palisades Plant liaisons to principal offsite emergency operations centers o. Maintain adherence to the fitness for duty policy	
				6.2.8 – Assessment Results Communications	The EOF Emergency Director is notified of assessment results from the site and from offsite support agencies. The EOF Emergency Director, in turn, is responsible for communication back to those groups so that emergency measures may be modified as necessary.	
		Element B.1.a	• State and Local Event Notification • ERF Communications	Figure 5-2	N/A	Existing PNP ERO position. No changes proposed form PNP Rev. 32 to POSEP.

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		Location (Section II)	Content	Location (Section)	Content	
		Paragraph 4 – Minimum Emergency Operations Facility (EOF) Positions Sub-paragraph b – EOF Communicator	• Offsite Protective Action Recommendations			
		Element B.1.a Paragraph 4 – Minimum Emergency Operations Facility (EOF) Positions Sub-paragraph c – EOF Radiological Assessment Coordinator	• Facility/Group Management and Supervision • Integration and Use of the Radiological Laboratory • Facility Operation • Accident Detection and Assessment • Effluent Release and Dose Assessment • Radiological Monitoring Activities • Offsite Protective Action Recommendations • Radiation Protection Briefings • Post-Accident Environmental Sampling	Figure 5-2	N/A	Existing PNP ERO position. No changes proposed form PNP Rev. 32 to POSEP.
		Element B.1.a Paragraph 4 – Minimum Emergency Operations Facility (EOF) Positions Sub-paragraph d – Field Monitoring Team Technicians (3)	• Facility Activation • Radiological Monitoring Activities	Figure 5-2	N/A	Existing PNP ERO positions. No changes proposed form PNP Rev. 32 to POSEP.
		Element B.1.a Paragraph 4 – Minimum Emergency Operations Facility (EOF) Positions	• Facility Activation • Radiological Monitoring Activities	Figure 5-2	N/A	Existing PNP ERO positions. No changes proposed form PNP Rev. 32 to POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Sub-paragraph e – Field Monitoring Team Drivers (3)				
		Element B.1.a Paragraph 4 – Minimum Emergency Operations Facility (EOF) Positions Sub-paragraph f – EOF Dose Assessor (Remote Responder – Reports to the TSC unless the EOF is activated)	• NRC Notification and Communications • ERF Communication • Facility Activation • Facility Operation • Effluent Release and Dose Assessment	Figure 5-2	N/A	Existing PNP ERO position. Change to remote responder.
		Element B.1.a Paragraph 5 – Joint Information System (JIS) / Joint Information Center (JIC) Positions	Refer to Element H.5 and Section G for JIC/JIS details.	N/A	N/A	Existing PNP ERO positions. No changes proposed form PNP Rev. 32 to POSEP.
		Element B.1.a Paragraph 5 – Joint Information System (JIS) / Joint Information Center (JIC) Positions Sub-paragraph a – JIS Manager	• Facility/Group Management and Supervision • Integration of Offsite Agency Personnel in the ERF • ERF Communications • Media Briefings • Facility Activation	N/A	N/A	Existing PNP ERO position. No changes proposed form PNP Rev. 32 to POSEP.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Element B.1.a Paragraph 5 – Joint Information System (JIS) / Joint Information Center (JIC) Positions Sub-paragraph b – JIS Coordinator	• Media Briefings • Accommodation of News Media Personnel • Facility Activation • Facility Operation	N/A	N/A	Existing PNP ERO position. No changes proposed form PNP Rev. 32 to POSEP.
		Element B.1.a Paragraph 5 – Joint Information System (JIS) / Joint Information Center (JIC) Positions Sub-paragraph c – JIS Communicator	• Facility/Group Management and Supervision • ERF Communications • Media Statements • Media Briefings • Accommodation of News Media Personnel • Media Monitoring • Rumor Control	N/A	N/A	Existing PNP ERO position. No changes proposed form PNP Rev. 32 to POSEP.
B.1.b	**The remote emergency response organization (ERO) positions are defined. Resources necessary to perform the functions and tasks assigned to the remote response positions, as well as a backup capability, are described.**	Element B.1.b	The PNP ERO includes the remote response positions identified above. 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. • the ability to share screens/documents. ERO members responding remotely to an emergency are capable of performing all functions and tasks assigned to their	N/A	N/A	Remote responder positions of EOF Dose Assessor, and the Reactor Engineer, Electrical/I&C Engineer, and Mechanical positions assigned to the TSC currently exist in the PNP ERO as positions responding to their dedicated facility. This change would enable these positions to respond remotely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			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.			
		Element B.1.b Paragraph 1 – Remote Responders Assigned to the TSC (refer to Element B.1.a Paragraph 2)	The Reactor Engineer, Electrical/I&C Engineer, and Mechanical Engineer ERO minimum staff positions are remote responders assigned to the TSC. Multiple qualified individuals provide backup for this position.	N/A	N/A	Remote responder positions of EOF Dose Assessor, and the Reactor Engineer, Electrical/I&C Engineer, and Mechanical positions assigned to the TSC currently exist in the PNP ERO as positions responding to their dedicated facility. This change would enable these positions to respond remotely.
		Element B.1.b Paragraph 2 – Remote Responders Assigned to the EOF (refer to Element B.1.a Paragraph 4)	The Remote Dose Assessor ERO minimum staff position is assigned to the EOF. Multiple qualified individuals provide backup for this position.	N/A	N/A	Remote responder positions of EOF Dose Assessor, and the Reactor Engineer, Electrical/I&C Engineer, and Mechanical positions assigned to the TSC currently exist in the PNP ERO as positions responding to their dedicated facility. This change would enable these positions to respond remotely.
B.2	**An individual is designated as the on-shift emergency coordinator (individual title may vary) who has the authority and responsibility to immediately and unilaterally initiate any emergency response measures, including approving protective action recommendations (PARs) to be disseminated to authorities responsible for implementing offsite emergency response measures.**	Element B.2	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 PARs to authorities responsible for implementing offsite emergency measures.	3.2 – Entergy Corporation Emergency Organization _____ 3.4 – Emergency Actions	An individual having the authority and responsibility to initiate any emergency actions within the provisions of this Emergency Plan, including the exchange of information with authorities responsible for coordinating offsite emergency measures, is onsite at all times. This individual is the Shift Manager until relieved by the Emergency Director _____ In all instances, when one of the classifications of the above emergencies occurs in the Plant, the Shift Manager is	Reorganization and consolidation of the content of sections 3.2, 3.4, 5.4.1, and 6.1.2 of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			The Shift Manager maintains overall command and control until relieved by the Emergency Plant Manager.		responsible for taking immediate action to safeguard personnel and equipment. Utilizing the Palisades Nuclear Plant Emergency Implementing Procedures, the Shift Manager shall activate the necessary portions of the Site Emergency Plan. _____ The Shift Manager/EOF Emergency Director is responsible for the overall assessment of emergency conditions, especially where emergency conditions present a real or potential hazard to off-site persons or property. The Shift Manager/EOF Emergency Director will have the overall responsibility for operational decisions involving the safety of the Plant and its personnel, and for making recommendations based on technical information supplied by support personnel regarding the general public during an emergency situation. He will also implement the Palisades Site Emergency Plan through the use of specific Emergency Plan Implementing Procedures. The Shift Manager/EOF Emergency Director is responsible for ensuring the capability for continuous operation of emergency response centers, including personnel and material resources. In addition, the Shift Manager/EOF Emergency Director is responsible for providing off-site officials with pertinent information regarding the conditions at the Plant. _____ The Shift Manager will continue to perform the Command and Control actions of the Site Emergency Plan until relieved by the EOF Director.	
				5.4.1 – Shift Manager / EOF Emergency Director		
				_____ 6.1.2 – Emergency Plant Manager		
B.2.a	**The functional responsibilities assigned to the ERO are established and the responsibilities that may not be delegated to other members of the ERO are clearly specified in the emergency plan.**	Element B.2.a	NOTE: Any conflicts that should arise between the Emergency Plant Manager and the EOF Emergency Director will be resolved by the Site Vice President. _____ 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 EOF is activated and the EOF Emergency Director assumes command and control. _____	5.4.2 – Shift Manager/Emergency Plant Manager _____ 6.1.2 – Emergency Plant Manager _____ 5.4.2 – Shift Manager/Emergency Plant Manager	NOTE: Any conflicts that should arise between the Emergency Plant Manager and the EOF Emergency Director will be resolved by the Site Vice President. _____ The Shift Manager will continue to perform the Command and Control actions of the Site Emergency Plan until relieved by the EOF Director. _____ The Shift Manager/Emergency Plant Manager may not delegate the decision to evacuate the site or the decision to authorize	Reorganization and consolidation of the content of sections 5.4.2, 6.1.2, and 6.1.3 of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			Non-delegable responsibilities include the following: • Emergency declaration • ORO and NRC notification • PARs for the general public • Emergency Exposure (dose limits and KI) _____ Approving departures from license conditions per 10 CFR 50.54(x) transition from the Shift Manager to the Emergency Plant Manager upon transfer of command and control.	_____ 6.1.3 – Emergency Director _____ 6.1.2 – Emergency Plant Manager	exposures that exceed the 10 CFR 20 regulatory exposure limits for emergency workers. Prior to activation of the EOF, the decision to recommend protective actions to off-site organizations also cannot be delegated. _____ The Emergency Director provides overall command and control of the emergency response. Responsibilities include: d. Upgrade the emergency classification level (cannot delegate) e. Make Protective Action Recommendations (PAR) to offsite agencies (cannot delegate) f. Direct and approve offsite notification to State and local agencies (cannot delegate) _____ m. Initiate immediate corrective actions to limit or contain the emergency invoking the provisions of 10 CFR 50.54(x) if appropriate	
B.3	**A table is developed depicting the site-specific on-shift staffing plan, as well as the ERO staffing augmentation plan.**	Element B.3	The PNP ERO consists of on-shift personnel and augmenting personnel (responding to their assigned ERF). The on-shift and augmenting ERO staffing is depicted in Table B-1.	5.0 – Organization Control of Emergencies	Emergency planning must consider the capabilities of the normally present operating staff, augmented by support from other utility personnel and local and distant support. The initial phases of an emergency situation at an operating nuclear power plant will involve a relatively small number of individuals. These individuals must be capable of: (1) determining that an emergency exists, (2) providing initial classification and assessment, and (3) promptly notifying other groups and individuals in the emergency organization. The Palisades Plant Organization has complete capability, at all times, to perform the detection, classification, and notification functions required in the early phases of an emergency. These capabilities are augmented, as required, by the Palisades Emergency Response Organization (ERO).	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
				5.2 – Operating and Engineering Organization	The Palisades Plant organization includes personnel encompassing both the management and operation of the unit. The minimum on-shift staffing is indicated in Figure 5-2.	
		Table B-1	On-Shift and Augmenting ERO Staffing Plan	Figure 5-2	Plan Staffing and Augmentation Requirements	Attachment 6, On-Shift and Augmentation Emergency Response Organization Staffing Plan Comparison Tables, contains comparisons of the proposed PNP POSEP on-shift staffing and augmentation ERO to Table B-1 of Revision 2 of NUREG-0654/FEMA-REP-1 and the PNP SEP Rev. 32.
B.4	**The interfaces between and among the licensee functional areas of emergency activity, local services support, and state, local, and tribal government organizations are identified. The information includes all licensee emergency response facilities. A block diagram is preferred for ease of use, but not required.**	Element B.4	Figure B.4 identifies the interfaces between Palisades ERFs, NRC, OROs, local support organizations, and industry resources. Dependent upon the emergency, a near or on-site Incident Command Post (ICP) is established in coordination with local support organizations. The ICP will interface with the site security, and PNP ERFs. Based on the event, PNP provides the appropriate liaison (Security, Operations, and/or Radiation Protection) to the ICP.	5.0 – Organizational Control of Emergencies	Figure 5-1 shows the interfaces between these organizations, governmental agencies, and the general public.	Reorganization and consolidation of the general content of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.
		Figure B-4	Interrelationship of Emergency Response Organizations	Figure 5-1	Emergency Response Interfaces	Reorganization and consolidation of the general content of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.
B.5	**The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.**	Element B.5	External (non-PNP) support organizations do not provide personnel for the PNP ERO, nor do they perform an operational role in an emergency response. External (non-PNP) support organizations that may be requested to provide technical assistance are described in Element A.1 of this Plan, including anticipated support from local, State, and Federal agencies and private sector organizations. In addition, PNP may request technical support from external organizations, including designated engineering and technical services support firms and contractors, as applicable. These organizations include:	N/A	N/A	Reorganization and consolidation of the general content of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.
		Element B.5 Paragraph 1 – Federal Agencies	Coordination between PNP and Federal agencies serves to ensure the safety and health of the public.	5.7.2 – Federal Agencies	N/A	Reorganization and consolidation of the general content of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Element B.5 Paragraph 1 – Federal Agencies Subparagraph a – U.S. Department of Energy	Under the NRF, the U.S. Department of Energy has the responsibility to maintain the operational readiness of the Federal Radiological Monitoring and Assessment Center (FRMAC). The FRMAC is a federal asset available on request by the U.S. Department of Homeland Security (DHS) to respond to nuclear and radiological incidents. The FRMAC may be activated when a major radiological emergency exists, and the Federal government will respond when a State, other governmental entity with jurisdiction, or a regulated entity requests Federal support. When a FRMAC is established, it operates under the parameters of the Incident Command System (ICS) as defined in the National Incident Management System (NIMS) construct.	5.7.2.d – Federal Radiological Monitoring and Assessment Center _____ 5.7.2.b – US Department of Energy (DOE)	The Federal Radiological Monitoring and Assessment Center is a joint facility for all federal agencies involved in evaluating and mitigating radiological events. The NRC is the Lead Federal Agency (LFA) for the FRMAC and will coordinate the efforts of all federal agencies involved. The FRMAC will supply information and support to state and local governments concerning radiological conditions. _____ The Department of Energy will assist during radiological emergencies by furnishing advice, consultation, and assistance regarding the protection of personnel, treatment of injured and/or exposed persons, minimization of further exposure and contamination, and the determination of existence and extent of contamination. The DOE will respond to the FRMAC in support of the state and local monitoring operations, but may receive requests for assistance directly from the Plant as authorized by the Emergency Director. Contact with the DOE may be established using telephone lines. The Emergency Operations Facility provides space for trailers in support of DOE activities.	Reorganization and consolidation of the content of sections 5.7.2.b and 5.7.2.d of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.
		Element B.5 Paragraph 1 – Federal Agencies Sub-paragraph b – U.S. Federal Emergency Management Agency	The U.S. Federal Emergency Management Agency (FEMA) acts as the lead federal agency for non-technical concerns outside of a fixed nuclear facility boundary. The Region 5 Emergency Response Team will, in addition to the region office response, provide support to State and county authorities for resource coordination, logistics, and telecommunications. The senior FEMA official, or designee, will notify the appropriate federal agency capable of meeting a specific state or county government need.	5.7.2.c – Federal Emergency Management Agency (FEMA)	The Federal Emergency Management Agency will assist the utility in real events with consultation and expertise in controlling an actual emergency. FEMA also evaluates Local and State Emergency Plans to ensure adequacy.	Revision of the content in SEP Revision 32 to address the Evaluation Criterion fully and concisely.
		Element B.5 Paragraph 1 – Federal Agencies	The U.S. Department of Homeland Security (DHS) coordinates preparedness activities within the United States to respond to and recover from terrorist attacks, major disasters, and other emergencies. As part of these responsibilities, the Secretary coordinates with federal entities to provide	N/A	N/A	Content regarding the U.S Department of Homeland Security added to the proposed POSEP to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Sub-paragraph c – U.S. Department of Homeland Security	for federal unity of effort for domestic incident management.			
		Element B.5 Paragraph 1 – Federal Agencies Sub-paragraph d – National Weather Service	National Weather Service The National Weather Service (NWS) Forecast Office in Grand Rapids, MI provides local meteorological information during emergencies, if requested. Available data includes existing and forecasted surface wind directions, wind speed with azimuth variability, and ambient surface air temperature. The NWS provides 24-hour-per-day Emergency Alert System (EAS) access, including activation of the NWS radios. Local radio stations broadcast emergency messages as required by the Federal Communication Commission (FCC).	N/A	N/A	Content regarding the National Weather Service added to the proposed POSEP to fully address the Evaluation Criterion.
		Element B.5 Paragraph 1 – Federal Agencies Sub-paragraph e – U.S. Geological Survey	The U.S. Geological Survey (USGS) maintains the National Earthquake Information Center (NEIC), which can be reached at the USGS website. The NEIC rapidly determines the location and size of all destructive earthquakes worldwide and immediately disseminates this information to concerned national and international agencies, scientists, and the public. The NEIC is used as an external source of seismic event information.	N/A	N/A	Content regarding the USGS added to the proposed POSEP to fully address the Evaluation Criterion.
		Element B.5 Paragraph 1 – Federal Agencies Sub-paragraph f – U.S. Environmental Protection Agency	The U.S. Environmental Protection Agency (EPA) may provide assistance in supporting environmental monitoring teams, mobile radioanalytical laboratories, and non-plant-related recovery and reentry guidance	N/A	N/A	Content regarding the U.S. EPA added to the proposed POSEP to fully address the Evaluation Criterion.
		Element B.5 Paragraph 2 – Institute of Nuclear	The Institute of Nuclear Power Operations (INPO) serves as a clearinghouse for industry-wide support during an emergency. INPO has an emergency response plan that enables it to aid in locating sources of	5.8 – Institute of Nuclear Power Operations (INPO)	The Institute of Nuclear Power Operations will provide emergency response as requested by Entergy Corporation. INPO can provide assistance locating sources of emergency manpower and equipment,	Revision of the content in SEP Revision 32 to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Power Operations	emergency personnel, equipment, and operational analyses. INPO, the Electric Power Research Institute (EPRI), and Nuclear Energy Institute (NEI) maintain a coordination agreement on emergency information with their member utilities. INPO provides an electronic communications system to its members, participants, NEI, and EPRI to coordinate the flow of media and technical information related to the emergency. INPO maintains the following emergency support capabilities: • A dedicated emergency call number • Designated INPO representative(s) who can be quickly dispatched to PNP to coordinate INPO support activities and information flow The 24-hour-per-day operation of an emergency response center at INPO headquarters		analyzing operational aspects of the event, and organizing industrial experts who could advise Entergy Corporation on technical matters. INPO will be contacted by means of its 24-hour telephone number in the event of a radiological emergency. The EOF Emergency Director shall be responsible for requesting assistance from INPO.	
		Element B.5 Paragraph 3 – American Nuclear Insurers	In the event of an extraordinary nuclear occurrence (as defined in the Price-Anderson Law), American Nuclear Insurers (ANI) and Mutual Atomic Energy Liability Underwriters (MAELU) have plans prepared to provide prompt emergency funding to affected members of the public. The emergency assistance arrangements contemplate the mobilization and dispatch of emergency claims teams to directly dispense emergency assistance funds to affected members of the public. Pre-established lines of communication exist between PNP and ANI to facilitate the exchange of information during an emergency. ANI maintains 24-hour-per-day coverage of an emergency notification number. ANI is notified as soon as possible after the declaration of an Alert or Site Area Emergency (SAE), or if PNP believes that persons outside of PNP may be affected, and financial assistance may be required.	N/A	N/A	Content regarding the American Nuclear Insurers added to the proposed POSEP to fully address the Evaluation Criterion.
		Element B.5 Paragraph 4 – Local Support	Coordination between PNP and local organizations serves to ensure the safety and health of the public.	N/A	N/A	Content regarding coordination between PNP and local organizations added to the proposed POSEP to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Element B.5 Paragraph 4 – Local Support Sub-paragraph a – Hospitals	The primary hospital for the treatment of serious medical emergencies occurring at PNP is Bronson South Haven Hospital, located in South Haven, Michigan, approximately 6 miles from the Plant. Bronson South Haven Hospital is equipped to receive and treat all types of accident victims, including those with radioactive contamination. The backup medical facility is Corewell Health Lakeland Hospitals, located approximately 20 miles from PNP in St. Joseph, Michigan. The hospital shall be notified of incoming accident victims at the direction of the Emergency Director. The hospital may contact PNP by telephone in the event information is required in the treatment of a victim	5.6.1 - Medical Services	The primary hospital facility for the treatment of serious medical emergencies occurring at the Plant is Bronson South Haven Hospital, located in South Haven, Michigan, approximately 6 miles from the Plant. Bronson South Haven Hospital is equipped to receive and treat all types of accident victims, including those with radioactive contamination. The backup medical facility is Lakeland Regional Medical Center, located approximately 20 miles from the Plant in St Joseph, Michigan. The hospital shall be notified of incoming accident victims at the direction of the Emergency Director. The hospital may contact the Plant by telephone in the event information is required in the treatment of a victim.	Editorial to address hospital name change from Lakeland Regional Medical Center to Corewell Health Lakeland Hospitals
		Element B.5 Paragraph 4 – Local Support Sub-paragraph b – Ambulance	Ambulance service for the transportation of accident victims, including radioactively contaminated victims, is provided by the Covert Fire Department, with backup services provided by the South Haven Area Emergency Services (SHAES) and Medic 1 of Benton Harbor. The ambulance units and Emergency Medical Technicians are trained and equipped to respond to a medical emergency at the Plant. 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.	5.6.1 - Medical Services	Ambulance service for the transportation of accident victims, including radioactively contaminated victims, is provided by the Covert Fire Department, with backup services provided by South Haven Ambulance Service and Medic I of Benton Harbor. The ambulance units and Emergency Medical Technicians are trained and equipped to respond to a medical emergency at the Plant. 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.	Editorial.
		Element B.5 Paragraph 4 – Local Support Sub-paragraph c – Firefighting	The Covert Township Fire Department and the South Haven Fire Department provide offsite backup firefighting support. The Van Buren Dispatch is contacted via 911. They are required to dispatch both Covert and South Haven Fire Departments. These departments consist of personnel trained for firefighting, including situations involving radioactive contamination. Additional support is available from fire	5.6.2 – Fire Fighting Services	When it is determined by the Emergency Director that off-site fire support is necessary, fire protection response will be by the Covert Fire Department with mutual aid provided by the Van Buren County Mutual Aid Pact. Contact may be made using the telephone system. Fire Department personnel will be trained in handling emergency situations for nuclear facilities.	Revision of the content in SEP Revision 32 to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			departments in nearby Allegan and Berrien Counties through mutual aid agreements. These fire departments are also trained and equipped for rescue work and control of hazardous gas leaks, including chlorine gas. When it is determined by the Emergency Director that off-site fire support is necessary, fire protection response will be provided by the Covert Fire Department with mutual aid provided by the Van Buren County Mutual Aid Pact. Contact may be made using the telephone system. Fire Department personnel will be trained in handling emergency situations for nuclear facilities. In addition to their fire suppression capabilities, the fire departments will provide specially equipped vehicles and personnel trained for emergency rescue and other contingencies.		In addition to their fire suppression capabilities, the fire departments will provide specially equipped vehicles and personnel trained for emergency rescue and other contingencies	
		Element B.5 Paragraph 4 – Local Support Sub-paragraph d – Law Enforcement	In the event of a civil disturbance or criminal act, the MSP, Van Buren County Sheriff Department, and the Covert Township Police Department may provide law enforcement assistance. An Auto-Dial line exists to the MSP Operations in Lansing, Michigan and the Van Buren County Sheriff Department in Paw Paw, Michigan. Guidelines for PNP, State, and local actions are listed in Table A-1.	5.6.3 – Law Enforcement Agencies	In the event of a civil disturbance or criminal act, the Michigan State Police, Van Buren County Sheriff Department, and the Covert Township Police Department may provide law enforcement assistance. An Auto-Dial line exists to the Michigan State Police Operations in Lansing, Michigan and the Van Buren County Sheriff Department in Paw Paw, Michigan	Revision of the content in SEP Revision 32 to fully address the Evaluation Criterion.
		Element B.5 Paragraph 5 – Contractor Support	Contractor and private organizations may be requested to provide technical support, on an as-needed basis. Support is obtained from the responsible architect/engineering firm, reactor supplier, and other consultants and vendors, consistent with their expertise and PNP needs, to respond to the emergency and recovery operations. Assistance from experienced personnel with expertise in facility design, engineering, and construction is obtained as needed to aid in solving critical technical problems.	N/A	N/A	Content regarding contractor support added to the proposed POSEP to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
Planning Standard C – Emergency Response Support and Resources						
C.1	**Emergency response support and resources provided to the licensee's EOF, as agreed upon, are described.**	Element C.1	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.	7.2 – Emergency Operations Facility (EOF)	The staff is comprised of personnel from the Plant. In addition, liaison personnel from the county, state, and federal governments will also be present in the EOF.	Revision of the content in SEP Revision 32 to fully address the Evaluation.
C.2	**Provisions made for additional emergency response support and resources are described and include the following:**	Element C.2	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A
C.2.a	**The individual(s), by title/position, authorized to request emergency response support and resources from responding organizations.**	Element C.2.a	The Emergency Director is the individual authorized to request assistance and resources from responding organizations. Element B.2 of this SEP provides additional detail regarding command-and-control responsibilities of the Emergency Director.	6.1.3 – Emergency Director	The Emergency Director provides overall command and control of the emergency response. Responsibilities include: k. Request assistance from offsite agencies, excluding requests for offsite medical/fire, security assistance (Coordinate request for Federal assistance through the State)	Reorganization and consolidation of the content of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.
		Element C.2.b	The Concept of Operations, described in Element A.1 of this Plan, identifies the primary external support organizations (Federal, State, local, and private sector) that may be requested to provide emergency response support and/or resources during an emergency at PNP. The specific circumstances of a response and or need for resources differ by organization, and are described in Element A of this Plan. The Emergency Director is responsible for requesting emergency response support and/or resources. Notification to support organizations is performed as described in Part II Section E, "Notification Methods and Procedures," of this SEP. The capabilities and/or resources expected to be provided by each support organization are described in Element A.1 and are described in written agreements in support of this SEP. These written agreements are maintained by the PNP Emergency Planning organization and are listed in Appendix 4 of this Plan. The Emergency Director is responsible for ensuring the response from external support organizations is coordinated with PNP and integrated into the overall response effort.	5.6 – Off-Site Emergency Response Service _____ 6.1.3 – Emergency Director	The potential consequences of some emergencies may require the support services of off-site individuals, organizations, and agencies. As a result, local support service arrangements have been made with offsite groups to provide onsite aid in the event of an emergency situation, including those resulting from hostile actions. Support services encompass such areas as medical assistance, fire control, evacuation, ambulance services, and law enforcement. Written agreements are entered into to assure these individuals'/agencies'/organizations' availability and capabilities. In the written agreements, the agencies have outlined their responsibilities or have agreed to their responsibilities as outlined in this section. A listing of the letters of agreement, contracts, or signature pages has been included in Appendix A. In those cases where agency assistance is mandated by law (ie, the State of Michigan), a letter of agreement may be excluded from the plan. The services provided by local support groups are listed in the following sections. _____ The Emergency Director provides overall command and control of the emergency response. Responsibilities include: k. Request assistance from offsite agencies, excluding requests for offsite medical/fire,	Reorganization and consolidation of the content of sections 5.6, 6.1.3, and 6.4.1.a.2 of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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					security assistance (Coordinate request for Federal assistance through the State)	
C.2.c	**Coordination of NPP site access and support for external organizations that have agreed to provide requested emergency response support and resources.**	Element C.2.c	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.	6.4.1.a.2 – Site Access Control	Provisions for control of access to the Palisades site 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 of the Plant is controlled by the Plant security force. Offsite support is provided by local and/or state law enforcement personnel.	Revision of the content in SEP Revision 32 to address the Evaluation Criterion fully and concisely.
C.2.d	**Agreements between licensees and local agencies for law enforcement, medical and ambulance services, fire, hospital support, and other support.**	Element C.2.d	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. Refer to Element A.4 of this SEP for additional information related to agreements with external emergency organizations. Appendix 4 of this SEP provides a listing of agreements established between PNP and external agencies and organizations supporting this SEP.	5.6 – Off-Site Emergency Response Service	The potential consequences of some emergencies may require the support services of off-site individuals, organizations, and agencies. As a result, local support service arrangements have been made with offsite groups to provide onsite aid in the event of an emergency situation, including those resulting from hostile actions. Support services encompass such areas as medical assistance, fire control, evacuation, ambulance services, and law enforcement. Written agreements are entered into to assure these individuals'/agencies'/organizations' availability and capabilities. In the written agreements, the agencies have outlined their responsibilities or have agreed to their responsibilities as outlined in this section. A listing of the letters of agreement, contracts, or signature pages has been included in Appendix A. In those cases where agency assistance is mandated by law (ie, the State of Michigan), a letter of agreement may be excluded from the plan. The services provided by local support groups are listed in the following sections.	Revision of the content in SEP Revision 32 to address the Evaluation Criterion fully and concisely.
C.3	**The capability of each principal organization to coordinate with other principal organizations leading the incident response is described.**	Element C.3	The coordinated response actions of various Federal, State, and local response organizations is described in Element A.1.a of this SEP. Interface between PNP and the OROs is governed by their respective emergency plans, which are developed and maintained in coordination with the PNP SEP. 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 EOCs. These organizations	5.7 – Coordination with Governmental Agencies	The coordination between the state, county, and federal emergency plans and the Palisades Site Emergency Plan serves to ensure the safety and health of the public. The coordination of the emergency plans enables all organizations to participate without confusion or hesitation in regard to their responsibilities. All participating agencies should have a clear picture of the roles they play during an emergency situation. As a part of the coordination effort, each participating agency is assigned specific responsibilities and authority in regard to both	Revision of the content in SEP Revision 32 to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			are identified, and the scope of the response and/or resources expected from each organization, are described in Part II Section A of this SEP.		emergency planning and emergency response. Written agreements with governmental agencies are included in Appendix A, "Agreement With Offsite Individuals, Agencies, and Organizations."	
C.4	**Radiological laboratories, their general capabilities, and expected availability to provide radiological monitoring analysis services that can be used in an emergency are described. Plans to augment the identified radiological laboratories are described.**	Element C.4	The PNP laboratory and counting rooms have the capability to perform the analyses required under emergency conditions. The Michigan EGLE, Radiological Protection Section operates a radiological laboratory in Lansing. PNP and the DC Cook Nuclear Plant may exchange services for radiological laboratory analyses, laboratory boron analyses, and backup dispersion meteorology information. 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.	7.7.2 – Laboratory Facilities	The Plant 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. Palisades Plant, and the DC Cook Nuclear Plant, may exchange services for radiological laboratory analyses, laboratory boron analyses, and backup dispersion meteorology information. 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.	Editorial.
C.5	**Arrangements are described for integrating the licensee's response with the NRC Headquarters and regional incident response centers and, when dispatched, the NRC's site response team.**	Element C.5	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	5.7.2.a – Nuclear Regulatory Commission (NRC) _____ 6.1.3 – Emergency Director	Facilities for the NRC are available in the Technical Support Center and the Emergency Operations Facility, including work space and telephones. The Emergency Operations Facility provides space for trailers for long term support capabilities. _____ The Emergency Director provides overall command and control of the emergency response. Responsibilities include: h. Ensure event information is communicated to other organizations (NRC, Entergy Corp, etc) to keep them informed of the emergency situation	Reorganization and consolidation of the content of sections 5.7.2.a and 6.1.3 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
C.5.a	**The activation process for the NRC's emergency response data system**	Element C.5.a	When an emergency occurs, ERO personnel will ensure ERDS operation as	N/A	N/A	Content added to the proposed POSEP to fully address the Evaluation Criterion.

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	(ERDS) during an emergency is described.		soon as possible but not later than one hour after an Alert or higher emergency classification level is declared, in accordance with 10 CFR 50.72(a)(4).			
C.5.b	**Provisions to continuously maintain open communications lines with the NRC, when requested, are described.**	Element C.5.b	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 an operations background 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.	N/A	N/A	Content added to the proposed POSEP to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
Planning Standard D – Emergency Classification System						
D.1	**A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.**	Element D.1	The events postulated in Section 14 of the PNP UFSAR may be categorized into one or more of the four emergency classifications. A complete discussion of these events can be found in the UFSAR. PNP has established and maintains a standard emergency classification and emergency action level scheme. PNP Emergency Action Levels (EALs) can be found in the PNP EAL Technical Bases. The postulated emergency events are categorized into the following four (4) emergency classification levels (ECLs): • NOUE • Alert • SAE • General Emergency The four ECLs are described as follows: NOUE Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Alert Events are in progress, or have occurred, which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life-threatening risk to site personnel or damage to site equipment	4.1 – Emergency Classification System 3.3 – Emergency Classifications	This Site Emergency Plan provides four mutually exclusive classifications covering the postulated spectrum of emergency situations. For each classification, a particular set of immediate actions to be taken is established as described in Section 6, of the Site Emergency Plan. Actions for each of the four mutually exclusive classifications are defined in Emergency Implementing Procedure EI-1, "Emergency Classification and Actions," Attachment 1, "Emergency Actions/Notifications." The various classifications of accidents represent a hierarchy of accidents based on potential or actual hazards presented to the general public. Accidents may be classified in a lower category at first and then escalated to another higher classification if the situation deteriorates. Accident classification may be downgraded as conditions improve. The four classes that comprise the Emergency Classification System are: a. Unusual Event b. Alert c. Site Area Emergency d. General Emergency a. Unusual Event Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. b. Alert Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE	Reorganization and consolidation of the content of sections 4.1 and 3.3 of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.

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			because of hostile action. Any releases are expected to be small fractions of the EPA Protective Action Guideline (PAG) exposure levels. Site Area Emergency Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or hostile action that results in intentional damage or malicious acts; 1) toward site personnel or equipment that could lead to the likely failure of or; 2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary. General Emergency Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile actions that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.		ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels. c. Site Area Emergency Events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary. d. General Emergency Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.	
D.1.a	**The EALs are developed using guidance provided or endorsed by the NRC that is applicable to the reactor design.**	Element D.1.a	PNP EALs have been developed in accordance with NRC endorsed guidance. This guidance and the PNP EAL scheme have been approved by the NRC. 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 EPIPs. Detailed EALs are provided in an EPIP and an associated EAL Technical Bases Document. The PNP EALs have been provided to the NRC for approval in accordance with 10 CFR Part 50, and are subject to 10 CFR 50.54(q). If the entire EAL scheme is to be changed, then the new EAL scheme will be	N/A	N/A	Content added to the proposed POSEP to fully address the Evaluation Criterion.

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			submitted to the NRC for approval prior to implementation.			
D.1.b	**The initial emergency classification and action level scheme is discussed and agreed to by the licensee and OROs, and approved by the NRC. Thereafter, the scheme is reviewed with OROs on an annual basis.**	Element D.1.b	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.	N/A	N/A	Content added to the proposed POSEP to fully address the Evaluation Criterion.
D.2	**The capability to assess, classify, and declare the emergency condition within 15 minutes after the availability of indications to NPP operators that an EAL has been met or exceeded is described.**	Element D.2	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. Details for classification timeliness criteria are documented in the EAL Technical Bases Document. 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.	3.0 – Site Emergency Plan Summary	Palisades maintains the capability to assess, classify, and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an emergency action level has been exceeded and promptly declares the emergency condition as soon as possible following identification of the appropriate emergency classification level.	Reorganization of the content of SEP Rev. 32. Content added to the proposed POSEP to fully address the Evaluation Criterion.
D.3	**A summary of emergency response measures to be taken for each ECL is provided. The detailed emergency response measures are described in implementing procedures.**	Element D.3	PNP maintains procedures that include immediate actions to be taken that are consistent with any declared ECL.	6.0 – Emergency Measures	a. This section identifies the measure to be used for each type of emergency previously classified in Section 4. The logic presented in this section is used as the basis for the detailed Palisades Nuclear Plant Emergency Implementing Procedures which define the emergency actions to be taken for each emergency classification. Emergency measures begin with the following: 1. Recognition, classification, and declaration of an emergency condition. 2. Notification of the applicable agencies and personnel (Figure 6-1). 3. Mobilization of the appropriate portions of the emergency organization. b. Emergency measures are additionally organized into the following categories: 1. Assessment actions 2. Corrective actions 3. Protective actions	Reorganization and consolidation of the content of sections 2.5.3, 2.5.4, 3.3, 4.1, 4.1.1, 4.1.2, 4.1.3, 4.1.4, and 6.0 of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			_____ Emergency Operating Procedures provide instructions to Control Room personnel to assist in mitigating the consequences of a broad range of accidents and multiple equipment failures. These procedures are based on guidelines developed by the owners' groups. _____ EPIPs provide instructions to ERO personnel for response activities primarily associated with assessment, classification, notification and protective actions. Other functions such as communications, termination and recovery are also addressed. _____ All emergency measures begin with the notification of the Shift Manager that a situation exists which presents a real or potential hazard. This is followed by assessment and evaluation by the Shift Manager, classification of the emergency, notifications to the appropriate offsite organizations, and activation and/or mobilization of the applicable emergency organizations. A summary of response actions taken at each ECL is as follows: _____ <u>NOUE</u> • Initial and follow-up event notification to the OROs and NRC. • Notification of ERO personnel. This is an information only notification and does not require activation of emergency facilities or response organizations. Any PNP ERF may be activated at the discretion of the Emergency Director.	_____ 2.5.4 – Related Plans, Programs, and Procedures _____ 2.5.3 – Emergency Implementing Procedures _____ 4.1 – Emergency Classification System _____ 4.1.1 Unusual Event	These measures are described in the following sections for each emergency classification. _____ The Palisades Emergency Operating Procedures have been developed to control Plant operation during emergency situations. These emergency procedures work in conjunction with the Emergency Plan Implementing Procedures. _____ Detailed Emergency Implementing Procedures required to implement the plan have been developed. _____ All emergency measures begin with the notification of the Shift Manager that a situation exists which presents a real or potential hazard. This is followed by assessment and evaluation by the Shift Manager, classification of the emergency, notifications, and activation and/or mobilization of the applicable emergency organizations. Section 6 summarizes the emergency measures to be taken by both the onsite and offsite emergency organizations. _____ The Unusual Event is the least severe of the four emergency classifications. For the purposes of this plan, an Unusual Event is defined as that situation where, "Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs." The purpose of the Unusual Event declaration is to:	

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					a. Assure that the first step in any response later found to be necessary has been carried out. b. Bring the Plant operations staff to a state of readiness. c. Provide systematic handling of Unusual Events information and decision-making. Guidelines for Plant, state, and local actions are listed in Table 4-1. An incident shall be classified as an Unusual Event if the event is minor in nature, involves no releases of radioactive material requiring offsite response or monitoring, and presents no immediate hazard to the public. Events in this classification are selected based upon a potential to degenerate to a more severe situation rather than an actual public hazard.	
			Alert • Initial and follow-up event notification to the OROs and NRC. • Augmentation of the shift ERO (refer to Element A.1.a) by activating the TSC, OSC, and EOF. • The Joint Information System shall be established at this ECL, with JIC activation determined in coordination with the offsite agencies. • If a release is occurring, monitoring teams are available for dispatch and offsite dose projections are developed.	4.1.2 - Alert	An Alert is defined as that situation where, "Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the Plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels." The Alert class involves relatively minor emergency situations that have a direct effect on the Plant safety-related systems. The Alert shall set into motion personnel onsite and offsite who would be required to perform actions up to and including the evacuation of near-site areas. The Alert class also addresses limited releases of radioactive material and, therefore, might require some assessment actions by the emergency organizations. The purpose of the Alert declaration is to: a. Assure that emergency personnel are readily available to respond if the situation becomes more serious or to perform confirmatory radiation monitoring if required. b. Provide offsite authorities current status information.	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			Site Area Emergency • Initial and follow-up event notification to the OROs and NRC. • Augmentation of the shift ERO by activating the TSC, OSC and EOF if not previously performed. • The Joint Information System is in operation or JIC is staffed (JIC activation determined in coordination with the offsite agencies). • Implementation of onsite protective actions (refer to Section J). • If a release is occurring, monitoring teams are available for dispatch and offsite dose projections are developed. • Offsite precautionary actions may be recommended under certain conditions (as required by site specific OROs).	4.1.3 – Site Area Emergency	Guidelines for Plant, state, and local actions are listed in Table 4-1. An incident shall be classified as an Alert if there is real or potential limited releases of radioactive material to the environment. A situation shall be classified at the Alert level only if EALs for higher classification have not been exceeded or are not expected to be exceeded in the near term. A Site Area Emergency is defined as that situation where, "Events are in process or have occurred which involve an actual or likely major failures of Plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary. The purpose of the Site Area Emergency declaration is to: a. Assure that emergency response facilities are manned. b. Assure that radiation-monitoring teams are dispatched both onsite and offsite. c. Assure that personnel required for evacuation of near-site areas are at their duty stations if the situation becomes more serious. d. Provide consultation with offsite authorities. e. Provide updates for the public through offsite authorities. Guidelines for Plant, state, and local actions are listed in Table 4-1. Although immediate protective actions are not automatically required, declaration of a Site Area Emergency shall set into motion all personnel onsite and offsite who would be required to perform actions up to and including the evacuation of near-site areas. Dispatched	

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					radiation monitoring teams will make continuing assessments to provide officials with information to decide protective actions. The Site Area Emergency classification includes accidents that have significant radiation release potential. Unlike the Unusual Event and Alert classifications of emergencies, the Site Area Emergency classification may involve some radiation exposure to the near-site public. Many of the accidents included in this classification have the potential for degradation to the General Emergency classification. Although the EALs for this classification have been selected at values well below the EPA PAGs, offsite monitoring team reports and continuing assessment actions shall lead to any final decision on protective actions to be taken. Accidents that have significant potential for the release of radioactive material shall be classified as a Site Area Emergency.	
			General Emergency • Initial and follow-up event notification to the OROs and NRC. • Augmentation of the shift ERO by activating the TSC, OSC and EOF if not previously performed. • The Joint Information System is in operation or JIC is staffed (JIC activation determined in coordination with the offsite agencies). • Implementation of onsite protective actions (refer to Section J) if not previously performed. • If a release is occurring, monitoring teams are available for dispatch and offsite dose projections are developed. • Offsite protective action recommendations are communicated to the OROs and NRC. EALs are used to describe each of the four emergency classes. These levels are composed of a combination of plant parameters (such as instrument readings and system status) that can be used to give	4.1.4 – General Emergency	The General Emergency is the most severe classification of emergency. The General Emergency classification is defined as that situation where, "Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area." The purpose of the General Emergency declaration is to: a. Initiate predetermined protective actions for the public. b. Provide continuous assessment of information from Palisades Plant, and offsite monitoring groups. c. Initiate additional measures as indicated by event releases or potential releases.	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			relatively quick indication to the PNP operating staff of the severity of the accident situation. _ _____ The purpose of the EAL is to provide the earliest possible identification of actual or potential accident situations. In most cases, further assessment action will be conducted both onsite and offsite before actual protective actions are initiated. EALs associated with radioactive releases are related to the EPA PAGs summarized in EPA 400-R-17-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." An assessment of the potential for reaching or exceeding the PAG will be performed following the declaration of an emergency class by the PNP ERO and State support agencies. _____ When EALs are observed in conjunction with plant or equipment status due to	_____ 4.1 – Emergency Classification System	d. Provide consultation with offsite authorities. e. Provide updates for the public through offsite authorities. Guidelines for Plant, state, and local actions are listed in Table 4-1. Some protective actions may be recommended upon declaration of the General Emergency since the lower limits of the EPA PAGs are likely to be exceeded. Emergency Action Levels (EAL) have been selected so that time should be available to make some confirmatory measurements in the field prior to implementation of the more extensive (ie, evacuation) protective action. Some of the General Emergency action levels require a dose projection calculation using actual meteorology. This differs from the adverse meteorology assumptions used in the Site Emergency action levels in order to remove this built-in conservatism and to preclude declaring a General Emergency when actual conditions do not warrant the higher classification. Declaration of a General Emergency requires a recommendation to the state for protective actions for the local population. _____ The purpose of the EAL is to provide the earliest possible identification of actual or potential accident situations. In most cases, further assessment action will be conducted both onsite and offsite before actual protective actions are initiated. EALs associated with radioactive releases are related to the Environmental Protection Agency's Protective Actions Guides (PAG) summarized in EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." An assessment by the Plant emergency organization along with state support agencies of the potential of reaching or exceeding the PAG will be performed following the declaration of an emergency class. _____ When EALs are observed in conjunction with Plant or equipment status due to planned	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			planned maintenance or testing activities, an emergency condition does not exist. A conservative philosophy for classification shall be used to declare the highest classification for which an EAL has been exceeded. For example, a SAE would be declared directly if a SAE emergency classification level is exceeded without having previously been declared in a lower Alert classification. The EALs are not necessarily all inclusive. The Shift Manager/EOF Emergency Director shall declare an appropriate emergency classification whenever, in their judgment, the plant status warrants such an emergency declaration. _____ Table D-1, "Emergency Classifications and the Level of Response by Participating Groups," shows, in column form, the emergency classifications, and the degrees of involvement of onsite and offsite organizations.		maintenance or testing activities, an emergency condition does not exist. A conservative philosophy for classification shall be used to declare the highest classification for which an EAL has been exceeded. For example, a Site Area Emergency would be declared directly if a Site Area Emergency level is exceeded without having previously been declared in a lower Alert classification. The Emergency Action Levels are not necessarily all inclusive. The Shift Manager/EOF Emergency Director shall declare an appropriate emergency classification whenever, in their personal judgment, the Plant status warrants such a declaration. _____ Table 3-1, "Emergency Classifications and the Level of Response by Participating Groups," shows, in column form, the emergency classifications, and the degrees of involvement of onsite and offsite organizations.	
		Table D-1	Emergency Classifications and the Level of Response by Participating Group	Table 3-1	Emergency Classifications and the Level of Response by Participating Groups	No change.
D.4	**Emergency response measures based on the ECL declared by the licensee and applicable offsite conditions are described.**	Element D.4	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A

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		Location (Section II)	Content	Location (Section)	Content	
Planning Standard E – Notification Methods and Procedures						
E.1	**The mutually agreeable process for direct and prompt notification of response organizations, aligned with the emergency classification and action level scheme, is described.**	Element E.1	The process for notifying the various emergency response organizations is described.	6.4.1.b.3.c	A communication system has been established for emergency notification of offsite agencies having protective response assignments.	Revision of the content in SEP Revision 32 to address the Evaluation Criterion fully and concisely.
		Element E.1 Paragraph 1 – ERO Notification	The Emergency Director will direct or perform notification of the ERO for all emergency classification levels. ERO personnel report to their assigned ERFs as directed. In the event of a security threat, personnel may be instructed to respond to alternative facilities, or seek cover if on-site. The means for alerting and notifying ERO members are described in Element F.1.c of this SEP.	6.1 – Activation of the Emergency Organization _____ 6.4.1.b.3 – Protective Actions	The Shift Manager will initially classify the emergency and ensure required notifications are made. _____ c. A communication system has been established for emergency notification of offsite agencies having protective response assignments.	Reorganization and consolidation of the content of sections 6.1 and 6.4.1.b.3 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
		Element E.1 Paragraph 2 – ORO Notification	PNP, in cooperation with the OROs, has established mutually agreeable content, methods and procedures for notification of OROs. When an ECL is initially declared, or upgraded, or changes are made to PARs, a notification to the OROs is made within 15 minutes. The means for alerting and notifying OROs are described in Section II.F of this SEP.	3.0 – Site Emergency Plan Summary	The declaration of each class will lead to specific notification of offsite authorities.	Revision of the content in SEP Revision 32 to fully address the Evaluation Criterion.
		Element E.1 Paragraph 3 – NRC Notification	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. 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 information provided in the accelerated NRC notification will be limited to the following: • Site name. • ECL if determined prior to the accelerated notification. • Nature of the threat and the attack status	6.1.2 – Emergency Plant Manager	c. Ensure timely ENS notifications.	Revision of the content in SEP Revision 32 to fully address the Evaluation Criterion.

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			• Details regarding the notification process are contained in EPIP EI-3, "Communications and Notifications."			
E.1.a	**Provisions for notification of response organizations are established, including the means for verification of messages.**	Element E.1.a	The provisions for notification of response organizations are described above in Element E.1. The PNP Normal Notification Chain is illustrated in Figure E-1. Notifications to OROs include a means of verification or authentication within the automated system or by providing call back verification phone numbers.	6.0 – Emergency Measures 6.1.1. – Control Room Personnel	a. Emergency measures begin with the following: 2. Notification of the applicable agencies and personnel (Figure 6-1). b. The Shift Manager is responsible for ensuring the performance of the initial assessment of the emergency (eg, Plant and reactor status, radiological conditions, etc) in the following manner: 2. If the situation requires activation of all or part of the Site Emergency Plan, the Shift Manager shall: (e) Message authentication may be used as deemed necessary.	Reorganization and consolidation of the content of sections 6.0 and 6.1.1 of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.
E.1.b	**The capability to notify responsible OROs within 15 minutes and the NRC within 60 minutes is described.**	Element E.1.b	The capability to notify OROs and the NRC within the required time periods is described above in Element E.1.	7.5 – Communications Equipment	Therefore, the communications systems that will be used by the emergency organizations must meet the following basic criteria: a. Provide for prompt initial notification.	Reorganization of the content of SEP Rev. 32.
		Figure E-1	Palisades Plant Normal Notification Chain	Figure 6-1	Palisades Plant Normal Notification Chain	No change.
E.2	**The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.**	Element E.2	PNP and the OROs utilize a public alert and notification system (ANS) capable of alerting and notifying the public within the PNP EPZ. The ANS provides coverage to the PNP EPZ and allows the resident and transient populations to be warned within 15 minutes of the issuance of a protective action. 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. If a backup means of public alerting and notification is necessary, vehicles with mobile public address systems (Route Alerting) and other means as necessary can be utilized. Detailed information regarding ANS capabilities is maintained in the ANS design report.	6.4.1.b.3 – Protective Actions	a. A public warning system composed of two components, alert and notification. (1) The alert component is comprised of a siren system which provides coverage for a 10 mile radius around the plant, and allows the resident and transient populations to be warned within 15 minutes of the issuance of a protective action. (2) The notification component consists of several local radio stations that broadcast appropriate initial and follow-up messages on protective actions to be taken. (3) If a backup means of public alerting and notification is necessary, other television/radio communications, vehicles with mobile public address systems (Route Alerting) and other means as necessary can be utilized.	Reorganization and revision of the content of SEP Rev. 32. Content regarding the proposed IPAWS system added to the proposed POSEP to fully address the Evaluation Criterion.

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			IPAWS-Wireless Emergency Alerts (WEA) is the primary alert method and IPAWS-Emergency Alert System (EAS) is the primary method to disseminate information regarding an emergency at PNP . Van Buren County incorporates IPAWS (WEA and EAS) into its public warning structure through a Memorandum of Agreement (MOA), which governs the relationship between the state-level Collaborative Operating Groups (COG), Van Buren COG, and FEMA. IPAWS provides Van Buren County with the capability to integrate alert and warning systems with the national alert and warning infrastructure. Following receipt of an emergency declaration from PNP that requires public alerting, Van Buren County will activate IPAWS-WEA and IPAWS-EAS to alert and notify individuals in the PNP EPZ. The Emergency Management Director, Emergency Management Coordinator, the Public Safety Communications Center Director, or designee are the designated officials authorized to request activation of IPAWS. Van Buren County maintains multiple pathways to activate IPAWS. The primary activation terminal, located in the Van Buren County Sheriff's Office Central Dispatch, can activate IPAWS using the Van Buren County network commercial internet (Bloomingdale Communications). An alternate pathway exists for the primary terminal to access the internet via satellite access to the Van Buren County network. Additionally, a laptop computer is maintained by Van Buren County that is capable of activating IPAWS if the primary terminal is inoperable. The Van Buren County Office of Domestic Preparedness can use IPAWS for direct access to all area broadcasters, cable operators, satellite TV and radio providers, commercial mobile service providers and the National Weather Service to disseminate alert and warning information through the WEA and EAS. In the event of an			

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			emergency at PNP, Van Buren County will issue EAS alerts when a protective action order for the public is issued (evacuation or shelter-in-place). The Van Buren County Emergency Operations Plan (EOP) describes the means to provide early notification and clear instruction to the residents in the PNP EPZ. A Memorandum of Understanding (MOU) between Van Buren, Berrien, and Allegan Counties allows for 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 EPZ.			
E.3	**The licensee, in conjunction with state, local, and tribal organizations, establishes the contents of the initial and follow-up emergency notifications to be sent from the NPP.**	Element E.3	PNP and OROs have established the content of the initial notification message to be used during an emergency. NOTE: While both pages of the notification form are not necessary for every notification, the two pages together include the elements listed in the following sections. Initial notification should consist of the following as appropriate: • Name and telephone number (if needed) • Location of incident • Date and time of incident • Emergency classification (EPIP EI-1, “Emergency Classification and Actions”) • Whether a release is taking/has taken place • The affected/potentially affected population • PAR In conjunction with OROs, PNP has established the content of the follow-up messages, which will include additional information regarding event conditions and response actions. _____ Follow-up notification should consist of the following as appropriate:	6.1.1 – Control Room Personnel _____ 6.1.1 – Control Room Personnel	b.2. (f) Initial notification should consist of the following as appropriate: (1) Name and telephone number (if needed). (2) Location of incident. (3) Date and time of incident. (4) Emergency classification (Emergency Implementing Procedure EI-1, "Emergency Classification and Actions"). (5) Whether a release is taking/has taken place. (6) The affected/potentially affected population. (7) Recommended protective actions. _____ b.2. (g) Follow-up notification should consist of the following as appropriate:	Reorganization and consolidation of the content of SEP Rev. 32. Revisions made to fully address the evaluation Criterion.

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			• Name and telephone number (if needed) • Location of incident • Date and time of incident • Emergency classification (EPIP EI-1, “Emergency Classification and Actions”) • Type of actual or projected release (liquid or gaseous) and estimated duration/impact times • Estimate of amount of radioactive material released, points of release, and height of release (EPIP EI-6.0, "Rapid Dose Calculation") • Chemical and physical form of releases material. Include estimates of the relative quantities and concentration of noble gas, iodine, and particulates (EPIP EI-6.0, "Rapid Dose Calculation") • Prevailing meteorological conditions (EPIP EI-6.0, "Rapid Dose Calculation") • Actual or projected dose rates at the site boundary and the integrated dose rate at the site boundary (EPIP EI-6.0, "Rapid Dose Calculation") • Projected dose rates and integrated dose rates at the projected peak and at 2, 5, and 10 miles from the site and the areas affected • Estimate of surface contamination in Plant, onsite and offsite • PNP emergency response actions underway • Recommended emergency actions, including protective measures • Requests for support from organizations • Prognosis for worsening or termination of event		(1)Name and telephone number (if needed). (2)Location of incident. (3)Date and time of incident. (4)Emergency classification (EI-1). (5)Type of actual or projected release (liquid or gaseous) and estimated duration/impact times. (6)Estimate of amount or radioactive material released, points of release, and height of release (Emergency Implementing Procedure EI-6.0, "Rapid Dose Calculation"). (7)Chemical and physical form of released material. Include estimates of the relative quantities and concentration of noble gas, iodine, and particulates (EI-6.0). (8)Prevailing meteorological conditions (EI-6.0). (9)Actual or projected dose rates at the site boundary and the integrated dose rate at the site boundary (Emergency Implementing Procedures EI-6.0 and EI-9, "Offsite Radiological Monitoring"). (10) Projected dose rates and integrated dose rates at the projected peak and at 2, 5, and 10 miles from the site and the areas affected. (11) Estimate of surface contamination in Plant, onsite, and offsite. (12) Entergy Corporation emergency response actions underway. (13) Recommended emergency actions, including protective measures. (14) Requests for support from organizations. (15) Prognosis for worsening or termination of event.	
E.4	**Each organization establishes the contents of the initial and follow-up messages to the public including, as applicable, instructions for protective actions.**	Element E.4	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
E.5	**Provisions are made to provide timely supplemental information periodically throughout the radiological incident to inform the public.**	Element E.5	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.	6.4.1.b.2 – Notification and Response	The local government will provide notification of the general public involved and define and identify this population. The state government will give detailed directions for protection of this population, including	Reorganization and revision of the content of PNP SEP Rev. 32 to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			IPAWS, the primary method to alert and disseminate information to individuals in the PNP EPZ, provides the capability to periodically inform the public throughout the emergency.		provisions for evacuation of personnel from affected areas of the environs if necessary.	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
Planning Standard F – Emergency Communications						
F.1	**Each principal response organization establishes redundant means of communication and addresses the following provisions:**	Element F.1	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A
F.1.a	**Continuous capability for notification to, and activation of, the emergency response network, including a minimum of two independent communication links.**	Element F.1.a	PNP maintains communications systems that are designed to facilitate normal and emergency communication. Refer to Chapter 7 of the UFSAR for descriptions of the primary site communications systems. Provisions exist for continuous capability of communications with OROs and the NRC. Systems available for internal and external communications include: • Automated Notification System • Telephone Systems • Plant Siren and Plant Public Address System • Radio Communications (800 mHz) • Cellular Telephones • Satellite Telephones • Local and Wide Area Networks • Data Systems Cellular and satellite telephones provide communications capability should the main telephone systems lose power.	7.5 – Communications Equipment _____ 7.5.1 – Routine Communications System _____ 6.4.1.a.1 - Notification	The members of the emergency organizations require correct and up-to-date information relevant to the potential or real emergency condition. Therefore, the communications systems that will be used by the emergency organizations must meet the following basic criteria: a. Provide for prompt initial notification. b. Maintain reliability. c. Provide for alternate methods of communications. _____ Communications equipment available for offsite use include: a. Commercial telephones - separate outside lines. b. Intracompany telephone system. c. State Police Radio - through Security Department. d. Emergency Network System telephone to NRC. e. Commercial telephone to Van Buren County Sheriff's Department, Paw Paw. f. Commercial telephone to State Police Operation Center, Lansing. g. Power failure phones in major onsite response centers (Control Room, TSC, OSC). h. Satellite phones in major onsite response centers (Control Room, TSC, OSC, EOF). i. Internet-capable computers in major onsite/offsite response centers (Control Room, TSC, OSC, EOF). Table 7-1 summarizes communications resources. _____ All persons onsite at the time of an Alert, Site Area, or General Emergency shall be notified of the emergency by a two-minute steady siren and an announcement over the public address system in the assembly areas. Notification of an Unusual Event should be	Reorganization and consolidation of the content of sections 7.5, 7.5.1, and 6.4.1.a.1 of SEP Rev. 32 to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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					over the Plant public address system. For the Alert and above, personnel shall be instructed to report to assembly areas for accountability, monitoring, and possible evacuation.	
F.1.b	**Communication with applicable organizations to include a description of the methods that may be used when contacting each organization.**	Element F.1.b	The methods for notification of response organizations are described in Elements E.1 and F.1.a. Communications equipment available for offsite use include: • Automated notification system • Commercial telephones – separate outside lines • Intracompany telephone system • State Police Radio – through Security Department • ENS telephone to NRC • Commercial telephone to Van Buren, Berrien, and Allegan County Sheriff's Department and MSP (Paw Paw) • Commercial telephone to State Police Operation Center, Lansing • Power failure phones in major onsite response centers (Control Room, TSC, OSC) • Satellite phones in major onsite/offsite response centers (Control Room, TSC, OSC, EOF) • Internet-capable computers in major onsite/offsite response centers (Control Room, TSC, OSC, EOF) Table F-1 summarizes communication resources.	7.5.1 – Routine Communication System	Communications equipment available for offsite use include: a. Commercial telephones - separate outside lines. b. Intracompany telephone system. c. State Police Radio - through Security Department. d. Emergency Network System telephone to NRC. e. Commercial telephone to Van Buren County Sheriff's Department, Paw Paw. f. Commercial telephone to State Police Operation Center, Lansing. g. Power failure phones in major onsite response centers (Control Room, TSC, OSC). h. Satellite phones in major onsite response centers (Control Room, TSC, OSC, EOF). i. Internet-capable computers in major onsite/offsite response centers (Control Room, TSC, OSC, EOF). Table 7-1 summarizes communications resources.	Reorganization of SEP Rev. 32 to address the Evaluation Criterion. Additional edits made to fully describe available communications.
		Table F-1	Palisades SEP Communications Matrix	Table 7-1	Palisades SEP Communications Matrix	No changes.
F.1C	**Systems for alerting or activating emergency personnel in each response organization.**	Element F.1.c	Personnel within the Protected Area are notified of the emergency classification via the PNP public address system. The sounding of alarms and announcement of the emergency classification and other pertinent data relating to the emergency classification are made over the PNP public address system. Notification of personnel located onsite, but outside the Protected Area, is accomplished through PA system announcements,	6.1.1.- Control Room Personnel b.2.c &d _____ 6.4.1.a.1 - Notification	b.2.c & d Ensure the appropriate alarm is sounded. Announce the location, type and classification of the emergency on the Plant public address system. _____ All persons onsite at the time of an Alert, Site Area, or General Emergency shall be notified of the emergency by a two-minute steady siren and an announcement over the public address system in the assembly areas. Notification of an Unusual Event should be over the Plant public address system.	Reorganization and consolidation of the content of sections 6.1.1 and 6.4.1.a.1 of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			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 activation of the system can be performed by computer or from any phone system, and operation can take place from more than one location. A commercial electronic notification service is used for contacting personnel at the start of an emergency. When activated by station personnel, the notification service transmits a message via various communications pathways to all ERO personnel to report to their assigned ERO facilities.			
F.2	**Systems for coordinated communication methods for applicable fixed and mobile medical support facilities are described.**	Element F.2 ¶1	Communications methods have been coordinated with medical facilities (ambulance and hospital). Emergency call lists for ambulance service and medical facilities are kept current in the Emergency Contact Telephone Book.	7.8.1 – First Aid and Medical Care	Emergency call lists for ambulance service and medical facilities are kept current in the Emergency Contact Telephone Book.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
F.3	**The testing method and periodicity for each communication system used for the functions identified in evaluation criteria E.2, F.1, and F.2 are described.**	Element F.3	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. Communication links with State EOC and field assessment teams from PNP shall be tested annually. Communication links with the county EOCs shall be tested annually by calling the respective Sheriff's Department. Communications between the Control Room, TSC, and EOF shall be tested annually.	8.1.3.f – Communications Tests	Communications shall be tested monthly with NRC headquarters from the Control Room, Technical Support Center and near-site Emergency Operations Facility. Communications shall be tested monthly with state and local governments within the plume exposure pathway of the Emergency Planning Zones. Communication shall be tested quarterly with those federal and state emergency response organizations within the ingestion pathway. Communication links with state emergency operations center and field assessment teams from the Plant shall be tested annually. Communication links with the county emergency operations centers shall be tested annually by calling the respective Sheriff's Department. Communications between the Control Room, Technical Support Center, and Emergency Operations Facility shall be tested annually.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

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			Communication systems testing is accomplished in accordance with Table F-3.			
		Table F-1	Communication System Testing Requirements	N/A	N/A	New content added to the POSEP to summarize communications system testing.

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		Location (Section II)	Content	Location (Section)	Content	
Planning Standard G – Public Education and Information						
G.1	**Provisions are made for a coordinated annual dissemination of information to the public within the plume exposure pathway EPZ, including transient populations and those with access and functional needs, regarding how they will be notified and what actions should be taken. The information is disseminated using multiple methods, to include non-English translations per current Federal guidance.**	Element G.1	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. Annually, safety information is distributed containing educational information on emergency preparedness, sheltering, the alert and notification system, radiation, and telephone numbers of agencies to contact for more information. Information for residents with special needs and non-English translations is incorporated per current federal guidance. 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. • Special needs of the handicapped. 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.	8.2 – Educational Information for the Public	For resident and transient members of the public within the 10-Mile Emergency Planning Zone, Entergy Corporation, and the local and state governments will provide written information pertaining to topics associated with emergency planning. 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. • Special needs of the handicapped. 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. At least annually, Entergy Corporation and the local and state governments will update the information, if necessary, for members of the public within the 10-Mile Emergency Planning Zone.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
G.2	**Methods, consistent with JIS concepts, are established for coordinating and disseminating information to the public and media. Plans include the physical location(s) for interacting with the media.**	Element G.2	PNP Communications personnel are responsible for maintenance of the PNP Public Information Policies and Procedures. Communications personnel ensure dissemination of information to the public via the media and establishment of a system for rumor control during an emergency.	5.3.5 – Joint Information Center (JIC)	The plant Communications personnel shall be responsible for maintenance of the Palisades Nuclear Plant Public Information Policies and Procedures. These provide for disseminating information to the public via the media and establishing a system for rumor control during an emergency. Public Affairs	Reorganization and consolidation of the content of sections 5.3.5, 7.5, and 2.5.4 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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		Location (Section II)	Content	Location (Section)	Content	
			PNP maintains programs and processes for the coordination and dissemination of information to the public and media using JIS concepts. Specifically, the process provides a structure and system for developing and delivering coordinated interagency messages; developing, recommending, and executing public information plans and strategies; advising decision makers concerning public affairs issues that could affect a response effort; and controlling rumors and inaccurate information that could undermine public confidence in the emergency response effort. Reference Palisades Nuclear Plant Emergency Public Information Policies and Procedures for details. Physical locations for interacting with the media are described in Element H.5.	_____ 7.5 – Joint Information Center (JIC) _____ 2.5.4 – Related Plans, Programs, and Procedures	personnel shall coordinate the activation and management of the Joint Information Center (JIC) in cooperation with the Corporate Public Affairs Department. He shall prepare and issue press releases in cooperation with state and local agencies. Reference Palisades Nuclear Plant Emergency Public Information Policies and Procedures for details. _____ A Joint Information Center (JIC) will be established at the combined EOF/JIC located at 330 W Main, Benton Harbor. The JIC will be staffed by public information representatives of the utility, state, county, and federal governments. The Plant Communications Specialist will be located in this facility upon its activation. _____ The Palisades Nuclear Plant Public Information Policies and Procedures contain the information necessary to establish a flow of emergency information to the public.	
G.3	**Organizations designate news media points of contact and a spokesperson(s) with access to necessary information.**	Element G.3.	A spokesperson is designated as the primary point of contact for PNP and is responsible for the consistency of the information released by the utility. The spokesperson may select individuals to address the public on behalf of Palisades as their respective expertise is needed. This position is not designated as an ERO position.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
G.3.a	**Arrangements are made for the timely exchange of information among the designated spokespersons representing the entities involved in incident response.**	Element G.3.a	Arrangements are made for the exchange of information among the designated spokespersons using various means and technologies as agreed upon by the applicable agencies. PNP 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. PNP Communications personnel shall prepare and issue press releases in cooperation with State and local agencies. Refer to PNP Emergency Public Information Policies and Procedures for details. OROs address public response and actions in accordance with their respective plans.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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		Location (Section II)	Content	Location (Section)	Content	
G.4	**Organizations establish coordinated arrangements for identifying and addressing public inquiries and inaccurate information.**	Element G.4	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. ORO and federal PIOs address misinformation relating to offsite conditions, including protective action directives. Palisades spokespersons address misinformation regarding station/utility rumors. Rumors and incorrect information are addressed in media statements and at news conferences as appropriate.	5.3.5 – Joint Information Center (JIC)	The plant Communications personnel shall be responsible for maintenance of the Palisades Nuclear Plant Public Information Policies and Procedures. These provide for disseminating information to the public via the media and establishing a system for rumor control during an emergency.	Reorganization and revision of the content in SEP Revision 32 to address the Evaluation Criterion fully and concisely.
G.5	**Organizations conduct programs to acquaint news media with the emergency plans at least annually.**	Element G.5	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 release of information to the media during an emergency.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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		Location (Section II)	Content	Location (Section)	Content	
Planning Standard H – Emergency Facilities and Equipment						
H.1	**A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.**	Element H.1	The TSC provides a dedicated location for management and technical support to operations personnel and to relieve the operations staff of emergency response actions and communications not related to plant system manipulations. The TSC is sized to accommodate ERO responders and NRC representatives. The TSC organization can be found in EPIP EI-4.1, "Technical Support Center Activation." The TSC is activated when minimum staffing requirements are met, key systems and equipment are verified operational, and the ERO personnel are prepared to perform their functions. When activated, the TSC's primary functions include: • Provide ERO command and control • Continued evaluation of event conditions • Develop and issue offsite PARs • Develop ORO event notifications • Provide ENS communications with the NRC • Display and trend plant data • Develop response priorities and mitigative actions • Coordination of site emergency response actions • Provide engineering support 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. All necessary equipment, furnishings, and documents are stored in the immediate area and are readily available for use. The TSC has access to drawings and other records, including general arrangement diagrams,	5.3.2 – Technical Support Center _____ 7.1.2 – Technical Support Center	The Technical Support Center (TSC) will provide Plant management and technical support to Operations personnel during emergency conditions and guidance to Control Room operating personnel to mitigate the effects of the emergency condition. The TSC organization can be found in Emergency Implementing Procedure EI-4.1, "Technical Support Center Activation." _____ The Technical Support Center 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. All necessary equipment, furnishings, and documents are stored in the immediate area and are readily available for use. The TSC may be activated for Unusual Events, and will be activated for Alert, Site Area Emergency, and General Emergency conditions.	Reorganization and consolidation of the content of sections 5.3.2 and 7.1.2 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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			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, OSC, EOF, NRC, and OROs. The TSC may be activated for NOUEs, and will be activated for Alert, SAE, and GE conditions. Further details concerning staffing, equipment, furnishings, procedures, and activation are outlined in EPIPs. 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 (SCBA) is 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.		Further details concerning staffing, equipment, furnishings, procedures, and activation are outlined in the Emergency Implementing Procedures. 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 (SCBA) is 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. In the event that the Technical Support Center is not habitable, an alternate center may be established at the OSC, Mechanical Maintenance Shop, or other site buildings.	
H.2	**An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.**	Element H.2 ¶	The OSC provides a dedicated location for coordinating and planning event response activities and for staging personnel and equipment. The OSC is sized to accommodate ERO responders. The function of the OSC is to assemble and coordinate necessary personnel from Chemistry, Radiation Protection, Operations (Nuclear Plant Operators (NPOs)), 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 organization can be found in EPIP EI-4.2, "Operations Support Center Activation."	5.3.3 – Operations Support Center	The Operations Support Center (OSC) will coordinate Emergency Maintenance, Radiation Protection, and Chemistry activities of Plant personnel. The Control Room or TSC (when activated) will direct the priorities for the OSC. The OSC organization can be found in Emergency Implementing Procedure EI-4.2, "Operations Support Center Activation."	Reorganization and consolidation of the content of sections 5.3.3 and 7.1.3 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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		Location (Section II)	Content	Location (Section)	Content	
			The OSC is activated when minimum staffing requirements are met, key systems and equipment are verified operational, and the ERO personnel are prepared to perform their functions. When activated, the OSC's primary functions include: • Provide staging area for maintenance, operations, RP, and other support personnel. • Provide for briefing, dispatch, and coordination of emergency response teams. Dosimetry (dose of legal record and self-reading capable of monitoring emergency radiation exposure), respiratory protection, radiation survey equipment, and radiation work permits (RWPs) are available to OSC personnel. In the event of personnel contamination, decontamination will be performed in the area normally designated for this purpose. Radiation and contamination levels in and around the OSC are assessed during emergencies. 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, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures as either electronic or paper documents. 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. Additional details concerning staffing, equipment, furnishings, procedures, and activation are outlined in EPIPs. 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	7.1.3 – Operations Support Center (OSC)	The Operations Support Center (OSC) is located near the men's locker room in the Service Building that is connected to the rest of the Plant by hallways. Additional details concerning staffing, equipment, furnishings, procedures, and activation are outlined in the Emergency Implementing Procedures. Habitability of the OSC is verified using available emergency kit equipment. Equipment is provided for measuring external dose rates and airborne radioactive levels.	

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		Location (Section II)	Content	Location (Section)	Content	
			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. A maintenance kit containing only maintenance supplies is kept in the men's locker room.		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. A maintenance kit containing only maintenance supplies is kept in the men's locker room.	
H.3	**An EOF is established, using current Federal guidance, as the primary base of emergency operations for the licensee during a radiological incident. The EOF facilitates the management and coordination of the overall emergency response, including the sharing of information with Federal, state, local, and tribal government authorities.**	Element H.3	The EOF provides a dedicated location for support of the site event response activities. The EOF is sized to accommodate ERO responders and NRC, FEMA, and State and local representatives. Activation of the EOF is mandatory at the Alert, SAE, and General Emergency (GE) emergency classification levels. Activation of the EOF at a NOUE will be at the discretion of the Shift Manager. The EOF is activated when minimum staffing requirements are met, key systems and equipment are verified operational, and the ERO personnel are prepared to perform their functions. The EOF organization can be found in EPIP EI-4.3, "Emergency Operations Facility Activation." When activated, the EOF's primary functions include: • 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.	5.3.4 – Emergency Operations Facility (EOF)	The Emergency Operations Facility (EOF) is located in downtown Benton Harbor, approximately 16 miles South Southwest from the Plant. The EOF staff is responsible for overall management of an emergency and for communicating with external agencies upon transfer of responsibility from the Control Room. Activation of the EOF is mandatory at the Alert, Site Area, and General Emergency Classifications. Activation of the EOF at an Unusual Event will be at the request of the Shift Manager. The EOF will be staffed by Plant personnel. The initial staff may be supplemented by federal, state, and local officials. Once activated and operational, the EOF Emergency Director will be responsible for management of overall emergency response. The EOF will coordinate emergency response activities with federal, state, and local agencies to mitigate the consequences of an emergency. The EOF organization can be found in Emergency Implementing Procedure EI-4.3, "Emergency Operations Facility Activation." 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 emergency response staff if the site is under threat of, or experiencing hostile action.	Reorganization and consolidation of the content of sections 5.3.4 and 7.2 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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			• 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, admin, etc.). • Support site acquisition of equipment, supply, and logistic resources. Once the EOF is activated and operational, the EOF Emergency Director will be responsible for management of overall emergency response. The EOF will coordinate emergency response activities with federal, state, and local agencies to mitigate the consequences of an emergency. The EOF provides communications to the Control Room, TSC, field monitoring teams, NRC, and OROs. 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, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures as either electronic or paper documents. The EOF has ready access to up-to-date Plant records, procedures, and emergency plans needed to exercise overall utility resources management and for recovery management. Hard copy records stored and maintained at the EOF include, but are not limited to: • PNP Technical Specifications • PNP Operating Procedures	_____ 7.2 – Emergency Operations Facility (EOF)	The design features of the EOF are discussed in Palisades Site Emergency Plan, Section 7.0, "Emergency Facilities and Equipment." _____ The Palisades Emergency Operations Facility (EOF) is located in downtown Benton Harbor, approximately 16 miles South Southwest from the Plant. The EOF assumes overall responsibility for Entergy Corporation emergency response. The EOF is designed to provide assistance in the decision-making process to protect the public health and safety, and to control radiological monitoring teams offsite. The EOF may be activated for the Unusual Event, and shall be fully activated for the Alert, Site Area Emergency, and General Emergency categories. To assure the safety of the staff, equipment is provided for measuring external dose rates, and airborne radioactivity levels. The staff is comprised of personnel from the Plant. In addition, liaison personnel from the county, state, and federal governments will also be present in the EOF. The EOF has ready access to up-to-date Plant records, procedures, and emergency plans needed to exercise overall utility resources management and for recovery management. Hard copy records stored and maintained at the EOF include, but are not limited to: Palisades Technical Specifications Palisades Operating Procedures Palisades Final Safety Analysis Report Palisades Abnormal Operating Procedures Palisades Emergency Operating Procedures Palisades Site Emergency Plan Palisades Emergency Implementing Procedures Michigan Emergency Management Plan Van Buren County Emergency Plan Berrien County Emergency Plan Allegan County Emergency Plan Palisades Piping and Instrument Diagrams	

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			• PNP UFSAR • PNP Abnormal Operating Procedures • PNP Emergency Operating Procedures • PNP SEP • PNP EPIPs • Michigan Emergency Management Plan • Van Buren County Emergency Plan • Berrien County Emergency Plan • Allegan County Emergency Plan • Palisades Piping and Instrument Diagrams Other up-to-date records including radiological records, procedures, drawings, schematics, and diagrams are readily available via transmittal to the EOF. The PNP EOF is located in downtown Benton Harbor, approximately 16 miles south-southwest from PNP. The EOF assumes overall responsibility for PNP's emergency response. The EOF is designed to provide assistance in the decision-making process to protect the public health and safety, and to control radiological monitoring teams offsite. The EOF staff is comprised of personnel from the Plant. In addition, liaison personnel from the counties, State, and Federal governments will also be present in the EOF. Because the EOF is located outside the plume exposure EPZ, specialized ventilation systems and radiological monitoring are not required. The EOF ventilation system is consistent in design with standard building codes. To assure the safety of the staff, equipment is provided for measuring external dose rates, and airborne radioactivity levels.		Other up-to-date records including radiological records, procedures, drawings, schematics, and diagrams are readily available via transmittal to the EOF. The EOF shall provide analysis of field monitoring data, and coordination for the collection sample media.	
H.3.a	**For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.**	Element H.3.a	This element does not apply because the PNP EOF is not located more than 25 miles from the site.	N/A	N/A	N/A
H.4	**An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would**	Element H.4	An alternative facility provides a location for the staging of ERO personnel in the event of a Security or Hostile Action threat to PNP.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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	be accessible even if the NPP site is under threat of or experiencing hostile action.		The alternative facility may also serve as an evacuation location for TSC and OSC personnel should those facilities become uninhabitable. The alternative facility can communicate with the Control Room, plant security, and the EOF. 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 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.			
H.5	**A JIC is established, and its location is identified, to coordinate communication from Federal, state, local, and tribal government authorities and licensee personnel with the public and media.**	Element H.5	A JIC is established at the combined EOF/JIC located at 330 W Main, Benton Harbor. The JIC is staffed by public information representatives from PNP, State, Counties, 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. When activated, the JIC functions as a physical location for interacting with the media and for coordination between PNP, Federal and ORO PIOs regarding communications information to the public and the media.	7.4 – Joint Information Center (JIC)	A Joint Information Center (JIC) will be established at the combined EOF/JIC located at 330 W Main, Benton Harbor. The JIC will be staffed by public information representatives of the utility, state, county, and federal governments. The Plant Communications Specialist will be located in this facility upon its activation.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
H.6	**Each organization establishes an emergency operations center (EOC) for use in directing and controlling response functions. For an EOC located within the plume exposure pathway EPZ, an alternate EOC or location outside the plume exposure pathway EPZ is identified to continue response functions in the event of an evacuation.**	Element H.6	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans. Potential emergencies could directly impact those individuals living within the plume exposure pathway EPZ, and indirectly affect property within the ingestion exposure pathway EPZ. Therefore, emergency planning efforts have been initiated by those affected counties within the plume exposure	N/A	N/A	N/A

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			pathway EPZ. The affected counties are: Van Buren, Berrien, and Allegan Counties. Each of these counties has established and maintains an Emergency Operations Center (EOC). These centers are located as follows: a. Van Buren County Courthouse Annex Paw Paw, Michigan b. Berrien County Sheriff's Department Benton Harbor, Michigan c. Allegan Central Dispatch Allegan, Michigan When it is determined that personnel and resources of State government are needed to support operations of affected local governments, the State Emergency Operations Center (SEOC) is staffed in Lansing. This facility is staffed at any level of emergency depending on potential for required state response. The Michigan State Field Team Center location will be determined at the time of the incident by personnel at the State EOC. That facility is equipped with the necessary communications control capabilities (when staffed), from which the State will dispatch offsite-monitoring teams. All decision makers remain in Lansing.			
H.7	**Onsite monitoring systems used to initiate emergency response measures in accordance with the emergency classification scheme, as well as those to be used for conducting assessment, are identified. Monitoring systems consist of geophysical phenomena monitors, including meteorological, hydrologic, and seismic instrumentation; radiation monitors and sampling equipment; plant process monitors; and fire, toxic gas, and combustion products detectors.**	Element H 7	Palisades 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 (CLB) documents	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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		Location (Section II)	Content	Location (Section)	Content	
		Element H 7 Paragraph 1 – Meteorological Monitoring	The Emergency Preparedness Section controls for the PNP Meteorological Monitoring Program are defined in PNP Administrative Procedure 1.14, "Meteorological Monitoring Program." PNP has a permanent on-site meteorological monitoring station for the acquisition and recording of wind speed, wind direction, and stability class for use in offsite dose projection. 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. b. Stability class. This data is transmitted to the Control Room at 15-minute intervals. A remote interrogation capability is available. Details of the system as it applies to emergency offsite dose calculation are provided in EPIP EI-6.7, "Plant Site Meteorological System." Backup meteorological data can be obtained through use of EPIP EI-6.8, "Backup and Supplemental Meteorology." 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.	7.6.2 - Meteorology	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 b. Stability class. This data is transmitted to the Control Room at 15-minute averages. A remote interrogation capability is available. Details of the system as it applies to emergency offsite dose calculation are provided in Emergency Implementing Procedure EI-6.7, "Plant Site Meteorological System." Details on the system in general are provided in "Palisades Meteorological Monitoring Project Plan." Backup meteorological data can be obtained through use of Emergency Implementing Procedure EI-6.8, "Backup and Supplemental Meteorology." Severe weather warnings are provided to the Plant by a private consultant. Predictions of sky to ground lightening, tornados, and wind speeds in excess of 40 mph are reported to the Control Room.	
		Element H 7 Paragraph 2 – Hydrologic Monitoring	PNP maintains a groundwater monitoring program in accordance with the industry standard NEI 07-07 groundwater protection initiative.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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		Location (Section II)	Content	Location (Section)	Content	
		Element H 7 Paragraph 3 – Seismic Monitoring	PNP has a seismic monitoring system that supports the acquisition of data used for event recognition and declaration. Refer to Chapter 5 of the UFSAR for description of the seismic monitoring system.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
		Element H 7 Paragraph 4 – Process and Area Radiation Monitors	Process Radiation Monitors (PRMs) 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 (ARMs) 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 area accessibility for the protective action function. Refer to Chapter 11 of the UFSAR for description of the PRM and ARM systems. The Radiation Monitoring System measures, indicates, and records the presence and level of radiation, and alerts Plant personnel to abnormal levels of radioactivity, thereby contributing to personnel protection and proper operation of Plant equipment. The system consists of permanently installed, continuous monitoring devices together with a program and provisions for specific sample collections and laboratory analyses. The system is designed to provide information for use in evaluating the radiological consequences of normal Plant operation, anticipated operational occurrences, and accidents. Control actions are initiated on the required systems when radiation levels exceed predetermined amounts. These monitoring functions are performed by the following subsystems and programs: a. Area Radiation Monitors Area radiation monitors are primarily for the purpose of measuring radiation dose rates for protection of Plant personnel	7.6.1 – Radiation Monitoring System	The Radiation Monitoring System measures, indicates, and records the presence and level of radiation, and alerts Plant personnel to abnormal levels of radioactivity, thereby contributing to personnel protection and proper operation of Plant equipment. The system consists of permanently installed, continuous monitoring devices together with a program and provisions for specific sample collections and laboratory analyses. The system is designed to provide information for use in evaluating the radiological consequences of normal Plant operation, anticipated operational occurrences, and accidents. Control actions are initiated on the required systems when radiation levels exceed predetermined amounts. These monitoring functions are performed by the following subsystems and programs: a. Area Radiation Monitoring b. Liquid Radiation Monitoring c. Airborne Radiation Monitoring 1. Gas 2. Particulate 3. Iodine 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 will be supplied from a reliable source. d. Area Radiation Monitors Area radiation monitors are primarily for the purpose of measuring radiation dose rates for protection of Plant personnel and providing supporting data to the surveillance of Plant radiation levels.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			and providing supporting data to the surveillance of Plant radiation levels. Monitor alarm setpoints depend on the normal background radiation at the detector location and the calculated levels for abnormal conditions. The monitors will operate within the range of normal environmental conditions applicable to their locations. Monitored points within PNP are in areas where personnel exposure to radiation is most likely, and at appropriate access control boundaries. Readouts and alarms are provided both locally and in the Control Room. b. Airborne Radiation Monitors The radiation monitors located in the gaseous release paths monitor radioactivity with sufficient sensitivity to demonstrate compliance with 10 CFR 20 limits. They also provide sampling capability, i.e., removable filters and/or gas sample stop valves. Samples analyzed with laboratory equipment permit evaluation of compliance to more restrictive regulations and provide data required. c. Liquid Radiation Monitors The monitoring systems consist of fixed detectors that display radiation levels in the Control Room. Testing and maintenance features, such as remotely operated check sources, flushing connections, and cutoff valves are included for periodic system check and/or calibration. The liquid radiation monitors are designed to ensure that liquid effluent releases are maintained below the concentration values of 10 CFR Part 20 by the use of alarms and automatic shutoff features.		Monitor alarm setpoints depend on the normal background radiation at the detector location and the calculated levels for abnormal conditions. The monitors will operate within the range of normal environmental conditions applicable to their locations. Monitored points within the Plant are in areas where personnel exposure to radiation is most likely, and at appropriate access control boundaries. Readouts and alarms are provided both locally and in the Control Room. e. Airborne Radiation Monitors The radiation monitors located in the gaseous release paths monitor radioactivity with sufficient sensitivity to demonstrate compliance with 10 CFR 20 limits. They also provide sampling capability, ie, removable filters and/or gas sample stop valves. Samples analyzed with laboratory equipment permit evaluation of compliance to more restrictive regulations and provide data required. f. Liquid Radiation Monitors The monitoring systems consist of fixed detectors that display radiation levels in the Control Room. Testing and maintenance features, such as remotely operated check sources, flushing connections, and cutoff valves are included for periodic system check and/or calibration. The liquid radiation monitors are designed to ensure that liquid effluent releases are maintained below the DAC values of 10 CFR 20 by the use of alarms and automatic shutoff features.	

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			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 will be supplied from a reliable source.			
		Element H 7 Paragraph 5 – Portable Radiation Monitors	Portable radiation monitoring equipment is available for uses such as area monitoring, sampling, personnel surveys, and continued accident assessment.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
		Element H 7 Paragraph 6 – Sampling Systems	Liquid and gaseous sampling systems, consisting of normal sampling systems and panels located throughout the plant, are used for event recognition and declaration. Refer to Chapter 9 of the UFSAR for description the sampling systems.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
		Element H 7 Paragraph 7 – Fire Detection Systems	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, including monitoring devices and fire suppression equipment, is detailed in the Fire Protection Implementing Procedures.	7.6.3 – Fire Protection System	The Fire Protection System, including monitoring devices and fire suppression equipment, is completely detailed in the Fire Protection Implementing Procedures. The Fire Protection System, including monitoring devices and fire suppression equipment, is completely detailed in the Fire Protection Implementing Procedures.	Reorganization of the content of SEP Rev. 32.
H.8	**Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).**	Element H.8	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
		Element H.8 Paragraph 1 – Offsite Meteorological Monitoring	Weather forecasts and certain meteorological data is available from the National Weather Service.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
		Element H.8 Paragraph 2 – Offsite Seismic Monitoring	Seismic information from offsite sources can be obtained from the NEIC. The USGS is the contact agency to obtain information about a seismic event.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Element H.8 Paragraph 3 – Offsite Hydrologic Monitoring	Hydrologic information is available from the National Weather Service.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
		Element H.8 Paragraph 4 – Offsite Radiological Environmental Monitoring	Offsite programs and processes are developed within the Radiological Environmental Assessment Program (REMP) as described in the Offsite Dose Calculation Manual (ODCM). The Radiological Environmental Assessment Program includes: • Fixed continuous air samplers • Routine sampling of water, vegetation, consumable products • A dose monitoring network The locations of the normal onsite and offsite environmental monitoring stations are described in the ODCM. Additional predetermined emergency offsite monitoring locations are contained in procedures. The REMP provides a number of dosimeters and airborne particulate sampling stations that are valuable for long-term appraisal of integrated dose. EPIP EI-10, "Accident Environmental Assessment," provides guidelines for post-accident collection and replacement of accident dosimetry, obtaining data from air monitoring stations, collection and assessment of waterborne effluents, and obtaining water/milk/vegetation samples. Radiological Monitoring Teams shall be activated at the direction of the Shift Manager or OSC Manager. If the OSC has not been activated, notification should be made directly to the Radiation Protection Office. Monitoring teams should consist of two individuals; one qualified for field monitoring and one driver. Following staff augmentation, the estimated deployment time for a monitoring team is 30 minutes.	7.7.1 – Radiological Monitoring	Radiological Monitoring Teams shall be activated at the direction of the Shift Manager or OSC Manager. If the OSC has not been activated, notification should be made directly to the Radiation Protection Office. Monitoring teams should consist of two Radiation Protection members. The emergency vehicle shall provide transportation and be 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 concentration as low as 10^{-7} micro-curies per cubic centimeter. Following staff augmentation, the estimated deployment time for a monitoring team is 30 minutes. a. The Environmental Monitoring Program provides a number of dosimeters and airborne particulate sampling stations that are valuable for long-term appraisal of integrated dose.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

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		Element H.8 Paragraph 5 – Fixed or Mobile Laboratory Facilities	Refer to Element C.4 for details on facilities for counting and analyzing samples.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
H.9	**Organizations directly responsible for offsite radiological monitoring provide for radiological monitoring equipment. This includes equipment that is located or stored near the NPP site, as well as additional equipment that may be brought to the site.**	Element H.9	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 concentration as low as 10^{-7} micro-curies per cubic centimeter. The Michigan EGLE provides offsite field monitoring capability within approximately three hours. The MSP/EMD can request aerial and field monitoring through the DOE. Federal, industry and private entities can be contacted to coordinate additional material and personnel resources for offsite radiological monitoring.	7.7.1 – Radiological Monitoring	Radiological Monitoring Teams shall be activated at the direction of the Shift Manager or OSC Manager. If the OSC has not been activated, notification should be made directly to the Radiation Protection Office. Monitoring teams should consist of two Radiation Protection members. The emergency vehicle shall provide transportation and be 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 concentration as low as 10^{-7} micro-curies per cubic centimeter. Following staff augmentation, the estimated deployment time for a monitoring team is 30 minutes. b. The Michigan Department of Environment, Great Lakes, and Energy, provides offsite field monitoring capability within approximately three hours. c. The State Police Emergency Management Division can request aerial and field monitoring through the Department of Energy.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
H.10	**Instrumentation is provided to obtain current meteorological information. Additional provisions are made to obtain representative meteorological information from other sources as needed by the NPP's radiological assessment models for site-specific characterization of plume dispersion and transport. Meteorological information is provided to the control room, TSC, EOF (or backup EOF), and NRC (via ERDS).**	Element H.10	Refer to Element H.7.1 for a description of the onsite meteorological monitoring capabilities. Refer to Element H.8.1 for a description of the offsite meteorological monitoring capabilities. Site meteorological information is available on workstations in the Control Room(s), TSC, and EOF. ERDS provides the NRC with selected meteorological data points on a near real-time basis. Meteorological inputs for the dose assessment model are provided by the	7.6.2 - Meteorology	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. b. Stability class. This data is transmitted to the Control Room at 15-minute averages. A remote	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

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		Location (Section II)	Content	Location (Section)	Content	
			plant parameter display system that obtains data from the site meteorological towers. Input parameters include wind speed, wind direction and stability class.		interrogation capability is available. Details of the system as it applies to emergency offsite dose calculation are provided in Emergency Implementing Procedure EI-6.7, "Plant Site Meteorological System." Details on the system in general are provided in "Palisades Meteorological Monitoring Project Plan."	
H.11	**Provisions are made to ensure that emergency equipment and supplies are tested, maintained, and available in sufficient quantities, to include reserves and replacements, when needed. This includes:**	Element H.11	PNP emergency equipment and kits are inventoried to verify adequate supplies and materials, and to inspect condition semi-annually and following each use. Emergency use equipment and instruments are operationally checked semi-annually during the inventory, and prior to use if needed as specified in procedures. EPIP EI-16.1, "Maintenance of Emergency Equipment," provides guidance for the maintenance and inventory of emergency equipment. Sufficient reserves of instruments and equipment are maintained to replace those removed from service for calibration or repair.	8.4 – Maintenance and Inventory of Emergency Equipment	Emergency Planning is responsible for ensuring the quarterly inventory and/or seal inspection is completed for designated emergency supplies and equipment. Designated emergency equipment and supplies and their storage locations will be listed in the Implementing Procedures. Equipment, supplies, and parts having shelf lives shall be checked and replaced as necessary. Operational readiness of emergency equipment and supplies can be assured by conducting surveillance testing, maintenance checks, calibration, or inventory of all supplies and conducting an annual review of the list of equipment important to Emergency Planning.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
H.11.a	**Identification of the organization(s) responsible for the testing and maintenance of emergency equipment.**	Element H.11.a	PNP personnel are responsible for oversight of maintenance and testing of emergency equipment. Emergency Planning is responsible for ensuring the quarterly inventory and/or seal inspection is performed for designated emergency supplies and equipment.	8.4 – Maintenance and Inventory of Emergency Equipment	Emergency Planning is responsible for ensuring the quarterly inventory and/or seal inspection is completed for designated emergency supplies and equipment. Designated emergency equipment and supplies and their storage locations will be listed in the Implementing Procedures. Equipment, supplies, and parts having shelf lives shall be checked and replaced as necessary. Operational readiness of emergency equipment and supplies can be assured by conducting surveillance testing, maintenance checks, calibration, or inventory of all supplies and conducting an annual review of the list of equipment important to Emergency Planning.	Reorganization of the content of SEP Rev. 32. Additional revisions to concisely address the Evaluation Criterion.
H.11.b	**Calibration and operational checks of emergency equipment per national standards or the manufacturer's instructions, whichever is more frequent.**	Element H.11.b	Requirements to calibrate emergency equipment and instruments are specified in EPIP EI-16.1, "Maintenance of Emergency Equipment".	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
H.12	**Emergency kits are identified by general category. Contents and quantity of each emergency kit are specified in**	II.H.12 ¶1-2	Emergency kits are assembled for radiation protection, field monitoring, first aid, or other	Appendix E, General Equipment in Emergency Kits	Emergency kits will be maintained and inspected at least quarterly and readily accessible. Kits are typically maintained in	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
	the emergency plan or other document(s) referenced in the emergency plan.		emergency use needs in designated locations. Designated emergency equipment and supplies and their storage locations are listed in EPIP EI-16.1, "Maintenance of Emergency Equipment." Equipment, supplies, and parts having shelf lives shall be checked and replaced as necessary. Operational readiness of emergency equipment and supplies can be assured by conducting surveillance testing, maintenance checks, calibration, or inventory of all supplies and conducting an annual review of the list of equipment important to Emergency Planning. Emergency kits are maintained and inspected at least quarterly as specified in EPIP EI-16.1, "Maintenance of Emergency Equipment," and are readily accessible. Kits are typically maintained in the following locations: TSC, OSC, EOF, Emergency Vehicles, Health Physics Office and support hospitals. Specific kit locations and inventories are specified in EPIP EI-16.1, "Maintenance of Emergency Equipment." Emergency kits consist of the following generic equipment classifications: a. Monitoring instrumentation and equipment including: dose rate and count rate meters, air sampling equipment, personnel dosimetry equipment. b. Protective equipment including: protective clothing, respiratory equipment, thyroid blocking agent. c. Communications equipment including: radios, telephones, microphones. d. Reference material including: Emergency plans and procedures, maps, equipment lists, spare forms. e. Miscellaneous equipment including: survey, posting and boundary equipment, plastic bags, flashlights, office supplies, decontamination equipment. f. Maintenance equipment.		the following locations: Technical Support Center (TSC), Operations Support Center (OSC), Emergency Operations Facility (EOF), Emergency Vehicles, Health Physics Office and support hospitals. Specific kit locations are specified in the Emergency Implementing Procedures. Specific equipment inventories are contained in the Emergency Implementing Procedures. Emergency kits consist of the following generic equipment classifications: a. Monitoring instrumentation and equipment including: dose rate and count rate meters, air sampling equipment, personnel dosimetry equipment. b. Protective equipment including: protective clothing, respiratory equipment, thyroid blocking agent. c. Communications equipment including: radios, telephones, microphones. d. Reference material including: Emergency plans and procedures, maps, equipment lists, spare forms. e. Miscellaneous equipment including: survey, posting and boundary equipment, plastic bags, flashlights, office supplies, decontamination equipment. f. Maintenance equipment. g. Medical Emergency equipment including: monitoring instrumentation and equipment, protective equipment, survey, posting and boundary equipment, decontamination and first aid supplies. h. Medical Emergency First Aid equipment including: Medical First Aid supplies for use in responding to contaminated or noncontaminated injuries.	

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			g. Medical Emergency equipment including: monitoring instrumentation and equipment, protective equipment, survey, posting and boundary equipment, decontamination and first aid supplies. h. Medical Emergency First Aid equipment including: Medical First Aid supplies for use in responding to contaminated or noncontaminated injuries.			
H.13	**Each organization identifies the location(s) for the receipt and analysis of field monitoring data and coordination of sample media, and identifies the organization(s) responsible for assessing radiological data.**	II.H.13	The PNP radiological laboratory is the primary location for receipt of field monitoring team samples. The EOF Radiological Assessment Coordinator is responsible for direction and coordination of field monitoring sample analyses, and for assessing the radiological data obtained from the Field Monitoring Teams. Sampling and analysis equipment are available (see Element C.4) for quantitative activity determination of liquid and air samples, and qualitative activity determination of terrestrial samples.	7.2 – Emergency Operations Facility (EOF)	The EOF shall provide analysis of field monitoring data, and coordination for the collection sample media.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
Planning Standard I – Accident Assessment						
I.1	**Capabilities for performing radiological assessment for all reactor core and spent fuel pool sources, individually and collectively, including response to events occurring simultaneously at all units on the NPP site, are described. These capabilities include:**	Element I.1	Effective coordination and direction of all portions of the emergency organization require almost continuous accident assessment during the course of the emergency. Each emergency class will require similar accident assessment methods; however, each classification imposes a different magnitude of assessment effort. In the following steps, the assessment actions to be taken for each emergency classification are outlined.	6.2 – Assessment Actions	Effective coordination and direction of all portions of the emergency organization require almost continuous accident assessment during the course of the emergency. Each emergency class will require similar accident assessment methods; however, each classification imposes a different magnitude of assessment effort. In the following steps, the assessment actions to be taken for each emergency classification are outlined.	Reorganization of the content of SEP Rev. 32.
		Element I.1 Paragraph 1 – Assessment Actions for a NOUE	The detection of a NOUE shall arise from exceeding a specific EAL for this class. Detection of the event will come as a result of alarms, instrument readings, field observations by Plant staff, recognition through experience, or any combination thereof. The continuing assessment actions to be performed for this classification of emergency shall be in accordance with the Emergency Implementing Procedures and shall consist of the normal monitoring of Control Room and other Plant instrumentation and status indication until the situation is resolved. If a fire is the reason for the declaration of a NOUE, the Shift Manager will make continuing assessments based on knowledge and experience on whether offsite firefighting assistance is needed.	6.2.1 – Assessment Actions for Unusual Events	The detection of an Unusual Event shall arise from exceeding a specific Emergency Action Level for this class. Detection of the event will come as a result of alarms, instrument readings, recognition through experience, or any combination thereof. The continuing assessment actions to be performed for this classification of emergency shall be in accordance with the Emergency Implementing Procedures and shall consist of the normal monitoring of Control Room and other Plant instrumentation and status indication until the situation is resolved. If a fire is the reason for the declaration of an Unusual Event, the Shift Manager will make continuing assessments based on his knowledge and experience on whether offsite firefighting assistance is needed.	Reorganization of the content of SEP Rev. 32.
		Element I.1 Paragraph 2 – Assessment Actions for an Alert	When an accident has been classified as an Alert by the Shift Manager, assessment actions shall be performed in accordance with the EPIPs for an Alert. These actions include: a. Accountability of onsite personnel. b. Staff augmentation, as needed. c. Increased surveillance of in-plant instrumentation. d. Activation of appropriate emergency facilities. e. Dispatch of shift personnel, if possible, to the identified problem area for confirmation and visual assessment. f. Dispatch of onsite Radiation Monitoring Teams to monitor for possible release	6.2.2 – Assessment Actions for Alerts	When an accident has been classified as an Alert by the Shift Manager, assessment actions shall be performed in accordance with the Emergency Implementing Procedures for an Alert. These actions include: a. Accountability of onsite personnel. b. Staff augmentation, as needed. c. Increased surveillance of in-plant instrumentation. d. Activation of appropriate emergency facilities. e. Dispatch of shift personnel, if possible, to the identified problem area for confirmation and visual assessment. f. Dispatch of onsite Radiation Monitoring Teams to monitor for possible release and	Reorganization of the content of SEP Rev. 32.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			and to provide confirmation of correct accident classification. g. If a radiological accident is occurring, surveillance of the in-plant instrumentation is necessary to obtain meteorological and radiological data required for calculating or estimating projected doses. This dose assessment activity shall continue until termination of the emergency in order that the updating of initial assessments may be provided to all concerned offsite agencies, the Shift Manager, and EOF Emergency Director. EPIPs are provided to aid in a rapid, consistent projection of doses.		to provide confirmation of correct accident classification. g. If a radiological accident is occurring, surveillance of the in-plant instrumentation is necessary to obtain meteorological and radiological data required for calculating or estimating projected doses. This dose assessment activity shall continue until termination of the emergency in order that the updating of initial assessments may be provided to all concerned offsite agencies, the Shift Manager, and EOF Emergency Director. Emergency Implementing Procedures are provided to aid in a rapid, consistent projection of doses.	
		Element I.1 Paragraph 3 – Assessment Actions for a SAE	The assessment actions for the SAE classification are similar to the actions for an Alert; however, due to the increased magnitude of the possible release of radioactive material, a significantly larger assessment will occur. The necessary personnel for this assessment effort shall be provided by mobilization of the onsite and offsite emergency organizations. Specifically: a. An increased amount of plant instrumentation shall be monitored, in particular, indications of core status (e.g., core exit thermocouple readings, etc.) shall be monitored. b. Radiological monitoring efforts shall be increased. Onsite and offsite radiological monitoring teams will be dispatched. In addition to beta-gamma field measurements, change out of environmental dosimetry, air sampling, and collection of the environmental media for assessment of radioactive material transport and deposition may also be performed. c. Dose assessment activities will be conducted more frequently with an increased emphasis on dose projections for use as a factor in determining the necessity for protective actions for the public. Radiological and meteorological instrumentation readings	6.2.3 – Assessment Actions for Site Area Emergencies	The assessment actions for the Site Area Emergency classification are similar to the actions for an Alert; however, due to the increased magnitude of the possible release of radioactive material, a significantly larger assessment will occur. The necessary personnel for this assessment effort shall be provided by mobilization of the onsite and offsite emergency organizations. Specifically: a. An increased amount of Plant instrumentation shall be monitored, in particular, indications of core status (eg, in-core thermocouple readings, etc) shall be monitored. b. Radiological monitoring efforts shall be increased. Onsite and offsite radiological monitoring teams will be dispatched. In addition to beta-gamma field measurements, change out of environmental dosimetry, air sampling, and collection of the environmental media for assessment of radioactive material transport and deposition may also be performed. c. Dose assessment activities will be conducted more frequently with an increased emphasis on dose projections for use as a factor in determining the necessity for protective actions for the public. Radiological (eg, dosimetry) and meteorological instrumentation readings	Reorganization of the content of SEP Rev. 32.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			shall be used to project the dose rate at predetermined distances from the Plant, and to determine the integrated dose received. In reporting the dose projections to offsite agencies, the dose rate, dose, and the basis for the time used for the dose estimate shall always be provided. Any confirmation of dose rates by offsite Radiation Monitoring Teams shall be reflected in reporting and/or revising the dose estimate information provided to offsite agencies. Dose projections shall be considered with respect to EPA PAGs (Table J-1). Reporting of assessments to offsite authorities shall include the relationship of the dose to these guidelines. EPIPs will be provided for recording all pertinent information. Dose projections are performed in accordance with EPIP EI-6.0, "Rapid Dose Calculation."		shall be used to project the dose rate at predetermined distances from the Plant, and to determine the integrated dose received. In reporting the dose projections to offsite agencies, the dose rate, dose, and the basis for the time used for the dose estimate shall always be provided. Any confirmation of dose rates by offsite Radiation Monitoring Teams shall be reflected in reporting and/or revising the dose estimate information provided to offsite agencies. Dose projections shall be considered with respect to the Environmental Protection Agency Protective Action Guides (Table 6-1). Reporting of assessments to offsite authorities shall include the relationship of the dose to these guidelines. Emergency Implementing Procedures will be provided for recording all pertinent information.	
		Element I.1 Paragraph 4 – Assessment Actions for a GE	Assessment actions for the GE classification shall be the same as for the SAE with some possible shift of emphasis to greater offsite radiation monitoring and dose projections extending to distances farther from the site.	6.2.4 – Assessment Actions for General Emergencies	Assessment actions for the General Emergency classification shall be the same as for the Site Area Emergency with some possible shift of emphasis to greater offsite radiation monitoring and dose projections extending to distances farther from the site.	Reorganization of the content of SEP Rev. 32.
I.1.a	**Methods for determining the magnitude and isotopic composition of an ongoing release of radioactive material through waterborne or airborne release pathways, or estimating these parameters for a potential release.**	II.I.1.a	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. Dose assessment model methods are capable of estimating source term and magnitude of gaseous releases from effluent	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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			monitors or plant parameter data and release rate projections.			
I.1.b	**A radiological assessment model for airborne releases that provides estimates of offsite radiation exposures and contamination levels using a dispersion model that is representative of the plant release points, topographical features, and meteorological regimes at the NPP site.**	Element I.1.b	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. 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 EPA-400/R-17/001, “PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents,” dated January 2017. dose conversion factors and is provided as: (1) the total effective dose equivalent, or TEDE (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 (CDE thyroid). URI dose projection results are given for various locations from the site boundary to 10 miles. URI can provide dose assessment results for multiple release points from the site. URI dose projection results and field monitoring readings are used in assessing radiological EALs and PARs. EPIP EI-6.0, "Rapid Dose Calculation," contains two methods for calculating offsite dose to population from accidental releases. These methods are: a. Computer Method - Implements the above method using a personal computer to speed the process. b. Manual Method - A pencil and paper method for calculating offsite dose using precalculated diffusion factors and a straight line Gaussian methodology.	6.2.5 – Estimation of Offsite Dose	The Emergency Implementing Procedures (reference Emergency Implementing Procedure EI-6.0, "Rapid Dose Calculation") contain two methods for calculating offsite dose to population from accidental releases. These methods are: a. Computer Method - Implements the above method using a personal computer to speed the process. b. Manual Method - A pencil and paper method for calculating offsite dose using precalculated diffusion factors and a straight line Gaussian methodology. The above methods have been developed in cooperation with state agencies and provide methods for rapid, accurate dose estimates.	Reorganization of the content of SEP Rev. 32. Additional content added to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			The above methods have been developed in cooperation with state agencies and provide methods for rapid, accurate dose estimates. EPIP EI-6.9, "Automated Dose Assessment Program," provides basic instruction for performing offsite dose assessment using the URI "Detailed" dose assessment method during an emergency event involving an actual or potential release of radioactivity to the environment. EPIP EI-6.10, "Offsite Dose Calculation - Straight Line Gaussian (Manual Method)," provides a manual backup to the automated dose assessment program to calculate whole body and thyroid dose rates.			
I.1.c	**A capability to coordinate and implement in-field radiological assessments by FMTs and/or sampling teams and to assess the data obtained.**	Element I.1.c	Environmental surveys inside and outside the protected area are performed by Field Monitoring Team members under the direction of the EOF RP 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 surveys and sampling may be performed at pre-identified locations or other geographic locations within the EPZ determined during the event. Samples taken by the offsite monitoring teams will be evaluated further by one of the available laboratory facilities described in Element C.4.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
I.2	**Methods for assessing contamination of drinking water through liquid release pathways or deposition of airborne materials for NPP sites located on or near bodies of water from which public drinking water is drawn.**	Element I.2	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
I.3	**The capability and responsibility for monitoring the following parameters, which provide input to radiological assessments during an emergency, are described:** **1. Status of reactor fuel (e.g., no fuel damage, technical specification activity, clad failure, core melt.).** **2. Status of containment integrity.**	Element I.3	The PNP ERO monitors plant parameters using information provided by plant data transmittal systems to assess the status of reactor fuel using core damage assessment utilizing EPIP EI-11, "Determination of Extent of Core Damage." The PNP ERO monitors plant data systems to evaluate the status of containment integrity, systems used to mitigate the release of radioactive material to the	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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	3. Leakage of radioactive material from plant systems, structures and components. **4. Status of engineered safety features used to mitigate the release of radioactive material to the environment (e.g., filters, containment spray, etc.).** **5. Onset and duration of an actual release of radioactive material to the environment, or estimating these parameter for a potential release.**		environment and to identify leakage of radioactive material from plant systems, structures, and components. Effluent and process monitors are used to determine the onset and duration of an actual or potential release of radioactive material to the environment.			
I.4	**The methods and responsibility for determining the source term present in reactor coolant, containment atmosphere, and spent fuel pool area atmosphere are described.**	Element I.4	Source term present in reactor coolant, containment atmosphere, and spent fuel pool 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.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
I.4.a	**The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.**	Element I.4.a	EPIP EI-7.0, "Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates," provides the decision-making process to implement sampling under emergency conditions.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
I.5	**The organizations responsible for FMT activities, and necessary resources, are identified.**	Element I.5	PNP is responsible for field monitoring team activities. PNP field monitoring team activities are coordinated with environmental monitoring efforts performed by ORO field monitoring teams.	7.2 – Emergency Operations Facility (EOF)	The EOF shall provide analysis of field monitoring data, and coordination for the collection sample media.	Reorganization of the content of SEP Rev. 32. Additional content added to fully address the Evaluation Criterion.
I.6	**Each organization, where appropriate, provides methods, equipment, and expertise to make timely assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways, including development of post-plume PARs for comparison to current Federal guidance.**	Element I.6	As described in Element I.1.b, PNP uses the URI off-site dose projection computer model.to make timely assessments of the actual or potential magnitude and locations of any radiological hazards through gaseous release pathways. Personnel qualified in dose assessment are available on shift, and in the EOF. Dose assessment results and field monitoring readings assist in evaluating appropriate ECLs based on radiological EALs, and for developing any related PARs. The actual or potential magnitude of liquid radiological releases with regard to the ECLs are determined by liquid effluent monitors, direct area surveys, or sample analyses.	6.1 – Assessment Actions	Effective coordination and direction of all portions of the emergency organization require almost continuous accident assessment during the course of the emergency. Each emergency class will require similar accident assessment methods; however, each classification imposes a different magnitude of assessment effort. In the following steps, the assessment actions to be taken for each emergency classification are outlined.	Reorganization of the content of SEP Rev. 32. Additional content added to fully address the Evaluation Criterion.

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			With regard to the ingestion pathway, field monitoring teams are used to obtain liquid effluent samples from radioactive liquid releases. Sample results are used in conjunction with ODCM 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.			
I.7	**The capability to detect and measure radioiodine concentrations in air in the plume exposure pathway EPZ as low as 1E-7 μCi/cc (microcuries per cubic centimeter) under field conditions is described. The sample collection process takes into account the sample flow rate, collection efficiency of the sample media used to collect the sample, duration of the sample, counter efficiency, and background radiation, including interference from the presence of noble gases.**	Element I.7	Palisades field monitoring equipment has the capability to detect and measure airborne radioiodine concentrations as low as 1E-7 µCi/cc 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. Air sample results can be estimated in the field through the use of portable monitors. The samples can be subsequently analyzed for greater precision by the laboratory facilities described in Element C.4.	7.7.1 – Radiological Monitoring	The equipment and procedures supplied to the offsite team(s) provide the capability to sample for radioiodine in concentration as low as 10^{-7} micro-curies per cubic centimeter.	Reorganization of the content of SEP Rev. 32. Additional content added to fully address the Evaluation Criterion.
I.8	**A means is established for relating the various measured parameters (e.g., exposure rates, contamination levels, and air activity levels) to dose or dose rates. Provisions are made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with current federal guidance. In addition, provisions are established to validate dose projections with field data and compare projections with other organizations also calculating dose projections. The detailed provisions are described in implementing procedures.**	Element I.8	PNP field monitoring teams will track the plume from any radiological release by monitoring radiation levels and by obtaining and analyzing air samples. Field monitoring team environmental survey and air sample results are compared with dose assessment results to validate or adjust projections. Additionally, field monitoring results can be input into the dose assessment model to develop projections at different locations.	6.2.2 – Assessment Actions for Alerts	g. If a radiological accident is occurring, surveillance of the in-plant instrumentation is necessary to obtain meteorological and radiological data required for calculating or estimating projected doses. This dose assessment activity shall continue until termination of the emergency in order that the updating of initial assessments may be provided to all concerned offsite agencies, the Shift Manager, and EOF Emergency Director. Emergency Implementing Procedures are provided to aid in a rapid, consistent projection of doses.	Reorganization of the content of SEP Rev. 32. Additional content added to fully address the Evaluation Criterion.
I.9	**Arrangements to locate and track the airborne radioactive plume are made using available resources, which includes federal, state, and tribal**	Element I.9	PNP maintains equipment for the utility field monitoring teams. Methods to monitor a radioactive plume include establishing peak centerline values and immersion areas.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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	governments, and/or licensee resources. Provisions are made to characterize the plume including taking peak plume measurements. Identification of the plume, includes determining a measurement that is high enough to be reasonably above background radiation readings and sufficient enough to indicate submersion within the plume.		Monitoring strategies may include the traversing of plumes when road networks and exposure rate permit. Additionally, local field sampling and monitoring points are specified to support pre-positioning of teams or use in comparison with dose projection results. Data from the PNP field monitoring teams is compared to data provided by state field monitoring teams that may be dispatched into the area. Data collected before state field monitoring teams are in the field is made available to state dose assessment personnel.			
I.10	**Organizations directly responsible for radiological monitoring, analysis, and dose projections describe the capability for coordinating monitoring efforts, tracking and trending data, and sharing analytical results with other organizations performing radiological assessment functions.**	Element I.10	The EOF Emergency Director is notified of assessment results from the site and from offsite support agencies. The EOF Emergency Director, in turn, is responsible for communication back to those groups so that emergency measures may be modified as necessary. PNP EOF dose assessment personnel coordinate field monitoring team radiological monitoring activities and compare dose projection results with ORO and NRC representatives.	6.2.8 – Assessment Results Communications _____ 7.7.1 – Radiological Monitoring	The EOF Emergency Director is notified of assessment results from the site and from offsite support agencies. The EOF Emergency Director, in turn, is responsible for communication back to those groups so that emergency measures may be modified as necessary. _____ b. The Michigan Department of Environment, Great Lakes, and Energy, provides offsite field monitoring capability within approximately three hours. c. The State Police Emergency Management Division can request aerial and field monitoring through the Department of Energy.	Reorganization of the content of SEP Rev. 32. Additional content added to fully address the Evaluation Criterion.
		II.I.10 ¶2	PNP EOF dose assessment personnel coordinate field monitoring team radiological monitoring activities and compare dose projection results with ORO and NRC representatives.	7.2 – Emergency Operations Facility (EOF)	The EOF shall provide analysis of field monitoring data, and coordination for the collection sample media.	Reorganization of the content of SEP Rev. 32. Additional content added to fully address the Evaluation Criterion.

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Planning Standard J – Protective Response						
J.1	**The means and time required to alert, notify, and provide a range of protective actions for onsite individuals and individuals who may be in areas controlled by the licensee (including members of the public) during a radiological incident are described.**	Element J.1	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 PNP public address system. Personnel on site are notified of a declared emergency through the public address system. Visitors within the Protected Area are escorted by badged individuals. The escort is responsible for controlling and directing their assigned visitors regarding actions required by any announcements and alarms. Security personnel are used, as available, to augment public address announcements and to check OCA areas for remaining individuals. All persons onsite at the time of an NOUE, Alert, SAE, or GE shall be notified of the emergency by a two-minute steady siren and an announcement over the public address system in the assembly areas. For the Alert and above, personnel shall be instructed to report to assembly areas for accountability, monitoring, and possible evacuation.	6.4 – Protective Actions _____ 6.4.1 – Sheltering, Evacuation, Personnel Accountability	Protective actions are emergency measures taken during or after an emergency situation that are intended to minimize or eliminate the hazard to the health and safety of the general public and/or Plant personnel. Such actions taken onsite are the responsibility of the Entergy Corporation, while those offsite actions are the responsibility of the State of Michigan and local political jurisdictions. Protective Action Guides for the Environmental Protection Agency and the State of Michigan are shown on Tables 6-1 and 6-2. All visitors to the site protected area shall be either escorted by an employee knowledgeable as to the Emergency Plan response actions or shall receive training on actions required by them during an emergency. _____ All persons onsite at the time of an Alert, Site Area, or General Emergency shall be notified of the emergency by a two-minute steady siren and an announcement over the public address system in the assembly areas. Notification of an Unusual Event should be over the Plant public address system. For the Alert and above, personnel shall be instructed to report to assembly areas for accountability, monitoring, and possible evacuation. Personnel accountability shall be completed in approximately 30 minutes. Specific assembly areas are designated in the Emergency Implementing Procedures. All personnel shall be trained in the locations of the assembly areas, or be escorted by an employee who is so trained. At the assembly area, members of the emergency organization shall direct efforts per the applicable Emergency Implementing Procedure. These procedures shall provide contingency plans for weather, traffic, and radiological impediments to evacuation.	Reorganization and consolidation of the content of sections 6.4 and 6.4.1 of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
J.1.a	**Provisions are made for evacuation of onsite non-essential personnel at an SAE/General Emergency (GE).**	Element J.1.a	Site evacuation is required following a SAE or GE unless delayed due to safety issues. The sounding of an alarm over the public address system occurs for the initiation of site evacuation.	6.4.1 – Sheltering, Evacuation, Personnel Accountability	During an emergency, the relocation of personnel may be required in order to prevent or minimize exposure to radiation and radioactive materials. The following	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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			When a site evacuation occurs, ERO and other essential personnel respond to their designated response facilities/areas. Non-essential personnel inside the Protected Area typically exit to the OCA by following normal radiation protection and security processes and proceed to a designated assembly area. Further, evacuation of non-essential personnel inside the OCA occurs as warranted. A process is in place to perform a rapid evacuation of the Protected Area without onsite monitoring and OCA assembly if conditions warrant. Monitoring in this instance is performed at an offsite location.		steps present information on policies applicable to such situations: a. 1 – Notification For the Alert and above, personnel shall be instructed to report to assembly areas for accountability, monitoring, and possible evacuation.	
J.2	**Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.**	Element J.2	Designated offsite locations for site evacuees, and the process to use them, have been identified through coordination with local emergency management personnel. The site evacuation process takes into consideration meteorological and radiological data, weather and other travel hazards. On-site personnel will evacuate the site when directed. Three potential routes are available: Plant access road to the east and the beach to the north or south. Unless conditions dictate otherwise, the Plant access road to the east will be the primary evacuation route. An evacuation procedure shall require a personnel accountability check at the appropriate control point/monitoring station. Security officers shall be dispatched by the Emergency Plant Manager to stop ingress from the access roads and to assist PNP personnel evacuating the site. A control point/monitoring station shall be established along the egress route in an area expected to be outside the path of possible radioactive releases. At the assembly area, members of the emergency organization shall direct efforts	6.4.1 – Sheltering, Evacuation, Personnel Accountability	a. 4 – Egress Routes Three potential routes are available: Plant access road to the east and the beach to the north or south. Unless conditions dictate otherwise, the Plant access road to the east will be the primary evacuation route. An evacuation procedure shall require a personnel accountability check at the appropriate control point/monitoring station. Security officers shall be dispatched by the Emergency Plant Manager to stop ingress from the access roads and to assist Plant personnel evacuating the site. A control point/monitoring station shall be established along the egress route in an area expected to be outside the path of possible radioactive releases.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			per the applicable Emergency Implementing Procedure. These procedures shall provide contingency plans for weather, traffic, and radiological impediments to evacuation.			
J.3	**Provisions for radiological monitoring and decontamination, if necessary, of personnel evacuated from the NPP site are described.**	Element J.3	Personnel 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. A combination of checking electronic dosimeters and questioning of evacuees will be used to initially determine if there were any high external exposures involved in the emergency. For any known or suspected high exposures, the permanent dosimeters will be read as soon as possible and further investigation will be conducted to determine the amount of exposure or necessary actions to be taken. Monitoring for contamination and internal ingestion at the assembly areas will be accomplished by using portable instrumentation and questioning. Priority for decontamination will be given to persons found with the highest levels of contamination. Any persons suspected or known to have ingested radioactivity will be whole-body counted, as soon as conditions permit, to assess their internal exposure. Decontamination facilities and supplies for evacuees shall be available.	6.4.1 – Sheltering, Evacuation, Personnel Accountability	a. 3 – Monitoring of Evacuees A combination of checking electronic dosimeters and questioning of evacuees will be used to initially determine if there were any high external exposures involved in the emergency. For any known or suspected high exposures, the permanent dosimeters will be read as soon as possible and further investigation will be conducted to determine the amount of exposure or necessary actions to be taken. Monitoring for contamination and internal ingestion at the assembly areas will be accomplished by using portable instrumentation and questioning. Priority for decontamination will be given persons found with the highest levels of contamination. Any persons suspected or known to have ingested radioactivity will be whole-body counted, as soon as conditions permit, to assess their internal exposure. Decontamination supplies for evacuees shall be available.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
J.4	**The capability to account for all individuals inside the NPP Protected Area following declaration of an SAE or GE is described. The names of missing individuals are ascertained within 30 minutes following the emergency declaration and accountability is maintained for the duration of the incident. This capability includes provisions for prompt accountability following events that may preclude completion within 30 minutes (e.g., hostile action).**	Element J.4	The emergency alarm, together with the public address system, is used to alert and notify on-site personnel of the need for assembly at a SAE or GE emergency classification level (or earlier at the discretion of the Emergency Director). PNP ERO personnel 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	6.4.1 – Sheltering, Evacuation, Personnel Accountability	a. 1 – Notification All persons onsite at the time of an Alert, Site Area, or General Emergency shall be notified of the emergency by a two-minute steady siren and an announcement over the public address system in the assembly areas. Notification of an Unusual Event should be over the Plant public address system. For the Alert and above, personnel shall be instructed to report to assembly areas for accountability, monitoring, and possible evacuation. Personnel accountability shall be completed in approximately 30 minutes. Specific assembly areas are designated in	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			locations of the assembly areas, or be escorted by an employee who is so trained. Typically, accountability of personnel inside the Protected Area is completed within 30 minutes of event declaration. 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. 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 Emergency Implementing Procedures. All personnel shall be trained in the locations of the assembly areas, or be escorted by an employee who is so trained. At the assembly area, members of the emergency organization shall direct efforts per the applicable Emergency Implementing Procedure. These procedures shall provide contingency plans for weather, traffic, and radiological impediments to evacuation.	
J.5	**Provisions are made for personal radiological protection for individuals arriving or remaining onsite during the incident.**	Element J.5	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:	7.8.6 – Use of Protective Equipment and Supplies	Listings by general category of typical emergency protective equipment and supplies that are stored and maintained for emergency purposes are contained in Appendix E of the Plan. Additional protective actions considered as measures for minimizing radiological exposure and contamination of Plant personnel include use of protective equipment and clothing as described below:	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
		Element J.5. Paragraph 1 – Individual Respiratory Protection	Efforts are made to utilize respiratory protective equipment to minimize ingestion and/or inhalation of radionuclides and to maintain internal exposure below the limits specified in 10 CFR 20, Appendix B. Respiratory protection equipment is used by qualified personnel when called for by exposure control procedures. The radiological use respiratory protection program is maintained by Radiation Protection. Respiratory protection devices will be issued when necessary to significantly reduce the internal exposure to radionuclides. Self-Contained Breathing Apparatus (SCBAs) will also be used in emergencies involving smoke, gases, oxygen deficient atmospheres, or unknown conditions. Both	7.8.6.a – Individual Respiratory Protection	Respiratory protection devices will be issued when necessary to significantly reduce the internal exposure to radionuclides. Self-Contained Breathing Apparatus will also be used in emergencies involving smoke, gases, oxygen deficient atmospheres, or unknown conditions. Both Self-Contained Breathing Apparatus and air-purifying type full-face respirators are maintained in or near the Control Room, and a larger supply of this equipment is available at the Radiation Protection area in access control. Respiratory protection devices will be issued to survey teams, rescue teams, and other personnel required to be in areas of suspected or known high airborne radioactivity. A reserve breathing air supply that is of a rate sufficient to support Control Room personnel for an extended period of time is available.	Reorganization and consolidation of the content of sections 7.8.6.a and 7.8.6.c of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			SCBAs and air-purifying type full-face respirators are maintained in or near the Control Room, and a larger supply of this equipment is available at the Radiation Protection area in access control. Respiratory protection devices will be issued to survey teams, rescue teams, and other personnel required to be in areas of suspected or known high airborne radioactivity. A reserve breathing air supply that is of a rate sufficient to support Control Room personnel for an extended period of time is available. SCBAs are used in areas that are deficient in oxygen or when fighting fires. SCBAs are available with other firefighting equipment for use by the site fire brigade. PNP owns its own air compressor which can continually fill SCBA tanks and other breathing air needs. A vendor or offsite agency may be used if needed.	_____ 7.8.6.c – Breathing Air	_____ The station owns its own air compressor which can continually fill SCBA tanks and other breathing air needs. A vendor or offsite agency may be used if needed.	
		Element J.5. Paragraph 2– Individual Thyroid Protection	If an emergency involves the accidental or potential ingestion or inhalation of radioactive iodine, Potassium Iodide tablets (KI) are maintained and available for distribution. The administration of potassium iodide (KI) to PNP and vendor personnel may be used to mitigate the consequences of inhalation of radioiodine during an emergency.	7.8.6.a – Individual Respiratory Protection	In addition to breathing apparatus, thyroid-blocking agents (ie, potassium iodide) will be dispensed for onsite personnel in accordance with Emergency Implementing Procedures.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
		Element J.5. Paragraph 3– Protective Clothing	Protective clothing will be issued when needed to limit personal contamination and the spread of contamination. Supplies include coveralls, rubber gloves, shoe covers and boots, caps and hoods, and plastic suits. Inventories are maintained for normal Plant use in access control and in the stockroom. Additional supplies of protective clothing are in the emergency kits. This clothing will be issued to survey teams, rescue teams, and other personnel required to enter known or suspect areas of radioactive contamination. It will also be issued to persons required to	7.8.6.b – Protective Clothing	Supplies of this apparel include coveralls, rubber gloves, shoe covers and boots, caps and hoods, and plastic suits. Inventories are maintained for normal Plant use in access control and in the stockroom. Additional supplies of protective clothing are in the emergency kits. This clothing will be issued to survey teams, rescue teams, and other personnel required to enter known or suspect areas of radioactive contamination. It will also be issued to persons required to work in or occupy contaminated areas. For emergency conditions, normal street clothing is considered as protective apparel, which is supplemented as necessary to protect skin	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
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			work in or occupy contaminated areas. For emergency conditions, normal street clothing is considered as protective apparel, which is supplemented as necessary to protect skin surfaces, and which can be cleaned or discarded later. Protective clothing is distributed offsite only to members of those support agencies required to occupy contaminated areas for some purpose.		surfaces, and which can be cleaned or discarded later. Protective clothing is distributed offsite only to members of those support agencies required to occupy contaminated areas for some purpose. In this event, Entergy Corporation will provide supplies to those people as available.	
J.6	**The basis and methodology are established for the development of PARs for the responsible OROs, including evacuation, sheltering, and, if appropriate, radioprotective drug use, for the plume exposure pathway EPZ. Current Federal guidance is used.**	Element J.6	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 radioprotective KI use based on the following: • NUREG-0654/FEMA-REP-1, Revision 1, Supplement 3, Guidance for Protective Action Strategies, November 2011 • EPA-400/R-17/001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, January 2017 • Guidance for Industry, KI in Radiation Emergencies, Questions and Answers, FDA, Revision 1, December 2002 • Potassium Iodide as a Thyroidal Blocking Agent in Radiation Emergencies, FDA Guidance, December 2001 • PARs for the general public will be based on plant conditions and/or offsite dose assessment results. PARs beyond the plume exposure pathway EPZ will be developed on an "ad hoc basis" from projected or measured dose in excess of EPA PAGs. Because dose projection accuracy is limited by distance, actual field measurements are used to corroborate projections before issuing PARs in areas outside the plume exposure pathway EPZ. Protective Action Guides for the Environmental Protection Agency and the State of Michigan are shown on Tables J-1 and J-2.	6.4 – Protective Actions	Protective Action Guides for the Environmental Protection Agency and the State of Michigan are shown on Tables 6-1 and 6-2.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
		Table J-1	Environmental Protection Agency – Protective Action Guides	Table 6-1	Environmental Protection Agency – Protective Action Guides	No changes.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		Table J-2	Source - EPA 400-R-17-001	Table 6-2	Source - EPA 400-R-92-001	No changes
J.7	**A site-specific protective action strategy or decision-making process, informed by the ETE study, is coordinated between the licensee and OROs. Current Federal guidance is used.**	II.J.7	The PNP offsite PAR strategy has been developed in coordination with the state and local agencies, and is informed by the ETE Report.	3 – Protective Actions	Protective action procedures are covered in the Michigan Emergency Preparedness Plan and the Van Buren, Allegan, and Berrien County Emergency Plans. (b) Predesignated areas are based on continuous mile circles from the Palisades Plant. These areas will be used by the responsible authorities in ordering protective actions. (d) Emergency response and evacuation plans for offsite areas have been formulated by state and local agencies. Evacuation clear times for areas near Palisades are shown in Appendix C.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
J.8	**The latest ETEs are:**	Element J.8	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A
J.8.a	**Incorporated either by reference or in their entirety into the emergency plan.**	Element J.8.a	The most recent ETE is incorporated by reference into this SEP. Updated ETE studies will be submitted to the NRC under 10 CFR 50.4 no later than 365 days after PNP determines that the criteria for updating the ETE have been met and at least 180 days before using it to form PAR and providing it to state and county governmental authorities for use in developing offsite protective action strategies. During the years between decennial censuses PNP will estimate EPZ permanent resident population changes once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and state/county government population data, if available. PNP will maintain these estimates so that they are available for NRC inspection during the period between decennial censuses and will submit these estimates to the NRC with any updated ETE report. The criteria that require a full update to the site ETE study is as follows:	2.5.2- Site Emergency Plan Supplement 2	The Site Emergency Plan Supplement 2 - "Evacuation Time Estimates (Revision 1, August 2012)," contains the Palisades updated Evacuation Time Estimates study (Revision 1, August 2012). It is part of the Site Emergency Plan.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			The availability of the most recent decennial census data from the U.S. Census Bureau; **OR** If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected emergency response planning areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the currently NRC approved or updated ETE.			
J.8.b	**Incorporated either by reference or as a summary of the latest ETE analysis into the emergency plan.**	Element J.8.b	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.9	**PARs are provided, in a timely manner, directly to the designated ORO(s) responsible for making protective action decisions (PADs) within the plume exposure pathway EPZ.**	Element J.9	Applicable plume exposure pathway EPZ PARs of evacuate or shelter-in-place are developed at the GE emergency classification level and provided to the ORO personnel responsible for making protective action decisions. PARs are communicated using the initial notification form and process. See Part II Section E of this SEP for a discussion of emergency notification. 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 of the environs if necessary.	2.3 – Emergency Planning Zones _____ 6.1.1 – Control Room Personnel _____ 3 – Protective Actions	Within this zone, shelter and/or evacuation is the immediate protective action to be recommended for the general public. _____ b.2.f - Initial notification should consist of the following as appropriate: (7) Recommended protective actions. _____ Protective action procedures are covered in the Michigan Emergency Preparedness Plan and the Van Buren, Allegan, and Berrien County Emergency Plans. (b) Predesignated areas are based on continuous mile circles from the Palisades Plant. These areas will be used by the responsible authorities in ordering protective actions. (d) Emergency response and evacuation plans for offsite areas have been formulated by state and local agencies. Evacuation clear times for areas near Palisades are shown in Appendix C.	Reorganization and consolidation of the content of sections 2.3, 6.1.1, and 3 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
J.10		Element J.10	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
J.10.a		Element J.10.a	Details on evacuation routes, evacuation areas, reception centers in host areas, and shelter areas are provided in the ETE.	2.2 – Population Distribution and Evacuation Times	The area within a 10-mile radius surrounding the Palisades Plant is designated as the plume exposure Emergency Planning Zone (EPZ). A comprehensive population study was prepared in August 2012 by KLD Engineering. The Evacuation Time Estimates for the plume EPZ are adopted as a progeny procedure to Palisades Site Emergency Plan. See SEP Supp 2, "Evacuation Time Estimates."	Content removed. The most recent ETE is incorporated by reference into this SEP.
J.10.b		Element J.10.b	Details on population distribution around the site, by evacuation areas, are provided in the ETE.	2.2 – Population Distribution and Evacuation Times	The area within a 10-mile radius surrounding the Palisades Plant is designated as the plume exposure Emergency Planning Zone (EPZ). A comprehensive population study was prepared in August 2012 by KLD Engineering. The Evacuation Time Estimates for the plume EPZ are adopted as a progeny procedure to Palisades Site Emergency Plan. See SEP Supp 2, "Evacuation Time Estimates."	Content removed. The most recent ETE is incorporated by reference into this SEP.
J.11	**A capability for implementing protective actions based on current Federal guidance is established. The process ensures coordinated implementation of PADs with all appropriate jurisdictions. The process for implementing protective actions for the plume exposure pathway EPZ is described and includes the following:**	Element J.11	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.11.a	**Means for identifying and protecting residents who would have difficulty in implementing protective actions without assistance. This includes those with access and functional needs, transportation-dependent residents, those in special facilities, and those in correctional facilities. These means include notification, support, and assistance in implementing protective actions where appropriate.**	Element J.11.a	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.11.b	**The decision-making methodologies for use of radioprotective drugs and the provisions for administration to the general public, emergency workers, and institutionalized persons within the plume exposure pathway EPZ. This includes the means of determining quantities, maintaining and managing supplies, communicating recommendations, and distributing.**	Element J.11.b	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
J.11.c	**Means of evacuation informed by the updated ETEs. The evacuation routes and transportation resources to be utilized are described and include projected traffic capacities of evacuation routes and implementation of traffic control schemes during evacuation.**	Element J.11.c	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.11.d	**The locations of pre-identified reception centers beyond the boundaries of the plume exposure pathway EPZ, organizations responsible for managing reception centers, arrangements for handling service animals and pets, and provisions for radiological monitoring/decontamination.**	Element J.11.d	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.11.e	**Means for the initial and ongoing control of access to evacuated areas and organizational responsibilities for such control, including identifying pre-selected control points.**	Element J.11.e	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.11.f	**Identification of and means for dealing with potential impediments to the use of evacuation routes (e.g., seasonal impassability of roads) and contingency measures. The resources available to clear impediments and responsibility for re-routing traffic, as necessary, are described.**	Element J.11.f	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.11.g	**Identification of and means to implement precautionary protective actions (e.g., actions taken at an SAE).**	Element J.11.g	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.12	**Protective actions to be used for the ingestion exposure pathway EPZ are specified, including the methods for protecting the public from consumption of contaminated foodstuffs, and are based on current Federal guidance.**	Element J.12	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.13	**The means for registering, monitoring, and decontaminating evacuees, service animals, pets, vehicles, and possessions at reception centers in host areas are described. The personnel and equipment available are capable of monitoring 20 percent of the plume exposure pathway EPZ population, including transients, assigned to each facility within a 12-hour period.**	Element J.13	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A

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		Location (Section II)	Content	Location (Section)	Content	
J.14	**General plans for the removal or continued exclusion of individuals from restricted areas are developed. Relocation plans include:**	Element J.14	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.14.a	**Process for implementing current federal guidance for relocation.**	Element J.14.a	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.14.b	**Means to identify and determine the boundaries of relocation areas, including a buffer zone.**	Element J.14.b	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.14.c	**Prioritization of relocation based on projected dose to an individual and the timeframe for relocation.**	Element J.14.c	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.14.d	**Control of access to and egress from relocation areas and security provisions for evacuated areas.**	Element J.14.d	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.14.e	**Contamination control during relocation.**	Element J.14.e	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
J.14.f	**Means for coordinating and providing assistance during relocation.**	Element J.14.f	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A

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		Location (Section II)	Content	Location (Section)	Content	
Planning Standard K – Radiological Exposure Control						
K.1	**The radiation protection controls for emergency workers to be implemented during emergencies are described. These controls address the following aspects:**	Element K.1	Approval is required if emergency workers are expected to receive dose in excess of 10 CFR Part 20 occupational dose limits. ALARA practices are utilized during emergencies as much as practical.	6.5.1 – Emergency Personnel Exposure Criteria	These exposures must be authorized by the Emergency Plant Manager based on the recommendation of the TSC Rad Coordinator.	Editorial
K.1.a	**Onsite emergency exposure guidelines for emergency workers consistent with their assigned duties and current Federal guidance and the conditions under which the guidelines apply.**	Element K.1.a	Although an emergency situation transcends the normal requirements for limiting exposure, there are suggested levels of exposure acceptable in emergencies. Even under these conditions, every reasonable effort to minimize exposure must be made and personnel must be provided with appropriate monitoring devices. Three categories of risk versus benefit must be considered: a. Saving of human life and reduction of injury. b. Protection of health and safety of the public. c. Protection of property. In order to avoid restricting actions that may be necessary to save lives, it shall be left to the judgment of the individual to determine the amount of exposure that they will accept to perform an emergency action that will result in the saving of human life. Emergency team members are instructed in radiation effects and the risks involved for emergency doses. Basic guidelines provided to emergency team members are the EPA recommendations contained in Table K-1. These exposures must be authorized by the Emergency Plant Manager based on the recommendation of the TSC Radiological Assessment Coordinator. The Radiation Protection Procedures shall be followed. In the event emergency exposure limits are approved, the same administrative methods for dose control shall be used with the higher emergency exposure limits. PNP implements exposure guidelines for emergency response personnel consistent with those published in EPA-400/R-17/001,	6.5.1 – Emergency Personnel Exposure Criteria	Although an emergency situation transcends the normal requirements for limiting exposure, there are suggested levels of exposure acceptable in emergencies. Even under these conditions, every reasonable effort to minimize exposure must be made and personnel must be provided with appropriate monitoring devices. Three categories of risk versus benefit must be considered: a. Saving of human life and reduction of injury. b. Protection of health and safety of the public. c. Protection of property. In order to avoid restricting actions that may be necessary to save lives, it shall be left to the judgment of the individual to determine the amount of exposure that he will accept to perform an emergency action that will result in the saving of human life. Emergency team members are instructed in radiation effects and the risks involved for emergency doses. Basic guidelines provided to emergency team members are the EPA recommendations contained in Table 6-3. These exposures must be authorized by the Emergency Plant Manager based on the recommendation of the TSC Rad Coordinator. The Radiation Protection Procedures shall be followed. In the event emergency exposure limits are approved, the same administrative methods for dose control shall be used with the higher emergency exposure limits.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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			Table 3-1, "Emergency Worker Guidelines." The applicable guidelines are provided in Table K-1 of this SEP.			
		Table K-1	Guidance on Dose Limits for Workers Performing Emergency Services	Table 6-3	Guidance on Dose Limits for Workers Performing Emergency Services	No change.
K.1.b	**The capability to evaluate emergency worker dose (i.e., the sum of the effective dose equivalent and the committed effective dose equivalent) at the time of exposure when direct measurement is not feasible.**	Element K.1.b	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.	2.5.4 – Related Plans, Programs, and Procedures	Provisions for radiological control at the Plant have been covered in Radiation Protection Procedures. These procedures establish controls and protective measures to be placed on work being conducted in radiation areas. Inclusive within the area of radiation control are the procedures that Radiation Protection establishes for determining exposure through surveys, analysis, and various other avenues.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
K.1.c	**The capability to monitor and assess the radiation doses received by emergency workers for the duration of the incident.**	Element K.1.c	Personnel dosimeters are issued to and worn by PNP radiation worker-qualified personnel who may be required to work in Radiological Controlled Areas in accordance with radiation protection procedures. 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. 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 mRem for the event.	2.5.4 – Related Plans, Programs, and Procedures	Provisions for radiological control at the Plant have been covered in Radiation Protection Procedures. These procedures establish controls and protective measures to be placed on work being conducted in radiation areas. Inclusive within the area of radiation control are the procedures that Radiation Protection establishes for determining exposure through surveys, analysis, and various other avenues.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
K.1.d	**The capability to implement onsite contamination control measures.**	Element K.1.d	Radiation safety controls are established 24 hours per day to contain the spread of loose surface radioactive contamination. Contamination control limits are defined in radiation protection procedures. Personnel leaving the contaminated areas are monitored to ensure that they are not radioactively contaminated.	2.5.4 – Related Plans, Programs, and Procedures	Provisions for radiological control at the Plant have been covered in Radiation Protection Procedures. These procedures establish controls and protective measures to be placed on work being conducted in radiation areas. Inclusive within the area of radiation control are the procedures that Radiation Protection establishes for determining exposure through surveys, analysis, and various other avenues.	Reorganization and consolidation of the content of sections 2.5.4, 7.8.3, and 6.5.2 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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K.1.e	**The capability to decontaminate emergency workers, equipment, and vehicles.**	II.K.1.e ¶1-2	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. Equipment will be released for use outside of the contaminated areas only when radioactive contamination is within acceptable limits. All equipment must be checked for contamination before being taken from a known contaminated area. Equipment and material decontamination is performed using normal 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.	7.8.3 – Decontamination and First Aid _____ 6.5.2 – Decontamination and First Aid	Personnel decontamination facilities for emergency conditions include showers, sinks, cleaning agents, and first aid kits, which are maintained near the Radiation Protection access control area. These supplies include special materials and Personnel Decontamination Procedures. Additional personnel decontamination equipment and facilities shall be available for decontamination of evacuees. _____ Onsite personnel decontamination facilities for emergency conditions are fully equipped with decontamination material. The decontamination facility at Palisades Plant is located in the Auxilliary Building. The decontamination facility consists of a shower, sink, and first-aid kits. Decontamination supplies and emergency equipment are located around the site. A comprehensive list of materials and equipment available for use can be found in Appendix E. 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.	Reorganization of the content of sections 7.8.3 and 6.5.2 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
K.1.f	**Appropriate radiation protection briefings for repair teams that are being dispatched into the plant, and FMTs being sent onsite and offsite, the scope of which is consistent with the expected risk to the team.**	Element K.1.f	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.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
K.1.g	**The process for NPP site access and dosimetry issuance to personnel from OROs arriving to assist with the onsite response.**	Element K.1.g	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.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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K.2	**Individual(s) who can authorize personnel to receive radiation doses in excess of the occupational dose limits in accordance with the minimum standards set forth in 10 CFR Part 20 or 29 CFR 1910.1096, as applicable to the organization, are identified by title/position. Such authorizations are documented.**	Element K.2	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.	5.4.2 – Shift Manager/Emergency Plant Manager	The Shift Manager/Emergency Plant Manager may not delegate the decision to evacuate the site or the decision to authorize exposures that exceed the 10 CFR 20 regulatory exposure limits for emergency workers.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
K.2.a	**The process for allowing onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities is described.**	Element K.2.a	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. Refer to Element K.1.a for the description of activities and their exposure thresholds and considerations.	6.5.1	In order to avoid restricting actions that may be necessary to save lives, it shall be left to the judgment of the individual to determine the amount of exposure that he will accept to perform an emergency action that will result in the saving of human life. Emergency team members are instructed in radiation effects and the risks involved for emergency doses. Basic guidelines provided to emergency team members are the EPA recommendations contained in Table 6-3. These exposures must be authorized by the Emergency Plant Manager based on the recommendation of the TSC Rad Coordinator.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
K.2.b	**The process for authorizing emergency workers to incur exposures that may result in doses in excess of the current Federal guidance is described.**	Element K.2.b	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
K.3	**The capability to determine the doses received by emergency workers involved in any commercial NPP radiological incident is described. Each organization makes provisions for distribution of direct-reading dosimeters (DRDs) and permanent record dosimeters (PRDs).**	Element K.3	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
K.3.a	**Provisions to ensure that DRDs are read at designated intervals and dose records are maintained for emergency workers are described.**	Element K.3.a	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
K.4	**Action levels for determining the need for decontamination are specified and the means for radiological decontamination are established for emergency workers and the general public, as well as equipment, vehicles, and personal possessions. The means for disposal of contaminated waste created by decontamination efforts are also established.**	Element K.4	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A

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Planning Standard L – Medical and Public Health Support						
L.1	**Arrangements are established with primary and backup hospitals (one hospital is located outside the plume exposure pathway EPZ) and medical services. These facilities have the capability for evaluation of radiation exposure and uptake. The persons providing these services are adequately trained and prepared to handle contaminated, injured emergency workers and members of the general public.**	Element L.1	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
L.2	**Arrangements for the medical treatment of contaminated injured onsite personnel and those onsite personnel who have received significant radiation exposures and/or significant uptakes of radioactive material are described. These arrangements include the following components:**	Element L.2	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A
L.2.a	**An onsite first aid capability with adequate medical equipment and supplies.**	Element L.2.a	On-shift first aid personnel will provide first aid to individuals who are injured. Radiation protection personnel will provide contamination control support to potentially contaminated injured personnel. 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.	6.5.2 – Decontamination and First Aid _____ 7.8.1 – First Aid and Medical Care _____ 7.8.2 – First Aid Equipment	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. _____ At least one person having American Red Cross Multimedia First Aid or equivalent will be available onsite at all times. Specialized training is given for the treatment and handling of contaminated personnel and injuries. _____ There are first aid kits in appropriate areas of the Plant. Accountability and inventory checks are performed quarterly and after use.	Reorganization and consolidation of the content of sections 6.5.2, 7.8.1, and 7.8.2 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
L.2.b	**Primary and backup offsite medical facilities.**	Element L.2.b	Arrangements have been made with local hospitals for the medical treatment of contaminated injured or over exposed	6.5.3 – Medical Treatment	In the event of a serious accident at Palisades Plant requiring medical treatment, agreements have been made with the area hospitals. These hospitals are:	Reorganization and consolidation of the content of sections 6.5.3 and 7.8.5 of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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			personnel. These facilities and their services are available 24 hours per day. The primary hospital facility for the treatment of serious medical emergencies occurring at the Plant is Bronson South Haven Hospital, located in South Haven, Michigan, approximately 6 miles from PNP. Bronson South Haven Hospital is equipped to receive and treat all types of accident victims, including those with radioactive contamination. The backup medical facility is Corewell Health Lakeland Hospitals, located approximately 20 miles from the PNP in St. Joseph, Michigan. Each hospital shall be notified of incoming accident victims at the direction of the Emergency Director. The hospital may contact PNP by telephone in the event information is required in the treatment of a victim.	_____ 7.8.5 – Medical Treatment	a. Bronson South Haven Hospital, South Haven, Michigan. b. Lakeland Regional Medical Center, St Joseph, Michigan. _____ Bronson South Haven Hospital and Lakeland Regional Medical Center/St Joseph, have agreed to accept contaminated, injured patients.	Editorial to address hospital name change from Lakeland Regional Medical Center to Corewell Health Lakeland Hospitals.
L.2.c	**Radiological controls capability, including the isolation of contamination, assessment of contamination levels, radiation exposure monitoring for medical facility staff, collection of contaminated waste, and decontamination of treatment areas.**	Element L.2.c	PNP personnel are available to assist medical personnel with decontamination, radiation exposure monitoring, and contamination control. Radiological controls capability, including the isolation of contamination, assessment of contamination levels, radiation exposure monitoring for medical facility staff, collection of contaminated waste, and decontamination of treatment areas are described in hospital procedures.	7.8.1 – First Aid and Medical Care	At least one person having American Red Cross Multimedia First Aid or equivalent will be available onsite at all times. Specialized training is given for the treatment and handling of contaminated personnel and injuries.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
L.2.d	**Provisions to evaluate for radiological contamination either prior to transport to a medical facility or after arrival.**	Element L.2.d	Injured personnel are evaluated for radiological contamination prior to transport to a medical facility per 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.	7.8.1 – First Aid and Medical Care	At least one person having American Red Cross Multimedia First Aid or equivalent will be available onsite at all times. Specialized training is given for the treatment and handling of contaminated personnel and injuries.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
L.2.e	**Contact information for facilities capable of treating overexposure to radioactive material.**	Element L.2.e	The Radiation Emergency Assistance Center/Training Site (REAC/TS) 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.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
L.3	**Supplemental lists are developed that indicate the location of the closest**	Element L.3	This element of NUREG-0654 is not applicable to the licensee emergency plan,	N/A	N/A	N/A

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	public, private, and military hospitals and other emergency medical facilities within the state or contiguous states considered capable of providing medical support for any contaminated, injured individual.		but is applicable to OROs and is addressed within their emergency plans.			
L.4	**Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.**	Element L.4	Injured personnel are evaluated for radiological contamination and packaged to control contamination prior to transport to a medical facility per radiation protection department procedures. Palisades personnel will assist with decontamination of transport vehicles if necessary. 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 SHAES and Medic 1 of Benton Harbor. Company vehicles maintained onsite and/or private vehicles can be used to transport injured and/or contaminated personnel for medical treatment. In addition, ambulances are available from the Covert and South Haven Fire Departments, depending on the severity of the situation. 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 ambulance units and Emergency Medical Technicians are trained and equipped to respond to a medical emergency at the Plant. 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.	7.8.4 – Medical Transportation	Company vehicles maintained onsite and/or private vehicles can be used to transport injured and/or contaminated personnel for medical treatment. In addition, ambulances are available from the Covert and South Haven Fire Departments, depending on the severity of the situation.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

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Planning Standard M – Recovery, Reentry, and Post-Accident Operations						
M.1	**General recovery, reentry, and return plans for radiological incidents are developed, as appropriate. These plans address reoccupancy, as appropriate. The plans should include:**	Element M.1	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A

M.1.a	**Provisions for allowing reentry into areas controlled by the licensee. Reentry planning includes evaluation of the controls necessary for reentry under post-incident conditions.**	II.M.1.a	Reentry can occur during the plume or post-plume phase and refers to the temporary movement of people into an area of actual or potential hazard. Personnel who have been evacuated or relocated from a restricted area may be allowed to reenter under controlled conditions to perform additional emergency response activities.
			
			Reentry into the OCA will be based on site conditions. During or following a HAB incident, reentry criteria take into consideration site security and threat conditions.
			
			The following is a brief description of actions that will be examined as required prior to authorizing reentry by the emergency staff:
			
			• Review available radiation surveillance data. Determine PNP areas potentially affected by radiation and contamination.
			• Review radiation exposures of personnel to participate in recovery operations. Determine need for additional personnel.
			• Review adequacy of radiation survey instrumentation and equipment (type, ranges, number, calibration, etc.).
			• Preplan survey team activities:
			  • Areas to be surveyed
			  • Anticipated radiation and contamination levels
			  • Radiation survey equipment required
			  • Shielding requirements and availability
			  • Protective clothing and equipment required
			  • Access control procedures (issuance of RWP)
			  • Exposure control limits and personnel dosimetry required
			  • Decontamination requirements
				9.0 Recovery	9.1 The following is a brief description of actions that will be examined as required prior to authorizing reentry by the emergency staff.
					
					9.1.1 Review available radiation surveillance data. Determine Plant areas potentially affected by radiation and contamination.
					
					9.1.2 Review radiation exposures of personnel to participate in recovery operations. Determine need for additional personnel.
					
					9.1.3 Review adequacy of radiation survey instrumentation and equipment (type, ranges, number, calibration, etc).
					
					9.1.4 Preplan survey team activities:
					
					a. Areas to be surveyed
					b. Anticipated radiation and contamination levels
					c. Radiation survey equipment required
					d. Shielding requirements and availability
					e. Protective clothing and equipment required
					f. Access control procedures (issuance of RWP)
					g. Exposure control limits and personnel dosimetry required
					h. Decontamination requirements
					i. Communications required
					
					9.2 The initial reentry into the Plant areas should encompass the following (in order of priority):
					
					9.2.1 Determine initial recovery operations.
					
					9.2.2 Identify hazards or potential hazards associated with the recovery operations.
						Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

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			• Communications required The initial reentry into the PNP areas should encompass the following (in order of priority): • Determine initial recovery operations. • Identify hazards or potential hazards associated with the recovery operations. • Conduct comprehensive radiation surveillance of Plant facilities and define radiological problem areas. • Isolate and post areas in the Plant with appropriate warning signs and rope barriers, as Radiation Areas, High Radiation Areas, and Contaminated Areas, as appropriate.		9.2.3 Conduct comprehensive radiation surveillance of Plant facilities and define radiological problem areas. 9.2.4 Isolate and post areas in the Plant with appropriate warning signs and rope barriers, as Radiation Areas, High Radiation Areas, and Contaminated Areas, as appropriate.	
M.1.b	**Provisions for reentry into restricted areas, including exposure and contamination control, as appropriate. A method for coordinating and implementing decisions regarding temporary reentry into restricted areas is addressed.**	Element M.1.b	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
M.2	**Individuals who will comprise the licensee's recovery organization are identified by title/ position. The recovery organization includes technical personnel with responsibilities to develop, evaluate, and direct recovery and reentry operations.**	Element M.2	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.	5.5 – Recovery Organization	Recovery after an emergency condition will be handled 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, the Plant will shift from an emergency organization structure to a Recovery Organization. Guidelines that will be employed for determining this shift are explained in Palisades Site Emergency Plan, Section 9.0, "Recovery." The Recovery Organization will depend upon the nature of the accident and the situations preceding the accident. The TSC Engineering Coordinator will also support the EOF Rad Assessment Coordinator in determining how much radioactivity potentially can be released to the atmosphere based on the nature and extent of core damage	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
		Figure M-1	Long Term Recovery Organization	Figure 9-1	Long Term Recovery Organization	No changes.
M.3	**The process for initiating recovery actions is described and includes the criteria for terminating the emergency.**	Element M.3	Steps will be taken to terminate the event, either directly or following a transition period (prior to entering a state of recovery	5.5 – Recovery Organization	Recovery after an emergency condition will be handled by the emergency organization unless conditions indicate that recovery will	Reorganization and consolidation of the content of sections 5.5 and 9.0 of SEP Rev.

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			operations). Usually, the NOUE and Alert classification levels will be directly terminated (no entry into recovery). Transition to the recovery phase would occur in accordance with EPIP 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. For the recovery phase of the emergency to commence, the conditions which caused the incident must no longer exist. It is the responsibility of the EOF Emergency Director to determine that the facility and/or surroundings are safe. The following criteria must be met before the recovery and reentry phase can begin: • Plant stable and long-term core cooling available • Releases of radioactive materials to the environment under control or has ceased • In-plant radiation levels are stable or decreasing • Fire, flood, earthquake or similar hazardous emergency conditions under control or has ceased	_____ 9.0 Recovery	be complicated or will take a long period of time. At the discretion of the EOF Emergency Director, the Plant will shift from an emergency organization structure to a Recovery Organization. Guidelines that will be employed for determining this shift are explained in Palisades Site Emergency Plan, Section 9.0, "Recovery." The Recovery Organization will depend upon the nature of the accident and the situations preceding the accident. The TSC Engineering Coordinator will also support the EOF Rad Assessment Coordinator in determining how much radioactivity potentially can be released to the atmosphere based on the nature and extent of core damage. _____ The nature and extent of the emergency situation will determine what recovery operations are required. The Recovery Organization described in Section 5 will be established as directed by the Recovery Manager. 9.3.1 In order for the recovery phase of the emergency to commence, the conditions which caused the incident must no longer exist. It is the responsibility of the EOF Emergency Director to determine that the facility and/or surroundings are safe. 9.3.2 The following criteria must be met before the recovery and reentry phase can begin: a. The Plant is in a controlled and stable condition, b. The release of radioactive materials to the environment is under control or has ceased. c. In-plant radiation levels are stable or decreasing. d. Fire, flood, etc, is under control or has ceased.	32. Additional revisions to address the Evaluation Criterion fully and concisely.

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			• Containment integrity • Functionality and integrity of plant systems, facilities, power supplies, equipment, and instrumentation • At least one level of redundancy in plant systems should be available to prevent re-initiation of the event • Consensus has been reached among the TSC Emergency Plant Manager, EOF Director, NRC, and the State The initial objectives of the recovery program are the determination of the damage to equipment, the installation of shielding, rope barriers and signs, the application of clearance tags, decontamination, and cleanup as required to place the Plant in an acceptable long-term condition. Other recovery operations will not be initiated until the area affected by the emergency has been defined. Particular attention will be directed toward isolating and tagging out components and systems as required to control or minimize hazards. A systematic investigation will be conducted to determine the equipment damaged and the extent of the damage. Once the initial objectives are completed, a detailed investigation of the accident causes and consequences to PNP and to the environment will be conducted. Determination will be made as to the equipment repair work required as well as the need to modify PNP operating procedures. Repair work and approved modifications shall be carried out as authorized. Test programs to confirm fitness for return to service will be developed and executed. Once the emergency condition has been mitigated, steps shall be taken to recover from the incident. All actions from this point shall be preplanned in order to limit exposure. Normal exposure limits will be used, areas will be controlled, and exposure of personnel documented.		e. At least one level of redundancy in plant systems should be available to prevent reinitiation of the event. f. Consensus has been reached among the SED, EOF Director, NRC, and the State. 9.4 The initial objectives of the recovery program are the determination of the damage to equipment, the installation of shielding, rope barriers and signs, the application of clearance tags, decontamination, and cleanup as required to place the Plant in an acceptable long-term condition. Other recovery operations will not be initiated until the area affected by the emergency has been defined. Particular attention will be directed toward isolating and tagging out components and systems as required to control or minimize hazards. A systematic investigation will be conducted to determine the equipment damaged and the extent of the damage. Once the initial objectives are completed, a detailed investigation of the accident causes and consequences both to the Plant and to the environment will be conducted. Determination will be made as to the equipment repair work required as well as the need to modify Plant operating procedures. Repair work and approved modifications shall be carried out as authorized. Test programs to confirm fitness for return to service will be developed and executed. 9.6 Recovery operations will be conducted in compliance with normal operational radiation exposure levels as specified in 10 CFR 20. When possible, any necessary releases of radiation during recovery will be planned, controlled, evaluated in advance for radiological impact, and appropriate offsite organizations and agencies informed of	

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			Recovery operations will be conducted in compliance with normal operational radiation exposure levels as specified in 10 CFR Part 20. When possible, any necessary releases of radiation during recovery will be planned, controlled, evaluated in advance for radiological impact, and appropriate offsite organizations and agencies informed of the scheduled releases and estimated impact. The TSC Engineering Coordinator will support the EOF Radiological Assessment Coordinator in determining how much radioactivity potentially can be released to the atmosphere based on the nature and extent of core damage. The State EOC will be advised when PNP deems it safe to begin the reentry phase of the offsite recovery operation. If the Governor has ordered an evacuation, it is legally required for the Governor to officially rescind the order. EGLE is responsible for coordinating reentry procedures for the offsite population.		the scheduled releases and estimated impact. 9.7 The State EOC will be advised when the Plant deems it safe to begin the reentry phase of the offsite recovery operation. If the Governor has ordered an evacuation, it is legally required for the Governor to officially rescind the order. The Michigan Department of Environment, Great Lakes, and Energy, is responsible for coordinating reentry procedures for the offsite population.	
M.4	**The process for initiating recovery actions is described and includes provisions to ensure continuity during transfer of responsibility between phases. The chain of command is established.**	Element M.4	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
M.5	**The framework for relaxing protective actions and allowing for return are described. Prioritization is given to restoring access to vital services and facilities.**	Element M.5	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
M.6	**The organization(s) responsible for developing and implementing cleanup operations offsite is identified.**	Element M.6	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
M.7	**Provisions for developing and modifying sampling plans are established. Provisions for laboratory analysis of samples are included in the plan.**	Element M.7	The recovery organization will coordinate PNP environmental sampling activities with the state agencies. Refer to Element C.4 for a description of laboratory capabilities.	N/A	N/A	N/A
M.8	**A method for periodically conducting radiological assessments of public exposure is established.**	Element M.8	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
Planning Standard N – Exercises and Drills						
N.1	**Exercises and drills are conducted, observed, and critiqued/evaluated as set forth in NRC and FEMA regulations and guidance.**	Element N.1	Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A
		Element N.1 Paragraph 1 - Exercises	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. Exercises must provide the opportunity for the PNP ERO to demonstrate proficiency in the key skills necessary to implement the principal functional areas (see N.4) of emergency response. State and local agencies within the plume exposure pathway EPZ are provided the opportunity to participate in biennial exercises as described in Element N.2.a.	8.1.3.e – Radiological Emergency Preparedness Exercise	An exercise which tests the Emergency Preparedness Plan and organization shall be conducted at least once per calendar year. These exercises shall be varied such that plans and preparedness organizations are tested completely within an eight-year exercise cycle. Provisions should be made to start exercises between 6:00 PM and 4:00 AM once every eight year exercise cycle, and to develop scenarios that reach Site Area and/or General Emergency levels every two years to assist the state and counties in maintaining their Emergency Preparedness requirements. Annual exercises may involve the local, county, and state government emergency planning agencies depending on their past participation and schedule in accordance with federal regulations. Federal emergency response agencies shall be involved in a major exercise at least once every five years. Specific items tested are: public warning, adequacy of Emergency Implementing Procedures, communications, accident assessment, radiological monitoring, use of the Protective Action Guidelines, evacuation methodology, direction and control, public information, recovery and reentry operations, and emergency equipment.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
		Element N.1 Paragraph 2 – Drills	A drill is aimed at testing, developing, and maintaining skills in one or more emergency plan functions. Drill types may be operational or discussion-based events (e.g., single ERF or tabletop drills). Drills may be a component of an exercise. During drills; activation of all ERFs is not required, supervised instruction is permitted, participants may be given the opportunity to resolve problems (success paths), and focus may be primarily on onsite training objectives. Drills may include evaluation of	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			specific performance objectives or be conducted for non-evaluated training only. The ERO (not necessarily each ERO member) shall be provided the opportunity to develop and maintain key emergency response skills within the scope of their duties in drills and exercises during each exercise cycle. Over the course of an eight-year cycle all unique initiating conditions in the EAL scheme (with the exception of judgment ICs) are made available for the demonstration of event classification within drills or exercises.			
N.1.a	**The process to critique/evaluate exercises and drills is described.**	Element N.1.a	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 EPIP EP-308, "Emergency Planning Critiques." Provisions are made for federal and ORO representatives to observe and participate in drill and exercise critiques when present. A written report is prepared following a critique to document whether the objectives were successfully demonstrated. A remedial exercise is only required if the SEP is not satisfactorily tested during the biennial exercise such that NRC, in consultation with FEMA, cannot (1) find reasonable assurance that adequate protective measures would be taken during a radiological emergency, or (2) determine that the ERO has maintained key skills specific to emergency response.	8.1.3.e – Radiological Emergency Preparedness Exercise	Official observers from federal, state, or local governments will be encouraged to observe, evaluate, and critique the required exercises. A critique shall be scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as called for in the plan. The critique shall be conducted as soon as practicable after the exercise, and a formal evaluation or report shall result from the critique. Deficiencies identified in this evaluation shall be assigned to appropriate Entergy staff.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
N.1.b	**The process used to track findings and associated corrective actions identified by drill and exercise critiques/evaluations, including their assignment and completion, is described.**	Element N.1.b	Failed performance objectives and other programmatic weaknesses are entered into the corrective action program (CAP).	8.1.4 – Emergency Planning	j. Document all corrective actions resulting from Plant-related Emergency Planning critiques and audits k. Initiate appropriate Plant-related corrective actions, if any, resulting from the critiques of each integrated practice drill conducted at the plant.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
N.1.c	**A drill or exercise starts between 6:00 p.m. and 4:00 a.m. at least once every eight-year exercise cycle.**	Element N.1.c	PNP will conduct at least one off-hours drill or exercise within an eight-year exercise cycle. An off-hours drill or exercise is established as any time of day on a weekday holiday, or any time of day on a weekend day, or between the hours of 6:00 p.m. and 4:00 a.m. on a normal workday. The off-hours drill requirement may be satisfied by an actual event provided it meets the above off-hours criteria and the objectives are evaluated and documented in a critique report for the augmentation of the ERO, the transfer of responsibilities, and facility activation.	8.1.3.e – Radiological Emergency Preparedness Exercise	Provisions should be made to start exercises between 6:00 PM and 4:00 AM once every eight year exercise cycle	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
N.1.d	**A drill or exercise is unannounced at least once every eight-year exercise cycle.**	Element N.1.d	PNP will conduct at least one unannounced drill or exercise within an eight-year cycle. The unannounced drill requirement may be satisfied by an actual event provided objectives are evaluated and documented in a critique report for the augmentation of the ERO, the transfer of responsibilities, and facility activation.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.2	**Exercises are designed to enable the response organizations' demonstration of the key skills and capabilities necessary to implement the emergency plan. The following two types of exercises are conducted at the frequency noted:**	Element N.2	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A
N.2.a	**Plume Exposure Pathway Exercises** **Plume exposure pathway exercises are conducted biennially. These exercises include mobilization of licensee and state, local, and tribal government personnel and resources and implementation of emergency plans to demonstrate response capabilities within the plume exposure pathway EPZ.**	Element N.2.a	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: • Management and coordination of emergency response • Accident assessment • Event classification • Notification of the OROs • Assessment of the onsite and offsite impact of radiological release • PAR development (required only in exercises that include a GE)	8.3.1.e – Radiological Emergency Preparedness Exercise	An exercise which tests the Emergency Preparedness Plan and organization shall be conducted at least once per calendar year. These exercises shall be varied such that plans and preparedness organizations are tested completely within an eight-year exercise cycle. Provisions should be made to start exercises between 6:00 PM and 4:00 AM once every eight year exercise cycle, and to develop scenarios that reach Site Area and/or General Emergency levels every two years to assist the state and counties in maintaining their Emergency Preparedness requirements. Annual exercises may involve the local, county, and state government emergency	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			• Protective action decision-making (onsite protective actions) • Plant system repair and mitigative action implementation OROs will be invited to participate in plume exposure pathway EPZ exercises. If an ORO chooses not to participate, their participation is not required, and it should be documented that they were given the opportunity to participate. Biennial plume exposure pathway exercise scenarios are submitted to the NRC under 10 CFR 50.4 at least 60 days before they are held.		planning agencies depending on their past participation and schedule in accordance with federal regulations. Federal emergency response agencies shall be involved in a major exercise at least once every five years. Specific items tested are: public warning, adequacy of Emergency Implementing Procedures, communications, accident assessment, radiological monitoring, use of the Protective Action Guidelines, evacuation methodology, direction and control, public information, recovery and reentry operations, and emergency equipment.	
N.2.b	**Ingestion Exposure Pathway Exercises Ingestion exposure pathway exercises are conducted at least once every eight years. These exercises include mobilization of state, local, and tribal government personnel and resources and implementation of emergency plans to demonstrate response capabilities to a release of radioactive materials requiring post-plume phase protective actions within the ingestion exposure pathway EPZ.**	Element N.2.b	PNP will assist in development and participate as requested in an ingestion exposure pathway EPZ exercise to support FEMA evaluation of ORO emergency plan response activities in this area. The scope, objectives and schedule will be coordinated with appropriate federal emergency organizations and OROs for exercises in which they participate.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.3	**Exercise Scenario Elements During each eight-year exercise cycle, biennial, evaluated exercise scenario content is varied to provide the opportunity to demonstrate the key skills and capabilities necessary to respond to the following scenario elements:**	Element N.3	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.3.a	**Hostile Action-Based (HAB) Hostile action directed at the NPP site. This scenario element may be combined with either a radiological release scenario or a no/minimal radiological release scenario, but a no/minimal radiological release scenario should not be included in consecutive HAB exercises at an NPP site.**	Element N.3.a	PNP will conduct at least one HAB scenario in an exercise within an eight-year cycle. The HAB scenario will include either a radiological release scenario or no/minimal radiological release scenario, but HAB scenarios combined with a no/minimal radiological release scenario will not be used in consecutive HAB exercises.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.3.b	**Rapid Escalation An initial classification of, or rapid escalation to, an SAE or GE.**	Element N.3.b	PNP will conduct at least one rapid escalation scenario in an exercise within an eight-year cycle. The rapid escalation scenario will begin with an initial declaration of, or rapid escalation	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			to, the SAE emergency classification level while event response is performed from the Control Room.			
N.3.c	**No/Minimal Release of Radioactive Materials No release or an unplanned minimal release of radioactive material which does not require public protective actions. This scenario element is used only once during each eight-year exercise cycle.**	Element N.3.c	PNP will conduct at least one no/minimal radiological release scenario that does not require PARs in an exercise within an eight-year cycle.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.3.c.1	**The licensee is required to demonstrate the ability to respond to a no/minimal radiological release scenario. State, local, and tribal government response organizations have the option, and are encouraged, to participate jointly in this demonstration. If the offsite organizations elect not to participate in the licensee's required minimal or no release exercise, the OROs will still be obligated to meet the exercise requirements as specified in 44 CFR 350.9.**	Element N.3.c.1	OROs located within the plume exposure pathway EPZ are invited to participate in exercises with no/minimal radiological release scenarios. PNP will support offsite agencies in meeting FEMA demonstration requirements when they elect to not participate in a required no/minimal release scenario that is included in an exercise.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.3.c.2	**When planning for a joint no/minimal radiological release exercise, affected state, local, and tribal jurisdictions, the licensee, and FEMA will identify offsite capabilities that may still need to be evaluated and agree upon appropriate alternative evaluation methods to satisfy FEMA's biennial criteria requirements. Alternative evaluation methods that could be considered during the extent of play negotiations include expansion of the exercise scenario, out of sequence activities, plan reviews, staff assistance visits or other means as described in FEMA guidance.**	Element N.3.c.2	FEMA will determine whether a no/minimal radiological release scenario is acceptable for use in a full or partial participation biennial exercise.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.3.d	**Resource Integration Integration of offsite resources with onsite response.**	Element N.3.d	PNP will conduct at least one scenario that integrates offsite resources provided by local support organizations with onsite response in an exercise within an eight-year cycle. Demonstration of resource integration includes briefings, offsite response to the site, and coordination of worker protection, as appropriate to the scenario.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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		Location (Section II)	Content	Location (Section)	Content	
N.3.e	**10 CFR 50.54(hh)(2) [relocated to 10 CFR 50.155(b)(2)] Strategies** **Demonstration of the use of equipment, procedures, and strategies developed in compliance with 10 CFR 50.155(b)(2) [relocated to 10 CFR 50.155(n)(2)].**	Element N.3.e	PNP will conduct at least one scenario requiring demonstration of the ability to transition between procedures and select the strategy(ies) for preventing or mitigating fuel damage and limiting radiological releases, within an eight-year cycle. The Mitigation of Beyond Design Basis Events (MBDBE) exercise scenario will be based on one of the site-specific strategies used to mitigate spent fuel pool damage scenarios or one of the 7 strategies for PWRs used to mitigate reactor accidents and maintain containment and/or spent fuel capabilities described in NEI 06-12, "B.5.b Phase 2 & 3 Submittal Guideline." The MBDBE exercise may be conducted separately from the main exercise timeline and sequence of events. This includes the (simulated) deployment and use of equipment associated with these strategies. At a minimum, TSC and OSC ERO staff will participate in this portion of the exercise. Participation of Control Room, EOF, JIC ERO, and offsite officials may be simulated. Methods to accomplish this demonstration are dependent upon the nature of the postulated initiating event, the plant response/accident sequence, and the ability of responders to select and implement mitigation/management strategies. As described in NEI 13-06, "Enhancements to Emergency Response Capabilities for Beyond Design Basis Events and Severe Accidents," these methods involve conducting any of the following: • A demonstration of the transition from a controlling AOP or EOP into the Extensive Damage Mitigation Guidelines (EDMGs), FLEX support guidelines (FSGs), or Severe Accident Guidelines (SAGs). • A demonstration of the use of EDMGs. • A demonstration of the use of FSGs. • A demonstration of the use of SAGs.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion. NUREG-0654/FEMA-REP-1, Revision 2 Element N.3.e calls for the demonstration of the use of equipment, procedures, and strategies developed in compliance with 10 CFR 50.54(hh)(2). Since the publication of Revision 2 to NUEG-0654, 10 CFR 50.54(hh)(2) has been replaced by 10 CFR 50.155(b)(2). Previous guidance associated with 10 CFR 50.54(hh)(2) referred to 7 strategies for PWRs. These strategies were also referred to as B.5.b strategies, Extensive damage mitigation guidelines, or EDMG strategies. The proposed POSEP replaces the reference from 10 CFR 50.54(hh)(2) with reference to 10 CFR 50.155(b)(2) and establishes the scope (type of MBDBE strategies), number (how many MBDBE strategies must be demonstrated within the cycle) and the ERO's extent of play of those exercises. This detailed specification is consistent with 10 CFR 50 Appendix E.IV.F.2.j.(iii). Other drills and training that involve personnel and response actions outside the scope of the Emergency Plan will continue to be conducted under the MBDBE Program.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
N.4	**Drills are designed to enable an organization's demonstration and maintenance of key skills and capabilities necessary to fulfill functional roles. Drills include, but are not limited to, the following at their noted frequencies:**	Element N.4	No Content – Content needed to address the Evaluation Criterion is provided in subsequent paragraphs.	N/A	N/A	N/A
N.4.a	**Emergency Medical Drills Emergency medical drills are conducted annually. These drills involve a simulated, contaminated individual and contain provisions for participation by support services agencies (i.e., ambulance and offsite medical treatment facility).**	Element N.4.a	PNP will conduct an onsite simulated medical drill once per calendar year. The drill shall involve the participation of local medical support personnel and organizations (e.g., physicians, ambulance services, hospital, etc.). Scenarios may include cases of radiation overexposure, contaminated personnel, and/or contaminated/injured personnel. Emergency Medical Drill offsite participation and periodicity for support Hospital and Ambulance services are performed in accordance with the 42 CFR 482.15 regulations and are not included in the scope of the station medical drills.	8.1.3.a – Medical Drill	A Medical drill shall be conducted at least once per calendar year. The drill shall involve the participation of local medical support personnel and organizations (eg, physicians, ambulance services, hospital, etc). Scenarios may include cases of radiation overexposure, contaminated personnel and/or contaminated/injured personnel.	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
N.4.b	**Medical Services Drills Medical services drills are conducted annually at each medical facility designated in the emergency plan. These drills involve a simulated, contaminated emergency worker and/or member of the general public and contain provisions for participation by support services agencies (i.e., ambulance and offsite medical treatment facility).**	Element N.4.b	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
N.4.c	**Laboratory Drills Laboratory drills are conducted biennially at each laboratory designated in the emergency plan. These drills involve demonstration of handling, documenting, provisions for record keeping, and analyzing air, soil, and food samples, as well as quality control and quality assurance processes. These drills also involve an assessment of the laboratory's capacity to handle daily and weekly samples and the volume of samples that can be processed daily or weekly.**	Element N.4.b & c	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
N.4.d	**Environmental Monitoring Drills Environmental monitoring drills are conducted annually. These drills**	Element N.4.d	PNP will conduct an environmental monitoring drill once per calendar year.	8.1.3.c – Radiological Monitoring Drills	A radiological monitoring drill (onsite and/or offsite) shall be conducted annually. This drill shall include the collection and analysis of	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
	include direct radiation measurements in the environment, collection and analysis of all sample media (e.g., water, vegetation, soil, and air), and provisions for record keeping.		The scope of the environmental monitoring drill will include performance objectives for direct radiation measurements in the environment, collection and analysis of sample media (e.g., water, vegetation, soil, and air), communications, and record keeping.		various materials. These may include grass, water, soil, and air samples.	
N.4.e	**Ingestion Pathway and Post-Plume Phase Drills Ingestion pathway and post-plume phase drills are conducted biennially. These drills involve sample plan development, analysis of lab results from samples, assessment of the impact on food and agricultural products, protective decisions for relocation, and food/crop embargos.**	Element N.4.e	This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.	N/A	N/A	N/A
N.4.f	**Communications Drills Communications amongst and between emergency response organizations, including those at the state, local, and Federal level, the FMTs, and nuclear facility within both the plume and ingestion exposure pathway EPZs, are tested at the frequencies determined in evaluation criterion F.3. Communications drills include the aspect of understanding the content of messages and can be done in conjunction with the testing described in evaluation criterion F.3.**	Element N.4.f	PNP will conduct communications drills once per calendar year. Communications tests described in Element F.3 of this SEP can be performed as drills provided they include the aspect of understanding the content of messages.	8.1.3.f – Communications Tests	Communications shall be tested monthly with NRC headquarters from the Control Room, Technical Support Center and near-site Emergency Operations Facility. Communications shall be tested monthly with state and local governments within the plume exposure pathway of the Emergency Planning Zones. Communication shall be tested quarterly with those federal and state emergency response organizations within the ingestion pathway. Communication links with state emergency operations center and field assessment teams from the Plant shall be tested annually. Communication links with the county emergency operations centers shall be tested annually by calling the respective Sheriff's Department. Communications between the Control Room, Technical Support Center, and Emergency Operations Facility shall be tested annually.	Content added to the proposed POSEP to address the Evaluation Criterion.
N.4.g	**Post-Accident Sampling Drills Post-accident sampling drills are conducted annually. These drills address capabilities including analysis of liquid and containment atmosphere samples with simulated elevated radiation levels. This criterion is not applicable if the NPP unit(s) does (do) not have licensing basis requirements for post-accident sampling.**	Element N.4.g	PNP does not have a licensing basis requirement for post-accident sampling. EPIP EI-7.0, "Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates," provides the decision process necessary to implement sampling under emergency conditions. EPIP EI-7.10, "Post Accident Sampling, Radioactive Gaseous Effluent Monitoring," describes the steps necessary to obtain a post-accident sample of the stack effluent utilizing the radioactive gaseous effluent monitor.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
N.4.h	**Off-Hours Report-In Drills Off-hours report-in drills are conducted biennially and are unannounced.**	Element N.4.h	PNP will conduct an off-hours unannounced ERO report-in drill at least biennially to verify each minimum staffing ERO position meets the required Table B-1 response time. The scope of the off-hours unannounced ERO report-in drill will require actual response to the assigned facility. The Off-Hours Report-In Drill requirement may be satisfied by an actual event provided objectives are evaluated and documented in a critique report.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.4.i	**Off-Hours Call-In Drills Off-hours call-in drills are conducted quarterly, such that each ERO member's normally expected response time is assessed at least biennially based on call-in drill responses or an alternate means for determining response time. Some drills are unannounced.**	Element N.4.i	The notification is an all-call process. PNP will conduct an off-hours unannounced ERO call-in drill quarterly to verify each minimum staffing ERO position meets the required Table B-1 response times. The scope of the off-hours unannounced ERO call-in drill will require collection of the ERO notification system report which documents response within the required time. Completion of an Element N.4.h off-hours unannounced ERO report-in drill satisfies the requirements of the off-hours unannounced ERO call-in drill in this element. The Off-Hours Call-In Drill requirement may be satisfied by an actual event provided the objectives are evaluated and documented in a critique report.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.4.j	**Onsite Personnel Protective Action Drills Onsite personnel protective action drills are conducted during every eight-year exercise cycle. These drills demonstrate the NPP site's ability to implement and coordinate protective actions for onsite personnel during hostile action.**	Element N.4.j	PNP will conduct a protective action drill within an eight-year cycle. The scope of the protective action drill will demonstrate the ability to implement and coordinate protective actions for onsite personnel during a hostile action using one or more of the following: • Warning personnel in the OCA outside the protected area • Evacuation of personnel from target buildings, including security personnel	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			• Site evacuation by opening (while continuing to defend) security gates (demonstrated through discussion/table-top) • Dispersal of licensed operators • Sheltering of personnel in structures away from potential site targets • Arrangements for accounting for personnel after the attack			
N.4.k	**Aircraft Threat/Attack Response Drills Aircraft threat/attack response drills are conducted during every eight-year exercise cycle. These drills demonstrate the use of procedures and protective measures developed for responding to hostile action involving an aircraft threat or attack.**	Element N.4.k	PNP will conduct an aircraft threat/attack response drill at least once within an eight-year cycle. This drill may be combined with the beyond design basis demonstration in Element N.3.e.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.4.l	**Minimum Staffing Drills An ERO minimum staffing (no participation of non-minimum augmenting ERO personnel) drill is conducted at least once during every eight-year exercise cycle.**	Element N.4.l	PNP will conduct a minimum staffing drill at least once within an eight-year cycle. A minimum staffing response drill requires facility activation, full transfer of responsibilities from the Control Room, and demonstration of event assessment and response activities.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
N.4.m	**On-Shift Response Drills An ERO on-shift response (ERO augmentation no sooner than 90 minutes) drill is conducted at least once during every eight-year exercise cycle.**	Element N.4.m	PNP will conduct an ERO on-shift response drill at least once within an eight-year cycle. An on-shift response drill requires demonstration of classification, notification, and PAR functions with minimum shift staffing (no support from augmenting ERO personnel no sooner than 90 minutes after event declaration) using an On-shift Staffing Analysis event modified to support the objectives.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

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		Location (Section II)	Content	Location (Section)	Content	
Planning Standard O – Radiological Emergency Response Training						
O.1	**Each organization ensures the training of emergency responders and other appropriate individuals with an operational role is described in the emergency plan. Initial training and at least annual retraining are provided.**	Element O.1	Initial and continuing training is conducted to ensure ERO personnel are properly qualified for their specific position. PNP personnel, including non-permanent personnel, receive training pertinent to the SEP and EPIPs. Persons assigned specific responsibilities during an emergency receive additional training appropriate to their respective assignments. The responsibility for training is that of the Training Manager. The Training Manager may delegate specialty-training responsibilities to personnel qualified to perform such training, for example, State or County training personnel. Governance of Emergency Response Organization Training for Palisades personnel is provided by 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 SAT Process. The SAT process determines the necessary periodicity of the retraining (continuing training) on a task basis. Personnel responsible for management of an Emergency (Shift Manager, ED, Emergency Plant Manager) receive specialized training in one or more of the following areas as applicable to their ERO responsibilities: • Emergency Classifications • Notifications • Protective Action Recommendations • Emergency Action Levels • Emergency Exposure Control • Command and Control Practices	8.1.1 - Training	Palisades Plant personnel, including non-permanent personnel, will receive training pertinent to the Site Emergency Plan and Implementing Procedures. Persons assigned specific responsibilities during an emergency will receive additional training appropriate to their respective assignments. The responsibility for training is that of the Training Manager. He may delegate specialty-training responsibilities to personnel qualified to perform such training, for example, State or County training personnel. Governance of Emergency Response Organization Training for Entergy personnel is provided by Entergy Procedure EN-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 of EN-TQ-201, "Systematic Approach to Training Process," and EN-EP-308, "Emergency Planning Critiques."	Reorganization of the content of SEP Rev. 32. Additional revisions to address the Evaluation Criterion fully and concisely.
		Element O.1 Paragraph 1 – Personnel Responsible	The skills and knowledge required to perform plant stabilization and mitigation are a normal function of specific Nuclear Operations positions. Reactor power changes, planned and unplanned reactor shutdowns are handled on a normal	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
		for Accident Assessment	operation basis. Subsequent plant stabilization and restoration is pursued utilizing normal operating procedures. Licensed Operators receive routine classroom and simulator training to ensure proficiency in this area. Those Emergency Organization positions responsible for accident assessment, corrective actions, protective actions, and related activities receive position-specific training, to remove peripheral duties from the Nuclear Operations shift.			
		Element O.1 Paragraph 2 – Radiation Protection	ERO Radiation Protection Technician position is qualified to ANSI technician standards. ERO Radiation Protection Personnel position is task qualified to perform the following: • Provide Radiation Protection coverage for accessing known radiological environments (which includes respirator qualifications) • Control dosimetry and RCA access • Provide in-plant surveys	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
		Element O.1 Paragraph 3 – Radiological Monitoring Teams and Radiological Analysis Personnel	a) Offsite Radiological Monitoring Offsite radiological monitoring is performed by trained individuals who provide samples and direct readings for dose assessment calculations. Offsite Monitoring Team members receive classroom and hands-on training in the following areas: • Equipment and Equipment Checks • Communications • Plume Tracking Techniques • Personnel monitoring • Emergency exposure criteria • Locations and use of radiological emergency equipment b) Personnel Monitoring Trained individuals who monitor Station personnel and their vehicles for contamination during an emergency perform personnel monitoring. This monitoring will normally be done by Radiation Protection	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			Technicians who are qualified to do this type of monitoring as part of their normal job. If Non-Radiation Protection personnel are to be used as Personnel Monitoring Team members they shall receive classroom and hands-on training in the following areas: • Personnel Monitoring Equipment and Techniques • Radiological Survey Techniques • Contamination Control Techniques • Basic Decontamination Techniques c) Dose Assessment: Dose Assessment training includes the skills and knowledge necessary for calculation and interpretation of an offsite release and its impact on the environment under any meteorological condition. Individuals responsible for performing dose assessment are trained in the following areas: • Computerized and Manual Dose Assessment • Protective Action Recommendations • Radiological Monitoring Team Interface • Protective Action Guidelines associated with offsite plume exposure doses • Basic Meteorology d) Repair and Damage Control Teams The Rad/Chem Coordinator position is trained to perform Radiation Protection supervisory tasks. e) Security Security personnel receive emergency plan training as part of their normal job specific training. Security personnel assigned a specific ERO position receive training on emergency plan related tasks. f) Fire Brigade Refer to the site fire protection program. g) First Aid Personnel assigned as first aid responders maintain qualifications equivalent to Red Cross Standard First Aid techniques.			

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
O.1.a	**Site-specific emergency response training is developed and conducted for those offsite organizations that may be called upon to provide onsite assistance in the event of an emergency.**	Element O.1.a	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.	8.1.4 – Emergency Planning	b. Conduct offsite agency training.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
O.2	**The ERO training program consists of learning objectives that are used to develop and maintain key skills. This includes a systematic analysis of jobs and tasks to be performed from which learning objectives are derived.**	Element O.2	The PNP ERO training program is developed and evaluated based on position-specific responsibilities/tasks using SAT principles, when applicable.	8.1.1 - Training	Governance of Emergency Response Organization Training for Entergy personnel is provided by Entergy Procedure EN-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 of EN-TQ-201, "Systematic Approach to Training Process," and EN-EP-308, "Emergency Planning Critiques."	Reorganization of the content of SEP Rev. 32. Additional revisions to concisely address the Evaluation Criterion.
O.2.a	**The ERO training program is reviewed at least annually and revised as necessary.**	Element O.2.a	Changes to the training program are continually identified from trainee feedback and by critique items captured during drills and incorporated per the principles of the SAT process. In addition to continuous training evaluation through drill and exercise critique process that identifies performance issues and initiates training reviews for particular tasks, the SAT process includes provisions for training program review.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
O.2.b	**Training sessions that provide performance opportunities to develop, maintain, or demonstrate key skills are critiqued in order to identify weak or deficient areas that need correction.**	Element O.2.b	All individuals participating in the ERO training program are given the opportunity to provide feedback for training sessions. Any weak or deficient areas are identified and corrected.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
Planning Standard P – Responsibility for the Planning Effort						
P.1	**The training program, including initial training and periodic retraining, of individuals responsible for the planning effort is described.**	Element P.1	Initial Emergency Planning Program training for new Emergency Planning staff members is performed and documented. Continuing training for Emergency Planning staff members is performed periodically through job related opportunities (such as courses, workshops, information exchange meetings with other licensees, conferences held by industry and government agencies, etc.) to maintain current knowledge of the overall planning effort or to enhance working knowledge of plant operations.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
P.2	**The individual with the overall authority and responsibility for radiological emergency response planning is identified by title/position.**	Element P.2	The Site Vice President has the overall authority and responsibility for the PNP SEP. 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.	8.0 – Maintaining Emergency Preparedness	The Site Vice President is the individual with overall authority and responsibility for the Site Emergency Preparedness.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
P.3	**The individual(s) with the responsibility for the development, maintenance, review, updating, and distribution of emergency plans, as well as the coordination of these plans with other response organizations, is identified by title/position.**	Element P.3	The Manager, Emergency Planning 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. Emergency Planning has been delegated responsibilities related to emergency planning that include, but are not limited to, the following: • Ensure offsite county, state, and supporting emergency plans are compatible with the PNP EP • Conduct offsite agency training • Ensure offsite county, state, and supporting emergency plans are compatible with the PNP SEP • Ensure that the EPIPs are coordinated and interface properly with other procedures (e.g., Administrative Procedures, Security Procedures, Radiation Protection Procedures, and Training Procedures, etc.) • Coordinate the onsite emergency planning drill and exercise activities	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			• Coordinate the onsite review and updating of the PNP SEP EPIPs • Assist the PNP Training Department, in coordinating and/or providing emergency planning related specialty training • Ensure the maintenance and inventory of emergency equipment and supplies • Be familiar with current changes in the federal regulations and guidance which impact emergency planning activities • Document all corrective actions resulting from PNP-related Emergency Planning critiques and audits Initiate appropriate PNP-related corrective actions, if any, resulting from the critiques of each integrated practice drill conducted at the Plant			
P.4	**The process for reviewing annually, and updating as necessary, the emergency plan, implementing procedures, maps, charts, and agreements is described. The process includes a method for recording changes made to the documents and, when appropriate, how those changes are retained.**	Element P.4	The formal PNP SEP (as defined in the introduction section) and the EPIPs (as defined in Element P.7) 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. LOAs, contracts, and signature pages made with off-site individuals, agencies, and organizations supporting this SEP will be reviewed and verified on an annual basis and updated if warranted. Proposed revisions to the PNP SEP, EPIPs, and appended LOAs shall receive an effectiveness review in accordance with 10 CFR 50.54(q). If the change to the SEP reduces the effectiveness of the Plan, the NRC shall review and approve the change prior to implementation. The proposed change shall be reviewed by the On-Site Safety Review Committee (OSRC) prior to Plant Licensing submitting the proposed change to the NRC. When revisions to the PNP SEP affect offsite support agencies, they shall be notified as the changes occur.	8.3 – Review and Updating of the Emergency Plan and Implementing Procedures	The Palisades Plant Site Emergency Plan involves the coordination of Entergy personnel and offsite support agencies. To achieve and maintain the most efficient course of emergency actions, the Palisades Plant Site Emergency Plan and Implementing Procedures, including appended letters of agreement, will be reviewed on an annual basis and updated as needed. These reviews are conducted to comply with the Entergy procedures, federal regulations, and operation license provisions. Proposed revisions to the Site Emergency Plan, Emergency Implementing Procedures and appended Letters of Agreement shall receive an effectiveness review in accordance with 10 CFR 50.54(q). If the change to the Site Emergency Plan reduces the effectiveness of the Plan, the Nuclear Regulatory Commission (NRC) shall review and approve the change prior to implementation. The proposed change shall be reviewed by the On-Site Safety Review Committee (OSRC) prior to Plant Licensing submitting the proposed change to the NRC. Proposed revisions to the Site Emergency Plan shall be reviewed and approved in accordance with the Entergy Procedure EN-OM-119, "On-Site Safety Review Committee."	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			Editorial changes to the PNP SEP or EPIPs such as titles and telephone lists are not subject to the review process described above. As the PNP SEP is reviewed, the emergency organization or procedures may be changed as a result of the following: • Drills may detect deficiencies and may indicate a more desirable organization or procedure • Changes in key personnel involved in the organization or procedure • Changes in the PNP's organizational structure • Changes in the functions of supporting agencies, resulting from reorganization, personnel changes, and equipment requirements • Changes in state or federal regulations • Modifications to the plant Recommendations received from other organizations, such as the state and federal agencies or other nuclear facilities		When revisions to the Site Emergency Plan affect offsite support agencies, they shall be notified as the changes occur. Editorial changes to the Site Emergency Plan or Emergency Implementing Procedures such as titles and telephone lists are not subject to the review process described above. An independent review of the Emergency Preparedness Program shall be conducted in accordance with 10CFR50.54(t). The review shall include the Site Emergency Plan, Emergency Implementing Procedures, training, drills and exercises, equipment, and interfaces with state and local governments. Records of the review shall be maintained for at least 5 years. Emergency Planning shall ensure state and local governments have access to appropriate findings. As the Site Emergency Plan is reviewed, the emergency organization or procedures may be changed as a result of the following: a. Drills may detect deficiencies and may indicate a more desirable organization or procedure. b. Changes in key personnel involved in the organization or procedure. c. Changes in the Plant's organizational structure. d. Changes in the functions of supporting agencies, resulting from reorganization, personnel changes, and equipment requirements. e. Changes in state or federal regulations. f. Modifications to the Plant. g. Recommendations received from other organizations, such as the state and federal agencies or other nuclear facilities.	
P.5	**Provisions for distributing the emergency plan and implementing procedures to all organizations and appropriate individuals with**	Element P.5	Revised copies of the PNP SEP are posted and distributed in accordance with PNP records management system procedures.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
	responsibility for implementation of the plan/procedures is described.		Changes to the PNP SEP are submitted to the NRC in accordance with 10 CFR 50.4.			
P.6	**A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.**	Element P.6	Emergency plans developed by other agencies that support the PNP SEP include the following: • Department of Homeland Security NRF • U.S. Nuclear Regulatory Commission Incident Response Plan • Michigan Emergency Management Plan • Van Buren County Emergency Plan • Allegan County Emergency Plan • Berrien County Emergency Plan	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
P.7	**An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.**	Element P.7	Detailed EPIPs required to implement this SEP have been developed. Table P.7-1 provides a listing, by title, of the response and maintenance procedures required to implement the emergency plan, and the section(s) of this SEP to be implemented by each procedure. Detailed implementing procedures for emergencies considered to be special events, such as civil disturbances, bomb threats, and breaches in security are included as part of the Safeguards Contingency Procedures. Separate emergency procedures are not provided for activities already covered by Plant or section Operating Procedures (i.e., calibration of survey instruments). The plan relies on certain aspects of the Plant's operating procedures, radiation protection procedures, and security procedures, where they are required for clarification.	2.5.3 – Emergency Implementing Procedures	Detailed Emergency Implementing Procedures required to implement the plan have been developed. An index of the Emergency Implementing Procedures is included in Appendix D.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
P.8	**A table of contents and a cross-reference index to each of the NUREG-0654/FEMA-REP-1, Rev. 2 evaluation criteria are included. The evaluation criteria that do not apply are identified.**	Element P.8	The PNP SEP contains a specific table of contents. The emergency plan paragraphs are numbered to correspond to the NUREG-0654, Rev. 2 evaluation criteria. Evaluation criteria which do not apply to licensees are listed and identified.	TOC & NUREG 0654 Cross Reference (Appendix I)		Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
P.9	**Provisions for addressing the requirements of 10 CFR 50.54(t) are described.**	Element P.9	Emergency Planning Program elements are reviewed by persons that have no direct responsibility for the implementation of the Emergency Planning Program, in accordance with 10 CFR 50.54(t).	8.3 - Review and Updating of the Emergency Plan and Implementing Procedures	An independent review of the Emergency Preparedness Program shall be conducted in accordance with 10CFR50.54(t). The review shall include the Site Emergency Plan, Emergency Implementing Procedures,	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

NUREG-0654, Rev. 2 Evaluation Criteria		Power Operations Emergency Plan (POSEP)		Source - Site Emergency Plan (Rev. 32)		Description
		Location (Section II)	Content	Location (Section)	Content	
			The review shall include the PNP SEP, 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.		training, drills and exercises, equipment, and interfaces with state and local governments. Records of the review shall be maintained for at least 5 years. Emergency Planning shall ensure state and local governments have access to appropriate findings.	
P.10	**The administrative process for the periodic review and updating of contact information identified in the emergency plan and implementing procedures is described.**	Element P.10	The PNP emergency communications directory contains select 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.	N/A	N/A	Content added to the proposed POSEP to address the Evaluation Criterion.
P.11	**The process for entering EP program-related issues that could reduce the effectiveness of the emergency plan into the site-wide corrective action program is described.**	Element P.11	The PNP CAP is used to capture all events that do not meet program regulations, requirements, standards, or are otherwise conditions adverse to quality.	8.1.4 – Emergency Planning	j. Document all corrective actions resulting from Plant-related Emergency Planning critiques and audits k. Initiate appropriate Plant-related corrective actions, if any, resulting from the critiques of each integrated practice drill conducted at the plant.	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.
P.12	**The process to evaluate changes in plant configuration for their impact on the effectiveness of the emergency plan is described.**	Element P.12	Changes in plant configuration are evaluated for their impact on the effectiveness of the emergency plan through the plant modification or license compliance review processes specified in change procedures and, if required, the 10 CFR 50.54(q) change evaluation process.	8.3 - Review and Updating of the Emergency Plan and Implementing Procedures	f. Modifications to the Plant	Reorganization of the content of SEP Rev. 32. Additional revisions to fully address the Evaluation Criterion.

Attachment 2 to Enclosure

HDI PNP 2024-005

Proposed Palisades Nuclear Plant Power Operations Site Emergency Plan

152 pages follow

Procedure No SEP
Revision ##
Effective Date TBD

PALISADES NUCLEAR PLANT
SITE EMERGENCY PLAN

TITLE: SITE EMERGENCY PLAN

Approved: _____ /

Procedure Sponsor **Date**

Process Applicability Exclusion ☐

New Procedure/Revision Summary:

Rev XX, Revision

Specific Changes:

1. Reinstate operating plant Emergency Plan to support returning PNP to a power operations licensing basis.
2. Reformat to align with NUREG-0654 Rev. 2.
3. Palisades Energy will be the future owner based on Holtec Decommissioning International, LLC letter to the U.S. Nuclear Regulatory Commission, "Application for Order Consenting to Transfer of Control of License and Approving Conforming License Amendments," dated December 6, 2023 (ADAMS Accession Nos. ML23340A161, ML23340A162)

TITLE: SITE EMERGENCY PLAN

Table of Contents

TITLE: SITE EMERGENCY PLAN

INFORMATIONAL USE
• Procedure is available and referenced for review, but not necessarily at the work location. • Procedure may be performed from memory or referred to as needed. • User remains responsible for procedure adherence.

I. INTRODUCTION

The Palisades Nuclear Plant (PNP) Site Emergency Plan (SEP or Plan) describes the plans established by the plant operator, Palisades Energy, LLC (Palisades Energy), for responding to a radiological emergency at PNP. The SEP describes PNP's on-shift organizations, emergency response facilities, emergency response capabilities, and the functional interfaces with applicable external organizations that would cooperatively respond to a broad range of emergencies at PNP. The SEP describes the responsibilities and specific authorities which provide for effective control and coordination of the emergency response.

The SEP describes PNP's Emergency Response Organization (ERO), the supplemental personnel that augment the on-shift ERO, and additional resources, as required, to adequately respond to an emergency at PNP.

A. Background

PNP is in Covert Township, Van Buren County, Michigan. The Plant is bordered to the north by the Van Buren State Park and to the west by Lake Michigan. The areas south and east of PNP are sparsely populated, underdeveloped, or used for farming. Interstate-196 and the Blue Star Highway traverse the area within one mile to the east of PNP. Highway access to the Plant is provided from the Blue Star Highway (A-2) via the Plant access road. Much of the area around PNP is devoted to recreation and tourism, resulting in a fluctuating and seasonal population. An area map showing the location of the facility is provided in Figure 1-1.

PNP is owned by Holtec Palisades, LLC (Holtec Palisades). The plant is a pressurized water reactor nuclear steam supply system supplied and manufactured by Combustion Engineering. The system uses chemical shim and control rods for reactivity control and U-tube steam generators.

A map of the PNP site is provided as Figure 1-2.

B. Scope

The SEP describes how the normal (on-shift) plant operating organization responds to an emergency and establishes the ERO (on-shift and augmenting) personnel; defines specific duties and responsibilities of the ERO (on-shift and augmenting) personnel; and designates points of contact between the ERO and external supporting organizations.

The SEP provides for the augmentation of the on-shift organization based on the severity of the emergency conditions encountered. The augmenting ERO includes the activation of additional

emergency response personnel, as appropriate. Details related to the ERO (on-shift and augmenting) required to implement the SEP are addressed in Section II of this SEP.

The SEP describes the direction and coordination of the PNP ERO.

Section II of this SEP addresses those elements and attributes of the SEP and the PNP emergency preparedness program that comply with the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50. The U.S. Nuclear Regulatory Commission (NRC) evaluates the adequacy of this Plan and the PNP emergency preparedness program based on these criteria.

The SEP provides a description of the emergency preparedness program and associated policies that ensure compliance with applicable regulations and commitments.

Emergency Plan Implementing Procedures (EPIPs) define the actions taken by the ERO in the event of an emergency and include specific procedures necessary to implement various aspects of this Plan. The EPIPs are separate from, but may incorporate and reference, normal plant operating procedures and instructions, which may also be used, as necessary, during an emergency. EPIPs detail the specific functions assigned to the on-shift and augmenting ERO positions required to implement this Plan, and provide directions for conducting those functions.

The capability to develop and implement a recovery and reentry plan, describing the management, technical, and administrative organizations necessary to execute timely and effective recovery based on assessments of plant conditions and desired end states, is described in Section II.M of this SEP. Section II.M also provides guidance for accessing the facility after radiological and hostile action-based emergencies, including relaxing protective measures at PNP that have been implemented.

C. Planning Basis

This SEP complies with the requirements of 10 CFR Part 50, Section 47, “Emergency Plans,” and Appendix E, “Emergency Planning and Preparedness for Production and Utilization Facilities.”

NRC Regulatory Guide 1.101, “Emergency Planning and Preparedness for Nuclear Power Reactors”, dated June 2021, endorsed the guidance and criteria in NUREG-0654/FEMA-REP-1, Revision 2, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants” (NUREG-0654), as an acceptable method for complying with the emergency planning standards of 10 CFR Part 50.

The SEP is informed by the supporting regulatory guidance provided in NUREG-0654, Rev.2.

D. Coordinated Government Emergency Planning

PNP maintains an appropriate level of integration of radiological emergency planning activities to ensure the SEP meets applicable NRC regulations. The purpose of the SEP is to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

Two Emergency Planning Zones (EPZ) have been identified for the purpose of development and implementation of emergency planning.

- The plume exposure EPZ has a radius of approximately ten (10) miles around PNP, encompassing portions of Van Buren, Berrien, and Allegan Counties. Within this zone, shelter and/or evacuation is the immediate protective action to be recommended for the public.

- The ingestion exposure pathway EPZ has a radius of fifty (50) miles from PNP. The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk, fresh vegetables, or aquatic foodstuffs. Major exposure pathways associated with the ingestion of contaminated food and water are addressed in Section II.J of this Plan.

E. Form and Content

The format of this Plan conforms to the format of the regulatory guidance provided NUREG-0654, Revision 2. Section II of this SEP includes elements of NUREG-0654, Revision 2 in shaded boxes. The information following each shaded box describes how this SEP addresses each element. In those instances where the NUREG-0654, Revision 2 elements are not applicable to PNP, but are applicable to offsite response organizations (OROs), text is provided indicating such.

The content of this Plan is based on the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50.

TITLE: SITE EMERGENCY PLAN

FIGURE 1-1
PALISADES PLANT GENERAL LOCATION

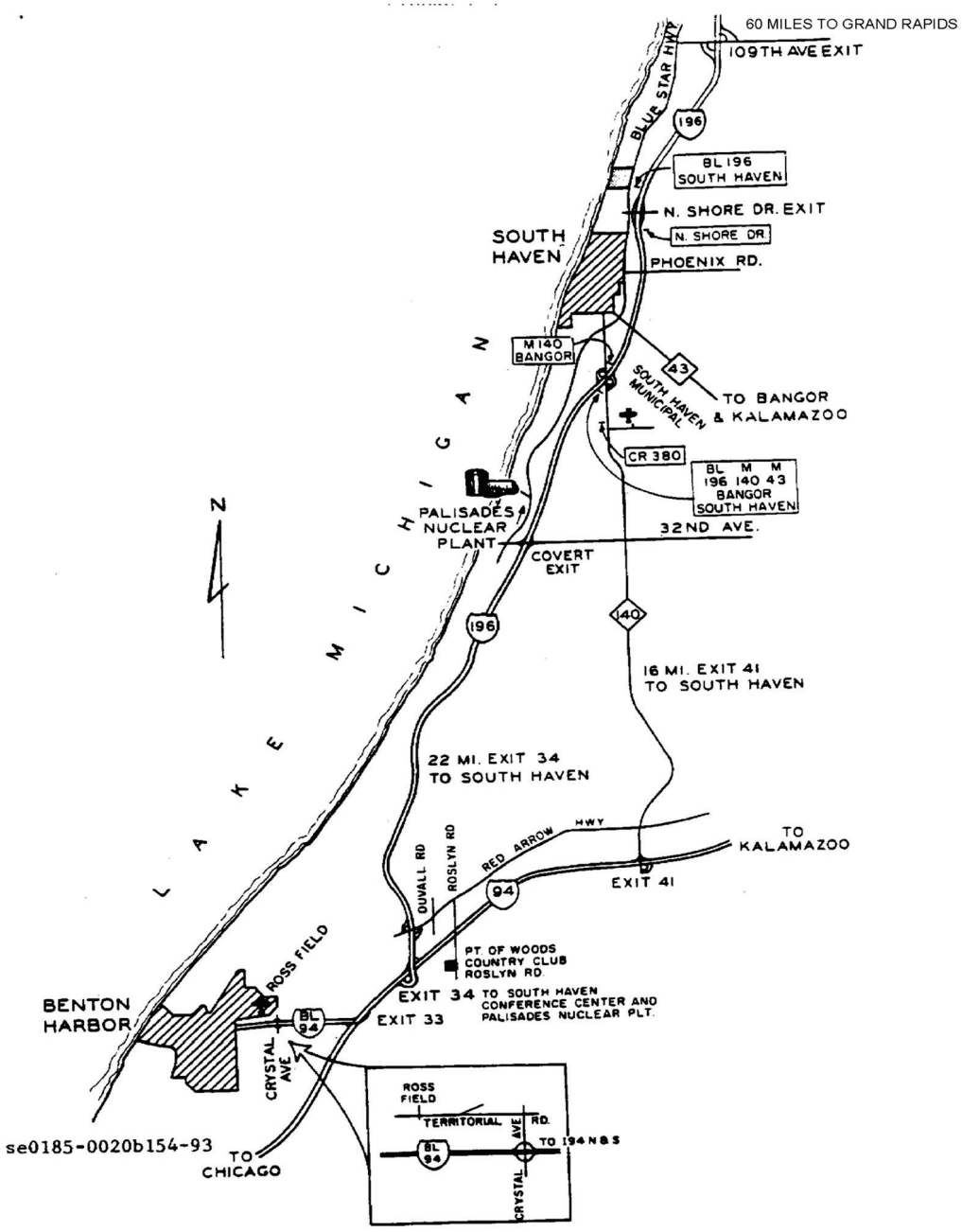
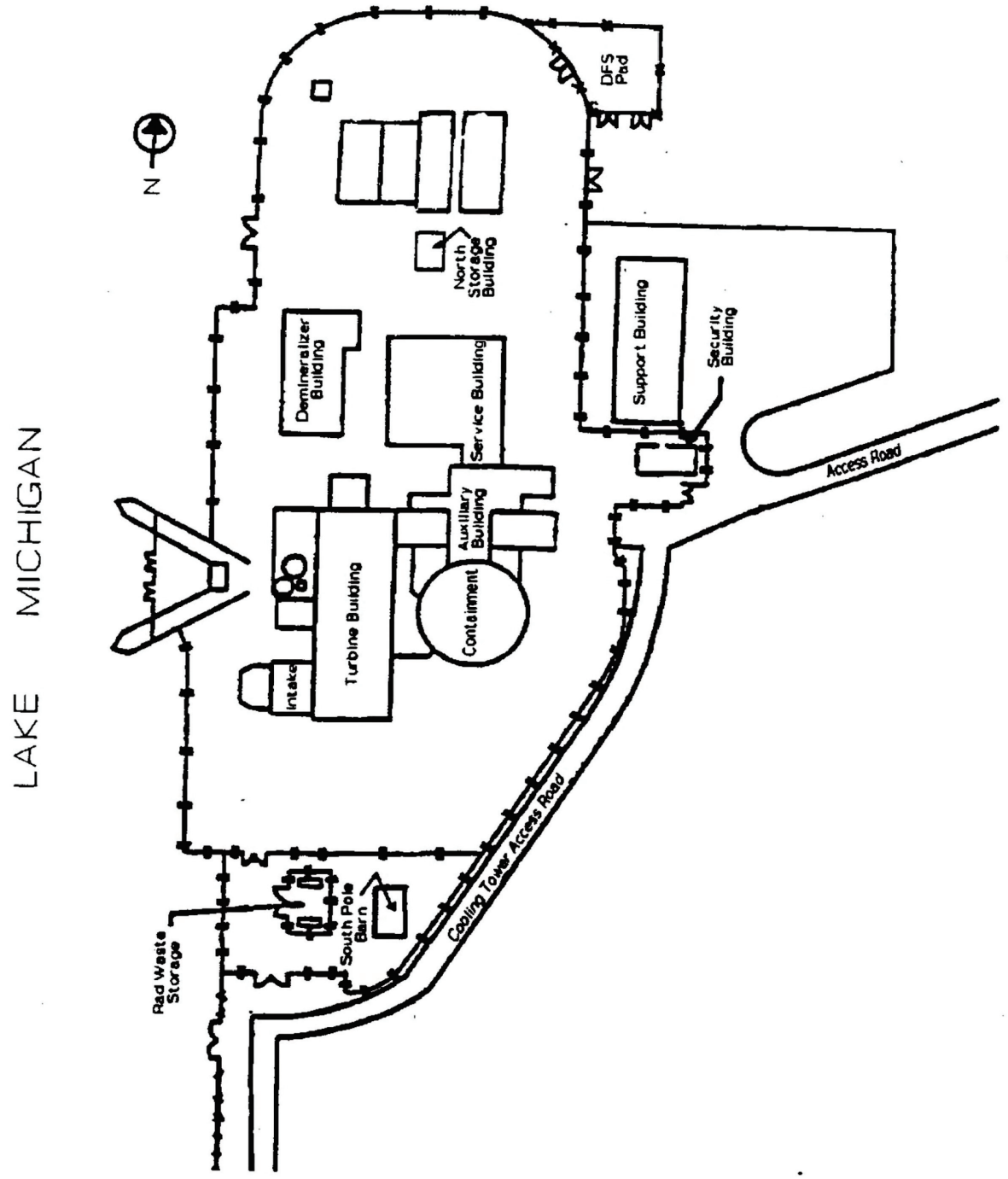


FIGURE 1-2
PALISADES FACILITIES



II. EMERGENCY PLAN

A. Assignment of Responsibility

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

Regulatory References: 10 CFR 50.47(b)(1); 44 CFR 350.5(a)(1);
10 CFR Part 50 Appendix E.IV.A

A.1	The federal, state, local, tribal, licensee, and other private sector organizations that comprise the overall response for the EPZs are identified.

The Palisades Nuclear Plant (PNP) plume exposure pathway emergency planning zone (EPZ) includes portions of Van Buren, Berrien, and Allegan Counties. This section of the PNP Site Emergency Plan (SEP) identifies the PNP, Federal, State, County, and private sector organizations that encompass the overall response to an emergency at PNP.

A.1.a	The organizations having an operational role specify their concept of operations and relationship to the total effort.

The principal organizations participating in emergency response activities at PNP include:

1. Palisades Nuclear Plant

This section of the PNP SEP summarizes the PNP Emergency Response Organization (ERO) as it relates to the overall concept of operations.

Normal plant operations at PNP are conducted under the authority of the Shift Manager and are directed from the Control Room. In the event of an abnormal condition, the Shift Manager assumes the role of Emergency Director and coordinates the activities of the plant staff to perform initial assessment, corrective actions, and protective functions. The Shift Manager determines if an emergency condition exists and, if so, identifies and declares the proper emergency classification in accordance with EPIP EI-1, "Emergency Classification and Actions."

When an emergency is declared, the Shift Manager is responsible for taking immediate action to safeguard personnel and equipment. Utilizing the PNP EPIPs, the Shift Manager activates the necessary portions of this SEP. Augmentation of the on-shift ERO is required at the Alert emergency classification level or higher, and at the discretion of the Shift Manager for a Notification of Unusual Event (NOUE).

Basic considerations for safe operation of the Plant, and for action in the event of an emergency, are summarized as follows:

a. Protection of Plant personnel and the public is the highest priority. A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the reactor and perform the functions of this SEP. Plant system and equipment protection is secondary.

b. When there is doubt as to the classification of the emergency condition, the more conservative case is considered.

c. Instrumentation is assumed to be providing correct information unless it is clearly identified that an instrument is erroneous or out of service.

d. Alarms are promptly acknowledged, any required response action is taken, and an immediate investigation of the cause that initiated the alarm is made.

When an emergency is declared, notifications are made to the appropriate offsite authorities, emergency response facilities (ERFs) are activated as described in Table A-1, "Guidelines for Plant, State and Local Actions," and the ERFs are staffed as described in Part II Section B of this SEP.

For emergencies that result in the release of radioactive materials greater than specified levels, or the degradation of barriers to the release of radioactive materials, assessments of the offsite dose consequences or the projected offsite dose consequences are made. If necessary, protective action recommendations (PARs) are provided to offsite authorities responsible for alerting the public and issuing public protective actions.

When the ERFs are staffed, the augmenting ERO relieves the on-shift personnel of emergency response functions that are not directly associated with Plant operations. PNP’s overall concept of operations and responsibilities for event response include:

- Recognizing and assessing plant conditions;
- Classifying and declaring an emergency;
- Notifying appropriate PNP personnel, Federal agencies, and State and local offsite response organizations (OROs);
- Requesting additional support from Federal, State and local OROs, and private organizations;
- Establishing and maintaining effective communications with onsite and offsite entities;
- Continuously assessing the consequences of the accident,

- Periodically communicating plant status, response actions, and assessment information, including a description of radiological conditions, to the appropriate groups and authorities;
- Prioritizing and performing response actions to mitigate and terminate the event;
- Taking protective actions onsite and communicating PARs to offsite authorities;
- Monitoring and controlling radiation exposure of personnel responding to an emergency;
- In conjunction with OROs, providing emergency information to the media and public through periodic media briefings and media statements; and
- Terminating an emergency.

Based on the emergency classification and an assessment of plant conditions, the Emergency Director is responsible for the following.

- Coordinating emergency response activities, including making or directing requests for required support from external organizations;
- Making or directing initial notifications to affected plant staff,
- Notifying Van Buren, Berrien, and Allegan Counties, the State of Michigan, and Federal authorities
- Determining if activation of the ERFs is desirable or required [1,2,3]

A detailed description of the PNP Emergency Response Organization (ERO) is provided in Element B.1.

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1 If an event is transient in nature such that staffing of the ERO is not practical prior to termination of the event, then the ERO may not be staffed. However, notifications to affected authorities are completed consistent with the requirements of this SEP.
2 Under some circumstances, such as unanticipated natural events or hostile action against the facility, the Emergency Director may judge that movement of personnel as needed to staff the ERFs may create undue hazards to plant personnel. Under such circumstances, the Emergency Director may elect to postpone staffing of the ERFs and implement compensatory measures as needed to ensure ongoing personnel and plant safety.
3 The ERO may be staffed prior to the declaration of an emergency, such as in anticipation of severe weather that is likely to result in the declaration of an emergency condition.

2. *Primary External Organizations*

The Palisades ERO coordinates response actions with various Federal. State, and local OROs. Interface between PNP and the OROs is governed by their respective emergency plans, which are developed and maintained in coordination with the PNP SEP.

Local organizations (i.e., local law enforcement support; medical and ambulance services, including hospital support; and fire/rescue support) may be requested to respond to an emergency at PNP. The Emergency Director is responsible for requesting and coordinating the response with the onsite activities. The organizations described in this SEP are capable of 24-hour response. Details related to the anticipated support from each organization are described in Part II Section C, “Emergency Response Support and Resources,” of this SEP.

Letters of Agreement (LOAs) are listed in Appendix 4 and are addressed in Part II, Section C of this Plan.

a) Federal Agencies

Control, responsibility, and interface of various Federal agencies is governed by the National Response Framework (NRF), including the Nuclear/Radiological Incident Annex (NRIA) to the NRF and various agency-specific documents (e.g., NRC’s Incident Response Plan) supporting the NRF when they are called to respond to an event at a nuclear power plant.

(i) U.S. Nuclear Regulatory Commission

The NRC may request the Federal Department of Energy (DOE) dispatch Federal Radiological Monitoring and Assessment Center (FRMAC) personnel to the scene in the event of an emergency who could perform radiological monitoring and dose assessment. The NRC is the Lead Federal Agency (LFA) for the FRMAC and will coordinate the efforts of all federal agencies involved.

The Emergency Director has the authority to request NRC assistance. NRC Staff may also furnish advice and assistance to the Plant as deemed necessary. The NRC shall be notified within an hour, any time all or part of the PNP SEP is activated. Means of communications are described in Part II Section F, "Emergency Communications."

Workspace and telephones are provided for NRC personnel in the Technical Support Center (TSC) and the Emergency Operations Facility (EOF). The EOF includes space for trailers for long term support capabilities.

b) State Agencies

State agencies function under the direction of the Governor of the State of Michigan.

(i) Michigan State Police Emergency Management and Homeland Security Division

The State Police Emergency Management and Homeland Security Division (MSP/EMHSD) is the lead state agency for emergency response planning and operations. This agency operates under the direction of the State Director of Emergency Management.

In emergency situations, the EMHSD is responsible for coordinating the support of other state agencies and political subdivisions and obtaining the assistance of federal agencies as required.

The EMHSD will provide the following emergency support:

a. Activation of the State Emergency Operations Center, as necessary

b. Communications, radiological monitoring, and other available support to the affected local government

c. Liaison with local, state, and federal agencies

Responsibilities of the EMHSD include:

1. Development and maintenance of the Michigan Emergency Management Plan and assistance to the counties in developing their individual emergency operations plans.

2. Recommendations to the Governor of the State of Michigan regarding emergency measures.

3. Arranging training programs for state and local agencies designed to promote effective response to radiological incidents.

4. Providing communications, radiological monitoring, and other available support to affected local governments.

5. Coordinating the support of other state agencies or political subdivisions near the affected area and obtaining the assistance of federal agencies as required.

The normal point of contact for PNP is through the Operations Division of the MSP in Lansing.

PNP will support the MSP by providing specific information relating to the nature of the emergency, recommendations on public protective actions, and other available information and technical guidance.

(ii) Michigan State Police - Paw Paw Post

MSP is responsible for providing emergency traffic control and other available assistance. The MSP's nearest post is in Paw Paw, Michigan and maintains direct radio communications to Van Buren, Allegan, and Berrien Counties. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities.

(iii) Michigan Department of Transportation

Michigan Department of Transportation (MDOT) assists in emergency traffic regulation and coordination with the MSP, the Sheriff, and the Road Commission of the affected county(ies).

(iv) Michigan Department of Environment, Great Lakes, and Energy

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Radiological Protection Section, located in Lansing, is responsible for administering and directing radiation control programs and activities within the State.

The Radiological Protection Section has the direct responsibility to provide the technical assistance necessary to evaluate the offsite consequences of a radiological incident, to provide protective action guidance to State and local authorities responsible for public safety, and to oversee offsite decontamination and reentry operations.

The Radcon Field Team provides direct radiological emergency response capability during emergency conditions. Responsibilities of the Radcon Field Team include:

1. Mobilizing immediately to the affected area and performing radiological monitoring, as appropriate.

2. Determining and reporting the nature and scope of the hazard.

3. Providing State government with technical guidance, recommending appropriate emergency countermeasures and recovery actions, and otherwise assisting the affected community.

The EGLE, Radiological Protection Section is responsible for providing the public with health hazard evaluation, guidance, or protective actions and other pertinent information concerning radiological incidents.

(v) Michigan Department of Health and Human Services

The Michigan Department of Health and Human Services is responsible for coordinating emergency medical support of radiological incidents, as requested by EGLE, Radiological Protection Section, or local health authorities.

(vi) Michigan Department of Agriculture and Rural Development

The Michigan Department of Agriculture and Rural Development acts on advice from the State Health Director for controlling agricultural products and production for the purpose of radiation health hazard abatement. Protective actions initiated by the Department of Agriculture and Rural Development may include any or all protective actions recommended by the U.S. Environmental Protection Agency (EPA).

c) County Agencies

Emergency responsibilities of county emergency management agencies include communication support to the responding county departments, providing alert and notification to the public, and assuring the continuation of vital services during the emergency.

(i) Van Buren County Office of Domestic Preparedness

The Van Buren County Office of Domestic Preparedness is in the County Sheriff's Courthouse Annex, in Paw Paw, Michigan. In the event of an emergency, Van Buren County Sheriff's Department will disseminate information and recommendations initially supplied by PNP to the Chairman of the Van Buren County Board of Commissioners, Van Buren County Domestic Preparedness Director, and the Van Buren County Emergency Operations Center (EOC), if activated. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities.

The Chairman of the Van Buren County Board of Commissioners is responsible for activation of the county's Emergency Operations Plan. The Van Buren County Domestic Preparedness Director is responsible for overall coordination and planning of emergency response activities within the county. The Director will implement the activation and operational aspects of the EOC and alert key officials and agencies. The Director will coordinate efforts with other agencies to inform the public in affected portions of the county to take protective actions when conditions warrant.

(ii) Berrien County Emergency Management

The Berrien County EOC is in Benton Harbor, Michigan. The Chief of Staff (Director of Emergency Management) is responsible for overall coordination of emergency operations in Berrien County in the event of an emergency. The Chief of Staff operates under the direction of the Chief Executive (Chair, Berrien County Board of Commissioners). Berrien County Sheriff's Department will disseminate information and recommendations initially supplied by PNP to the Chief of Staff and/or the Emergency Management Coordinator and the Berrien County EOC, if activated. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities.

The Chief Executive (Chair, Berrien County Board of Commissioners) is responsible for activation of the County's Emergency Operations Plan and for overall coordination and planning of emergency operations with Van Buren County until the State of Michigan

provide information and direction. The Chief of Staff (Director of Emergency Management) is responsible for initiating the staffing of the EOC. By prior agreement between counties, communications between PNP and Berrien County will normally be directed through Van Buren County. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities.

(iii) Allegan County Office of Emergency Preparedness

The Allegan County Office of Emergency Management is located at the Allegan County Office Complex, Allegan, Michigan. In the event of an emergency, Allegan County Sheriff's Department will disseminate information and recommendations initially supplied by PNP to the Chairperson of the Allegan County Board of Commissioners, Allegan County Emergency Management Director, and the Allegan County EOC, if activated. By prior agreement between the counties, communications between the Plant and Allegan County will normally be directed through Van Buren County. Part II Section F, "Emergency Communications," of this SEP describes communication capabilities.

The Chairperson of the Allegan County Board of Commissioners is responsible for the activation of the County's Emergency Operations Plan. The Allegan County Emergency Management Director is responsible for overall coordination and planning of emergency response activities within the county. The Emergency Management Director will implement activation of the EOC and alert key officials and agencies.

d) Other External Organizations

Other external organizations are used to provide hospital and medical transport support, law enforcement response, and fire/rescue services. Contractors and private organizations may be requested to provide technical assistance or logistics support.

External organizations are described in Element B.5 of this Plan.

TABLE A-1
GUIDELINES FOR PLANT, STATE AND LOCAL ACTIONS

CLASS	LICENSEE ACTIONS	STATE AND/OR LOCAL OFFSITE AUTHORITY ACTIONS
NOUE **Class Description** Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. **Purpose** Purpose of offsite notification is to: (1) assure that the first step in any response later found to be necessary has been carried out, (2) bring the operating staff to a state of readiness, and (3) provide systematic handling of NOUEs information and decision making.	1. Promptly inform state and local offsite authorities of nature of unusual condition as soon as discovered. 2. Augment on-shift resources as needed. 3. Assess and respond. 4. Escalate to a more severe class, if appropriate. or 5. Close out with verbal summary to offsite authorities; followed by written summary	1. Provide fire or security assistance if requested. 2. Escalate to a more severe class, if appropriate. 3. Stand by until verbal closeout.

TABLE A-1
GUIDELINES FOR PLANT, STATE AND LOCAL ACTIONS

CLASS	LICENSEE ACTIONS	STATE AND/OR LOCAL OFFSITE AUTHORITY ACTIONS
ALERT		
Class Description Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels. **Purpose** Purpose of the Alert is to: (1) assure that emergency personnel are readily available to respond if situation becomes more serious or to perform confirmatory radiation monitoring if required, and (2) provide offsite authorities current status information.	1. Promptly inform state and local offsite authorities of Alert status and reason for emergency as soon as discovered. 2. Augment resources by activating onsite TSC, onsite OSC, and near-site EOF. 3. Assess and respond. 4. Dispatch onsite monitoring teams and associated communications. 5. Designate an individual for Plant status updates to offsite authorities. 6. Provide meteorological data to off site authorities and if any releases are occurring, dose estimates for actual releases. 7. Escalate to a more severe class, if appropriate. or 8. Close out or recommend reduction in emergency class by briefing of offsite authorities and by phone followed by written summary	1. Provide fire or security assistance if requested. 2. Augment resources and bring primary response centers and Emergency Alert System to standby status. 3. Alert to standby status key emergency personnel including monitoring teams and associated communications. 4. Provide confirmatory off-site radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed Technical Specification limits. 5. Escalate to a more severe class, if appropriate. 6. Maintain Alert status until verbal closeout or reduction of emergency class.

TABLE A-1
GUIDELINES FOR PLANT, STATE AND LOCAL ACTIONS

CLASS	LICENSEE ACTIONS	STATE AND/OR LOCAL OFFSITE AUTHORITY ACTIONS
Site Area Emergency **Class Description** Events are in process or have occurred which involve an actual or likely major failures of Plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts: (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary. **Purpose** Purpose of the Site Area Emergency declaration is to: (1) assure that response centers are manned, (2) assure that monitoring teams are dispatched, (3) assure that personnel required for evacuation of near-site areas are at duty stations if situation becomes more serious, (4) provide consultation with offsite authorities, and (5) provide updates for the public through offsite authorities.	1. Promptly inform State and local offsite authorities of Site Area Emergency status and reason for emergency as soon as discovered. 2. Augment resources by activating onsite TSC, onsite OSC, and near-site EOF. 3. Assess and respond. 4. Dispatch onsite and offsite monitoring teams and associated communications. 5. Designate an individual for Plant status updates to offsite authorities and periodic press briefings (perhaps joint with offsite authorities). 6. Make senior technical and management staff onsite available for consultation with NRC and state on a periodic basis. 7. Provide meteorological and dose estimates to offsite authorities for actual releases via a designated individual or automated data transmission. Cont'd on next page	1. Provide any assistance requested. 2. If sheltering near the site is desirable, activate public notification system within at least two miles of the Plant. 3. Provide public within at least about 10 miles periodic updates on emergency status. 4. Augment resources by activating primary response centers. 5. Dispatch key emergency personnel including monitoring teams and associated communications. 6. Alert to standby status other emergency personnel (eg, those needed for evacuation) and dispatch personnel to near-site duty stations. 7. Provide off-site monitoring results to licensee, DOE, and others and jointly assess them. Cont'd on next page.

TABLE A-1
GUIDELINES FOR PLANT, STATE AND LOCAL ACTIONS

CLASS	LICENSEE ACTIONS	STATE AND/OR LOCAL OFFSITE AUTHORITY ACTIONS
Site Area Emergency (cont)		
	8. Provide release and dose projections based on available Plant condition information and foreseeable contingencies. 9. Escalate to a General Emergency class, if appropriate. or 10. Close out or recommend reduction in emergency class by briefing of offsite authorities and by phone followed by written summary.	8. Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources. 9. Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance. 10. Provide press briefings with licensee. 11. Escalate to General Emergency class, if appropriate. 12. Maintain General Emergency status until closeout or reduction of emergency class.

TABLE A-1
GUIDELINES FOR PLANT, STATE AND LOCAL ACTIONS

CLASS	LICENSEE ACTIONS	STATE AND/OR LOCAL OFFSITE AUTHORITY ACTIONS
GENERAL EMERGENCY		
Class Description Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. **Purpose** Purpose of the General Emergency declaration is to: (1) initiate predetermined protective actions for the public, (2) provide continuous assessment of information from licensee and offsite organization measurement, (3) initiate additional measures as indicated by actual or potential releases, (4) provide consultation with offsite authorities, and (5) provide updates for the public through offsite authorities.	1. Promptly inform State and local offsite authorities of General Emergency status and reason for emergency as soon as discovered (parallel notification of state/local). 2. Augment resources by activating onsite TSC, onsite OSC, and near-site EOF. 3. Assess and respond. 4. Dispatch onsite and offsite monitoring teams and associated communications. 5. Designate an individual for Plant status updates to offsite authorities and periodic press briefings (perhaps joint offsite authorities). 6. Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis. 7. Provide meteorological and dose estimates to offsite authorities for actual releases via a designated individual or automated data transmission. Cont'd on next page.	1. Provide any assistance requested. 2. If sheltering near the site is desirable, activate public notification system within at least two miles of the Plant. 3. Provide public within at least about 10 miles periodic updates on emergency status. 4. Augment resources by activating primary response centers. 5. Dispatch key emergency personnel including monitoring teams and associated communications. 6. Alert to standby status other emergency personnel (eg, those needed for evacuation) and dispatch personnel to near-site duty stations. 7. Provide off-site monitoring results to licensee, DOE, and others and jointly assess them. Cont'd on next page.

TABLE A-1
GUIDELINES FOR PLANT, STATE AND LOCAL ACTIONS

CLASS	LICENSEE ACTIONS	STATE AND/OR LOCAL OFFSITE AUTHORITY ACTIONS
GENERAL EMERGENCY (cont)		
	8. Provide release and dose projections based on available Plant condition information and foreseeable contingencies. 9. Close out or recommend reduction in emergency class by briefing of offsite authorities at EOF and by phone followed by written summary.	8. Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources. 9. Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance. 10. Provide press briefings with licensee. 11. Maintain General Emergency status until closeout or reduction of emergency class.

A.1.b	Each organization's emergency plan illustrates these interrelationships in a block diagram.

Refer to Element B.4 for the interrelationships between the PNP ERO, Federal response organizations, and the OROs.

A.1.c	Each organization identifies the individual, by title/position, who will be in charge of the emergency response.

An individual having the authority and responsibility to initiate any emergency actions within the provisions of this SEP, including the exchange of information with authorities responsible for coordinating offsite emergency measures, is onsite at all times. This individual is the Shift Manager until relieved by the Emergency Director.

A.2	References to the applicable acts, codes, or statutes that provide the legal basis for emergency response-related authorities, including those that delegate responsibility and authority to state, local, and tribal governments are included. Each emergency plan indicates who may declare a "State of Emergency" and the powers that ensue.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans. In accordance with the Michigan Emergency Management Act (Public Act 390 of 1976, as amended), local emergency management coordinators may recommend that a local state of emergency be declared. The Governor may declare a state of emergency or state of disaster and activate applicable relief forces if an emergency or disaster or imminent threat exists.

A.3	Each organization specifies the key individual(s), by title/position, responsible for the following functions, applicable to their organizations: command and control, alerting and notification, communications, public information, accident assessment, public health and sanitation, social services, fire and rescue, traffic control, emergency medical services, law enforcement, transportation, protective response (including authority to request federal assistance and to initiate other protective actions), and radiological exposure control.

Refer to Element B.1.a and Table B-1 for a list of key PNP individuals responsible for command and control, alerting and notification, communications, public information, accident assessment, protective response (including authority to request federal assistance and to initiate other protective actions), and radiological exposure control.

Individuals with state and local governments responsible for activation and implementation of offsite emergency plans are identified in element A.1.a of this Plan.

A.4	Written agreements with the support organizations having an emergency response role within the EPZs are included. The agreements describe the concept of operations, emergency measures to be provided, mutually acceptable criteria for their implementation, and arrangements for exchange of information.

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 potential consequences of some emergencies may require the support services of off-site individuals, organizations, and agencies. As a result, local support service arrangements have been made with offsite groups to provide onsite aid in the event of an emergency, including those resulting from hostile actions. Support services include medical assistance and ambulance service, law enforcement, fire and rescue, and support during an evacuation.

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 consistent with this SEP.

Written agreements ensure individuals, agencies, or organizations are available and capable of a response in support of PNP. In the written agreements, the agencies have outlined their responsibilities or have agreed to their responsibilities. A listing of the letters of agreement, contracts, or signature pages has been included in Appendix 4.

A.5	Each principal response organization is capable of continuous operations for a protracted period. The principal response organization specifies the individual, by title/position, who is responsible for ensuring continuity of resources (technical, administrative, and material).

PNP maintains a depth to the ERO that can provide continuous (24 hour/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.

B. Emergency Response Organization

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.

Regulatory References: 10 CFR 50.47(b)(2); 44 CFR 350.5(a)(2);
10 CFR Part 50, Appendix E.IV.A

B.1	The emergency plan specifies how the requirements of 10 CFR 50.47(b)(2) and the applicable sections of Appendix E to 10 CFR Part 50 are met.

This SEP specifies how the requirements of 10 CFR 50.47(b)(2) and the applicable sections of Appendix E, Section IV.A, to 10 CFR Part 50 are met.

Appendix 3 provides a cross-reference between this SEP and the applicable requirements of 10 CFR 50.47(b) the applicable sections of Appendix E to 10 CFR Part 50.

B.1.a	The site-specific emergency response organization (ERO) is developed. Note that while other site programs, such as operations, fire response, rescue and first aid, and security, may be controlled via other licensing documents, it is only when these personnel are assigned EP functions that they become part of this regulatory standard. Consideration is given to ensure that EP functions are not assigned to individuals who may have difficulties performing their EP function(s) simultaneously with their other assigned (non-EP) duties. Appendix E to 10 CFR Part 50 requires licensees to perform an on-shift staffing analysis to ensure on-shift staff can support the EP functions assigned, as well as other assigned duties.

This SEP describes the PNP organization capable of responding to a spectrum of emergencies. The PNP operating and shift engineering activities are under the control of the General Manager, Plant Operations. The operating shift crew is initially responsible for implementing emergency action(s) in accordance with assigned response functions. The minimum on-shift staff required to conduct routine and immediate emergency operations are maintained as described in Chapter 13 of the PNP Updated Final Safety Analysis Report (UFSAR).

Upon declaration of an emergency, designated members of the on-shift staff fulfill corresponding roles within the PNP ERO. The PNP organization includes personnel encompassing both the management and operation of the Plant. The PNP on-shift staffing has been analyzed in accordance with Paragraph IV.A.9 of Appendix E to 10 CFR Part 50, and guidance in NEI 10-05, “Assessment of On-Shift Emergency Response Organization Staffing and Capabilities,” Revision 0, dated June 2011. The PNP on-shift staffing analysis report is maintained as a separate document, and is provided as Reference 2 in Section III of this SEP.

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 this SEP only when assigned an emergency preparedness function that is performed during an emergency.

Normal Plant staffing provides sufficient personnel for continuous protracted emergency operation. The extent to which the emergency organization is activated is dependent upon the classification of the emergency. The minimum on-shift staffing required to support emergency plan functions is presented in Table B-1 of this SEP.

Emergency response functions are also assigned to PNP personnel who are rapidly alerted and mobilized to augment or relieve the operating shift personnel of emergency duties as deemed appropriate by the Emergency Director, and in accordance with the implementing procedures of this SEP. Details of emergency staff augmentation are available in EPIP EI-2.2, "Emergency Staff Augmentation." In the event of an emergency declaration, all or a portion of this SEP will be activated. The assignment of responsibilities in the PNP ERO is ultimately the responsibility of the General Manager, Plant Operations. However, the ERO is predefined and alternate assignments to various positions are specified to provide for automatic, unambiguous staffing of the ERO within the time necessary to respond to an emergency. The augmented staffing required to support emergency planning functions is presented in Table B-1 of this SEP.

In general, the ERO operates from five ERFs:

a. Control Room

   The Control Room is designed to be habitable under accident conditions and shall serve as the on-site Emergency Control Center. Emergency lighting, power, air filtration-ventilation system, and shielded walls enable the operators to remain in the Control Room to ensure that the reactor remains in a safe condition.

b. TSC – described in Element H.1

c. OSC – described in Element H.2

d. EOF – described in Element H.3

e. Joint Information Center (JIC) – described in Element H.5

The on-shift ERO and minimum augmenting ERO positions required for activation of the TSC, OSC, and EOF are listed below. For those positions with multiple personnel responding, the number of responders is designated in parentheses.

1. On-Shift Positions

a) Shift Manager

- Organizational Interface and Coordination
- Command and Control

- Facility/Group Management and Supervision
- Contact and Use of External Support Services
- Use of Medical, Fire, and Law Enforcement Support
- NRC Notification and Communications
- Event Classification
- ERO Notification
- State and Local Event Notification
- ERF Communications
- Accident Detection and Assessment
- Effluent Release and Dose Assessment
- OSC Team Priorities, Dispatch, and Control
- Site Assembly and Accountability
- Site Evacuation
- ERO Radiological Protection
- Offsite Protective Action Recommendations
- Emergency Exposure
- First Aid
- Event Termination

b) Radiation Protection Technicians (2)

- Radiological Monitoring Activities
- ERO Radiological Protection
- Emergency Exposure
- Contamination Control Measures

c) Security per Security Plan

- Organizational Interface and Coordination
- Use of Medical, Fire and Law Enforcement Support
- NRC Notification and Communications
- Site Assembly and Accountability
- Site Evacuation

d) Shift Technical Advisor/Shift Engineer (STA/SE)

Note – Assigned as a collateral duty in accordance with Technical Specification.

- Accident Detection and Assessment
- Core Damage Assessment

e) Shift Classification Advisor

Note – Assigned as collateral duty to an on-shift SRO other than the Shift Manager.

- Event Classification
- State and Local Event Notification
- Accident Detection and Assessment
- Offsite Protective Action Recommendations

f) Shift Communicator

- NRC Notification and Communications
- ERO Notification
- State and Local Event Notification
- OSC Team Priorities, Dispatch, and Control

g) Shift Dose Assessor (Chemistry Technician)

- Effluent Release and Dose Assessment

2. Minimum Technical Support Center (TSC) Positions

a) Emergency Plant Manager

- Organizational Interface and Coordination
- Federal Assistance
- Continuous Emergency Response Operations
- Command and Control
- Facility/Group Management and Supervision
- Contact and Use of External Support Services
- Integration of Offsite Agency Personnel in the ERF
- NRC Notification and Communications
- Event Classification
- State and Local Event Notification
- ERF Communications
- Facility Activation
- Backup and Alternative Facilities
- Accident Detection and Assessment
- OSC Team Priorities, Dispatch and Control
- Site Assembly and Accountability
- Site Evacuation
- ERO Radiological Protection
- Offsite Protective Action Recommendations
- Emergency Exposure
- Event Termination
- Recovery

b) TSC Operations Coordinator (Classification Advisor)

- Facility/Group Management and Supervision
- Assist with Event Classification
- State and Local Event Notification
- ERF Communications
- Facility Activation
- Facility Operation
- Accident Detection and Assessment
- ERO Radiological Protection
- Offsite Protective Action Recommendations

c) Reactor Engineer (Remote Responder)

- Facility Operation
- Accident Detection and Assessment
- Core Damage Assessment

d) Electrical/I&C Engineer (Remote Responder)

- Facility Operation
- Accident Detection and Assessment

e) Mechanical Engineer (Remote Responder)

- Facility Operation
- Accident Detection and Assessment

f) ORO Communicator

- State and Local Event Notification
- ERF Communications

g) ENS Communicator

- NRC Notification and Communications
- ERF Communications

h) Radiological Assessment Coordinator

- Facility/Group Management and Supervision
- Contact and Use of External Support Services
- Event Classification
- State and Local Event Notification

- ERF Communications
- Facility Activation
- Facility Operation
- Backup and Alternative Facilities
- Accident Detection and Assessment
- Effluent Release and Dose Assessment
- Onsite protective actions
- Site Evacuation
- ERO Radiological Protection
- Offsite Protective Action Recommendations
- Emergency Exposure
- Contamination Control Measures
- Decontamination
- Recovery

i) Security Liaison

- Organizational Interface and Coordination
- Use of Medical, Fire and Law Enforcement Support
- NRC Notification and Communications
- Backup and Alternative Facilities
- OSC Team Priorities, Dispatch and Control
- Site Assembly and Accountability
- Site Evacuation

3. Minimum Operations Support Center (OSC) Positions

a) OSC Manager

- Facility/Group Management and Supervision
- ERF Communications
- Facility Activation
- Facility Operation
- Backup and Alternative Facilities
- OSC Team Priorities, Dispatch and Control
- Site Evacuation
- ERO Radiological Protection
- Radiation Protection Briefings
- First Aid
- Recovery

b) Rad/Chem Coordinator

- OSC Team Priorities, Dispatch and Control

- ERO Radiological Protection
- Emergency Exposure
- Contamination Control Measures
- Decontamination

c) Craft Coordinators (2) (Electrical/I&C and Mechanical)

- Facility/Group Management and Supervision
- Contact and Use of External Support Services
- Facility Activation
- Backup and Alternative Facilities
- Accident Detection and Assessment
- OSC Team Priorities, Dispatch and Control
- Site Assembly and Accountability

d) Maintenance (Mechanical, Electrical, and I&C)

- OSC Team Priorities, Dispatch and Control

e) Radiation Protection Technicians (6)

- Radiological Monitoring Activities
- OSC Team Priorities, Dispatch and Control
- ERO Radiological Protection
- Emergency Exposure
- Contamination Control Measures
- Decontamination
- Radiation Protection Briefings

4. Minimum Emergency Operations Facility (EOF) Positions

a) Emergency Director

- Organizational Interface and Coordination
- Continuous Emergency Response Operations
- Federal Assistance
- Command and Control
- Facility/Group Management and Supervision
- Contact and Use of External Support Services
- Integration of Offsite Agency Personnel in the ERF
- Dispatch and Control of Offsite EOC Liaisons
- NRC Notification and Communications
- Event Classification
- State and Local Event Notification

- ERF Communications
- Facility Activation
- Accident Detection and Assessment
- Offsite Protective Action Recommendations
- Emergency Exposure
- Site Evacuation
- Event Termination
- Recovery

b) EOF Communicator

- Transmit and receive information from onsite facilities
- Ensure EOF is notified of significant changes in plant conditions
- State and Local Event Notification

c) EOF Radiological Assessment Coordinator

- Facility/Group Management and Supervision
- Integration and Use of the Radiological Laboratory
- Facility Operation
- Accident Detection and Assessment
- Effluent Release and Dose Assessment
- Radiological Monitoring Activities
- Offsite Protective Action Recommendations
- Radiation Protection Briefings
- Post-Accident Environmental Sampling

d) Field Monitoring Team Technicians (3)

- Facility Activation
- Radiological Monitoring Activities

e) Field Monitoring Team Drivers (3)

- Facility Activation
- Radiological Monitoring Activities

f) EOF Dose Assessor (Remote Responder – Reports to the TSC unless the EOF is activated)

- ERF Communication
- Facility Activation
- Facility Operation
- Effluent Release and Dose Assessment

5. Joint Information System / Joint Information Center

PNP maintains a process to operate a Joint Information System (JIS) and support operation of the Joint Information Center (JIC). The JIS functions in accordance with the Communications Emergency Response Plan. Functions do not need to be performed in the JIC. 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).

Refer to Section G and Element H.5 for JIC/JIS details.

B.1.b	The remote emergency response organization (ERO) positions are defined. Resources necessary to perform the functions and tasks assigned to the remote response positions, as well as a backup capability, are described.

The PNP ERO includes the remote response positions identified above. 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.
- 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.

1. Remote Responders Assigned to the TSC (refer to Element B.1.a.2)

The Reactor Engineer, Electrical/I&C Engineer, and Mechanical Engineer ERO minimum staff positions are remote responders assigned to the TSC. Multiple qualified individuals provide backup for this position.

2. Remote Responders Assigned to the EOF (refer to Element B.1.a.4)

The Remote Dose Assessor ERO minimum staff position is assigned to the EOF. (The remote position appears in Table B-1 under the TSC to indicate a 60-minute expected response time.) Multiple qualified individuals provide backup for this position.

B.2	An individual is designated as the on-shift emergency coordinator (individual title may vary) who has the authority and responsibility to immediately and unilaterally initiate any emergency response measures, including approving protective action recommendations (PARs) to be disseminated to authorities responsible for implementing offsite emergency response measures.

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 PARs to authorities responsible for implementing offsite emergency measures.

The Shift Manager maintains overall command and control until relieved by the Emergency Plant Manager.

B.2.a	The functional responsibilities assigned to the ERO are established and the responsibilities that may not be delegated to other members of the ERO are clearly specified in the emergency plan.

NOTE:	Any conflicts that should arise between the Emergency Plant Manager and the EOF Emergency Director will be resolved by the Site Vice President.

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 EOF is activated and the EOF Emergency Director assumes command and control.

Non-delegable responsibilities include the following:

- Emergency declaration
- ORO and NRC notification
- PARs for the general public
- Emergency Exposure (dose limits and KI)

Approving departures from license conditions per 10 CFR 50.54(x) transition from the Shift Manager to the Emergency Plant Manager upon transfer of command and control.

B.3	A table is developed depicting the site-specific on-shift staffing plan, as well as the ERO staffing augmentation plan.

The PNP ERO consists of on-shift personnel and augmenting personnel (responding to their assigned ERF).

The on-shift and augmenting ERO staffing is depicted in Table B-1.

Table B-1: On-Shift and Augmenting ERO Staffing Plan

Function	On-Shift	EOF / TSC / OSC / Remote		JIC[f]/JIS
		Alert – Within 60 min.	Alert – Within 90 min.	Alert – Within 90 min.
Command and Control • Provide overall ERO command and control until relieved • Approve ECLs and PARs until relieved • Authorize personnel dose extensions until relieved	(1) Shift Manager	(1) TSC Emergency Plant Manager (1) EOF Emergency Director	Not applicable	Not Applicable
Communications • Communicate EALs and PARs to OROs, including the NRC until relieved	(1) Shift Communicator	(1) ORO Communicator (TSC) (1) ENS Communicator (TSC) (1) EOF Communicator	Not applicable	Not applicable
Radiation Protection • Provide RP coverage for accessing unknown radiological environments • Control dosimetry and RCA access • Provide in-plant surveys	(2) RP Technicians	(3) RP Technicians	(3) RP Technicians	Not applicable
Supervision of RP Staff and Site Radiation Protection • Evaluate and assess plant and offsite rad data in the development of onsite protective actions and offsite PARs • Recommend onsite protective actions and offsite PARs • Direct all RP activities including FMTs • Provide information to personnel communicating offsite PARs to OROs	Shift Manager	(1) TSC Radiological Assessment Coordinator (1) EOF Radiological Assessment Coordinator	Not applicable	Not Applicable

Function	On-Shift	EOF / TSC / OSC / Remote		JIC[f]/JIS
		Alert – Within 60 min.	Alert – Within 90 min.	Alert – Within 90 min.
Dose Assessments/ Projections • Perform dose assessments and projections and provide input to PAR decision-maker	(1) Shift Dose Assessor (Chem Tech)	(2) Dose Assessor - Remote	Not applicable	Not applicable
Emergency Classifications • Evaluate plant conditions and recommend ECLs	Shift Classification Advisor[a]	(1) TSC Operations Coordinator	Not applicable	Not applicable
Engineering • Provide engineering coverage related to the specific discipline of the assigned engineer	(1) STA/SE[b]	(1) Reactor Engineer - Remote (1) Electrical/I&C Engineer - Remote (1) Mechanical Engineer - Remote	As needed (h)	Not applicable
Security • Coordinate security related activities	(d)	(1) Security Liaison (TSC)	Not applicable	Not applicable
Repair Team Activities • Provide support for event mitigation and equipment repair	Not applicable	(1) Mechanic (OSC)[h] (2) Electrician (OSC)[h] (1) I&C Technician (OSC)[h] (1) RadWaste Operator	As needed (h)	Not applicable
Supervision of Repair Team Activities • Direct in-plant event response and repair activities	Not applicable	(1) OSC Manager	(1) Electrical/I&C Coordinator (OSC) (1) Mechanical Coordinator (OSC) (1) Rad/Chem Coordinator-OSC	Not applicable
Field Monitoring Teams[c] • Provide environmental surveys (inside and outside the Protected Area)	Not applicable	Onsite Team (1) Qualified Monitor & (1) Driver Offsite Team A (1) Qualified Monitor & (1) Driver	Offsite Team B (1) Qualified Monitor & (1) Driver	Not applicable

TITLE: SITE EMERGENCY PLAN

Function	On-Shift	EOF / TSC / OSC / Remote		JIC[f]/JIS
		Alert – Within 60 min.	Alert – Within 90 min.	Alert – Within 90 min.
Media Information • Manage and coordinate media information related to the event	Not applicable	Not Applicable	Not applicable	JIS staff[e]
Information Technology (IT) • Ensure IT equipment is operable.	(g)	(g)	(g)	(g)
Total Minimum ERO Staff	6	26	8	2

Note: The numbers denoted in parentheses represent the number of responders for that position.

(a) Assigned as a collateral function to an on-shift SRO other than the Shift Manager.

(b) Other 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. An on-shift staffing analysis was performed to support assignment of multiple roles to individual responders on-shift.

(c) FMTs operate onsite and within the EPZ as directed by the EOF Radiological Assessment Coordinator.

(d) Per the security plan.

(e) JIS per Communications Emergency Response Plan. Does not need to be performed in the JIC, but the JIS function needs to be established within 60 minutes.

(f) ERO staffing of the JIC is concurrent with other ERFs (although facility activation is coordinated with the ORO public information personnel and has no time requirement).

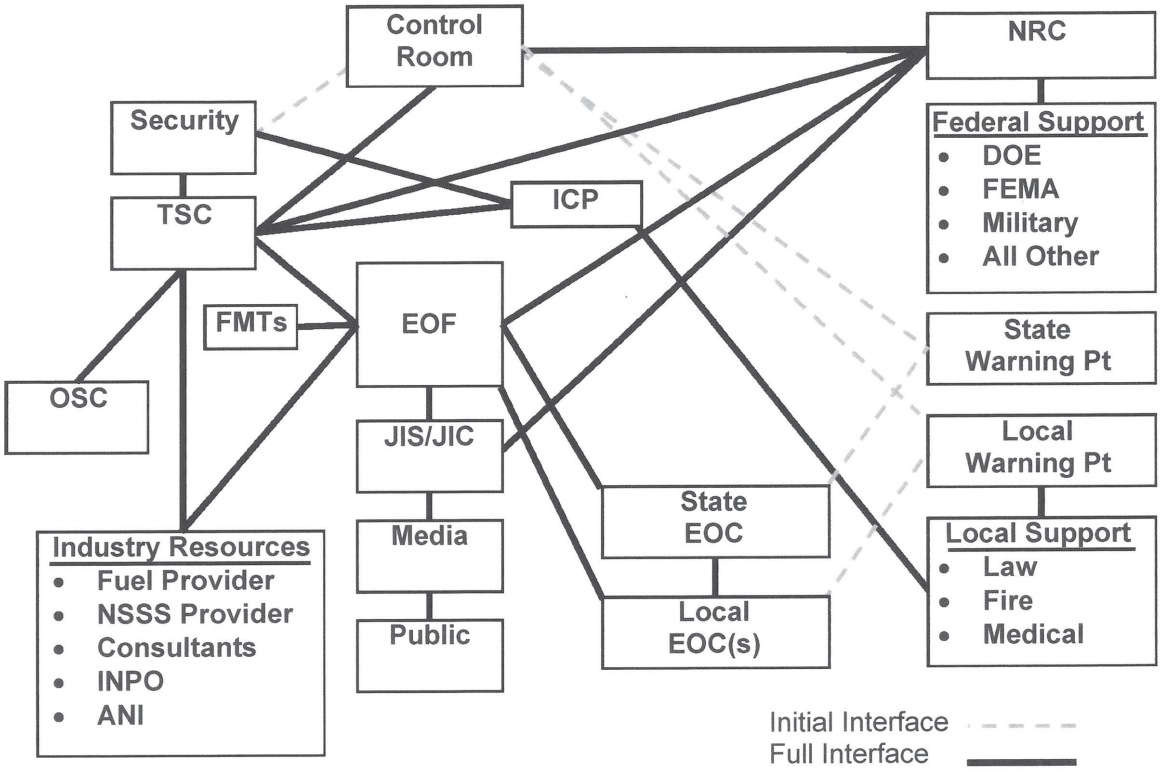
(g) IT personnel monitor critical digital assets remotely and respond any time an issue is identified. IT personnel provide continuous coverage and redundancy exists for communication systems and digital EP assets.

(h) Additional support personnel may be requested depending on the event

B.4	The interfaces between and among the licensee functional areas of emergency activity, local services support, and state, local, and tribal government organizations are identified. The information includes all licensee emergency response facilities. A block diagram is preferred for ease of use, but not required.

Figure B.4 identifies the interfaces between Palisades ERFs, NRC, OROs, local support organizations, and industry resources.

Figure B.4: Interrelationship of Emergency Response Organizations



Dependent upon the emergency, a near or on-site Incident Command Post (ICP) is established in coordination with local support organizations. The ICP will interface with the site security, and PNP ERFs. Based on the event, PNP provides the appropriate liaison (Security, Operations, and/or Radiation Protection) to the ICP.

B.5	The external organizations, including contractors, that may be requested to provide technical assistance to and augmentation of the ERO, as applicable, are specified.

External (non-PNP) support organizations do not provide personnel for the PNP ERO, nor do they perform an operational role in an emergency response. External (non-PNP) support organizations that may be requested to provide technical assistance are described in Element A.1 of this Plan, including anticipated support from local, State, and Federal agencies and private sector organizations.

In addition, PNP may request technical support from external organizations, including designated engineering and technical services support firms and contractors, as applicable. These organizations include:

1. Federal Agencies

Coordination between PNP and Federal agencies serves to ensure the safety and health of the public.

a) U.S. Department of Energy

Under the NRF, the U.S. Department of Energy has the responsibility to maintain the operational readiness of the Federal Radiological Monitoring and Assessment Center (FRMAC). The FRMAC is a federal asset available on request by the U.S. Department of Homeland Security (DHS) to respond to nuclear and radiological incidents. The FRMAC may be activated when a major radiological emergency exists, and the Federal government will respond when a State, other governmental entity with jurisdiction, or a regulated entity requests Federal support.

When a FRMAC is established, it operates under the parameters of the Incident Command System (ICS) as defined in the National Incident Management System (NIMS) construct.

b) U.S. Federal Emergency Management Agency

The U.S. Federal Emergency Management Agency (FEMA) acts as the lead federal agency for non-technical concerns outside of a fixed nuclear facility boundary.

The Region 5 Emergency Response Team will, in addition to the region office response, provide support to State and county authorities for resource coordination, logistics, and telecommunications. The senior FEMA official, or designee, will notify the appropriate federal agency capable of meeting a specific state or county government need.

c) U.S. Department of Homeland Security

The U.S. Department of Homeland Security (DHS) coordinates preparedness activities within the United States to respond to and recover from terrorist attacks, major disasters,

and other emergencies. As part of these responsibilities, the Secretary coordinates with federal entities to provide for federal unity of effort for domestic incident management.

d) National Weather Service

The National Weather Service (NWS) Forecast Office in Grand Rapids, MI provides local meteorological information during emergencies, if requested. Available data includes existing and forecasted surface wind directions, wind speed with azimuth variability, and ambient surface air temperature.

The NWS provides 24-hour-per-day Emergency Alert System (EAS) access, including activation of the NWS radios. Local radio stations broadcast emergency messages as required by the Federal Communication Commission (FCC).

e) U.S. Geological Survey

The U.S. Geological Survey (USGS) maintains the National Earthquake Information Center (NEIC), which can be reached at the USGS website. The NEIC rapidly determines the location and size of all destructive earthquakes worldwide and immediately disseminates this information to concerned national and international agencies, scientists, and the public. The NEIC is used as an external source of seismic event information.

f) U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) may provide assistance in supporting environmental monitoring teams, mobile radioanalytical laboratories, and non-plant-related recovery and reentry guidance.

2. Institute of Nuclear Power Operations

The Institute of Nuclear Power Operations (INPO) serves as a clearinghouse for industry-wide support during an emergency. INPO has an emergency response plan that enables it to aid in locating sources of emergency personnel, equipment, and operational analyses. INPO, the Electric Power Research Institute (EPRI), and Nuclear Energy Institute (NEI) maintain a coordination agreement on emergency information with their member utilities. INPO provides an electronic communications system to its members, participants, NEI, and EPRI to coordinate the flow of media and technical information related to the emergency.

INPO maintains the following emergency support capabilities:

- A dedicated emergency call number
- Designated INPO representative(s) who can be quickly dispatched to PNP to coordinate INPO support activities and information flow
- The 24-hour-per-day operation of an emergency response center at INPO headquarters

3. American Nuclear Insurers

In the event of an extraordinary nuclear occurrence (as defined in the Price-Anderson Law), American Nuclear Insurers (ANI) and Mutual Atomic Energy Liability Underwriters (MAELU) have plans prepared to provide prompt emergency funding to affected members of the public. The emergency assistance arrangements contemplate the mobilization and dispatch of emergency claims teams to directly dispense emergency assistance funds to affected members of the public.

Pre-established lines of communication exist between PNP and ANI to facilitate the exchange of information during an emergency. ANI maintains 24-hour-per-day coverage of an emergency notification number. ANI is notified as soon as possible after the declaration of an Alert or Site Area Emergency (SAE), or if PNP believes that persons outside of PNP may be affected, and financial assistance may be required.

4. Local Support

Coordination between PNP and local organizations serves to ensure the safety and health of the public.

a) Hospitals

The primary hospital for the treatment of serious medical emergencies occurring at PNP is Bronson South Haven Hospital, located in South Haven, Michigan, approximately 6 miles from the Plant. Bronson South Haven Hospital is equipped to receive and treat all types of accident victims, including those with radioactive contamination.

The backup medical facility is Corewell Health Lakeland Hospitals, located approximately 20 miles from PNP in St. Joseph, Michigan.

The hospital shall be notified of incoming accident victims at the direction of the Emergency Director. The hospital may contact PNP by telephone in the event information is required in the treatment of a victim.

b) Ambulance

Ambulance service for the transportation of accident victims, including radioactively contaminated victims, is provided by the Covert Fire Department, with backup services provided by the South Haven Area Emergency Services (SHAES) and Medic 1 of Benton Harbor.

The ambulance units and Emergency Medical Technicians are trained and equipped to respond to a medical emergency at the Plant. 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.

c) Firefighting

The Covert Township Fire Department and the South Haven Fire Department provide offsite backup firefighting support.

The Van Buren Dispatch is contacted via 911. They are required to dispatch both Covert and South Haven Fire Departments. These departments consist of personnel trained for firefighting, including situations involving radioactive contamination. Additional support is available from fire departments in nearby Allegan and Berrien Counties through mutual aid agreements. These fire departments are also trained and equipped for rescue work and control of hazardous gas leaks, including chlorine gas.

When it is determined by the Emergency Director that off-site fire support is necessary, fire protection response will be provided by the Covert Fire Department with mutual aid provided by the Van Buren County Mutual Aid Pact. Contact may be made using the telephone system. Fire Department personnel will be trained in handling emergency situations for nuclear facilities.

In addition to their fire suppression capabilities, the fire departments will provide specially equipped vehicles and personnel trained for emergency rescue and other contingencies.

d) Law Enforcement

In the event of a civil disturbance or criminal act, the MSP, Van Buren County Sheriff Department, and the Covert Township Police Department may provide law enforcement assistance.

An Auto-Dial line exists to the MSP Operations in Lansing, Michigan and the Van Buren County Sheriff Department in Paw Paw, Michigan.

Guidelines for PNP, State, and local actions are listed in Table A-1.

5. Contractor Support

Contractor and private organizations may be requested to provide technical support, on an as-needed basis. Support is obtained from the responsible architect/engineering firm, reactor supplier, and other consultants and vendors, consistent with their expertise and PNP needs, to respond to the emergency and recovery operations. Assistance from experienced personnel with expertise in facility design, engineering, and construction is obtained as needed to aid in solving critical technical problems.

C. Emergency Response Support and Resources

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

Regulatory References: 10 CFR 50.47(b)(3); 44 CFR 350.5(a)(3);
10 CFR Part 50, Appendix E, Sec. IV.E

C.1	Emergency response support and resources provided to the licensee's EOF, as agreed upon, are described.

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.

C.2	Provisions made for additional emergency response support and resources are described and include the following:

C.2.a	The individual(s), by title/position, authorized to request emergency response support and resources from responding organizations.

The Emergency Director is the individual authorized to request assistance and resources from responding organizations. Element B.2 of this SEP provides additional detail regarding command-and-control responsibilities of the Emergency Director.

C.2.b	(1) Each organization from which emergency response support and/or resources may be requested, (2) the circumstance(s) in which the emergency response support and/or resources would be required, (3) the process for requesting needed emergency response support and/or resources, (4) categories of capabilities and/or resources expected to be provided, (5) when the expected emergency response support and/or resources would be available once requested, and (6) how integration would occur.

The Concept of Operations, described in Element A.1 of this Plan, identifies the primary external support organizations (Federal, State, local, and private sector) that may be requested to provide emergency response support and/or resources during an emergency at PNP. The specific circumstances of a response and or need for resources differ by organization, and are described in Element A of this Plan.

The Emergency Director is responsible for requesting emergency response support and/or resources. Notification to support organizations is performed as described in Part II Section E, "Notification Methods and Procedures," of this SEP.

The capabilities and/or resources expected to be provided by each support organization are described in Element A.1 and are described in written agreements in support of this SEP. These written agreements are maintained by the PNP Emergency Planning organization and are listed in Appendix 4 of this Plan.

The Emergency Director is responsible for ensuring the response from external support organizations is coordinated with PNP and integrated into the overall response effort.

C.2.c	Coordination of NPP site access and support for external organizations that have agreed to provide requested emergency response support and resources.

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.

C.2.d	Agreements between licensees and local agencies for law enforcement, medical and ambulance services, fire, hospital support, and other support.

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.

Refer to Element A.4 of this SEP for additional information related to agreements with external emergency organizations. Appendix 4 of this SEP provides a listing of agreements established between PNP and external agencies and organizations supporting this SEP.

C.3	The capability of each principal organization to coordinate with other principal organizations leading the incident response is described.

The coordinated response actions of various Federal, State, and local response organizations is described in Element A.1.a of this SEP. Interface between PNP and the OROs is governed by their respective emergency plans, which are developed and maintained in coordination with the PNP SEP. 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 EOCs. These organizations are identified, and the scope of the response and/or resources expected from each organization, are described in Part II Section A of this SEP.

C.4	Radiological laboratories, their general capabilities, and expected availability to provide radiological monitoring analysis services that can be used in an emergency are described. Plans to augment the identified radiological laboratories are described.

The PNP laboratory and counting rooms have the capability to perform the analyses required under emergency conditions. The Michigan EGLE, Radiological Protection Section operates a radiological laboratory in Lansing.

PNP and the DC Cook Nuclear Plant may exchange services for radiological laboratory analyses, laboratory boron analyses, and backup dispersion meteorology information.

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.

C.5	Arrangements are described for integrating the licensee's response with the NRC Headquarters and regional incident response centers and, when dispatched, the NRC's site response team.

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.

C.5.a	The activation process for the NRC's emergency response data system (ERDS) during an emergency is described.

When an emergency occurs, ERO personnel will ensure ERDS operation as soon as possible but not later than one hour after an Alert or higher emergency classification level is declared, in accordance with 10 CFR 50.72(a)(4).

C.5.b	Provisions to continuously maintain open communications lines with the NRC, when requested, are described.

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 an operations background 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.

D. Emergency Classification System

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 county response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

Regulatory References: 10 CFR 50.47(b)(4); 44 CFR 350.5(a)(4);
10 CFR Part 50 Appendix E.IV.B and C

D.1	A standard emergency classification and action level scheme is established and maintained. The scheme provides detailed EALs for each of the four ECLs in Section IV.C.1 of Appendix E to 10 CFR Part 50.

The events postulated in Section 14 of the PNP UFSAR may be categorized into one or more of the four emergency classifications. A complete discussion of these events can be found in the UFSAR.

PNP has established and maintains a standard emergency classification and emergency action level scheme. PNP Emergency Action Levels (EALs) can be found in the PNP EAL Technical Bases. The postulated emergency events are categorized into the following four (4) emergency classification levels (ECLs):

- NOUE
- Alert
- SAE
- General Emergency

The four ECLs are described as follows:

NOUE

Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

Alert

Events are in progress, or have occurred, which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of hostile action. Any releases are expected to be small fractions of the EPA Protective Action Guideline (PAG) exposure levels.

Site Area Emergency

Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or hostile action that results in intentional damage or malicious acts; 1) toward site personnel or equipment that could lead to the likely failure of or; 2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA PAG exposure levels beyond the site boundary.

General Emergency

Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile actions that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.

D.1.a	The EALs are developed using guidance provided or endorsed by the NRC that is applicable to the reactor design.

PNP EALs have been developed in accordance with NRC endorsed guidance. This guidance and the PNP EAL scheme have been approved by the NRC. 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 EPIPs. Detailed EALs are provided in an EPIP and an associated EAL Technical Bases Document.

The PNP EALs have been provided to the NRC for approval in accordance with 10 CFR Part 50, and are subject to 10 CFR 50.54(q). If the entire EAL scheme is to be changed, then the new EAL scheme will be submitted to the NRC for approval prior to implementation.

D.1.b	The initial emergency classification and action level scheme is discussed and agreed to by the licensee and OROs, and approved by the NRC. Thereafter, the scheme is reviewed with OROs on an annual basis.

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.

D.2	The capability to assess, classify, and declare the emergency condition within 15 minutes after the availability of indications to NPP operators that an EAL has been met or exceeded is described.

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. Details for classification timeliness criteria are documented in the EAL Technical Bases Document.

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.

D.3	A summary of emergency response measures to be taken for each ECL is provided. The detailed emergency response measures are described in implementing procedures.

PNP maintains procedures that include immediate actions to be taken that are consistent with any declared ECL.

Emergency Operating Procedures provide instructions to Control Room personnel to assist in mitigating the consequences of a broad range of accidents and multiple equipment failures. These procedures are based on guidelines developed by the owners' groups.

EPIPs provide instructions to ERO personnel for response activities primarily associated with assessment, classification, notification and protective actions. Other functions such as communications, termination and recovery are also addressed.

All emergency measures begin with the notification of the Shift Manager that a situation exists which presents a real or potential hazard. This is followed by assessment and evaluation by the Shift Manager, classification of the emergency, notifications to the appropriate offsite organizations, and activation and/or mobilization of the applicable emergency organizations.

A summary of response actions taken at each ECL is as follows:

NOUE

- Initial and follow-up event notification to the OROs and NRC.
- Notification of ERO personnel. This is an information only notification and does not require activation of emergency facilities or response organizations. Any PNP ERF may be activated at the discretion of the Emergency Director.

Alert

- Initial and follow-up event notification to the OROs and NRC.
- Augmentation of the shift ERO (refer to Element A.1.a) by activating the TSC, OSC, and EOF.
- The Joint Information System shall be established at this ECL, with JIC activation determined in coordination with the offsite agencies.

- If a release is occurring, monitoring teams are available for dispatch and offsite dose projections are developed.

Site Area Emergency

- Initial and follow-up event notification to the OROs and NRC.
- Augmentation of the shift ERO by activating the TSC, OSC and EOF if not previously performed.
- The Joint Information System is in operation or JIC is staffed (JIC activation determined in coordination with the offsite agencies).
- Implementation of onsite protective actions (refer to Section J).
- If a release is occurring, monitoring teams are available for dispatch and offsite dose projections are developed.
- Offsite precautionary actions may be recommended under certain conditions (as required by site specific OROs).

General Emergency

- Initial and follow-up event notification to the OROs and NRC.
- Augmentation of the shift ERO by activating the TSC, OSC and EOF if not previously performed.
- The Joint Information System is in operation or JIC is staffed (JIC activation determined in coordination with the offsite agencies).
- Implementation of onsite protective actions (refer to Section J) if not previously performed.
- If a release is occurring, monitoring teams are available for dispatch and offsite dose projections are developed.
- Offsite protective action recommendations are communicated to the OROs and NRC.

EALs are used to describe each of the four emergency classes. These levels are composed of a combination of plant parameters (such as instrument readings and system status) that can be used to give relatively quick indication to the PNP operating staff of the severity of the accident situation.

The purpose of the EAL is to provide the earliest possible identification of actual or potential accident situations. In most cases, further assessment action will be conducted both onsite and offsite before actual protective actions are initiated. EALs associated with radioactive releases

are related to the EPA PAGs summarized in EPA 400-R-17-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." An assessment of the potential for reaching or exceeding the PAG will be performed following the declaration of an emergency class by the PNP ERO and State support agencies.

When EALs are observed in conjunction with plant or equipment status due to planned maintenance or testing activities, an emergency condition does not exist.

A conservative philosophy for classification shall be used to declare the highest classification for which an EAL has been exceeded. For example, a SAE would be declared directly if a SAE emergency classification level is exceeded without having previously been declared in a lower Alert classification.

The EALs are not necessarily all inclusive. The Shift Manager/EOF Emergency Director shall declare an appropriate emergency classification whenever, in their judgment, the plant status warrants such an emergency declaration.

Table D-1, "Emergency Classifications and the Level of Response by Participating Groups," shows, in column form, the emergency classifications, and the degrees of involvement of onsite and offsite organizations.

D.4	Emergency response measures based on the ECL declared by the licensee and applicable offsite conditions are described.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

TABLE D-1
EMERGENCY CLASSIFICATIONS AND THE LEVEL OF RESPONSE BY PARTICIPATING GROUPS

ECL	SHIFT RESPONSE	NOTIFICATION	PLANT STAFF RESPONSE	SUPPORT RESPONSE
Unusual Event	Investigate. Shift Manager activates appropriate emergency team(s).	Duty Station Manager, Van Buren, Berrien, and Allegan Counties, State, and NRC.	Supplement on-shift resources as needed.	None
Alert	Investigate. Shift Manager activates appropriate emergency teams. Required in-plant protective actions performed.	Duty Station Manager, Van Buren, Berrien, and Allegan Counties, State, NRC, and staff augmentation.	TSC/OSC/EOF activation. Discretionary News Center activation. Supplement activated emergency teams. Investigate event, assist shift personnel in controlling Plant response. Assess radiological consequences.	Emergency Plant Manager determines need for offsite support. Acquire offsite support as required.
Site Area Emergency	Investigate. Shift Manager activates appropriate teams. Required in-plant protective actions performed.	Duty Station Manager, Van Buren, Berrien, and Allegan Counties, State, NRC, and staff augmentation.	TSC/OSC/EOF/JIC activation. Supplement activated emergency teams. Investigate event, assist shift personnel in controlling Plant response. Assess radiological consequences.	Determine need for further offsite support. Acquire offsite support as required.
General Emergency	Investigate. Shift Manager activates appropriate teams. Required Plant protective actions performed.	Duty Station Manager, Van Buren, Berrien, and Allegan Counties, State, NRC, and staff augmentation.	TSC/OSC/EOF/JIC activation. Supplement activated emergency teams. Investigate event, assist shift personnel in controlling Plant response. Assess radiological consequences. EOF Director provides protective action recommendations to offsite authorities.	Determine need for further offsite support. Acquire offsite support as required.

E. Notification Methods and Procedures

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 follow up 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 EPZ have been established.

Regulatory References: 10 CFR 50.47(b)(5); 44 CFR 350.5(a)(5);
10 CFR Part 50 Appendix E.IV.A, C, D and E

E.1	The mutually agreeable process for direct and prompt notification of response organizations, aligned with the emergency classification and action level scheme, is described.

The process for notifying the various emergency response organizations is described.

1. ERO Notification

The Emergency Director will direct or perform notification of the ERO for all emergency classification levels. ERO personnel report to their assigned ERFs as directed. In the event of a security threat, personnel may be instructed to respond to alternative facilities, or seek cover if on-site.

The means for alerting and notifying ERO members are described in Element F.1.c of this SEP.

2. ORO Notification

PNP, in cooperation with the OROs, has established mutually agreeable content, methods and procedures for notification of OROs. When an ECL is initially declared, or upgraded, or changes are made to PARs, a notification to the OROs is made within 15 minutes.

The means for alerting and notifying OROs are described in Section II.F of this SEP.

3. NRC Notification

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.

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 information provided in the accelerated NRC notification will be limited to the following:

- Site name.
- ECL if determined prior to the accelerated notification.
- Nature of the threat and the attack status

Details regarding the notification process are contained in EPIP EI-3, "Communications and Notifications."

E.1.a	Provisions for notification of response organizations are established, including the means for verification of messages.

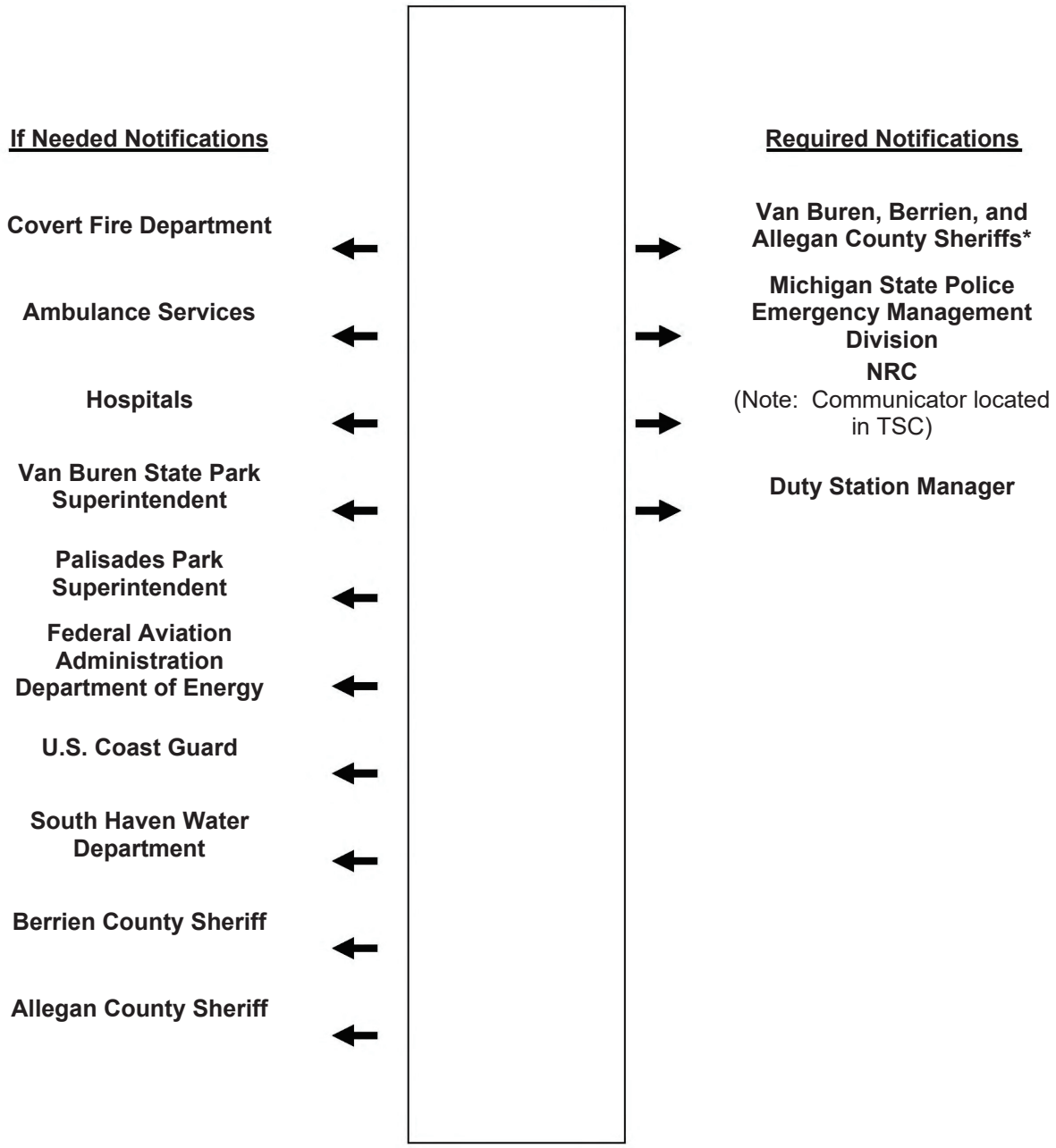
The provisions for notification of response organizations are described above in Element E.1. The PNP Normal Notification Chain is illustrated in Figure E-1.

Notifications to OROs include a means of verification or authentication within the automated system or by providing call back verification phone numbers.

E.1.b	The capability to notify responsible OROs within 15 minutes and the NRC within 60 minutes is described.

The capability to notify OROs and the NRC within the required time periods is described above in Element E.1.

FIGURE E-1
PALISADES PLANT NORMAL NOTIFICATION CHAIN



* Not a required notification if the State Emergency Operations Center is activated.

E.2	The alert and notification systems (ANSs) used to alert and notify the general public within the plume exposure pathway EPZ and methods of activation are described. This description includes the administrative and physical means, the time required for notifying and providing prompt instructions to the public within the plume exposure pathway EPZ, and the organizations or titles/positions responsible for activating the system.

PNP and the OROs utilize a public alert and notification system (ANS) capable of alerting and notifying the public within the PNP EPZ.

The ANS provides coverage to the PNP EPZ and allows the resident and transient populations to be warned within 15 minutes of the issuance of a protective action. 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.

If a backup means of public alerting and notification is necessary, vehicles with mobile public address systems (Route Alerting) and other means as necessary can be utilized.

Detailed information regarding ANS capabilities is maintained in the ANS design report.

IPAWS-Wireless Emergency Alerts (WEA) is the primary alert method and IPAWS-Emergency Alert System (EAS) is the primary method to disseminate information regarding an emergency at PNP . Van Buren County incorporates IPAWS (WEA and EAS) into its public warning structure through a Memorandum of Agreement (MOA), which governs the relationship between the state-level Collaborative Operating Groups (COG), Van Buren COG, and FEMA. IPAWS provides Van Buren County with the capability to integrate alert and warning systems with the national alert and warning infrastructure.

Following receipt of an emergency declaration from PNP that requires public alerting, Van Buren County will activate IPAWS-WEA and IPAWS-EAS to alert and notify individuals in the PNP EPZ. The Emergency Management Director, Emergency Management Coordinator, the Public Safety Communications Center Director, or designee are the designated officials authorized to request activation of IPAWS.

Van Buren County maintains multiple pathways to activate IPAWS. The primary activation terminal, located in the Van Buren County Sheriff’s Office Central Dispatch, can activate IPAWS using the Van Buren County network commercial internet (Bloomingdale Communications). An alternate pathway exists for the primary terminal to access the internet via satellite access to the Van Buren County network. Additionally, a laptop computer is maintained by Van Buren County that is capable of activating IPAWS if the primary terminal is inoperable.

The Van Buren County Office of Domestic Preparedness can use IPAWS for direct access to all area broadcasters, cable operators, satellite TV and radio providers, commercial mobile service providers and the National Weather Service to disseminate alert and warning information through the WEA and EAS. In the event of an emergency at PNP, Van Buren County will issue

EAS alerts when a protective action order for the public is issued (evacuation or shelter-in-place).

The Van Buren County Emergency Operations Plan (EOP) describes the means to provide early notification and clear instruction to the residents in the PNP EPZ.

A Memorandum of Understanding (MOU) between Van Buren, Berrien, and Allegan Counties allows for 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 EPZ.

E.3	The licensee, in conjunction with state, local, and tribal organizations, establishes the contents of the initial and follow-up emergency notifications to be sent from the NPP.

PNP and OROs have established the content of the initial notification message to be used during an emergency.

NOTE:	While both pages of the notification form are not necessary for every notification, the two pages together include the elements listed in the following sections.

Initial notification should consist of the following as appropriate:

- Name and telephone number (if needed)
- Location of incident
- Date and time of incident
- Emergency classification (EPIP EI-1, “Emergency Classification and Actions”)
- Whether a release is taking/has taken place
- The affected/potentially affected population
- PAR

In conjunction with OROs, PNP has established the content of the follow-up messages, which will include additional information regarding event conditions and response actions.

Follow-up notification should consist of the following as appropriate:

- Name and telephone number (if needed)
- Location of incident

- Date and time of incident
- Emergency classification (EPIP EI-1, “Emergency Classification and Actions”)
- Type of actual or projected release (liquid or gaseous) and estimated duration/impact times
- Estimate of amount of radioactive material released, points of release, and height of release (EPIP EI-6.0, "Rapid Dose Calculation")
- Chemical and physical form of releases material. Include estimates of the relative quantities and concentration of noble gas, iodine, and particulates (EPIP EI-6.0, "Rapid Dose Calculation")
- Prevailing meteorological conditions (EPIP EI-6.0, "Rapid Dose Calculation")
- Actual or projected dose rates at the site boundary and the integrated dose rate at the site boundary (EPIP EI-6.0, "Rapid Dose Calculation")
- Projected dose rates and integrated dose rates at the projected peak and at 2, 5, and 10 miles from the site and the areas affected
- Estimate of surface contamination in Plant, onsite and offsite
- PNP emergency response actions underway
- Recommended emergency actions, including protective measures
- Requests for support from organizations
- Prognosis for worsening or termination of event

E.4	Each organization establishes the contents of the initial and follow-up messages to the public including, as applicable, instructions for protective actions.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

E.5	Provisions are made to provide timely supplemental information periodically throughout the radiological incident to inform the public.

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.

IPAWS, the primary method to alert and disseminate information to individuals in the PNP EPZ, provides the capability to periodically inform the public throughout the emergency.

F. Emergency Communications

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

Regulatory References: 10 CFR 50.47(b)(6); 44 CFR 350.5(a)(6);
10 CFR Part 50, Appendix E.IV.E

F.1	Each principal response organization establishes redundant means of communication and addresses the following provisions:

F.1.a	Continuous capability for notification to, and activation of, the emergency response network, including a minimum of two independent communication links.

PNP maintains communications systems that are designed to facilitate normal and emergency communication. Refer to Chapter 7 of the UFSAR for descriptions of the primary site communications systems.

Provisions exist for continuous capability of communications with OROs and the NRC.

Systems available for internal and external communications include:

- Automated Notification System
- Telephone Systems
- Plant Siren and Plant Public Address System
- Radio Communications (800 MHz)
- Cellular Telephones
- Satellite Telephones
- Local and Wide Area Networks
- Data Systems

Cellular and satellite telephones provide communications capability should the main telephone systems lose power.

F.1.b	Communication with applicable organizations to include a description of the methods that may be used when contacting each organization.

The methods for notification of response organizations are described in Elements E.1 and F.1.a.

Communications equipment available for offsite use include:

- Automated notification system
- Commercial telephones – separate outside lines
- Intracompany telephone system
- State Police Radio – through Security Department
- ENS telephone to NRC
- Commercial telephone to Van Buren, Berrien, and Allegan County Sheriff's Department and MSP (Paw Paw)
- Commercial telephone to State Police Operation Center, Lansing
- Power failure phones in major onsite response centers (Control Room, TSC, OSC)
- Satellite phones in major onsite/offsite response centers (Control Room, TSC, OSC, EOF)
- Internet-capable computers in major onsite/offsite response centers (Control Room, TSC, OSC, EOF)

Table F-1 summarizes communication resources.

TABLE F-1
PALISADES SEP COMMUNICATIONS MATRIX

	Control Room	TSC	OSC	EOF	State EOC	Van Buren EOC	NRC	Offsite Teams
Control Room		1. Intp Phone 2. SP Phone	1. Intp Phone 2. Co Network	1. Intp Phone 2. Radio[1]	1. Com Phone 2. Radio[2] 3. Computer	1. Com Phone 2. Radio[2] 3. Computer	1. ENS 2. Com Phone	NR
TSC	1. Intp Phone 2. SP Phone		1. Ded Circuit 2. Intp Phone 3. Computer	1. Satellite Phone 2. Computer	1. Com Phone 2. Radio[2] 3. Satellite Phone	1. Com Phone 2. Radio[2] 3. Satellite Phone	1. ENS 2. Com Phone 3. Satellite Phone	NR
OSC	1. Intp Phone 2. Co Network	1. SP Phone 2. Intp Phone 3. Computer		1. Intp Phone 2. Radio[3] 3. Computer	NR	NR	NR	1. Radio[3] 2. Com Phone
EOF	1. Intp Phone 2. Radio[1]	1. Ded Circuit 2. Com Phone 3. Computer	1. Intp Phone 2. Radio[3] 3. Computer		1. Com Phone 2. Co Network 3. Computer	1. Com Phone 2. Co Network 3. Computer	1. ENS 2. Com Phone	1. Radio[3] 2. Com Phone
State EOC	1. Com Phone 2. Radio[2] 3. Computer	1. Com Phone 2. Radio[2]	NR	1. Com Phone 2. Co Network 3. Computer		1. Com Phone 2. LEIN	NR	NR
Van Buren EOC	1. Com Phone 2. Radio[2] 3. Computer	1. Com Phone 2. Radio[2]	NR	1. Com Phone 2. Co Network 3. Computer	1. Com Phone 2. LEIN		NR	NR
NRC	1. ENS 2. Com Phone	1. ENS 2. Com Phone	NR	1. ENS 2. Com Phone	NR	NR		NR
Offsite Teams	NR	NR	1. Radio[3] 2. Com Phone	1. Radio[3] 2. Com Phone	NR	NR	NR	

Radio -[1] Control Room/EOF (Located in Control Room)
-[2] Plant Security Radio (in CAS & SAS/ Paw Paw State Police (backshifts & weekends))
-[3] Radiation Protection Radio Network

ENS - Emergency Notification System
Intp Phone - Intraplant Telephone System
SP Phone - Sound Powered Phone
Ded Circuit - Dedicated Telephone Circuit (Digital/VOIP)

Computer - Internet-capable computer
Com Phone - Commercial Telephone
Co Network - Palisades Telephone Network
LEIN - Michigan State Police Communication System
NR - Not Required

F.1.c	Systems for alerting or activating emergency personnel in each response organization.

Personnel within the Protected Area are notified of the emergency classification via the PNP public address system. The sounding of alarms and announcement of the emergency classification and other pertinent data relating to the emergency classification are made over the PNP public address 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 activation of the system can be performed by computer or from any phone system, and operation can take place from more than one location.

A commercial electronic notification service is used for contacting personnel at the start of an emergency. When activated by station personnel, the notification service transmits a message via various communications pathways to all ERO personnel to report to their assigned ERO facilities.

F.2	Systems for coordinated communication methods for applicable fixed and mobile medical support facilities are described.

Communications methods have been coordinated with medical facilities (ambulance and hospital).

Emergency call lists for ambulance service and medical facilities are kept current in the Emergency Contact Telephone Book.

F.3	The testing method and periodicity for each communication system used for the functions identified in evaluation criteria E.2, F.1, and F.2 are described.

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.

Communication links with State EOC and field assessment teams from PNP shall be tested annually.

Communication links with the county EOCs shall be tested annually by calling the respective Sheriff's Department.

Communications between the Control Room, TSC, and EOF shall be tested annually.

Communication systems testing is accomplished in accordance with Table F-3.

Table F-3: Communication System Testing Requirements

Communication System	Testing Requirement
ORO Notification System	Monthly (a)
NRC FTS (ENS) Network	Monthly (b)
ERDS	Verify Transmission Quarterly
ERO Notification System	Per Elements N.4.h and N.4.i
Field Monitoring Teams Communication	Annually (a)
Telephone System	Frequent Use (c)
Station Radio System	Frequent Use (c)
Station PA System	Frequent Use (c)
ANS	per ANS Design Report

(a) Test credit may be given by successful use in a drill.
(b) NRC ENS in the Control Room is Frequent Use. TSC and EOF require monthly testing.
(c) Communication systems that are listed with a testing frequency of “Frequent Use” indicate that the associated equipment is normally used at a sufficiently high regularity, such that separate additional testing is not needed.

G. Public Education and Information

Emergency planning information is made available to the public on a periodic basis and includes information on how they will be notified and what actions they may be asked to take (e.g., listening to a local broadcast station, remaining indoors, etc.). Information will also be provided to the news media to include principal points of contact to receive information (including the physical location(s)) and information about the coordinated dissemination of information from all agencies engaged in the response.

Regulatory References: 10 CFR 50.47(b)(7); 44 CFR 350.5(a)(7);
10 CFR Part 50, Appendix E.IV.D and F

G.1	Provisions are made for a coordinated annual dissemination of information to the public within the plume exposure pathway EPZ, including transient populations and those with access and functional needs, regarding how they will be notified and what actions should be taken. The information is disseminated using multiple methods, to include non-English translations per current Federal guidance.

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.

Annually, safety information is distributed containing educational information on emergency preparedness, sheltering, the alert and notification system, radiation, and telephone numbers of agencies to contact for more information.

Information for residents with special needs and non-English translations is incorporated per current federal guidance.

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.
- Special needs of the handicapped.

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.

G.2	Methods, consistent with JIS concepts, are established for coordinating and disseminating information to the public and media. Plans include the physical location(s) for interacting with the media.

PNP Communications personnel are responsible for maintenance of the PNP Public Information Policies and Procedures. Communications personnel ensure dissemination of information to the public via the media and establishment of a system for rumor control during an emergency.

PNP maintains programs and processes for the coordination and dissemination of information to the public and media using JIS concepts. Specifically, the process provides a structure and system for developing and delivering coordinated interagency messages; developing, recommending, and executing public information plans and strategies; advising decision makers concerning public affairs issues that could affect a response effort; and controlling rumors and inaccurate information that could undermine public confidence in the emergency response effort. Reference Palisades Nuclear Plant Emergency Public Information Policies and Procedures for details.

Physical locations for interacting with the media are described in Element H.5.

G.3	Organizations designate news media points of contact and a spokesperson(s) with access to necessary information.

A spokesperson is designated as the primary point of contact for PNP and is responsible for the consistency of the information released by the utility. The spokesperson may select individuals to address the public on behalf of Palisades as their respective expertise is needed. This position is not designated as an ERO position.

G.3.a	Arrangements are made for the timely exchange of information among the designated spokespersons representing the entities involved in incident response.

Arrangements are made for the exchange of information among the designated spokespersons using various means and technologies as agreed upon by the applicable agencies. PNP 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.

PNP Communications personnel shall prepare and issue press releases in cooperation with State and local agencies. Refer to PNP Emergency Public Information Policies and Procedures for details.

OROs address public response and actions in accordance with their respective plans.

G.4	Organizations establish coordinated arrangements for identifying and addressing public inquiries and inaccurate information.

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.

ORO and federal PIOs address misinformation relating to offsite conditions, including protective action directives. Palisades spokespersons address misinformation regarding station/utility rumors. Rumors and incorrect information are addressed in media statements and at news conferences as appropriate.

G.5	Organizations conduct programs to acquaint news media with the emergency plans at least annually.

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 release of information to the media during an emergency.

H. Emergency Facilities and Equipment

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

Regulatory References: 10 CFR 50.47(b)(8); 44 CFR 350.5(a)(8);
10 CFR Part 50, Appendix E.IV.E

H.1	A TSC is established, using current Federal guidance, from which NPP conditions are evaluated and mitigative actions are developed.

The TSC provides a dedicated location for management and technical support to operations personnel and to relieve the operations staff of emergency response actions and communications not related to plant system manipulations. The TSC is sized to accommodate ERO responders and NRC representatives.

The TSC organization can be found in EPIP EI-4.1, "Technical Support Center Activation."

The TSC is activated when minimum staffing requirements are met, key systems and equipment are verified operational, and the ERO personnel are prepared to perform their functions. When activated, the TSC's primary functions include:

- Provide ERO command and control
- Continued evaluation of event conditions
- Develop and issue offsite PARs
- Develop ORO event notifications
- Provide ENS communications with the NRC
- Display and trend plant data
- Develop response priorities and mitigative actions
- Coordination of site emergency response actions
- Provide engineering support

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. All necessary equipment, furnishings, and documents are stored in the immediate area and are readily available for use. 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, OSC, EOF, NRC, and OROs. The TSC may be activated for NOUEs, and will be activated for Alert, SAE, and GE conditions.

Further details concerning staffing, equipment, furnishings, procedures, and activation are outlined in EPIPs.

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 (SCBA) is 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.

H.2	An OSC is established, using current Federal guidance, from which repair team activities are planned and teams are dispatched to implement actions.

The OSC provides a dedicated location for coordinating and planning event response activities and for staging personnel and equipment. The OSC is sized to accommodate ERO responders. The function of the OSC is to assemble and coordinate necessary personnel from Chemistry, Radiation Protection, Operations (Nuclear Plant Operators (NPOs)), 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 organization can be found in EPIP EI-4.2, "Operations Support Center Activation."

The OSC is activated when minimum staffing requirements are met, key systems and equipment are verified operational, and the ERO personnel are prepared to perform their functions. When activated, the OSC’s primary functions include:

- Provide staging area for maintenance, operations, RP, and other support personnel.
- Provide for briefing, dispatch, and coordination of emergency response teams.

Dosimetry (dose of legal record and self-reading capable of monitoring emergency radiation exposure), respiratory protection, radiation survey equipment, and radiation work permits (RWPs) are available to OSC personnel. In the event of personnel contamination, decontamination will be performed in the area normally designated for this purpose. Radiation and contamination levels in and around the OSC are assessed during emergencies.

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, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures as either electronic or paper documents.

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.

Additional details concerning staffing, equipment, furnishings, procedures, and activation are outlined in EPIPs.

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.

A maintenance kit containing only maintenance supplies is kept in the men's locker room.

H.3	An EOF is established, using current Federal guidance, as the primary base of emergency operations for the licensee during a radiological incident. The EOF facilitates the management and coordination of the overall emergency response, including the sharing of information with Federal, state, local, and tribal government authorities.

The EOF provides a dedicated location for support of the site event response activities. The EOF is sized to accommodate ERO responders and NRC, FEMA, and State and local representatives.

Activation of the EOF is mandatory at the Alert, SAE, and General Emergency (GE) emergency classification levels. Activation of the EOF at a NOUE will be at the discretion of the Shift Manager.

The EOF is activated when minimum staffing requirements are met, key systems and equipment are verified operational, and the ERO personnel are prepared to perform their functions.

The EOF organization can be found in EPIP EI-4.3, "Emergency Operations Facility Activation."

When activated, the EOF’s primary functions include:

- 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, admin, etc.).
- Support site acquisition of equipment, supply, and logistic resources.

Once the EOF is activated and operational, the EOF Emergency Director will be responsible for management of overall emergency response. The EOF will coordinate emergency response activities with federal, state, and local agencies to mitigate the consequences of an emergency.

The EOF provides communications to the Control Room, TSC, field monitoring teams, NRC, and OROs.

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, piping and instrumentation diagrams (P&IDs), electrical schematics and plant procedures as either electronic or paper documents. The EOF has ready access to up-to-date Plant records, procedures, and emergency plans needed to exercise overall utility resources management and for recovery management. Hard copy records stored and maintained at the EOF include, but are not limited to:

- PNP Technical Specifications
- PNP Operating Procedures
- PNP UFSAR

- PNP Abnormal Operating Procedures
- PNP Emergency Operating Procedures
- PNP SEP
- PNP EPIPs
- Michigan Emergency Management Plan
- Van Buren County Emergency Plan
- Berrien County Emergency Plan
- Allegan County Emergency Plan
- Palisades Piping and Instrument Diagrams

Other up-to-date records including radiological records, procedures, drawings, schematics, and diagrams are readily available via transmittal to the EOF.

The PNP EOF is located in downtown Benton Harbor, approximately 16 miles south-southwest from PNP. The EOF assumes overall responsibility for PNP's emergency response. The EOF is designed to provide assistance in the decision-making process to protect the public health and safety, and to control radiological monitoring teams offsite. The EOF staff is comprised of personnel from the Plant. In addition, liaison personnel from the counties, State, and Federal governments will also be present in the EOF.

Because the EOF is located outside the plume exposure EPZ, specialized ventilation systems and radiological monitoring are not required. The EOF ventilation system is consistent in design with standard building codes. To assure the safety of the staff, equipment is provided for measuring external dose rates, and airborne radioactivity levels.

H.3.a	For an EOF that is located more than 25 miles away from the NPP site, provisions are made for locating NRC and offsite responders closer to the NPP site.

This element does not apply because the PNP EOF is not located more than 25 miles from the site.

H.4	An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the NPP 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 alternative facility can communicate with the Control Room, plant security, and the EOF. 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 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.

H.5	A JIC is established, and its location is identified, to coordinate communication from Federal, state, local, and tribal government authorities and licensee personnel with the public and media.

A JIC is established at the combined EOF/JIC located at 330 W Main, Benton Harbor. The JIC is staffed by public information representatives from PNP, State, Counties, 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.

When activated, the JIC functions as a physical location for interacting with the media and for coordination between PNP, Federal and ORO PIOs regarding communications information to the public and the media.

H.6	Each organization establishes an emergency operations center (EOC) for use in directing and controlling response functions. For an EOC located within the plume exposure pathway EPZ, an alternate EOC or location outside the plume exposure pathway EPZ is identified to continue response functions in the event of an evacuation.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

Potential emergencies could directly impact those individuals living within the plume exposure pathway EPZ, and indirectly affect property within the ingestion exposure pathway EPZ. Therefore, emergency planning efforts have been initiated by those affected counties within the plume exposure pathway EPZ. The affected counties are: Van Buren, Berrien, and Allegan Counties.

Each of these counties has established and maintains an Emergency Operations Center (EOC). These centers are located as follows:

a. Van Buren County Courthouse Annex
   Paw Paw, Michigan

b. Berrien County Sheriff's Department

Benton Harbor, Michigan

c. Allegan Central Dispatch
Allegan, Michigan

When it is determined that personnel and resources of State government are needed to support operations of affected local governments, the State Emergency Operations Center (SEOC) is staffed in Lansing. This facility is staffed at any level of emergency depending on potential for required state response.

The Michigan State Field Team Center location will be determined at the time of the incident by personnel at the State EOC. That facility is equipped with the necessary communications control capabilities (when staffed), from which the State will dispatch offsite-monitoring teams. All decision makers remain in Lansing.

H.7	Onsite monitoring systems used to initiate emergency response measures in accordance with the emergency classification scheme, as well as those to be used for conducting assessment, are identified. Monitoring systems consist of geophysical phenomena monitors, including meteorological, hydrologic, and seismic instrumentation; radiation monitors and sampling equipment; plant process monitors; and fire, toxic gas, and combustion products detectors.

Palisades 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 (CLB) documents.

1. Meteorological Monitoring

The Emergency Preparedness Section controls for the PNP Meteorological Monitoring Program are defined in PNP Administrative Procedure 1.14, "Meteorological Monitoring Program."

PNP has a permanent on-site meteorological monitoring station for the acquisition and recording of wind speed, wind direction, and stability class for use in offsite dose projection. 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.

b. Stability class.

This data is transmitted to the Control Room at 15-minute intervals. A remote interrogation capability is available. Details of the system as it applies to emergency offsite dose calculation are provided in EPIP EI-6.7, "Plant Site Meteorological System."

Backup meteorological data can be obtained through use of EPIP EI-6.8, "Backup and Supplemental Meteorology."

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.

2. Hydrologic Monitoring

PNP maintains a groundwater monitoring program in accordance with the industry standard NEI 07-07 groundwater protection initiative.

3. Seismic Monitoring

PNP has a seismic monitoring system that supports the acquisition of data used for event recognition and declaration. Refer to Chapter 5 of the UFSAR for description of the seismic monitoring system.

4. Process and Area Radiation Monitors

Process Radiation Monitors (PRMs) 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 (ARMs) 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 area accessibility for the protective action function.

Refer to Chapter 11 of the UFSAR for description of the PRM and ARM systems.

The Radiation Monitoring System measures, indicates, and records the presence and level of radiation, and alerts Plant personnel to abnormal levels of radioactivity, thereby contributing to personnel protection and proper operation of Plant equipment.

The system consists of permanently installed, continuous monitoring devices together with a program and provisions for specific sample collections and laboratory analyses. The system is designed to provide information for use in evaluating the radiological consequences of normal Plant operation, anticipated operational occurrences, and accidents. Control actions are initiated on the required systems when radiation levels exceed predetermined amounts.

These monitoring functions are performed by the following subsystems and programs:

a. Area Radiation Monitors

Area radiation monitors are primarily for the purpose of measuring radiation dose rates for protection of Plant personnel and providing supporting data to the surveillance of Plant radiation levels.

Monitor alarm setpoints depend on the normal background radiation at the detector location and the calculated levels for abnormal conditions. The monitors will operate within the range of normal environmental conditions applicable to their locations.

Monitored points within PNP are in areas where personnel exposure to radiation is most likely, and at appropriate access control boundaries. Readouts and alarms are provided both locally and in the Control Room.

b. Airborne Radiation Monitors

The radiation monitors located in the gaseous release paths monitor radioactivity with sufficient sensitivity to demonstrate compliance with 10 CFR 20 limits. They also provide sampling capability, i.e., removable filters and/or gas sample stop valves. Samples analyzed with laboratory equipment permit evaluation of compliance to more restrictive regulations and provide data required.

c. Liquid Radiation Monitors

The monitoring systems consist of fixed detectors that display radiation levels in the Control Room.

Testing and maintenance features, such as remotely operated check sources, flushing connections, and cutoff valves are included for periodic system check and/or calibration. The liquid radiation monitors are designed to ensure that liquid effluent releases are maintained below the concentration values of 10 CFR Part 20 by the use of alarms and automatic shutoff features.

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.

5. Portable Radiation Monitors

Portable radiation monitoring equipment is available for uses such as area monitoring, sampling, personnel surveys, and continued accident assessment.

6. Sampling Systems

Liquid and gaseous sampling systems, consisting of normal sampling systems and panels located throughout the plant, are used for event recognition and declaration. Refer to Chapter 9 of the UFSAR for description the sampling systems.

7. Fire Detection Systems

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, including monitoring devices and fire suppression equipment, is detailed in the Fire Protection Implementing Procedures.

H.8	Provisions are made to acquire data from offsite monitoring and analysis equipment, including data on geophysical phenomena (e.g., meteorological, hydrologic, and seismic monitors) and radiological data (e.g., from FMTs, environmental dosimeters, and laboratory analyses).

1. Offsite Meteorological Monitoring

Weather forecasts and certain meteorological data is available from the National Weather Service.

2. Offsite Seismic Monitoring

Seismic information from offsite sources can be obtained from the NEIC. The USGS is the contact agency to obtain information about a seismic event.

3. Offsite Hydrologic Monitoring

Hydrologic information is available from the National Weather Service.

4. Offsite Radiological Environmental Monitoring

Offsite programs and processes are developed within the Radiological Environmental Assessment Program (REMP) as described in the Offsite Dose Calculation Manual (ODCM). The Radiological Environmental Assessment Program includes:

- Fixed continuous air samplers
- Routine sampling of water, vegetation, consumable products
- A dose monitoring network

The locations of the normal onsite and offsite environmental monitoring stations are described in the ODCM. Additional predetermined emergency offsite monitoring locations are contained in procedures.

The REMP provides a number of dosimeters and airborne particulate sampling stations that are valuable for long-term appraisal of integrated dose.

EPIP EI-10, “Accident Environmental Assessment,” provides guidelines for post-accident collection and replacement of accident dosimetry, obtaining data from air monitoring stations, collection and assessment of waterborne effluents, and obtaining water/milk/vegetation samples.

Radiological Monitoring Teams shall be activated at the direction of the Shift Manager or OSC Manager. If the OSC has not been activated, notification should be made directly to the Radiation Protection Office. Monitoring teams should consist of two individuals; one qualified for field monitoring and one driver. Following staff augmentation, the estimated deployment time for a monitoring team is 30 minutes.

5. Fixed or Mobile Laboratory facilities

Refer to Element C.4 for details on facilities for counting and analyzing samples.

H.9	Organizations directly responsible for offsite radiological monitoring provide for radiological monitoring equipment. This includes equipment that is located or stored near the NPP site, as well as additional equipment that may be brought to the site.

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 concentration as low as 10^{-7} micro-curies per cubic centimeter.

The Michigan EGLE provides offsite field monitoring capability within approximately three hours.

The MSP/EMD can request aerial and field monitoring through the DOE.

Federal, industry and private entities can be contacted to coordinate additional material and personnel resources for offsite radiological monitoring.

H.10	Instrumentation is provided to obtain current meteorological information. Additional provisions are made to obtain representative meteorological information from other sources as needed by the NPP's radiological assessment models for site-specific characterization of plume dispersion and transport. Meteorological information is provided to the control room, TSC, EOF (or backup EOF), and NRC (via ERDS).

Refer to Element H.7.1 for a description of the onsite meteorological monitoring capabilities.

Refer to Element H.8.1 for a description of the offsite meteorological monitoring capabilities.

Site meteorological information is available on workstations in the Control Room(s), TSC, and EOF.

ERDS provides the NRC with selected meteorological data points on a near real-time basis. Meteorological inputs for the dose assessment model are provided by the plant parameter display system that obtains data from the site meteorological towers. Input parameters include wind speed, wind direction and stability class.

H.11	Provisions are made to ensure that emergency equipment and supplies are tested, maintained, and available in sufficient quantities, to include reserves and replacements, when needed. This includes:

PNP emergency equipment and kits are inventoried to verify adequate supplies and materials, and to inspect condition semi-annually and following each use.

Emergency use equipment and instruments are operationally checked semi-annually during the inventory, and prior to use if needed as specified in procedures. EPIP EI-16.1, "Maintenance of Emergency Equipment," provides guidance for the maintenance and inventory of emergency equipment.

Sufficient reserves of instruments and equipment are maintained to replace those removed from service for calibration or repair.

H.11.a	Identification of the organization(s) responsible for the testing and maintenance of emergency equipment.

PNP personnel are responsible for oversight of maintenance and testing of emergency equipment.

Emergency Planning is responsible for ensuring the quarterly inventory and/or seal inspection is performed for designated emergency supplies and equipment.

H.11.b	Calibration and operational checks of emergency equipment per national standards or the manufacturer's instructions, whichever is more frequent.

Requirements to calibrate emergency equipment and instruments are specified in EPIP EI-16.1, "Maintenance of Emergency Equipment."

H.12	Emergency kits are identified by general category. Contents and quantity of each emergency kit are specified in the emergency plan or other document(s) referenced in the emergency plan.

Emergency kits are assembled for radiation protection, field monitoring, first aid, or other emergency use needs in designated locations.

Designated emergency equipment and supplies and their storage locations are listed in EPIP EI-16.1, "Maintenance of Emergency Equipment." Equipment, supplies, and parts having shelf lives shall be checked and replaced as necessary. Operational readiness of emergency equipment and supplies can be assured by conducting surveillance testing, maintenance checks, calibration, or inventory of all supplies and conducting an annual review of the list of equipment important to Emergency Planning.

Emergency kits are maintained and inspected at least quarterly as specified in EPIP EI-16.1, "Maintenance of Emergency Equipment," and are readily accessible. Kits are typically maintained in the following locations: TSC, OSC, EOF, Emergency Vehicles, Health Physics Office and support hospitals. Specific kit locations and inventories are specified in EPIP EI-16.1, "Maintenance of Emergency Equipment."

Emergency kits consist of the following generic equipment classifications:

a. Monitoring instrumentation and equipment including: dose rate and count rate meters, air sampling equipment, personnel dosimetry equipment.

b. Protective equipment including: protective clothing, respiratory equipment, thyroid blocking agent.

c. Communications equipment including: radios, telephones, microphones.

d. Reference material including: Emergency plans and procedures, maps, equipment lists, spare forms.

e. Miscellaneous equipment including: survey, posting and boundary equipment, plastic bags, flashlights, office supplies, decontamination equipment.

f. Maintenance equipment.

g. Medical Emergency equipment including: monitoring instrumentation and equipment, protective equipment, survey, posting and boundary equipment, decontamination and first aid supplies.

h. Medical Emergency First Aid equipment including: Medical First Aid supplies for use in responding to contaminated or noncontaminated injuries.

H.13	Each organization identifies the location(s) for the receipt and analysis of field monitoring data and coordination of sample media, and identifies the organization(s) responsible for assessing radiological data.

The PNP radiological laboratory is the primary location for receipt of field monitoring team samples. The EOF Radiological Assessment Coordinator is responsible for direction and coordination of field monitoring sample analyses, and for assessing the radiological data obtained from the Field Monitoring Teams.

Sampling and analysis equipment are available (see Element C.4) for quantitative activity determination of liquid and air samples, and qualitative activity determination of terrestrial samples.

I. Accident Assessment

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

Regulatory References: 10 CFR 50.47(b)(9); 44 CFR 350.5(a)(9);
10 CFR Part 50, Appendix E.IV.A, B and E

I.1	Capabilities for performing radiological assessment for all reactor core and spent fuel pool sources, individually and collectively, including response to events occurring simultaneously at all units on the NPP site, are described. These capabilities include:

Effective coordination and direction of all portions of the emergency organization require almost continuous accident assessment during the course of the emergency. Each emergency class will require similar accident assessment methods; however, each classification imposes a different magnitude of assessment effort. In the following steps, the assessment actions to be taken for each emergency classification are outlined.

1. Assessment Actions for a NOUE

The detection of a NOUE shall arise from exceeding a specific EAL for this class. Detection of the event will come as a result of alarms, instrument readings, field observations by Plant staff, recognition through experience, or any combination thereof. The continuing assessment actions to be performed for this classification of emergency shall be in accordance with the Emergency Implementing Procedures and shall consist of the normal monitoring of Control Room and other Plant instrumentation and status indication until the situation is resolved. If a fire is the reason for the declaration of a NOUE, the Shift Manager will make continuing assessments based on knowledge and experience on whether offsite firefighting assistance is needed.

2. Assessment Actions for an Alert

When an accident has been classified as an Alert by the Shift Manager, assessment actions shall be performed in accordance with the EPIPs for an Alert.

These actions include:

a. Accountability of onsite personnel.

b. Staff augmentation, as needed.

c. Increased surveillance of in-plant instrumentation.

d. Activation of appropriate emergency facilities.

e. Dispatch of shift personnel, if possible, to the identified problem area for confirmation and visual assessment.

f. Dispatch of onsite Radiation Monitoring Teams to monitor for possible release and to provide confirmation of correct accident classification.

g. If a radiological accident is occurring, surveillance of the in-plant instrumentation is necessary to obtain meteorological and radiological data required for calculating or estimating projected doses. This dose assessment activity shall continue until termination of the emergency in order that the updating of initial assessments may be provided to all concerned offsite agencies, the Shift Manager, and EOF Emergency Director. EPIPs are provided to aid in a rapid, consistent projection of doses.

3. Assessment Actions for a SAE

The assessment actions for the SAE classification are similar to the actions for an Alert; however, due to the increased magnitude of the possible release of radioactive material, a significantly larger assessment will occur. The necessary personnel for this assessment effort shall be provided by mobilization of the onsite and offsite emergency organizations.

Specifically:

a. An increased amount of plant instrumentation shall be monitored, in particular, indications of core status (e.g., core exit thermocouple readings, etc.) shall be monitored.

b. Radiological monitoring efforts shall be increased. Onsite and offsite radiological monitoring teams will be dispatched. In addition to beta-gamma field measurements, change out of environmental dosimetry, air sampling, and collection of the environmental media for assessment of radioactive material transport and deposition may also be performed.

c. Dose assessment activities will be conducted more frequently with an increased emphasis on dose projections for use as a factor in determining the necessity for protective actions for the public. Radiological and meteorological instrumentation readings shall be used to project the dose rate at predetermined distances from the Plant, and to determine the integrated dose received. In reporting the dose projections to offsite agencies, the dose rate, dose, and the basis for the time used for the dose estimate shall always be provided. Any confirmation of dose rates by offsite Radiation Monitoring Teams shall be reflected in reporting and/or revising the dose estimate information provided to offsite agencies.

   Dose projections shall be considered with respect to EPA PAGs (Table J-1). Reporting of assessments to offsite authorities shall include the relationship of the dose to these guidelines. EPIPs will be provided for recording all pertinent information. Dose projections are performed in accordance with EPIP EI-6.0, “Rapid Dose Calculation.”

4. Assessment Actions for a GE

Assessment actions for the GE classification shall be the same as for the SAE with some possible shift of emphasis to greater offsite radiation monitoring and dose projections extending to distances farther from the site.

I.1.a	Methods for determining the magnitude and isotopic composition of an ongoing release of radioactive material through waterborne or airborne release pathways, or estimating these parameters for a potential release.

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.

Dose assessment model methods are capable of estimating source term and magnitude of gaseous releases from effluent monitors or plant parameter data and release rate projections.

I.1.b	A radiological assessment model for airborne releases that provides estimates of offsite radiation exposures and contamination levels using a dispersion model that is representative of the plant release points, topographical features, and meteorological regimes at the NPP site.

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.

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 EPA-400/R-17/001, “PAG Manual: Protective Action Guides and Planning Guidance for Radiological Incidents,” dated January 2017 dose conversion factors and is provided as: (1) the total effective dose equivalent, or TEDE (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 (CDE thyroid).

URI dose projection results are given for various locations from the site boundary to 10 miles. URI can provide dose assessment results for multiple release points from the site.

URI dose projection results and field monitoring readings are used in assessing radiological EALs and PARs.

EPIP EI-6.0, "Rapid Dose Calculation," contains two methods for calculating offsite dose to population from accidental releases. These methods are:

a. Computer Method - Implements the above method using a personal computer to speed the process.

b. Manual Method - A pencil and paper method for calculating offsite dose using precalculated diffusion factors and a straight line Gaussian methodology.

The above methods have been developed in cooperation with state agencies and provide methods for rapid, accurate dose estimates.

EPIP EI-6.9, “Automated Dose Assessment Program,” provides basic instruction for performing offsite dose assessment using the URI "Detailed" dose assessment method during an emergency event involving an actual or potential release of radioactivity to the environment.

EPIP EI-6.10, “Offsite Dose Calculation - Straight Line Gaussian (Manual Method),” provides a manual backup to the automated dose assessment program to calculate whole body and thyroid dose rates.

I.1.c	A capability to coordinate and implement in-field radiological assessments by FMTs and/or sampling teams and to assess the data obtained.

Environmental surveys inside and outside the protected area are performed by Field Monitoring Team members under the direction of the EOF RP 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 surveys and sampling may be performed at pre-identified locations or other geographic locations within the EPZ determined during the event. Samples taken by the offsite monitoring teams will be evaluated further by one of the available laboratory facilities described in Element C.4.

I.2	Methods for assessing contamination of drinking water through liquid release pathways or deposition of airborne materials for NPP sites located on or near bodies of water from which public drinking water is drawn.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

I.3	The capability and responsibility for monitoring the following parameters, which provide input to radiological assessments during an emergency, are described: 1. Status of reactor fuel (e.g., no fuel damage, technical specification activity, clad failure, core melt.). 2. Status of containment integrity. 3. Leakage of radioactive material from plant systems, structures and components. 4. Status of engineered safety features used to mitigate the release of radioactive material to the environment (e.g., filters, containment spray, etc.). 5. Onset and duration of an actual release of radioactive material to the environment, or estimating these parameter for a potential release.

The PNP ERO monitors plant parameters using information provided by plant data transmittal systems to assess the status of reactor fuel using core damage assessment utilizing EPIP EI-11, “Determination of Extent of Core Damage.”

The PNP ERO monitors plant data systems to evaluate the status of containment integrity, systems used to mitigate the release of radioactive material to the environment and to identify leakage of radioactive material from plant systems, structures, and components.

Effluent and process monitors are used to determine the onset and duration of an actual or potential release of radioactive material to the environment.

I.4	The methods and responsibility for determining the source term present in reactor coolant, containment atmosphere, and spent fuel pool area atmosphere are described.

Source term present in reactor coolant, containment atmosphere, and spent fuel pool 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.

I.4.a	The contingency arrangements to obtain and analyze highly radioactive samples from the reactor coolant system, containment atmosphere and sump, and spent fuel pool storage area are described.

EPIP EI-7.0, “Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates,” provides the decision-making process to implement sampling under emergency conditions.

I.5	The organizations responsible for FMT activities, and necessary resources, are identified.

PNP is responsible for field monitoring team activities. PNP field monitoring team activities are coordinated with environmental monitoring efforts performed by ORO field monitoring teams.

I.6	Each organization, where appropriate, provides methods, equipment, and expertise to make timely assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways, including development of post-plume PARs for comparison to current Federal guidance.

As described in Element I.1.b, PNP uses the URI off-site dose projection computer model.to make timely assessments of the actual or potential magnitude and locations of any radiological hazards through gaseous release pathways. Personnel qualified in dose assessment are available on shift, and in the EOF. Dose assessment results and field monitoring readings assist in evaluating appropriate ECLs based on radiological EALs, and for developing any related PARs.

The actual or potential magnitude of liquid radiological releases with regard to the ECLs are determined by liquid effluent monitors, direct area surveys, or sample analyses.

With regard to the ingestion pathway, field monitoring teams are used to obtain liquid effluent samples from radioactive liquid releases. Sample results are used in conjunction with ODCM 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.

I.7	The capability to detect and measure radioiodine concentrations in air in the plume exposure pathway EPZ as low as 1E-7 μCi/cc (microcuries per cubic centimeter) under field conditions is described. The sample collection process takes into account the sample flow rate, collection efficiency of the sample media used to collect the sample, duration of the sample, counter efficiency, and background radiation, including interference from the presence of noble gases.

Palisades field monitoring equipment has the capability to detect and measure airborne radioiodine concentrations as low as 1E-7 µCi/cc 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.

Air sample results can be estimated in the field through the use of portable monitors. The samples can be subsequently analyzed for greater precision by the laboratory facilities described in Element C.4.

I.8	A means is established for relating the various measured parameters (e.g., exposure rates, contamination levels, and air activity levels) to dose or dose rates. Provisions are made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with current federal guidance. In addition, provisions are established to validate dose projections with field data and compare projections with other organizations also calculating dose projections. The detailed provisions are described in implementing procedures.

PNP field monitoring teams will track the plume from any radiological release by monitoring radiation levels and by obtaining and analyzing air samples. Field monitoring team environmental survey and air sample results are compared with dose assessment results to validate or adjust projections. Additionally, field monitoring results can be input into the dose assessment model to develop projections at different locations.

I.9	Arrangements to locate and track the airborne radioactive plume are made using available resources, which includes federal, state, and tribal governments, and/or licensee resources. Provisions are made to characterize the plume including taking peak plume measurements. Identification of the plume, includes determining a measurement that is high enough to be reasonably above background radiation readings and sufficient enough to indicate submersion within the plume.

PNP maintains equipment for the utility field monitoring teams. Methods to monitor a radioactive plume include establishing peak centerline values and immersion areas. Monitoring strategies may include the traversing of plumes when road networks and exposure rate permit. Additionally, local field sampling and monitoring points are specified to support pre-positioning of teams or use in comparison with dose projection results.

Data from the PNP field monitoring teams is compared to data provided by state field monitoring teams that may be dispatched into the area. Data collected before state field monitoring teams are in the field is made available to state dose assessment personnel.

I.10	Organizations directly responsible for radiological monitoring, analysis, and dose projections describe the capability for coordinating monitoring efforts, tracking and trending data, and sharing analytical results with other organizations performing radiological assessment functions.

The EOF Emergency Director is notified of assessment results from the site and from offsite support agencies. The EOF Emergency Director, in turn, is responsible for communication back to those groups so that emergency measures may be modified as necessary.

PNP EOF dose assessment personnel coordinate field monitoring team radiological monitoring activities and compare dose projection results with ORO and NRC representatives.

J. Protective Response

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. ETEs have been developed by applicants and licensees. Licensees shall update the ETEs 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.

Regulatory References: 10 CFR 50.47(b)(10); 44 CFR 350.5(a)(10);
10 CFR Part 50, Appendix E.IV.2-6, E and I

J.1	The means and time required to alert, notify, and provide a range of protective actions for onsite individuals and individuals who may be in areas controlled by the licensee (including members of the public) during a radiological incident are described.

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 PNP public address system. Personnel on site are notified of a declared emergency through the public address system.

Visitors within the Protected Area are escorted by badged individuals. The escort is responsible for controlling and directing their assigned visitors regarding actions required by any announcements and alarms.

Security personnel are used, as available, to augment public address announcements and to check OCA areas for remaining individuals.

All persons onsite at the time of an NOUE, Alert, SAE, or GE shall be notified of the emergency by a two-minute steady siren and an announcement over the public address system in the assembly areas. For the Alert and above, personnel shall be instructed to report to assembly areas for accountability, monitoring, and possible evacuation.

J.1.a	Provisions are made for evacuation of onsite non-essential personnel at an SAE/General Emergency (GE).

Site evacuation is required following a SAE or GE unless delayed due to safety issues. The sounding of an alarm over the public address system occurs for the initiation of site evacuation.

When a site evacuation occurs, ERO and other essential personnel respond to their designated response facilities/areas. Non-essential personnel inside the Protected Area typically exit to the OCA by following normal radiation protection and security processes and proceed to a designated assembly area. Further, evacuation of non-essential personnel inside the OCA occurs as warranted.

A process is in place to perform a rapid evacuation of the Protected Area without onsite monitoring and OCA assembly if conditions warrant. Monitoring in this instance is performed at an offsite location.

J.2	Provisions are made and coordinated with appropriate offsite entities for evacuation routes and transportation for onsite individuals to a suitable offsite location. Selection of location considers the potential for inclement weather, high traffic density, and potential radiological conditions. Alternate location(s) and route(s) are identified.

Designated offsite locations for site evacuees, and the process to use them, have been identified through coordination with local emergency management personnel.

The site evacuation process takes into consideration meteorological and radiological data, weather and other travel hazards.

On-site personnel will evacuate the site when directed. Three potential routes are available: Plant access road to the east and the beach to the north or south.

Unless conditions dictate otherwise, the Plant access road to the east will be the primary evacuation route. An evacuation procedure shall require a personnel accountability check at the appropriate control point/monitoring station. Security officers shall be dispatched by the Emergency Plant Manager to stop ingress from the access roads and to assist PNP personnel evacuating the site. A control point/monitoring station shall be established along the egress route in an area expected to be outside the path of possible radioactive releases.

At the assembly area, members of the emergency organization shall direct efforts per the applicable Emergency Implementing Procedure. These procedures shall provide contingency plans for weather, traffic, and radiological impediments to evacuation.

J.3	Provisions for radiological monitoring and decontamination, if necessary, of personnel evacuated from the NPP site are described.

Personnel 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.

A combination of checking electronic dosimeters and questioning of evacuees will be used to initially determine if there were any high external exposures involved in the emergency. For any known or suspected high exposures, the permanent dosimeters will be read as soon as possible and further investigation will be conducted to determine the amount of exposure or necessary actions to be taken.

Monitoring for contamination and internal ingestion at the assembly areas will be accomplished by using portable instrumentation and questioning. Priority for decontamination will be given to persons found with the highest levels of contamination. Any persons suspected or known to have ingested radioactivity will be whole-body counted, as soon as conditions permit, to assess their internal exposure. Decontamination facilities and supplies for evacuees shall be available.

J.4	The capability to account for all individuals inside the NPP Protected Area following declaration of an SAE or GE is described. The names of missing individuals are ascertained within 30 minutes following the emergency declaration and accountability is maintained for the duration of the incident. This capability includes provisions for prompt accountability following events that may preclude completion within 30 minutes (e.g., hostile action).

The emergency alarm, together with the public address system, is used to alert and notify on-site personnel of the need for assembly at a SAE or GE emergency classification level (or earlier at the discretion of the Emergency Director).

PNP ERO personnel 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.

Typically, accountability of personnel inside the Protected Area is completed within 30 minutes of event declaration. 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. 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.

J.5	Provisions are made for personal radiological protection for individuals arriving or remaining onsite during the incident.

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:

1. Individual Respiratory Protection

Efforts are made to utilize respiratory protective equipment to minimize ingestion and/or inhalation of radionuclides and to maintain internal exposure below the limits specified in 10 CFR 20, Appendix B.

Respiratory protection equipment is used by qualified personnel when called for by exposure control procedures. The radiological use respiratory protection program is maintained by Radiation Protection.

Respiratory protection devices will be issued when necessary to significantly reduce the internal exposure to radionuclides. Self-Contained Breathing Apparatus (SCBAs) will also be used in emergencies involving smoke, gases, oxygen deficient atmospheres, or unknown conditions. Both SCBAs and air-purifying type full-face respirators are maintained in or near the Control Room, and a larger supply of this equipment is available at the Radiation Protection area in access control.

Respiratory protection devices will be issued to survey teams, rescue teams, and other personnel required to be in areas of suspected or known high airborne radioactivity. A reserve breathing air supply that is of a rate sufficient to support Control Room personnel for an extended period of time is available.

SCBAs are used in areas that are deficient in oxygen or when fighting fires. SCBAs are available with other firefighting equipment for use by the site fire brigade.

PNP owns its own air compressor which can continually fill SCBA tanks and other breathing air needs. A vendor or offsite agency may be used if needed.

2. Individual Thyroid Protection

If an emergency involves the accidental or potential ingestion or inhalation of radioactive iodine, Potassium Iodide tablets (KI) are maintained and available for distribution.

The administration of potassium iodide (KI) to PNP and vendor personnel may be used to mitigate the consequences of inhalation of radioiodine during an emergency.

3. Protective Clothing

Protective clothing will be issued when needed to limit personal contamination and the spread of contamination.

Supplies include coveralls, rubber gloves, shoe covers and boots, caps and hoods, and plastic suits. Inventories are maintained for normal Plant use in access control and in the stockroom.

Additional supplies of protective clothing are in the emergency kits. This clothing will be issued to survey teams, rescue teams, and other personnel required to enter known or suspect areas of radioactive contamination. It will also be issued to persons required to work in or occupy contaminated areas. For emergency conditions, normal street clothing is considered as protective apparel, which is supplemented as necessary to protect skin surfaces, and which can be cleaned or discarded later. Protective clothing is distributed offsite only to members of those support agencies required to occupy contaminated areas for some purpose.

J.6	The basis and methodology are established for the development of PARs for the responsible OROs, including evacuation, sheltering, and, if appropriate, radioprotective drug use, for the plume exposure pathway EPZ. Current Federal guidance is used.

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 radioprotective KI use based on the following:

- NUREG-0654/FEMA-REP-1, Revision 1, Supplement 3, Guidance for Protective Action Strategies, November 2011
- EPA-400/R-17/001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, January 2017
- Guidance for Industry, KI in Radiation Emergencies, Questions and Answers, FDA, Revision 1, December 2002
- Potassium Iodide as a Thyroidal Blocking Agent in Radiation Emergencies, FDA Guidance, December 2001
- PARs for the general public will be based on plant conditions and/or offsite dose assessment results.

PARs beyond the plume exposure pathway EPZ will be developed on an "ad hoc basis" from projected or measured dose in excess of EPA PAGs. Because dose projection accuracy is limited by distance, actual field measurements are used to corroborate projections before issuing PARs in areas outside the plume exposure pathway EPZ. Protective Action Guides for the Environmental Protection Agency and the State of Michigan are shown on Tables J-1 and J-2.

TABLE J-1
ENVIRONMENTAL PROTECTION AGENCY - PROTECTIVE ACTION GUIDES

Protective Action	PAG Projected Dose Whichever is more limiting
Intervention Level	0.5 rem (CEDE) Whole body or any set of organs OR 5 rem (CDE) any single organ

Source: EPA 400/R-17/001

NOTE:	Specific PAs are not provided due to the wide variety of actions that could be taken.

TABLE J-2
PROTECTIVE ACTION GUIDES (PAGs) & OBJECTIVES

Early Plume PAGs (Source - EPA 400/R-17/001)

Protective Action	PAG Projected Dose	Comments
Evacuation (or sheltering)	1-5 rem TEDE 5-25 rem thyroid 50-500 rem skin	Evacuating (or for some situations, sheltering) should normally be initiated at the lower limit of range shown.
Administration of stable iodine	25 rem thyroid	Requires approval of State Medical Officials

Relocation PAGs (Source - EPA 400/R-17/001)

Protective Action	PAG Projected 1st Year Dose	Comments
Relocate the general population	≥ 2 rem TEDE > 100 rem beta skin dose	
Apply simple dose reduction techniques	< 2 rem TEDE	These protective actions should be taken to reduce doses to as low as practicable levels

Long Term Objectives (Source - EPA 400/R-17/001)

Long Term Objectives	
Period	Objective
Any single year (2 through 50)	0.5 rem TEDE
50 Years	5 rem TEDE

J.7	A site-specific protective action strategy or decision-making process, informed by the ETE study, is coordinated between the licensee and OROs. Current Federal guidance is used.

The PNP offsite PAR strategy has been developed in coordination with the state and local agencies, and is informed by the ETE Report.

J.8	The latest ETEs are:

J.8.a	Incorporated either by reference or in their entirety into the emergency plan.

The most recent ETE is incorporated by reference into this SEP.

Updated ETE studies will be submitted to the NRC under 10 CFR 50.4 no later than 365 days after PNP determines that the criteria for updating the ETE have been met and at least 180 days before using it to form PAR and providing it to state and county governmental authorities for use in developing offsite protective action strategies.

During the years between decennial censuses PNP will estimate EPZ permanent resident population changes once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and state/county government population data, if available. PNP will maintain these estimates so that they are available for NRC inspection during the period between decennial censuses and will submit these estimates to the NRC with any updated ETE report.

The criteria that require a full update to the site ETE study is as follows:

1. The availability of the most recent decennial census data from the U.S. Census Bureau;

OR

2. If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected emergency response planning areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the currently NRC approved or updated ETE.

J.8.b	Incorporated either by reference or as a summary of the latest ETE analysis into the emergency plan.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.9	PARs are provided, in a timely manner, directly to the designated ORO(s) responsible for making protective action decisions (PADs) within the plume exposure pathway EPZ.

Applicable plume exposure pathway EPZ PARs of evacuate or shelter-in-place are developed at the GE emergency classification level and provided to the ORO personnel responsible for making protective action decisions.

PARs are communicated using the initial notification form and process. See Part II Section E of this SEP for a discussion of emergency notification.

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 of the environs if necessary.

J.10	Plans include maps, charts, or other information that demonstrate the following for the plume exposure pathway EPZ:

J.10.a	Evacuation routes, evacuation areas, reception centers in host areas, and shelter areas.

Details on evacuation routes, evacuation areas, reception centers in host areas, and shelter areas are provided in the ETE.

J.10.b	Population distribution around the NPP site by evacuation areas.

Details on population distribution around the site, by evacuation areas, are provided in the ETE.

J.11	A capability for implementing protective actions based on current Federal guidance is established. The process ensures coordinated implementation of PADs with all appropriate jurisdictions. The process for implementing protective actions for the plume exposure pathway EPZ is described and includes the following:

J.11.a	Means for identifying and protecting residents who would have difficulty in implementing protective actions without assistance. This includes those with access and functional needs, transportation-dependent residents, those in special facilities, and those in correctional facilities. These means include notification, support, and assistance in implementing protective actions where appropriate.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.11.b	The decision-making methodologies for use of radioprotective drugs and the provisions for administration to the general public, emergency workers, and institutionalized persons within the plume exposure pathway EPZ. This includes the means of determining quantities, maintaining and managing supplies, communicating recommendations, and distributing.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.11.c	Means of evacuation informed by the updated ETEs. The evacuation routes and transportation resources to be utilized are described and include projected traffic capacities of evacuation routes and implementation of traffic control schemes during evacuation.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.11.d	The locations of pre-identified reception centers beyond the boundaries of the plume exposure pathway EPZ, organizations responsible for managing reception centers, arrangements for handling service animals and pets, and provisions for radiological monitoring/decontamination.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.11.e	Means for the initial and ongoing control of access to evacuated areas and organizational responsibilities for such control, including identifying pre-selected control points.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.11.f	Identification of and means for dealing with potential impediments to the use of evacuation routes (e.g., seasonal impassability of roads) and contingency measures. The resources available to clear impediments and responsibility for re-routing traffic, as necessary, are described.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.11.g	Identification of and means to implement precautionary protective actions (e.g., actions taken at an SAE).

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.12	Protective actions to be used for the ingestion exposure pathway EPZ are specified, including the methods for protecting the public from consumption of contaminated foodstuffs, and are based on current Federal guidance.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.13	The means for registering, monitoring, and decontaminating evacuees, service animals, pets, vehicles, and possessions at reception centers in host areas are described. The personnel and equipment available are capable of monitoring 20 percent of the plume exposure pathway EPZ population, including transients, assigned to each facility within a 12-hour period.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.14	General plans for the removal or continued exclusion of individuals from restricted areas are developed. Relocation plans include:

J.14.a	Process for implementing current federal guidance for relocation.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.14.b	Means to identify and determine the boundaries of relocation areas, including a buffer zone.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.14.c	Prioritization of relocation based on projected dose to an individual and the timeframe for relocation.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.14.d	Control of access to and egress from relocation areas and security provisions for evacuated areas.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.14.e	Contamination control during relocation.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

J.14.f	Means for coordinating and providing assistance during relocation.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

K. Radiological Exposure Control

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.

Regulatory References: 10 CFR 50.47(b)(11); 44 CFR 350.5(a)(11);
10 CFR Part 50, Appendix E.IV.E

K.1	The radiation protection controls for emergency workers to be implemented during emergencies are described. These controls address the following aspects:

Approval is required if emergency workers are expected to receive dose in excess of 10 CFR Part 20 occupational dose limits. ALARA practices are utilized during emergencies as much as practical.

K.1.a	Onsite emergency exposure guidelines for emergency workers consistent with their assigned duties and current Federal guidance and the conditions under which the guidelines apply.

Although an emergency situation transcends the normal requirements for limiting exposure, there are suggested levels of exposure acceptable in emergencies. Even under these conditions, every reasonable effort to minimize exposure must be made and personnel must be provided with appropriate monitoring devices. Three categories of risk versus benefit must be considered:

a. Saving of human life and reduction of injury.

b. Protection of health and safety of the public.

c. Protection of property.

In order to avoid restricting actions that may be necessary to save lives, it shall be left to the judgment of the individual to determine the amount of exposure that they will accept to perform an emergency action that will result in the saving of human life. Emergency team members are instructed in radiation effects and the risks involved for emergency doses. Basic guidelines provided to emergency team members are the EPA recommendations contained in Table K-1. These exposures must be authorized by the Emergency Plant Manager based on the recommendation of the TSC Radiological Assessment Coordinator.

The Radiation Protection Procedures shall be followed. In the event emergency exposure limits are approved, the same administrative methods for dose control shall be used with the higher emergency exposure limits.

PNP implements exposure guidelines for emergency response personnel consistent with those published in EPA-400/R-17/001, Table 3-1, “Emergency Worker Guidelines.” The applicable guidelines are provided in Table K-1 of this SEP.

TABLE K-1
GUIDANCE ON DOSE LIMITS FOR WORKERS PERFORMING EMERGENCY SERVICES

Dose Limit[a] (rem)	Activity	Condition
5	All occupational exposures	All reasonably achievable actions have been taken to minimize dose.
10	Protecting critical infrastructure necessary for public welfare	Exceeding 5 rem is unavoidable and all appropriate actions have been taken to reduce dose. Monitoring available to project or measure dose.
25	Lifesaving or protection of large population	Exceeding 5 rem is unavoidable and all appropriate actions have been taken to reduce dose. Monitoring available to project or measure dose.
>25	Lifesaving or protection of large populations	All conditions above and only for people fully aware of the risks involved.

[a] Sum of external effective dose equivalent and committed effective dose equivalent to nonpregnant adults from exposure and intake during an emergency situation. Workers performing services during emergencies should limit dose to the lens of the eye to three times the listed value and doses to any other organ (including skin and body extremities) to ten times the listed value. These limits apply to all doses from an incident, except those received in unrestricted areas by members of the public during the intermediate phase of the incident.

K.1.b	The capability to evaluate emergency worker dose (i.e., the sum of the effective dose equivalent and the committed effective dose equivalent) at the time of exposure when direct measurement is not feasible.

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.

K.1.c	The capability to monitor and assess the radiation doses received by emergency workers for the duration of the incident.

Personnel dosimeters are issued to and worn by PNP radiation worker-qualified personnel who may be required to work in Radiological Controlled Areas in accordance with radiation protection procedures.

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.

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 mRem for the event.

K.1.d	The capability to implement onsite contamination control measures.

Radiation safety controls are established 24 hours per day to contain the spread of loose surface radioactive contamination. Contamination control limits are defined in radiation protection procedures. Personnel leaving the contaminated areas are monitored to ensure that they are not radioactively contaminated.

K.1.e	The capability to decontaminate emergency workers, equipment, and vehicles.

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.

Equipment will be released for use outside of the contaminated areas only when radioactive contamination is within acceptable limits. All equipment must be checked for contamination before being taken from a known contaminated area. Equipment and material decontamination is performed using normal 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.

K.1.f	Appropriate radiation protection briefings for repair teams that are being dispatched into the plant, and FMTs being sent onsite and offsite, the scope of which is consistent with the expected risk to the team.

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.

K.1.g	The process for NPP site access and dosimetry issuance to personnel from OROs arriving to assist with the onsite response.

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.

K.2	Individual(s) who can authorize personnel to receive radiation doses in excess of the occupational dose limits in accordance with the minimum standards set forth in 10 CFR Part 20 or 29 CFR 1910.1096, as applicable to the organization, are identified by title/position. Such authorizations are documented.

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.

K.2.a	The process for allowing onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities is described.

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.

Refer to Element K.1.a for the description of activities and their exposure thresholds and considerations.

K.2.b	The process for authorizing emergency workers to incur exposures that may result in doses in excess of the current Federal guidance is described.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

K.3	The capability to determine the doses received by emergency workers involved in any commercial NPP radiological incident is described. Each organization makes provisions for distribution of direct-reading dosimeters (DRDs) and permanent record dosimeters (PRDs).

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

K.3.a	Provisions to ensure that DRDs are read at designated intervals and dose records are maintained for emergency workers are described.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

K.4	Action levels for determining the need for decontamination are specified and the means for radiological decontamination are established for emergency workers and the general public, as well as equipment, vehicles, and personal possessions. The means for disposal of contaminated waste created by decontamination efforts are also established.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

L. Medical and Public Health Support

Arrangements are made for medical services for contaminated injured individuals.

Regulatory Reference: 10 CFR 50.47(b)(12); 44 CFR 350.5(a)(12);
10 CFR Part 50, Appendix E.IV.E

L.1	Arrangements are established with primary and backup hospitals (one hospital is located outside the plume exposure pathway EPZ) and medical services. These facilities have the capability for evaluation of radiation exposure and uptake. The persons providing these services are adequately trained and prepared to handle contaminated, injured emergency workers and members of the general public.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

L.2	Arrangements for the medical treatment of contaminated injured onsite personnel and those onsite personnel who have received significant radiation exposures and/or significant uptakes of radioactive material are described. These arrangements include the following components:

L.2.a	An onsite first aid capability with adequate medical equipment and supplies.

On-shift first aid personnel will provide first aid to individuals who are injured. Radiation protection personnel will provide contamination control support to potentially contaminated injured personnel.

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.

L.2.b	Primary and backup offsite medical facilities.

Arrangements have been made with local hospitals for the medical treatment of contaminated injured or over exposed personnel. These facilities and their services are available 24 hours per day.

The primary hospital facility for the treatment of serious medical emergencies occurring at the Plant is Bronson South Haven Hospital, located in South Haven, Michigan, approximately 6

miles from PNP. Bronson South Haven Hospital is equipped to receive and treat all types of accident victims, including those with radioactive contamination.

The backup medical facility is Corewell Health Lakeland Hospitals, located approximately 20 miles from the PNP in St. Joseph, Michigan. Each hospital shall be notified of incoming accident victims at the direction of the Emergency Director. The hospital may contact PNP by telephone in the event information is required in the treatment of a victim.

L.2.c	Radiological controls capability, including the isolation of contamination, assessment of contamination levels, radiation exposure monitoring for medical facility staff, collection of contaminated waste, and decontamination of treatment areas.

PNP personnel are available to assist medical personnel with decontamination, radiation exposure monitoring, and contamination control.

Radiological controls capability, including the isolation of contamination, assessment of contamination levels, radiation exposure monitoring for medical facility staff, collection of contaminated waste, and decontamination of treatment areas are described in hospital procedures.

L.2.d	Provisions to evaluate for radiological contamination either prior to transport to a medical facility or after arrival.

Injured personnel are evaluated for radiological contamination prior to transport to a medical facility per 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.

L.2.e	Contact information for facilities capable of treating overexposure to radioactive material.

The Radiation Emergency Assistance Center/Training Site (REAC/TS) 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.

L.3	Supplemental lists are developed that indicate the location of the closest public, private, and military hospitals and other emergency medical facilities within the state or contiguous states considered capable of providing medical support for any contaminated, injured individual.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

L.4	Each organization arranges for the transportation of contaminated, injured individuals and the means to control contamination while transporting victims of radiological incidents to medical support facilities and the decontamination of transport vehicle following use.

Injured personnel are evaluated for radiological contamination and packaged to control contamination prior to transport to a medical facility per radiation protection department procedures. Palisades personnel will assist with decontamination of transport vehicles if necessary.

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 SHAES and Medic 1 of Benton Harbor.

Company vehicles maintained onsite and/or private vehicles can be used to transport injured and/or contaminated personnel for medical treatment. In addition, ambulances are available from the Covert and South Haven Fire Departments, depending on the severity of the situation. 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 ambulance units and Emergency Medical Technicians are trained and equipped to respond to a medical emergency at the Plant. 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.

M. Recovery, Reentry, and Post-Accident Operations

General plans for recovery and reentry are developed.

Regulatory Reference: 10 CFR 50.47(b)(13); 44 CFR 350.5(a)(13);
10 CFR Part 50, Appendix E.IV.H

M.1	General recovery, reentry, and return plans for radiological incidents are developed, as appropriate. These plans address reoccupancy, as appropriate. The plans should include:

M.1.a	Provisions for allowing reentry into areas controlled by the licensee. Reentry planning includes evaluation of the controls necessary for reentry under post-incident conditions.

Reentry can occur during the plume or post-plume phase and refers to the temporary movement of people into an area of actual or potential hazard. Personnel who have been evacuated or relocated from a restricted area may be allowed to reenter under controlled conditions to perform additional emergency response activities.

Reentry into the OCA will be based on site conditions. During or following a HAB incident, reentry criteria take into consideration site security and threat conditions.

The following is a brief description of actions that will be examined as required prior to authorizing reentry by the emergency staff:

- Review available radiation surveillance data. Determine PNP areas potentially affected by radiation and contamination.

- Review radiation exposures of personnel to participate in recovery operations. Determine need for additional personnel.

- Review adequacy of radiation survey instrumentation and equipment (type, ranges, number, calibration, etc.).

- Preplan survey team activities:

    - Areas to be surveyed
    - Anticipated radiation and contamination levels
    - Radiation survey equipment required
    - Shielding requirements and availability
    - Protective clothing and equipment required
    - Access control procedures (issuance of RWP)
    - Exposure control limits and personnel dosimetry required
    - Decontamination requirements
    - Communications required

The initial reentry into the PNP areas should encompass the following (in order of priority):

- Determine initial recovery operations.
- Identify hazards or potential hazards associated with the recovery operations.
- Conduct comprehensive radiation surveillance of Plant facilities and define radiological problem areas.
- Isolate and post areas in the Plant with appropriate warning signs and rope barriers, as Radiation Areas, High Radiation Areas, and Contaminated Areas, as appropriate.

M.1.b	Provisions for reentry into restricted areas, including exposure and contamination control, as appropriate. A method for coordinating and implementing decisions regarding temporary reentry into restricted areas is addressed.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

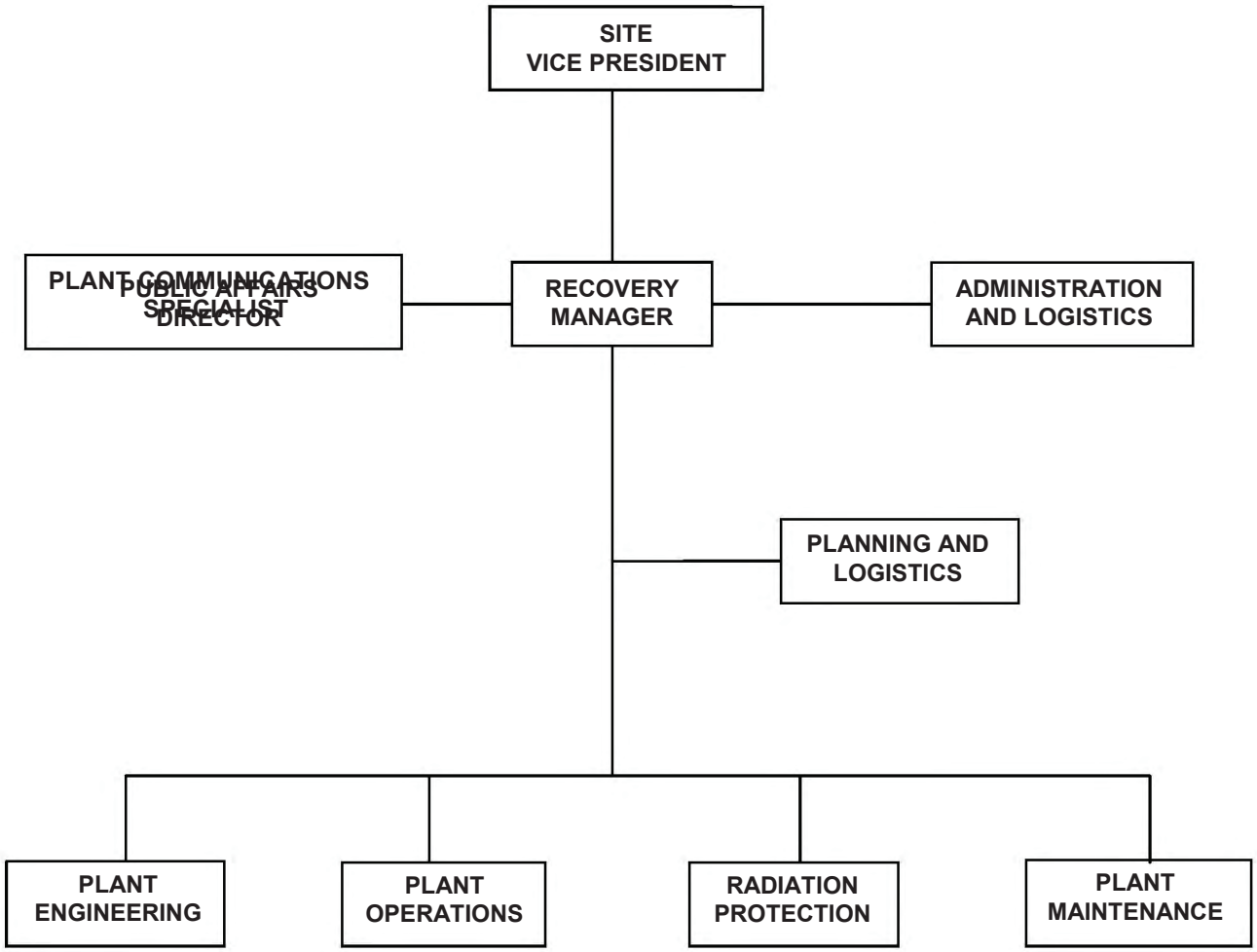
M.2	Individuals who will comprise the licensee's recovery organization are identified by title/ position. The recovery organization includes technical personnel with responsibilities to develop, evaluate, and direct recovery and reentry operations.

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.

TITLE: SITE EMERGENCY PLAN

FIGURE M-1
LONG TERM RECOVERY ORGANIZATION



M.3	The process for initiating recovery actions is described and includes the criteria for terminating the emergency.

Steps will be taken to terminate the event, either directly or following a transition period (prior to entering a state of recovery operations). Usually, the NOUE and Alert classification levels will be directly terminated (no entry into recovery).

Transition to the recovery phase would occur in accordance with EPIP 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.

For the recovery phase of the emergency to commence, the conditions which caused the incident must no longer exist. It is the responsibility of the EOF Emergency Director to determine that the facility and/or surroundings are safe. The following criteria must be met before the recovery and reentry phase can begin:

- Plant stable and long-term core cooling available
- Releases of radioactive materials to the environment under control or has ceased
- In-plant radiation levels are stable or decreasing
- Fire, flood, earthquake or similar hazardous emergency conditions under control or has ceased
- Containment integrity
- Functionality and integrity of plant systems, facilities, power supplies, equipment, and instrumentation
- At least one level of redundancy in plant systems should be available to prevent re-initiation of the event
- Consensus has been reached among the TSC Emergency Plant Manager, EOF Director, NRC, and the State

The initial objectives of the recovery program are the determination of the damage to equipment, the installation of shielding, rope barriers and signs, the application of clearance tags, decontamination, and cleanup as required to place the Plant in an acceptable long-term condition. Other recovery operations will not be initiated until the area affected by the emergency has been defined. Particular attention will be directed toward isolating and tagging out components and systems as required to control or minimize hazards. A systematic investigation will be conducted to determine the equipment damaged and the extent of the damage.

Once the initial objectives are completed, a detailed investigation of the accident causes and consequences to PNP and to the environment will be conducted. Determination will be made as to the equipment repair work required as well as the need to modify PNP operating procedures. Repair work and approved modifications shall be carried out as authorized. Test programs to confirm fitness for return to service will be developed and executed.

Once the emergency condition has been mitigated, steps shall be taken to recover from the incident. All actions from this point shall be preplanned in order to limit exposure. Normal exposure limits will be used, areas will be controlled, and exposure of personnel documented.

Recovery operations will be conducted in compliance with normal operational radiation exposure levels as specified in 10 CFR Part 20. When possible, any necessary releases of radiation during recovery will be planned, controlled, evaluated in advance for radiological impact, and appropriate offsite organizations and agencies informed of the scheduled releases and estimated impact. The TSC Engineering Coordinator will support the EOF Radiological Assessment Coordinator in determining how much radioactivity potentially can be released to the atmosphere based on the nature and extent of core damage.

The State EOC will be advised when PNP deems it safe to begin the reentry phase of the offsite recovery operation. If the Governor has ordered an evacuation, it is legally required for the Governor to officially rescind the order. EGLE is responsible for coordinating reentry procedures for the offsite population.

M.4	The process for initiating recovery actions is described and includes provisions to ensure continuity during transfer of responsibility between phases. The chain of command is established.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

M.5	The framework for relaxing protective actions and allowing for return are described. Prioritization is given to restoring access to vital services and facilities.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

M.6	The organization(s) responsible for developing and implementing cleanup operations offsite is identified.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

M.7	Provisions for developing and modifying sampling plans are established. Provisions for laboratory analysis of samples are included in the plan.

The recovery organization will coordinate PNP environmental sampling activities with the state agencies. Refer to Element C.4 for a description of laboratory capabilities.

M.8	A method for periodically conducting radiological assessments of public exposure is established.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

N. Exercises and Drills

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.

Regulatory References: 10 CFR 50.47(b)(14); 44 CFR 350.5(a)(14);
10 CFR Part 50, Appendix E.IV.F

N.1	Exercises and drills are conducted, observed, and critiqued/evaluated as set forth in NRC and FEMA regulations and guidance.

1. Exercises

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.

Exercises must provide the opportunity for the PNP ERO to demonstrate proficiency in the key skills necessary to implement the principal functional areas (see N.4) of emergency response.

State and local agencies within the plume exposure pathway EPZ are provided the opportunity to participate in biennial exercises as described in Element N.2.a.

2. Drills

A drill is aimed at testing, developing, and maintaining skills in one or more emergency plan functions.

Drill types may be operational or discussion-based events (e.g., single ERF or tabletop drills). Drills may be a component of an exercise.

During drills; activation of all ERFs is not required, supervised instruction is permitted, participants may be given the opportunity to resolve problems (success paths), and focus may be primarily on onsite training objectives. Drills may include evaluation of specific performance objectives or be conducted for non-evaluated training only.

The ERO (not necessarily each ERO member) shall be provided the opportunity to develop and maintain key emergency response skills within the scope of their duties in drills and exercises during each exercise cycle.

Over the course of an eight-year cycle all unique initiating conditions in the EAL scheme (with the exception of judgment ICs) are made available for the demonstration of event classification within drills or exercises.

N.1.a	The process to critique/evaluate exercises and drills is described.

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 EPIP EP-308, "Emergency Planning Critiques."

Provisions are made for federal and ORO representatives to observe and participate in drill and exercise critiques when present.

A written report is prepared following a critique to document whether the objectives were successfully demonstrated.

A remedial exercise is only required if the SEP is not satisfactorily tested during the biennial exercise such that NRC, in consultation with FEMA, cannot (1) find reasonable assurance that adequate protective measures would be taken during a radiological emergency, or (2) determine that the ERO has maintained key skills specific to emergency response.

N.1.b	The process used to track findings and associated corrective actions identified by drill and exercise critiques/evaluations, including their assignment and completion, is described.

Failed performance objectives and other programmatic weaknesses are entered into the corrective action program (CAP).

N.1.c	A drill or exercise starts between 6:00 p.m. and 4:00 a.m. at least once every eight-year exercise cycle.

PNP will conduct at least one off-hours drill or exercise within an eight-year exercise cycle.

An off-hours drill or exercise is established as any time of day on a weekday holiday, or any time of day on a weekend day, or between the hours of 6:00 p.m. and 4:00 a.m. on a normal workday.

The off-hours drill requirement may be satisfied by an actual event provided it meets the above off-hours criteria and the objectives are evaluated and documented in a critique report for the augmentation of the ERO, the transfer of responsibilities, and facility activation.

N.1.d	A drill or exercise is unannounced at least once every eight-year exercise cycle.

PNP will conduct at least one unannounced drill or exercise within an eight-year cycle.

The unannounced drill requirement may be satisfied by an actual event provided objectives are evaluated and documented in a critique report for the augmentation of the ERO, the transfer of responsibilities, and facility activation.

N.2	Exercises are designed to enable the response organizations' demonstration of the key skills and capabilities necessary to implement the emergency plan. The following two types of exercises are conducted at the frequency noted:

N.2.a	**Plume Exposure Pathway Exercises** Plume exposure pathway exercises are conducted biennially. These exercises include mobilization of licensee and state, local, and tribal government personnel and resources and implementation of emergency plans to demonstrate response capabilities within the plume exposure pathway EPZ.

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:

- Management and coordination of emergency response
- Accident assessment
- Event classification
- Notification of the OROs
- Assessment of the onsite and offsite impact of radiological release
- PAR development (required only in exercises that include a GE)
- Protective action decision-making (onsite protective actions)
- Plant system repair and mitigative action implementation

OROs will be invited to participate in plume exposure pathway EPZ exercises. If an ORO chooses not to participate, their participation is not required, and it should be documented that they were given the opportunity to participate.

Biennial plume exposure pathway exercise scenarios are submitted to the NRC under 10 CFR 50.4 at least 60 days before they are held.

N.2.b	**Ingestion Exposure Pathway Exercises** Ingestion exposure pathway exercises are conducted at least once every eight years. These exercises include mobilization of state, local, and tribal government personnel and resources and implementation of emergency plans to demonstrate response capabilities to a release of radioactive materials requiring post-plume phase protective actions within the ingestion exposure pathway EPZ.

PNP will assist in development and participate as requested in an ingestion exposure pathway EPZ exercise to support FEMA evaluation of ORO emergency plan response activities in this area.

The scope, objectives and schedule will be coordinated with appropriate federal emergency organizations and OROs for exercises in which they participate.

N.3	**Exercise Scenario Elements** During each eight-year exercise cycle, biennial, evaluated exercise scenario content is varied to provide the opportunity to demonstrate the key skills and capabilities necessary to respond to the following scenario elements:

N.3.a	**Hostile Action-Based (HAB)** Hostile action directed at the NPP site. This scenario element may be combined with either a radiological release scenario or a no/minimal radiological release scenario, but a no/minimal radiological release scenario should not be included in consecutive HAB exercises at an NPP site.

PNP will conduct at least one HAB scenario in an exercise within an eight-year cycle.

The HAB scenario will include either a radiological release scenario or no/minimal radiological release scenario, but HAB scenarios combined with a no/minimal radiological release scenario will not be used in consecutive HAB exercises.

N.3.b	**Rapid Escalation** An initial classification of, or rapid escalation to, an SAE or GE.

PNP will conduct at least one rapid escalation scenario in an exercise within an eight-year cycle.

The rapid escalation scenario will begin with an initial declaration of, or rapid escalation to, the SAE emergency classification level while event response is performed from the Control Room.

N.3.c	**No/Minimal Release of Radioactive Materials** No release or an unplanned minimal release of radioactive material which does not require public protective actions. This scenario element is used only once during each eight-year exercise cycle.

PNP will conduct at least one no/minimal radiological release scenario that does not require PARs in an exercise within an eight-year cycle.

N.3.c.1	The licensee is required to demonstrate the ability to respond to a no/minimal radiological release scenario. State, local, and tribal government response organizations have the option, and are encouraged, to participate jointly in this demonstration. If the offsite organizations elect not to participate in the licensee's required minimal or no release exercise, the OROs will still be obligated to meet the exercise requirements as specified in 44 CFR 350.9.

OROs located within the plume exposure pathway EPZ are invited to participate in exercises with no/minimal radiological release scenarios.

PNP will support offsite agencies in meeting FEMA demonstration requirements when they elect to not participate in a required no/minimal release scenario that is included in an exercise.

N.3.c.2	When planning for a joint no/minimal radiological release exercise, affected state, local, and tribal jurisdictions, the licensee, and FEMA will identify offsite capabilities that may still need to be evaluated and agree upon appropriate alternative evaluation methods to satisfy FEMA's biennial criteria requirements. Alternative evaluation methods that could be considered during the extent of play negotiations include expansion of the exercise scenario, out of sequence activities, plan reviews, staff assistance visits or other means as described in FEMA guidance.

FEMA will determine whether a no/minimal radiological release scenario is acceptable for use in a full or partial participation biennial exercise.

N.3.d	**Resource Integration** Integration of offsite resources with onsite response.

PNP will conduct at least one scenario that integrates offsite resources provided by local support organizations with onsite response in an exercise within an eight-year cycle.

Demonstration of resource integration includes briefings, offsite response to the site, and coordination of worker protection, as appropriate to the scenario.

N.3.e	**10 CFR 50.54(hh)(2) [relocated to 10 CFR 50.155(b)(2)]Strategies** Demonstration of the use of equipment, procedures, and strategies developed in compliance with 10 CFR 50.54(hh)(2) [10 CFR 50.155(b)(2).

PNP will conduct at least one scenario requiring demonstration of the ability to transition between procedures and select the strategy(ies) for preventing or mitigating fuel damage and limiting radiological releases, within an eight-year cycle.

The Mitigation of Beyond Design Basis Events (MBDBE) exercise scenario will be based on one of the site-specific strategies used to mitigate spent fuel pool damage scenarios or one of the 7 strategies for PWRs used to mitigate reactor accidents and maintain containment and/or spent fuel capabilities described in NEI 06-12, "B.5.b Phase 2 & 3 Submittal Guideline."

The MBDBE exercise may be conducted separately from the main exercise timeline and sequence of events. This includes the (simulated) deployment and use of equipment associated with these strategies. At a minimum, TSC and OSC ERO staff will participate in this portion of the exercise. Participation of Control Room, EOF, JIC ERO, and offsite officials may be simulated.

Methods to accomplish this demonstration are dependent upon the nature of the postulated initiating event, the plant response/accident sequence, and the ability of responders to select and implement mitigation/management strategies. As described in NEI 13-06, “Enhancements to Emergency Response Capabilities for Beyond Design Basis Events and Severe Accidents,” these methods involve conducting any of the following:

- A demonstration of the transition from a controlling AOP or EOP into the Extensive Damage Mitigation Guidelines (EDMGs), FLEX support guidelines (FSGs), or Severe Accident Guidelines (SAGs).
- A demonstration of the use of EDMGs.
- A demonstration of the use of FSGs.
- A demonstration of the use of SAGs.

N.4	Drills are designed to enable an organization’s demonstration and maintenance of key skills and capabilities necessary to fulfill functional roles. Drills include, but are not limited to, the following at their noted frequencies:

N.4.a	**Emergency Medical Drills** Emergency medical drills are conducted annually. These drills involve a simulated, contaminated individual and contain provisions for participation by support services agencies (i.e., ambulance and offsite medical treatment facility).

PNP will conduct an onsite simulated medical drill once per calendar year.

The drill shall involve the participation of local medical support personnel and organizations (e.g., physicians, ambulance services, hospital, etc.). Scenarios may include cases of radiation overexposure, contaminated personnel, and/or contaminated/injured personnel.

Emergency Medical Drill offsite participation and periodicity for support Hospital and Ambulance services are performed in accordance with the 42 CFR 482.15 regulations and are not included in the scope of the station medical drills.

N.4.b	**Medical Services Drills** Medical services drills are conducted annually at each medical facility designated in the emergency plan. These drills involve a simulated, contaminated emergency worker and/or member of the general public and contain provisions for participation by support services agencies (i.e., ambulance and offsite medical treatment facility).

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

N.4.c	**Laboratory Drills** Laboratory drills are conducted biennially at each laboratory designated in the emergency plan. These drills involve demonstration of handling, documenting, provisions for record keeping, and analyzing air, soil, and food samples, as well as quality control and quality assurance processes. These drills also involve an assessment of the laboratory's capacity to handle daily and weekly samples and the volume of samples that can be processed daily or weekly.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

N.4.d	**Environmental Monitoring Drills** Environmental monitoring drills are conducted annually. These drills include direct radiation measurements in the environment, collection and analysis of all sample media (e.g., water, vegetation, soil, and air), and provisions for record keeping.

PNP will conduct an environmental monitoring drill once per calendar year.

The scope of the environmental monitoring drill will include performance objectives for direct radiation measurements in the environment, collection and analysis of sample media (e.g., water, vegetation, soil, and air), communications, and record keeping.

N.4.e	**Ingestion Pathway and Post-Plume Phase Drills** Ingestion pathway and post-plume phase drills are conducted biennially. These drills involve sample plan development, analysis of lab results from samples, assessment of the impact on food and agricultural products, protective decisions for relocation, and food/crop embargos.

This element of NUREG-0654 is not applicable to the licensee emergency plan, but is applicable to OROs and is addressed within their emergency plans.

N.4.f	**Communications Drills** Communications amongst and between emergency response organizations, including those at the state, local, and Federal level, the FMTs, and nuclear facility within both the plume and ingestion exposure pathway EPZs, are tested at the frequencies determined in evaluation criterion F.3. Communications drills include the aspect of understanding the content of messages and can be done in conjunction with the testing described in evaluation criterion F.3.

PNP will conduct communications drills once per calendar year.

Communications tests described in Element F.3 of this SEP can be performed as drills provided they include the aspect of understanding the content of messages.

N.4.g	**Post-Accident Sampling Drills** Post-accident sampling drills are conducted annually. These drills address capabilities including analysis of liquid and containment atmosphere samples with simulated elevated radiation levels. This criterion is not applicable if the NPP unit(s) does (do) not have licensing basis requirements for post-accident sampling.

PNP does not have a licensing basis requirement for post-accident sampling. EPIP EI-7.0, "Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates," provides the decision process necessary to implement sampling under emergency conditions.

EPIP EI-7.10, "Post Accident Sampling, Radioactive Gaseous Effluent Monitoring," describes the steps necessary to obtain a post-accident sample of the stack effluent utilizing the radioactive gaseous effluent monitor.

N.4.h	**Off-Hours Report-In Drills** Off-hours report-in drills are conducted biennially and are unannounced.

PNP will conduct an off-hours unannounced ERO report-in drill at least biennially to verify each minimum staffing ERO position meets the required Table B-1 response time.

The scope of the off-hours unannounced ERO report-in drill will require actual response to the assigned facility.

The Off-Hours Report-In Drill requirement may be satisfied by an actual event provided objectives are evaluated and documented in a critique report.

N.4.i	**Off-Hours Call-In Drills** Off-hours call-in drills are conducted quarterly, such that each ERO member's normally expected response time is assessed at least biennially based on call-in drill responses or an alternate means for determining response time. Some drills are unannounced.

The notification is an all-call process. PNP will conduct an off-hours unannounced ERO call-in drill quarterly to verify each minimum staffing ERO position meets the required Table B-1 response times.

The scope of the off-hours unannounced ERO call-in drill will require collection of the ERO notification system report which documents response within the required time.

Completion of an Element N.4.h off-hours unannounced ERO report-in drill satisfies the requirements of the off-hours unannounced ERO call-in drill in this element.

The Off-Hours Call-In Drill requirement may be satisfied by an actual event provided the objectives are evaluated and documented in a critique report.

N.4.j	**Onsite Personnel Protective Action Drills** Onsite personnel protective action drills are conducted during every eight-year exercise cycle. These drills demonstrate the NPP site's ability to implement and coordinate protective actions for onsite personnel during hostile action.

PNP will conduct a protective action drill within an eight-year cycle.

The scope of the protective action drill will demonstrate the ability to implement and coordinate protective actions for onsite personnel during a hostile action using one or more of the following:

- Warning personnel in the OCA outside the protected area
- Evacuation of personnel from target buildings, including security personnel
- Site evacuation by opening (while continuing to defend) security gates (demonstrated through discussion/table-top)
- Dispersal of licensed operators
- Sheltering of personnel in structures away from potential site targets
- Arrangements for accounting for personnel after the attack

N.4.k	**Aircraft Threat/Attack Response Drills** Aircraft threat/attack response drills are conducted during every eight-year exercise cycle. These drills demonstrate the use of procedures and protective measures developed for responding to hostile action involving an aircraft threat or attack.

PNP will conduct an aircraft threat/attack response drill at least once within an eight-year cycle.

This drill may be combined with the beyond design basis demonstration in Element N.3.e.

N.4.l	**Minimum Staffing Drills** An ERO minimum staffing (no participation of non-minimum augmenting ERO personnel) drill is conducted at least once during every eight-year exercise cycle.

PNP will conduct a minimum staffing drill at least once within an eight-year cycle.

A minimum staffing response drill requires facility activation, full transfer of responsibilities from the Control Room, and demonstration of event assessment and response activities.

N.4.m	**On-Shift Response Drills** An ERO on-shift response (ERO augmentation no sooner than 90 minutes) drill is conducted at least once during every eight-year exercise cycle.

PNP will conduct an ERO on-shift response drill at least once within an eight-year cycle.

An on-shift response drill requires demonstration of classification, notification, and PAR functions with minimum shift staffing (no support from augmenting ERO personnel no sooner than 90 minutes after event declaration) using an On-shift Staffing Analysis event modified to support the objectives.

O. Radiological Emergency Response Training

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

Regulatory References: 10 CFR 50.47(b)(15); 44 CFR 350.5(a)(15);
10 CFR Part 50, Appendix E.IV.F

O.1	Each organization ensures the training of emergency responders and other appropriate individuals with an operational role is described in the emergency plan. Initial training and at least annual retraining are provided.

Initial and continuing training is conducted to ensure ERO personnel are properly qualified for their specific position.

PNP personnel, including non-permanent personnel, receive training pertinent to the SEP and EPIPs. Persons assigned specific responsibilities during an emergency receive additional training appropriate to their respective assignments. The responsibility for training is that of the Training Manager. The Training Manager may delegate specialty-training responsibilities to personnel qualified to perform such training, for example, State or County training personnel. Governance of Emergency Response Organization Training for Palisades personnel is provided by 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 SAT Process. The SAT process determines the necessary periodicity of the retraining (continuing training) on a task-specific basis.

Personnel responsible for management of an Emergency (Shift Manager, ED, Emergency Plant Manager) receive specialized training in one or more of the following areas as applicable to their ERO responsibilities:

- Emergency Classifications
- Notifications
- Protective Action Recommendations
- Emergency Action Levels
- Emergency Exposure Control
- Command and Control Practices

1. Personnel Responsible for Accident Assessment

The skills and knowledge required to perform plant stabilization and mitigation are a normal function of specific Nuclear Operations positions. Reactor power changes, planned and

unplanned reactor shutdowns are handled on a normal operation basis. Subsequent plant stabilization and restoration is pursued utilizing normal operating procedures. Licensed Operators receive routine classroom and simulator training to ensure proficiency in this area. Those Emergency Organization positions responsible for accident assessment, corrective actions, protective actions, and related activities receive position-specific training, to remove peripheral duties from the Nuclear Operations shift.

2. Radiation Protection

a) ERO Radiation Protection Technician position is qualified to ANSI technician standards.

b) ERO Radiation Protection Personnel position is task qualified to perform the following:

- Provide Radiation Protection coverage for accessing known radiological environments (which includes respirator qualifications)
- Control dosimetry and RCA access
- Provide in-plant surveys

3. Radiological Monitoring Teams and Radiological Analysis Personnel

a) Offsite Radiological Monitoring

Offsite radiological monitoring is performed by trained individuals who provide samples and direct readings for dose assessment calculations.

Offsite Monitoring Team members receive classroom and hands-on training in the following areas:

- Equipment and Equipment Checks
- Communications
- Plume Tracking Techniques
- Personnel monitoring
- Emergency exposure criteria
- Locations and use of radiological emergency equipment

b) Personnel Monitoring

Trained individuals who monitor Station personnel and their vehicles for contamination during an emergency perform personnel monitoring. This monitoring will normally be done by Radiation Protection Technicians who are qualified to do this type of monitoring as part of their normal job.

If Non-Radiation Protection personnel are to be used as Personnel Monitoring Team members they shall receive classroom and hands-on training in the following areas:

- Personnel Monitoring Equipment and Techniques
- Radiological Survey Techniques
- Contamination Control Techniques
- Basic Decontamination Techniques

c) Dose Assessment:

Dose Assessment training includes the skills and knowledge necessary for calculation and interpretation of an offsite release and its impact on the environment under any meteorological condition. Individuals responsible for performing dose assessment are trained in the following areas:

- Computerized and Manual Dose Assessment
- Protective Action Recommendations
- Radiological Monitoring Team Interface
- Protective Action Guidelines associated with offsite plume exposure doses
- Basic Meteorology

d) Repair and Damage Control Teams

The Rad/Chem Coordinator position is trained to perform Radiation Protection supervisory tasks.

e) Security

Security personnel receive emergency plan training as part of their normal job specific training. Security personnel assigned a specific ERO position receive training on emergency plan related tasks.

f) Fire Brigade

Refer to the site fire protection program.

g) First Aid

Personnel assigned as first aid responders maintain qualifications equivalent to Red Cross Standard First Aid techniques.

O.1.a	Site-specific emergency response training is developed and conducted for those offsite organizations that may be called upon to provide onsite assistance in the event of an emergency.

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.

O.2	The ERO training program consists of learning objectives that are used to develop and maintain key skills. This includes a systematic analysis of jobs and tasks to be performed from which learning objectives are derived.

The PNP ERO training program is developed and evaluated based on position-specific responsibilities/tasks using SAT principles, when applicable.

O.2.a	The ERO training program is reviewed at least annually and revised as necessary.

Changes to the training program are continually identified from trainee feedback and by critique items captured during drills and incorporated per the principles of the SAT process. In addition to continuous training evaluation through drill and exercise critique process that identifies performance issues and initiates training reviews for particular tasks, the SAT process includes provisions for training program review.

O.2.b	Training sessions that provide performance opportunities to develop, maintain, or demonstrate key skills are critiqued in order to identify weak or deficient areas that need correction.

All individuals participating in the ERO training program are given the opportunity to provide feedback for training sessions. Any weak or deficient areas are identified and corrected.

P. Responsibility for the Planning Effort

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

Regulatory References: 10 CFR 50.47(b)(16); 44 CFR 350.5(a)(16);
10 CFR Part 50, Appendix E.IV.B and G

P.1	The training program, including initial training and periodic retraining, of individuals responsible for the planning effort is described.

Initial Emergency Planning Program training for new Emergency Planning staff members is performed and documented.

Continuing training for Emergency Planning staff members is performed periodically through job related opportunities (such as courses, workshops, information exchange meetings with other licensees, conferences held by industry and government agencies, etc.) to maintain current knowledge of the overall planning effort or to enhance working knowledge of plant operations.

P.2	The individual with the overall authority and responsibility for radiological emergency response planning is identified by title/position.

The Site Vice President has the overall authority and responsibility for the PNP SEP. 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.

P.3	The individual(s) with the responsibility for the development, maintenance, review, updating, and distribution of emergency plans, as well as the coordination of these plans with other response organizations, is identified by title/position.

The Manager, Emergency Planning 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.

Emergency Planning has been delegated responsibilities related to emergency planning that include, but are not limited to, the following:

- Ensure offsite county, state, and supporting emergency plans are compatible with the PNP EP
- Conduct offsite agency training
- Ensure offsite county, state, and supporting emergency plans are compatible with the PNP SEP

- Ensure that the EPIPs are coordinated and interface properly with other procedures (e.g., Administrative Procedures, Security Procedures, Radiation Protection Procedures, and Training Procedures, etc.)
- Coordinate the onsite emergency planning drill and exercise activities
- Coordinate the onsite review and updating of the PNP SEP EPIPs
- Assist the PNP Training Department, in coordinating and/or providing emergency planning related specialty training
- Ensure the maintenance and inventory of emergency equipment and supplies
- Be familiar with current changes in the federal regulations and guidance which impact emergency planning activities
- Document all corrective actions resulting from PNP-related Emergency Planning critiques and audits
- Initiate appropriate PNP-related corrective actions, if any, resulting from the critiques of each integrated practice drill conducted at the Plant

P.4	The process for reviewing annually, and updating as necessary, the emergency plan, implementing procedures, maps, charts, and agreements is described. The process includes a method for recording changes made to the documents and, when appropriate, how those changes are retained.

The formal PNP SEP (as defined in the introduction section) and the EPIPs (as defined in Element P.7) 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.

LOAs, contracts, and signature pages made with off-site individuals, agencies, and organizations supporting this SEP will be reviewed and verified on an annual basis and updated if warranted.

Proposed revisions to the PNP SEP, EPIPs, and appended LOAs shall receive an effectiveness review in accordance with 10 CFR 50.54(q). If the change to the SEP reduces the effectiveness of the Plan, the NRC shall review and approve the change prior to implementation. The proposed change shall be reviewed by the On-Site Safety Review Committee (OSRC) prior to Plant Licensing submitting the proposed change to the NRC.

When revisions to the PNP SEP affect offsite support agencies, they shall be notified as the changes occur.

Editorial changes to the PNP SEP or EPIPs such as titles and telephone lists are not subject to the review process described above.

As the PNP SEP is reviewed, the emergency organization or procedures may be changed as a result of the following:

- Drills may detect deficiencies and may indicate a more desirable organization or procedure
- Changes in key personnel involved in the organization or procedure
- Changes in the PNP's organizational structure
- Changes in the functions of supporting agencies, resulting from reorganization, personnel changes, and equipment requirements
- Changes in state or federal regulations
- Modifications to the plant
- Recommendations received from other organizations, such as the state and federal agencies or other nuclear facilities

P.5	Provisions for distributing the emergency plan and implementing procedures to all organizations and appropriate individuals with responsibility for implementation of the plan/procedures is described.

Revised copies of the PNP SEP are posted and distributed in accordance with PNP records management system procedures.

Changes to the PNP SEP are submitted to the NRC in accordance with 10 CFR 50.4.

P.6	A listing of annexes, appendices, and supporting plans and their originating agency is included in the emergency plan.

Emergency plans developed by other agencies that support the PNP SEP include the following:

- Department of Homeland Security NRF
- U.S. Nuclear Regulatory Commission Incident Response Plan
- Michigan Emergency Management Plan
- Van Buren County Emergency Plan
- Allegan County Emergency Plan

- Berrien County Emergency Plan

P.7	An appendix containing a listing by title of the procedures required to maintain and implement the emergency plan is included. The listing includes the section(s) of the emergency plan to be implemented by each procedure.

Detailed EPIPs required to implement this SEP have been developed. Table P.7-1 provides a listing, by title, of the response and maintenance procedures required to implement the emergency plan, and the section(s) of this SEP to be implemented by each procedure.

Detailed implementing procedures for emergencies considered to be special events, such as civil disturbances, bomb threats, and breaches in security are included as part of the Safeguards Contingency Procedures.

Separate emergency procedures are not provided for activities already covered by Plant or section Operating Procedures (i.e., calibration of survey instruments). The plan relies on certain aspects of the Plant's operating procedures, radiation protection procedures, and security procedures, where they are required for clarification.

P.8	A table of contents and a cross-reference index to each of the NUREG-0654/FEMA-REP-1, Rev. 2 evaluation criteria are included. The evaluation criteria that do not apply are identified.

The PNP SEP contains a specific table of contents. The emergency plan paragraphs are numbered to correspond to the NUREG-0654, Rev. 2 evaluation criteria. Evaluation criteria which do not apply to licensees are listed and identified.

P.9	Provisions for addressing the requirements of 10 CFR 50.54(t) are described.

Emergency Planning Program elements are reviewed by persons 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 SEP, 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.

P.10	The administrative process for the periodic review and updating of contact information identified in the emergency plan and implementing procedures is described.

The PNP emergency communications directory contains select 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.

P.11	The process for entering EP program-related issues that could reduce the effectiveness of the emergency plan into the site-wide corrective action program is described.

The PNP CAP is used to capture all events that do not meet program regulations, requirements, standards, or are otherwise conditions adverse to quality.

P.12	The process to evaluate changes in plant configuration for their impact on the effectiveness of the emergency plan is described.

Changes in plant configuration are evaluated for their impact on the effectiveness of the emergency plan through the plant modification or license compliance review processes specified in change procedures and, if required, the 10 CFR 50.54(q) change evaluation process.

Table P.7-1: Emergency Plan Implementing Procedures (EPIP)

Document ID	Document title	Plan Sections Implemented
EI-1	Emergency Classification and Actions	A.1.a D E.3 I
EI-2.2	Emergency Staff Augmentation	B.1.a
EI-3	Communications and Notifications	E.1 F
EI-4.1	Technical Support Center Activation	H.1 H.4
EI-4.2	Operations Support Center Activation	H.2 H.4
EI-4.3	Emergency Operations Facility Activation	H.3 H.4
EI-6.0	Rapid Dose Calculation	E.3 I
EI-6.1	Release Rate Determination from Stack Gas Monitors	I
EI-6.2	Release Rate Determination from Steam Line Monitors RIA-2324 for Steam Releases Through Atmospheric Dump Valves	I
EI-6.3	Release Rate Determination from High Range Effluent Monitors	I
EI-6.4	Release/Potential Release Rate Determination from Containment High-Range Monitors	I
EI-6.6	Gamma E Determination	I
EI-6.7	Plant Site Meteorological System	H.7
EI-6.8	Backup and Supplemental Meteorology	H.7 H.8
EI-6.9	Automated Dose Assessment Program	I
EI-6.10	Offsite Dose Calculation – Straight Line Gaussian (Manual Method)	I
EI-6.13	Protective Action Recommendations for Offsite Population	J
EI-7.0	Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates	I
EI-7.10	Post Accident Sampling, Radioactive Gaseous Effluent Monitoring	I
EI-8	Onsite Radiological Monitoring	I
EI-9	Offsite Radiological Monitoring	I
EI-10	Accident Environmental Assessment	H.8 I
EI-11	Determination of Extent of Core Damage	I
EI-12.3	Search and Rescue Team Responsibilities	J

TITLE: SITE EMERGENCY PLAN

Document ID	Document title	Plan Sections Implemented
EI-13	Evacuation/Reassembly	J.1.a J.4
EI-14	Medical Care/Treatment of Contaminated, Injured Personnel	L.2
EI-15.2	Communication Tests	F.3
EI-16.1	Maintenance of Emergency Equipment	H.11 H.11.a H.11.b
EI-17	Compensating Measures for OOS EAL Equipment and Listing of Non-EAL Equipment Important for Emergency Preparedness	H.11
EP-306	Drills and Exercises	N
EP-307	Hostile Action Based Drills and Exercises	N.1 N.3.a
EP-308	Emergency Planning Critiques	N.1.a
EP-310	Emergency Response Organization Notification System	F
EP-311	Emergency Response Data System (ERDS) Activation via the Virtual Private Network (VPN)	H.10
EP-313	Offsite Dose Assessment using the Unified RASCAL Interface	I
EP-609	Emergency Operations Facility (EOF) Operations	H.3 H.4
EP-610	Technical Support Center (TSC) Operations	H.1 H.4
EP-611	Operations Support Center (OSC) Operations	H.2 H.4
EP-613	Declared Emergency Recovery and Re-entry	M.1 M.2 M.3
EP-801	Emergency Response Organization	B
TQ-110	Emergency Response Organization Training	O
TQ-110-01	EPlan Training Course Summary	P.1

III. References

1. U.S. Nuclear Regulatory Commission, NUREG-0654, Revision 2, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Procedures in Support of Nuclear Power Plants," December 2019 (ADAMS Accession No. ML19347D139)

2. Palisades Nuclear Station, On-Shift Staffing Analysis, Revision 4, August 17, 2017 (ADAMS Accession No. ML17269A183)

3. U.S. Nuclear Regulatory Commission, NUREG-1940, RASCAL 4: Description of Models and Methods, December 2012 (ADAMS Accession No. ML13031A448)

4. U.S. Nuclear Regulatory Commission, NUREG-1940, RASCAL 4: Description of Models and Methods, Supplement 1, May 2015 (ADAMS Accession No. ML15132A119)

5. U.S. Nuclear Regulatory Commission, NUREG-0654/FEMA-REP-1, Revision 1, Supplement 3, Guidance for Protective Action Strategies, November 2011 (ADAMS Accession No. ML113010596)

6. U.S Environmental Protection Agency, EPA-400/R-17/001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, January 2017

7. U.S. Food and Drug Administration, Guidance for Industry, KI in Radiation Emergencies, Questions and Answers, Revision 1, December 2002

8. U.S. Food and Drug Administration, Potassium Iodide as a Thyroidal Blocking Agent in Radiation Emergencies, December 2001

9. Holtec Decommissioning International letter to U.S. Nuclear Regulatory Commission, “Palisades Nuclear Plant 2022 Evacuation Time Estimate Report,” dated September 7, 2022 (ADAMS Accession No. ML22250A524)

10. U.S. Nuclear Regulatory Commission, NUREG/CR-7002, “Criteria for Development of Evacuation Time Estimate Studies,” Revision 1, February 2021 (ADAMS Accession No. ML21013A504)

11. Nuclear Energy Institute, NEI 06-12, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 3, September 2016

12. Nuclear Energy Institute, NEI 13-06, Enhancements to Emergency Response Capabilities for Beyond Design Basis Events and Severe Accidents, Revision 1, February 2016

13. Nuclear Energy Institute, NEI 99-01, Development of Emergency Action Levels for Non-Passive Reactors, Revision 5, February 2008 (ADAMS Accession No.ML0805450149)

IV. Appendix 1 – Definitions

Accident: Any unforeseen, or unintentional occurrence or mishap resulting in, or potentially resulting in, physical injury or injury due to radiation exposure or excessive exposure to radioactive materials and/or physical damage to safety-related components.

Activated: An emergency response facility is declared activated when minimum staffing requirements are met, key systems and equipment are verified operational, and the ERO personnel are prepared to perform their functions.

Affected Persons: Individuals who have been radiologically exposed or physically injured as a result of an accident to a degree requiring special attention, e.g., decontamination, first aid, or medical services.

Alarm: An indication of abnormal Plant conditions and/or equipment status.

Alert: Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

Annual: For drills and exercise periodicity, annual is once per calendar year. For training and qualification periodicity and work products, annual is every 12 months not to exceed 15 months.

Annunciation: An alarm or indication of normal or abnormal conditions.

Assessment Actions: Those actions taken during or after an accident to provide data to make decisions.

Command and Control: Resides with the Shift Manager or EOF Emergency Director following assumption of overall authority for emergency response. At minimum, this individual will assume responsibility for event classification, dose assessment, protective action recommendations, and notification of offsite authorities.

Concept of Operations: Delineation of an organization's roles and responsibilities and how the organization will function to accomplish those responsibilities.

Control Room: The location at Palisades Plant from which the reactor and its auxiliary systems are controlled. The assembly area for Control Room personnel.

Control Room Personnel: Shift Manager, Nuclear Control Operators, Nuclear Plant Operators, Shift Engineer/Shift Technical Advisor, and Control Room Supervisor.

Corrective Actions: Those emergency measures taken to lessen or terminate an emergency situation at, or near, the source of the problem.

Decontamination: The removal of radioactive material from individuals, equipment, surfaces, foodstuffs, etc.

Dosimeter: An instrument used to measure and record radiation doses or dose rates.

Emergency: Any occurrence at the Palisades Nuclear Power Plant that may result in undue risk to the health and safety of the onsite personnel or the public.

Emergency Action Levels (EAL): A predetermined, site-specific, observable threshold for a plant Initiating Condition that places the plant in a given emergency class. An EAL can be: an instrument reading; an equipment status indicator; a measurable parameter (onsite or offsite); a discrete, observable event; results of analyses; entry into specific emergency operating procedures; or another phenomenon which, if it occurs, indicates entry into a particular emergency class.

There are times when an EAL will be a threshold point on a measurable continuous function, such as a primary system coolant leak that has exceeded technical specifications.
At other times, the EAL lists a discrete event that places the plant in a particular emergency class.

Emergency Implementing Procedures: Specific procedures providing specific actions to implement the Site Emergency Plan in order to mitigate or terminate an emergency situation.

Emergency Operations Center (EOC): A facility that is the primary base of emergency operations for an ORO in a radiological incident.

Emergency Operations Facility (EOF): An offsite emergency center from which Palisades offsite emergency support actions are controlled and coordinated with state, local, and federal authorities to mitigate the consequences of an emergency.

Emergency Planning Zone (EPZ): A geographic area surrounding a commercial NPP for which emergency planning is needed to ensure that prompt and effective actions can be taken by OROs to protect public health and safety in the event of a radiological incident. The plume exposure pathway EPZ is approximately 10 miles in radius, while the ingestion exposure pathway EPZ has a radius of approximately 50 miles. Within these two zones, protective actions are described for the protection of the public.

Emergency Plant Manager: The person designated as responsible for all onsite actions during an emergency condition.

Emergency Response Data System (ERDS): A direct near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected plant parameters.

Emergency Response Organization (ERO): The personnel assigned to perform tasks and activities associated with implementation of a licensee's emergency plan for coping with radiological incidents.

Evacuation Time Estimate (ETE): A calculation of the time it would take to evacuate the public within the plume exposure pathway EPZ under emergency conditions.

Evaluation: The process of observing drill or exercise performance to identify strengths and opportunities for improvement in an entity's emergency preparedness and response capabilities.

Field Monitoring Team (FMT): A group used to detect and monitor radiation in the environment.

Fitness for Duty: Provide reasonable assurance that personnel who maintain unescorted access will perform their tasks in a reliable and trustworthy manner and are not under the influence of any substance, legal or illegal, or mentally or physically impaired from any cause, which in any way adversely affects their ability to safely and competently perform their duties.

Fully Operational: Status of an Emergency Response Facility following assumption of all responsibilities.

General Emergency (GE): Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

Hostile Action: An act toward an NPP or its personnel that includes the use of violent force to destroy equipment, takes hostages, and /or intimidates the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non terrorism-based EALs should be used to address such activities (e.g., violent acts between individuals in the owner controlled area).

Hostile Force: One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

Ingestion Exposure Pathway: The path affected by fallout from a radioactive plume. The principal exposure from this pathway would be from ingestion of contaminated water or foods, such as milk or fresh vegetables.

Ingestion Exposure Pathway Emergency Planning Zone: A geographic area, approximately 50 miles in radius surrounding a commercial NPP.

Initiating Condition (IC): One of a predetermined subset of nuclear power plant conditions when either the potential exists for a radiological emergency, or such an emergency has occurred.

- An IC is an emergency condition, which sets it apart from the broad class of conditions that may or may not have the potential to escalate into a radiological emergency.

- It can be a continuous, measurable function that is outside technical specifications, such as elevated PCS temperature or falling reactor coolant level (a symptom).

Letter of Agreement (LOA): A document executed between two or more parties outlining specific arrangements relating to the accomplishment of an action. Letters of agreement may cover personnel, equipment, or other types of emergency support, and may take the form of letters, contracts, purchase orders, or other procurement mechanisms.

Memorandum of Understanding (MOU): A document which details the respective authorities and responsibilities of the signatory organizations for specified radiological emergency response planning, preparedness, or response.

Notification of Unusual Event (NOUE): Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

Offsite: All land and water areas outside the owner-controlled area.

Offsite Response Organization (ORO): State, tribal, or local governmental organization that is responsible for carrying out emergency response functions during a radiological emergency.

Onsite: All land and water areas within the owner-controlled area, use of which must be authorized by Holtec Palisades.

Operational: Status of an emergency facility, declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is setup and available to assume/perform the emergency functions assigned to that facility.

Operations Support Center (OSC): The onsite area in which onsite support personnel can assemble for subsequent assignment to duties in support of emergency operations. Support personnel assigned to the OSC normally consist of Chemistry, Radiation Protection, and repairpersons from I&C, Electrical, and Mechanical Maintenance.

Owner Controlled Area (OCA): The area surrounding the Plant in which the reactor licensee has the authority to determine all activities including exclusion or removal of persons and property from the area during accident conditions.

Planning Standard (PS): One of the 16 emergency preparedness planning standards established in 10 CFR 50.47(b) that the emergency plan must meet and which are supported by the corresponding sections of 10 CFR 50 Appendix E.

Plume Exposure Pathway: A term describing the means by which whole body radiation exposure occurs as a result of immersion in a gaseous release of radioactive material. The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited materials, and (b) inhalation exposure from the passing radioactive plume. The duration of principal potential exposures could range in length from 30 minutes to days.

Plume Exposure Pathway Emergency Planning Zone: A geographic area approximately 10 miles in radius surrounding a commercial NPP.

Population at Risk: Those persons for whom protective actions are or would be taken.

Post-Plume Phase: Includes response activities that occur after a release has been terminated. Also known as the “Environmental Phase”.

Potassium Iodide (KI): A prophylactic compound containing a stable (i.e., non-radioactive) form of iodine that can be used effectively to block the uptake of radioactive iodine by the thyroid gland in a human being.

Protected Area: the area (within the Owner Controlled Area) occupied by the nuclear Plant and associated equipment and facilities enclosed within the security perimeter fence, access to which is controlled in accordance with the Safeguards Contingency Procedures. The area within which accountability of personnel is maintained in an emergency when required.

Protective Actions: Those emergency measures taken for the purpose of preventing or minimizing radiological exposures to individuals that would be likely to occur if the actions were not taken.

Protective Action Guide (PAG): Projected radiological dose or dose commitment values to individuals in the general population that warrant protective action following a release of radioactive material. Protective actions would be warranted provided the reduction in individual dose expected to be achieved by carrying out the protective action is not offset by excessive risks to individual safety in taking the protective action.

Protective Action Recommendation (PAR): a formal advisement from a NPP licensee to state and/or county government officials, or from state officials to other offsite officials, concerning emergency measures that should be taken to protect the public from exposure to radiation.

Radiological Emergency: An emergency involving radioactive material.

Radioprotective Drug: a chemical compound or substance serving to protect or aid in protecting against the injurious effects of radiation.

Reasonable Assurance: a determination that ORO and utility plans and preparedness are adequate to protect public health and safety in the emergency planning areas of commercial NPPs.

Reception Center: a pre-designated facility located outside the plume exposure pathway EPZ at which the evacuated public can register; receive radiation monitoring and decontamination; receive assistance in contacting others; receive directions to congregate care centers; reunite with others; and receive general information. It generally refers to a facility where monitoring, decontamination, and registration of evacuees are conducted. A reception center is also referred to as a registration center or public registration and decontamination center.

Recovery Actions: Those actions taken after the emergency to restore the Plant as nearly as possible to its pre-emergency condition.

Site Area Emergency (SAE): Events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.

Site Boundary: the line beyond which the land or property is not owned or controlled by the licensee.

State: The State of Michigan.

Technical Support Center: An area which accommodates personnel which will provide management and technical support to Plant Operations personnel during emergency conditions from a location outside the Control Room.

Thyroid Committed Dose Equivalent (CDE): the dose to the thyroid that will be received from an intake of radioactive material by an individual during the 50-year period following the intake (10 CFR 20.1003).

Total Effective Dose Equivalent (TEDE): the sum of the deep dose equivalent (for external exposures) and committed effective dose equivalent (for internal exposures).

Transient Population: persons who do not permanently reside in the plume exposure pathway EPZ but may be present during an emergency.

V. Appendix 2 – Abbreviations

AOP	Abnormal Operating Procedures
CFR	Code of Federal Regulations
CR	Control Room
DLR	Dosimeter of Legal Record (synonymous with TLD)
DRD	Direct-reading Dosimeter
EAL	Emergency Action Level
EAS	Emergency Alert System
ECL	Emergency Classification Level
ENS	Emergency Notification System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPA	Environmental Protection Agency
EPZ	Emergency Planning Zone
ERDS	Emergency Response Data System
ERF	Emergency Response Facility
ERO	Emergency Response Organization
ETE	Evacuation Time Estimate
FEMA	Federal Emergency Management Agency
FLEX	Diverse and Flexible Coping Strategies
FMT	Field Monitoring Team
GE	General Emergency
HAB	Hostile Action-Based

HPN	Health Physics Network
I&C	Instrumentation and Control
ICP	Incident Command Post
IT	Information Technology
JIC	Joint Information Center
JIS	Joint Information System
KI	Potassium Iodide
LLEA	Local Law Enforcement Agency
LOA	Letter of Agreement
MOU	Memorandum of Understanding
NEI	Nuclear Energy Institute
NOUE	Notification of Unusual Event
NPO	Nuclear Plant Operator
NPP	Nuclear Power Plant
NRC	Nuclear Regulatory Commission
OCA	Owner Controlled Area
ORO	Offsite Response Organization
OSC	Operations Support Center
PAD	Protective Action Decision
PAG	Protective Action Guide
PAR	Protective Action Recommendation
HAB	Hostile Action-Based
REP	Radiological Emergency Preparedness
RWP	Radiation Work Permit

SAE	Site Area Emergency
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescent Dosimeter (synonymous with DLR)
TSC	Technical Support Center

VI. Appendix 3 – 10 CFR 50 Appendix E.IV Cross-Reference

Regulatory Criteria	PNP SEP
10 CFR 50 App. E.IV.2.	J.8
10 CFR 50 App. E.IV.3.	J.8
	J.7
10 CFR 50 App. E.IV.4.	J.8.a
10 CFR 50 App. E.IV.5.	J.8.a
10 CFR 50 App. E.IV.6.	J.8.a
	J.8.a
10 CFR 50 App. E.IV.7.	N/A
10 CFR 50 App, E.IV.A 1.	B.1.a
10 CFR 50 App, E.IV.A 2.a	B.1.a
	B.2
	B.2.a
10 CFR 50 App, E.IV.A 2.b	B.1.a
10 CFR 50 App, E.IV.A 2.c	B.1.a
	B.2
	B.2.a
10 CFR 50 App, E.IV.A.3.	N/A
10 CFR 50 App, E.IV.A.4.	B.1.a
	I.6
	E.3
	I.10
10 CFR 50 App, E.IV.A.5.	B.1.a
	B.5
10 CFR 50 App, E.IV.A.6.	A.1.a (5)
10 CFR 50 App, E.IV.A 7.	A.4
10 CFR 50 App, E.IV.A 8.	A.1.a.3
10 CFR 50 App, E.IV.A 9.	B.1.a
10 CFR 50 App. E.IV.B.1.	I.4
	I.4.a
	I.6
	D.1.a
	D.1.b
	D.1.b
10 CFR 50 App. E.IV.B.2.	D.1.a
	P.4

Regulatory Criteria	PNP SEP
10 CFR 50, App. E.IV.C.1.	D.1
	D.3
	E.1.1
	D.1
	E.1.a
	D.1
10 CFR 50, App. E.IV.C.2.	D.2
	D.1
	D.2
	D.1
	D.2
10 CFR 50, App. E.IV.D.1.	E.2
10 CFR 50, App. E.IV.D.2.	G.1
	G.1
10 CFR 50, App. E.IV.D.3.	E.1.b
	E.2
	N/A
	E.2
	E.2
	N/A
10 CFR 50, App. E.IV.E.1.	K.1.b
	K.1.c
10 CFR 50, App. E.IV.E.2.	I.6
	I.7
	I.8
	H.7
10 CFR 50, App. E.IV.E.3.	J.3
	K.1.e
10 CFR 50, App. E.IV.E.4.	L.2.a
10 CFR 50, App. E.IV.E.5.	L.2.b
10 CFR 50, App. E.IV.E.6.	L.4
10 CFR 50, App. E.IV.E.7.	L.2.b
10 CFR 50, App. E.IV.E.8.a (i)	H.1
	H.3
10 CFR 50, App. E.IV.E.8.a (ii)	H.2
10 CFR 50, App. E.IV.E.8.b	H.3
	H.3.a
10 CFR 50, App. E.IV.E.8.b.(1)	C.5
10 CFR 50, App. E.IV.E.8.b.(2)	C.5
10 CFR 50, App. E.IV.E.8.b.(3)	C.5
10 CFR 50, App. E.IV.E.8.b.(4)	C.5
10 CFR 50, App. E.IV.E.8.b.(5)	C.5
10 CFR 50, App. E.IV.E.8.c.(1)	H.3
10 CFR 50, App. E.IV.E.8.c.(2)	H.3
10 CFR 50, App. E.IV.E.8.c.(3)	H.3

Regulatory Criteria	PNP SEP
10 CFR 50, App. E.IV.E.8.d	H.4
	H.4
	H.4
	H.3.b
	H.4
	N/A
10 CFR 50, App. E.IV.E.8.e	N/A
10 CFR 50, App. E.IV.E.9.	F.1.a
	E.1
10 CFR 50, App. E.IV.E.9.a	E.1
	F.1.a
	F.3
10 CFR 50, App. E.IV.E.9.b	E.1
	F.1.a
	F.3
10 CFR 50, App. E.IV.E.9.c	F.1
	F.3
10 CFR 50, App. E.IV.E.9.d	E.1
	F.1
	F.3
10 CFR 50, App. E.IV.F.1.(a)	N.4
	O.1
10 CFR 50, App. E.IV.F.1.(b)	N.4.a
	O.1.a
	O.1
10 CFR 50, App. E.IV.F.1.i.	O.1 (1)
10 CFR 50, App. E.IV.F.1.ii.	O.1 (2)
10 CFR 50, App. E.IV.F.1.iii.	O.1 (3)
10 CFR 50, App. E.IV.F.1.iv.	O.1 (6)
10 CFR 50, App. E.IV.F.1.v.	O.1 (4)
10 CFR 50, App. E.IV.F.1.vi.	O.1 (7)
10 CFR 50, App. E.IV.F.1.vii.	O.1 (6)
	O.1.a
10 CFR 50, App. E.IV.F.1.viii.	N/A
10 CFR 50, App. E.IV.F.1.ix.	O.1 (5)
	O.1.a
	G.5
10 CFR 50, App. E.IV.F.2.	N.1
10 CFR 50, App. E.IV.F.2.a	N.2.a
	N.2.a
10 CFR 50, App. E.IV.F.2.a.(i)	N/A
10 CFR 50, App. E.IV.F.2.a.(ii)	N/A
10 CFR 50, App. E.IV.F.2.a.(iii)	N/A

TITLE: SITE EMERGENCY PLAN

Regulatory Criteria	PNP SEP
10 CFR 50, App. E.IV.F.2.b	N.2.a
	N.2.a
	N.2.a
	N.4
10 CFR 50, App. E.IV.F.2.c	N.2.a
	N/A
10 CFR 50, App. E.IV.F.2.c.(1)	N/A
10 CFR 50, App. E.IV.F.2.c.(2)	N/A
10 CFR 50, App. E.IV.F.2.c.(3)	N/A
10 CFR 50, App. E.IV.F.2.c.(4)	N/A
10 CFR 50, App. E.IV.F.2.c.(5)	N/A
10 CFR 50, App. E.IV.F.2.d	N/A
	N/A
10 CFR 50, App. E.IV.F.2.e	N.1
10 CFR 50, App. E.IV.F.2.f	N.1.a
10 CFR 50, App. E.IV.F.2.g	N.1
	N.1.b
10 CFR 50, App. E.IV.F.2.h	N.2.a
10 CFR 50, App. E.IV.F.2.i	N.3
	N.4
10 CFR 50, App. E.IV.F.2.j(i)	N.1
	N.2.a
10 CFR 50, App. E.IV.F.2.j(ii).	N.1
10 CFR 50, App. E.IV.F.2.j(iii)	N.3
10 CFR 50, App. E.IV.F.2.j(iii).(1)	N.3.a
10 CFR 50, App. E.IV.F.2.j(iii).(2)	N.3.c
10 CFR 50, App. E.IV.F.2.j(iii).(3)	N.3.b
10 CFR 50, App. E.IV.F.2.j(iii).(4)	N.3.e
10 CFR 50, App. E.IV.F.2.j(iii).(5)	N.3.d
10 CFR 50, App. E.IV.F.2.j(iv)	N.3
10 CFR 50, App. E.IV.F.2.j(v)	N/A
10 CFR 50, App. E.IV.F.2.j(vi)	N/A
10 CFR 50, Appendix E.IV.G	P.4
	P.9
	P.10
	P.11
	P.12
10 CFR 50, Appendix E Section IV.H	M.1
10 CFR 50, Appendix E.IV.I	J.1
10 CFR 50.47(b)(1)	A
10 CFR 50.47(b)(2)	B
10 CFR 50.47(b)(3)	C
10 CFR 50.47(b)(4)	D
10 CFR 50.47(b)(5)	E
10 CFR 50.47(b)(6)	F
10 CFR 50.47(b)(7)	G

TITLE: SITE EMERGENCY PLAN

Regulatory Criteria	PNP SEP
10 CFR 50.47(b)(8)	H
10 CFR 50.47(b)(9)	I
10 CFR 50.47(b)(10)	J
10 CFR 50.47(b)(11)	K
10 CFR 50.47(b)(12)	L
10 CFR 50.47(b)(13)	M
10 CFR 50.47(b)(14)	N
10 CFR 50.47(b)(15)	O
10 CFR 50.47(b)(16)	P

VII. Appendix 4 – Agreements with offsite Individuals, Agencies and Organizations

Criteria for agreements with off-site individuals, agencies, and organizations.

Letters of agreement (LOA), contracts, or signature pages may be used to verify agreements made with offsite individuals, agencies, and organizations. The use of signature pages is appropriate for use with organizations or agencies where response functions are covered by laws, regulations, or executive orders.

LOAs contain the following as appropriate:

1. Concepts of operations,
2. Emergency measures or services to be provided,
3. Mutually acceptable criteria for implementation,
4. Arrangements for exchange of information,
5. Authorities,
6. Responsibilities,
7. And Limits of actions.

Contracts or contract excerpts may be used in place of letters of agreement and should address the above criteria as appropriate.

As specified in Section P.4 of this SEP, LOAs, contracts, and signature pages will be reviewed annually. The following agreements will be reviewed annually and updated as needed.

1. Covert Fire Department
2. South Haven Area Emergency Services Authority
3. Lakeland Regional Medical Center
4. Bronson South Haven Hospital
5. Medic 1 Community Emergency Service
6. GEL Laboratories
7. Memo of Agreement with NSSS Vendor

8. Memo on Agreement with Nuclear Fuel Supplier

9. Reciprocal Laboratory Use Agreement

10. Institute of Nuclear Power Operations

11. Mutual Assistance Agreement

12. Hostile Action Memorandum of Understanding

13. Casco Township/SHAES Fire Station

All letters of agreement, contracts, and signature pages are kept with the master file for this appendix in Document Control.

Attachment 3 to Enclosure

HDI PNP 2024-005

Proposed Power Operations Emergency Action Level Technical Bases

314 pages follow

EAL BASIS
Revision 9
Effective Date TBD

PALISADES POWER PLANT
EMERGENCY IMPLEMENTING PROCEDURE

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Approved: _____ **TBD**

Procedure Sponsor **Date**

Process Applicability Exclusion ☒

New Procedure/Revision Summary:

Specific Changes

This revision consists of a revision to Revision 8 of the PNP EAL Technical Bases to address restart of power operations. The specific changes from Revision 8 consist of replacing the Revision 8 version of EU1.1 with ISFSI Permanently Defueled EAL E-HU1, approved by the NRC for use in the Permanently Defueled Emergency Plan (PDEP) (ADAMS Accession No. ML23236A004). The ISFSI EAL is identified as EU1.1 in this revision to maintain consistency with previous nomenclature used in this document. The new EU1.1 is based on guidance in NEI 99-01, Revision 6 for E-HU1.

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TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

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TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

ABREVIATIONS / ACRONYMS

AC	Alternating Current
ADV	Atmospheric Dump Valve
AFW	Auxiliary Feedwater
OP	Abnormal Operating Procedure
ARM	Area Radiation Monitor
ARP	Alarm and Response Procedure
ATWS	Anticipated Transient Without Scram
BD	Badly Damaged
Bldg	Building
CAS	Central Alarm Station
CCW	Component Cooling Water
CDE	Committed Dose Equivalent
CE	Combustion Engineering
CEOG	Combustion Engineering Owner's Group
CET	Core Exit Thermocouple
CFR	Code of Federal Regulations
CNMT	Containment
CPM	Counts Per Minute
CR	Control Room
CSF	Critical Safety Function
DC	Direct Current
DHR	Decay Heat Removal
DOT	Department of Transportation
DPM	Decade Per Minute
DSC	Dry Shielded Canister
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
ECL	Emergency Classification Level
ED	Emergency Director

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

ABREVIATIONS / ACRONYMS

EOF	Emergency Operations Facility
EOP	Emergency Operating Procedure
EPA	Environmental Protection Agency
EI	Emergency Implementing Procedure
EPRI	Electric Power Research Institute
ESF	Engineered Safeguards Feature
FAA	Federal Aviation Administration
FAQ	Frequently Asked Question
FBI	Federal Bureau of Investigation
FC	Fuel Clad
FEMA	Federal Emergency Management Agency
FSAR	Final Safety Analysis Report
ft	Feet
FTS	Federal Telephone System
GE	General Emergency
GOP	General Operating Procedure
HJTC	Heated Junction Thermocouple
HPSI	High Pressure Safety Injection
hr	Hour
HVAC	Heating, Ventilation and Air Conditioning
IC	Initiating Condition
in.	Inch
IPEEE	Individual Plant Examination of External Events (Generic Letter 88-20)
ISFSI	INDEPENDENT SPENT FUEL STORAGE INSTALLATION
K_{eff}	Effective Neutron Multiplication Factor
kV	Kilovolt
LCO	Limiting Condition of Operation
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
LPSI	Low Pressure Safety Injection

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

ABREVIATIONS / ACRONYMS

MSIV	Main Steam Isolation Valve
mR	milliRoentgen
mRem	milliRem
MCB	Multi-assembly Sealed Basket
Mw	Megawatt
N/A	Not Applicable
NEI	Nuclear Energy Institute
NEIC	National Earthquake Information Center
NI	Nuclear Instrumentation
NRC	Nuclear Regulatory Commission
NSSS	Nuclear Steam Supply System
NUMARC	Nuclear Management and Resources Council
OBE	Operating Basis Earthquake
OCA	Owner Controlled Area
ODCM	Offsite Dose Calculation Manual
OTCC	Once Through Core Cooling
PA	PROTECTED AREA
PAG	Protective Action Guidelines
PCS	Primary Coolant System
PLP	Palisades Power Plant
PPC	Palisades Plant Computer
PRA/PSA	Probabilistic Risk Assessment / Probabilistic Safety Assessment
PSIG	Pounds per Square Inch Gauge
PWR	Pressurized Water Reactor
R	Roentgen
RAD	Radiation, Radioactivity
RG	Regulatory Guide
RMS	Radiation Monitoring System
RPS	Reactor Protection System
RPV	Reactor Pressure Vessel

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

ABREVIATIONS / ACRONYMS

RVLMS	Reactor Vessel Level Monitoring System
SAE	Site Area Emergency
SCBA	Self Contained Breathing Apparatus
SFP	Spent Fuel Pool
SG	Steam Generator
SI	Safety Injection
SIAS	Safety Injection Actuation System
SRO	Senior Reactor Operator
SSE	Safe Shutdown Earthquake
SUR	Startup Rate
SWS	Service Water System
TEDE	Total Effective Dose Equivalent
TMI	Three Mile Island
TOAF	Top of Active Fuel
TSC	Technical Support Center
UE	Notification Of Unusual Event
UGS	Upper Guide Structure
UHS	Ultimate Heat Sink
V	Volt
VLTOP	Variable Low Temperature Overpressure Protection
yr	Year

1.0 PURPOSE

This document provides an explanation and rationale for each Emergency Action Level (EAL) included in the EAL Upgrade Project for Palisades Power Plant (PLP). It should be used to facilitate review of the PLP EALs and provide historical documentation for future reference. Decision-makers responsible for implementation of EI-1, "Emergency Classification and Actions" (Ref 3.2.1) and the Emergency Action Level Matrix (Ref 3.2.2), may use this document as a technical reference in support of EAL interpretation. This information may assist the Emergency Director in making classifications, particularly those involving judgment or multiple events. The basis information may also be useful in training, for explaining event classifications to off-site officials, and facilitates regulatory review and approval of the classification scheme.

The expectation is that emergency classifications are to be made as soon as conditions are present and recognizable for the classification, but within 15 minutes in all cases of conditions present. During an event, manual actions may be underway that can restore parameters within classification limits and thus preclude the need for emergency classification or escalation.

Use of this document for assistance is not intended to delay the emergency classification.

2.0 DISCUSSION

2.1 Background

EALs are the plant-specific indications, conditions or instrument readings that are utilized to classify emergency conditions defined in the PLP Emergency Plan.

In 1992, the NRC endorsed NUMARC/NESP-007 "Methodology for Development of Emergency Action Levels," as an alternative to NUREG-0654 EAL guidance.

NEI 99-01 (NUMARC/NESP-007) Revision 4 was subsequently issued for industry implementation and implemented at PLP. Enhancements over earlier revisions included:

- Consolidating the system malfunction initiating conditions and example emergency action levels which address conditions that may be postulated to occur during plant shutdown conditions.
- Initiating conditions and example emergency action levels that fully address conditions that may be postulated to occur at permanently Defueled Stations and INDEPENDENT SPENT FUEL STORAGE INSTALLATIONs (ISFSIs).
- Simplifying the fission product barrier EAL threshold for a Site Area Emergency.

Subsequently, Revision 5 of NEI 99-01 has been issued which incorporates resolutions to numerous implementation issues including the NRC EAL FAQs. Using NEI 99-01 Revision 5 Final (February 2008), PLP conducted an EAL implementation upgrade project that produced the EALs discussed herein. With the exception of EU1.1, this emergency classification scheme is based on the guidance provided in Revision 5 of NEI 99-01. EU1.1 is based on guidance provided in Revision 6 of NEI 99-01.

2.2 Fission Product Barriers

Many of the EALs derived from the NEI methodology are fission product barrier based. That is, the conditions that define the EALs are based upon loss or potential loss of one or more of the three fission product barriers. "Loss" and "Potential Loss" signify the relative damage and threat of damage to the barrier. "Loss" means the barrier no longer assures containment of radioactive materials; "potential loss" implies an increased probability of barrier loss and decreased certainty of maintaining the barrier.

The primary fission product barriers are:

A. Fuel Clad (FC): The Fuel Clad barrier consists of the zircalloy fuel bundle tubes that contain the fuel pellets.
B. Primary Coolant System (PCS): The PCS Barrier includes the PCS primary side and its connections up to and including the pressurizer safety and relief valves, and other connections up to and including the primary isolation valves.
C. Containment (CNMT): The Containment Barrier includes the containment building and connections up to and including the outermost containment isolation valves. This barrier also includes the main steam, feedwater, and blowdown line extensions

outside the containment building up to and including the outermost secondary side isolation valve.

2.3 Emergency Classification Based on Fission Product Barrier Degradation

The following criteria are the bases for event classification related to fission product barrier loss or potential loss:

Unusual Event:

Any loss or any potential loss of Containment

Alert:

Any loss or any potential loss of either Fuel Clad or PCS

Site Area Emergency:

Loss or potential loss of any two barriers

General Emergency:

Loss of any two barriers and loss or potential loss of third barrier

2.4 EAL Relationship to EOPs and Critical Safety Function Status

Where possible, the EALs have been made consistent with and utilize the conditions defined in the PLP Emergency Operating Procedures (EOPs). While the symptoms that drive operator actions specified in the EOPs are not indicative of all possible conditions which warrant emergency classification, they define the symptoms, independent of initiating events, for which reactor plant safety and/or fission product barrier integrity are threatened. When these symptoms are clearly representative of one of the NEI 99-01 Rev 5 Initiating Conditions, they have been utilized as an EAL. This permits rapid classification of emergency situations based on plant conditions without the need for additional evaluation or event diagnosis. Although some of the EALs presented here are based on conditions defined in the EOPs, classification of emergencies using these EALs is not dependent upon EOP entry or execution. The EALs can be utilized independently or in conjunction with the EOPs.

2.5 Symptom-Based vs. Event-Based Approach

To the extent possible, the EALs are symptom-based. That is, the action level threshold is defined by values of key plant operating parameters that identify emergency or potential emergency conditions. This approach is appropriate because it allows the full scope of variations in the types of events to be classified as emergencies. However, a purely symptom-based approach is not sufficient to address all events for which emergency classification is appropriate. Particular events to which no predetermined symptoms can be ascribed have also been utilized as EALs since they may be indicative of potentially more serious conditions not yet fully realized.

2.6 EAL Organization

The PLP EAL scheme includes the following features:

- Division of the EAL set into three broad groups:
    - EALs applicable under all plant operating modes - This group would be reviewed by the EAL-user any time emergency classification is considered.
    - EALs applicable only under hot operating modes - This group would only be reviewed by the EAL-user when the plant is in Hot Shutdown, Hot Standby, Startup, or Power Operation mode.
    - EALs applicable only under cold operating modes - This group would only be reviewed by the EAL-user when the plant is in Cold Shutdown, Refueling or Defueled mode.

  The purpose of the groups is to avoid review of hot condition EALs when the plant is in a cold condition and avoid review of cold condition EALs when the plant is in a hot condition. This approach significantly minimizes the total number of EALs that must be reviewed by the EAL-user for a given plant condition, reduces EAL-user reading burden and, thereby, speeds identification of the EAL that applies to the emergency.

- Within each of the above three groups, assignment of EALs to categories/subcategories - Category and subcategory titles are selected to represent conditions that are operationally significant to the EAL-user. Subcategories are used as necessary to further divide the EALs of a category into logical sets of possible emergency classification thresholds. The PLP EAL categories/subcategories and their relationship to NEI 99-01 Rev 5 or Rev. 6 (for EU1.1) Recognition Categories are listed below.

EAL Groups, Categories and Subcategories

EAL Group/Category	EAL Subcategory
Any Operating Mode:	
A - Abnormal **R**ad Release / Rad Effluent	1 - Offsite Rad Conditions 2 - Onsite Rad Conditions & Spent Fuel Events 3 - CR/CAS Rad
H - **H**azards	1 - Natural or Destructive Phenomena 2 - FIRE or EXPLOSION 3 - Hazardous Gas 4 - Security 5 - Control Room Evacuation 6 - Judgment
E - ISFSI	None
Hot Conditions:	
S - **S**ystem Malfunction	1 - Loss of AC Power 2 - Loss of DC Power 3 - Criticality & RPS Failure 4 - Inability to Reach or Maintain Shutdown Conditions 5 - Instrumentation 6 - Communications 7 - Fuel Clad Degradation 8 - PCS Leakage
F - **F**ission Product Barrier Degradation	None
Cold Conditions:	
C - **C**old Shutdown / Refueling System Malfunction	1 - Loss of AC Power 2 - Loss of DC Power 3 - PCS Level 4 - PCS Temperature 5 - Communications 6 - Inadvertent Criticality

The primary tool for determining the emergency classification level is the EAL Classification Matrix. The user of the EAL Classification Matrix may (but is not required to) consult the EAL Technical Bases Document in order to obtain additional information concerning the EALs under classification consideration. The user should consult Sections 2.7 and 2.8, and Attachments 1 and 2 of this document for such information.

2.7 Technical Bases Information

EAL technical bases are provided in Attachment 1 for each EAL according to EAL group (Any, Hot, Cold), EAL category (A, E, C, H, S and F) and EAL subcategory. A summary explanation of each category and subcategory is given at the beginning of the technical bases discussions of the EALs included in the category. For each EAL, the following information is provided:

Category Letter & Title

Subcategory Number & Title

Initiating Condition (IC)

Site-specific description of the generic IC given in NEI 99-01 Rev 5 (or Rev. 6 for EU1.1).

EAL Identifier (enclosed in rectangle)

Each EAL is assigned a unique identifier to support accurate communication of the emergency classification to onsite and offsite personnel. Four characters define each EAL identifier:

1. First character (letter): Corresponds to the EAL category as described above (A, E, C, H, S or F)
2. Second character (letter): The emergency classification (G, S, A or U)

   G = General Emergency

   S = Site Area Emergency

   A = Alert

   U = Unusual Event
3. Third character (number): Subcategory number within the given category. Subcategories are sequentially numbered beginning with the number one (1). If a category does not have a subcategory, this character is assigned the number one (1).

4. Fourth character (number): The numerical sequence of the EAL within the EAL subcategory. If the subcategory has only one EAL, it is given the number one (1).

Classification (enclosed in rectangle):

Unusual Event (U), Alert (A), Site Area Emergency (S) or General Emergency (G)

EAL (enclosed in rectangle)

Wording of the EAL as it appears in the EAL Classification Matrix

Mode Applicability

One or more of the following plant operating conditions comprise the mode to which each EAL is applicable: 1 - Power Operations, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown, 5 - Cold Shutdown, 6 - Refuel, DEF - Defueled, or All. (See Section 2.8 for operating mode definitions.)

Basis:

An Implementing Guidance section provides relevant information from prior experience or interpretation for quick reference concerning the EAL. A Generic basis section provides a description of the rationale for the EAL as provided in NEI 99-01 Rev 5 (or Rev. 6 for EU1.1). This is followed by a Plant-Specific basis section that provides PLP-relevant information concerning the EAL.

PLP Basis Reference(s):

Site-specific source documentation from which the EAL is derived

2.8 Operating Mode Applicability (Technical Specifications Table 1.1-1)

Mode 1 Power Operations

K_{eff} GREATER THAN OR EQUAL TO 0.99 and rated thermal power GREATER THAN 5%.

Mode 2 Startup

K_{eff} GREATER THAN OR EQUAL TO 0.99 and rated thermal power is LESS THAN OR EQUAL TO 5%.

Mode 3 Hot Standby

K_{eff} LESS THAN 0.99 and average primary coolant temperature (Tave) GREATER THAN OR EQUAL TO 300°F.

Mode 4 Hot Shutdown

K_{eff} LESS THAN 0.99 and average primary coolant temperature (Tave) LESS THAN 300°F and GREATER THAN 200°F with all reactor vessel head closure bolts fully tensioned.

Mode 5 Cold Shutdown

K_{eff} LESS THAN 0.99 and average primary coolant temperature (Tave) LESS THAN OR EQUAL TO 200°F with all reactor vessel head closure bolts fully tensioned.

Mode 6 Refuel

One or more reactor vessel head closure bolts less than fully tensioned.

Mode DEF Defueled

All reactor fuel removed from reactor pressure vessel (full core off load during refueling or extended outage).

The plant operating mode that exists at the time that the event occurs (prior to any protective system or operator action is initiated in response to the condition) should be compared to the mode applicability of the EALs. If a lower or higher plant operating mode is reached before the emergency classification is made, the declaration shall be based on the mode that existed at the time the event occurred.

2.9 Validation of Indications, Reports and Conditions

All emergency classifications shall be based upon VALID indications, reports or conditions. An indication, report, or condition, is considered to be VALID when it is verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment.

2.10 Planned vs. UNPLANNED Events

Planned evolutions involve preplanning to address the limitations imposed by the condition, the performance of required surveillance testing, and the implementation of specific controls prior to knowingly entering the condition in accordance with the specific requirements of the site's Technical Specifications. Activities which cause the site to operate beyond that allowed by the site's Technical Specifications, planned or UNPLANNED, may result in an EAL threshold being met or exceeded. Planned evolutions to test, manipulate, repair, perform maintenance or modifications to systems and equipment that result in an EAL value being met or exceeded are not subject to classification and activation requirements as long as the evolution proceeds as planned and is within the operational limitations imposed by the specific operating license. However, these conditions may be subject to the reporting requirements of 10 CFR 50.72.

2.11 Classifying Transient Events

For some events, the condition may be corrected before a declaration has been made. The key consideration in this situation is to determine whether or not further plant damage occurred while the corrective actions were being taken. In some situations, this can be readily determined, in other situations, further analyses may be necessary (eg, coolant radiochemistry following an ATWS event, plant structural examination following an earthquake, etc). Classify the event as indicated and terminate the emergency once assessment shows that there were no consequences from the event and other termination criteria are met.

Existing guidance for classifying transient events addresses the period of time of event recognition and classification (15 minutes). However, in cases when EAL declaration criteria may be met momentarily during the normal expected response of the plant, declaration requirements should not be considered to be met when the conditions are a part of the designed plant response, or result from appropriate Operator actions.

There may be cases in which a plant condition that exceeded an EAL was not recognized at the time of occurrence but is identified well after the condition has occurred (eg, as a result of routine log or record review), and the condition no longer exists. In these cases, an emergency should not be declared. Reporting requirements of 10 CFR 50.72 are applicable and the guidance of NUREG-1022, Event Reporting Guidelines 10 CFR 50.72 and 50.73, should be applied.

2.12 Multiple Simultaneous Events and IMMINENT EAL Thresholds

When multiple simultaneous events occur, the emergency classification level is based on the highest EAL reached. For example, two Alerts remain in the Alert category. Or, an Alert and a Site Area Emergency is a Site Area Emergency. Further guidance is provided in RIS 2007-02, Clarification of NRC Guidance for Emergency Notifications During Quickly Changing Events (Ref 3.1.3).

Although the majority of the EALs provide very specific thresholds, the Emergency Director (ED) must remain alert to events or conditions that lead to the conclusion that exceeding the EAL threshold is IMMINENT. If, in the judgment of the ED, an IMMINENT situation is at hand, the classification should be made as if the threshold has been exceeded. While this is particularly prudent at the higher emergency classes (the early classification may permit more effective implementation of protective measures), it is nonetheless applicable to all emergency classes.

2.13 Equipment Required

Numerous EALs specify constraints based on "Equipment required" for safe shutdown, by Technical Specifications, to maintain safe operations or safely shutdown the reactor. For the purpose of this revision, "Equipment required" is any piece of equipment in either train that is required even if technical specifications allow the inoperability of a piece of equipment for a specified period of time (ie, a Limiting Condition of Operation, LCO).

2.14 Emergency Classification Level Downgrading

Another important aspect of usable EAL guidance is the consideration of what to do when the risk posed by an emergency is clearly decreasing. A combination approach involving recovery from General Emergencies and some Site Area Emergencies and termination from Unusual Events, Alerts, and certain Site Area Emergencies causing no long term plant damage appears to be the best choice. Downgrading to lower emergency classification levels adds notifications but may have merit under certain circumstances.

2.15 Emergency Declaration Timeliness

The assessment, classification, and declaration of an emergency condition is expected to be completed within 15 minutes after the availability of indications (ie, plant instrumentation, plant alarms, computer displays, or incoming verbal reports) to plant operators that an EAL has been exceeded.

- The 15-minute criterion is not to be construed as a grace period to restore plant conditions to avoid declaring the event.
- The emergency declaration should be made promptly without waiting for the 15 minute period to elapse once the EAL is recognized as being exceeded.
- For EALs that specify duration of the off-normal condition, such as fire lasting 15 minutes, loss of power for 15 minutes, etc:
  - The Emergency Director shall make the declaration at the first available opportunity when the time has elapsed (not after an additional 15 minutes)
  - The declaration should be made before the EAL is met (time duration has elapsed) when the Emergency Director has information that the off-normal condition will not be corrected within the specified time duration.

3.0 REFERENCES

3.1 Developmental

3.1.1 NEI 99-01 Rev 5 Final, Methodology for Development of Emergency Action Levels, February 2008, ADAMS Accession Number ML080450149

3.1.2 NEI 99-01 Rev 6 Final, Development of Emergency Action Levels for Non-Passive Reactors, November 2012, ADAMS Accession Number ML12326A805

3.1.3 NRC Regulatory Issue Summary (RIS) 2003-18, Supplement 2, Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels Revision 4, Dated January 2003 (December 12, 2005)

3.1.4 RIS 2007-02 Clarification of NRC Guidance for Emergency Notifications During Quickly Changing Events

3.1.5 EAL Comparison Matrix

3.2 Implementing

3.2.1 EI-1, "Emergency Classification and Actions"

3.2.2 EAL Matrix Site Emergency Plan Supplement 1, "EAL Wall Charts"

3.2.3 GOP-14, "Shutdown Cooling Operations" Attachment 1, "Terms and Definitions"

3.2.4 UFSAR, Figure 1-1, "Plant Area Plan"

3.2.5 AOP-40, "Fire Which Threatens Safety-Related Equipment"

3.2.6 UFSAR, 2.1 "Site and Environment"

3.3 Commitments

None

Page intentionally left blank.

4.0 DEFINITIONS (Ref 3.1.1 except as noted)

When used in the EALs, the following defined terms and phrases appear in uppercase print.

AFFECTING SAFE SHUTDOWN

Event in progress has adversely affected functions that are necessary to bring the plant to and maintain it in the applicable hot or cold shutdown condition. Plant condition applicability is determined by Technical Specification LCOs in effect.

Example 1: Event causes damage that results in entry into an LCO that requires the plant to be placed in hot shutdown. Hot shutdown is achievable, but cold shutdown is not. This event is not "AFFECTING SAFE SHUTDOWN."

Example 2: Event causes damage that results in entry into an LCO that requires the plant to be placed in cold shutdown. Hot shutdown is achievable, but cold shutdown is not. This event is "AFFECTING SAFE SHUTDOWN."

BOMB

Refers to an explosive device suspected of having sufficient force to damage plant systems or structures.

CIVIL DISTURBANCE

A group of people violently protesting station operations or activities at the site.

CONFINEMENT BOUNDARY

The barrier(s) between areas containing radioactive substances and the environment.

CONTAINMENT CLOSURE

The site specific procedurally defined actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions. As applied to PLP, a containment condition where at least one integral barrier to the release of radioactive material is being provided. CONTAINMENT CLOSURE Controls are used to track any impaired containment penetration so that at least one barrier to the release of radioactive material can be quickly established in the event of a loss of decay heat removal (Ref 3.2.3).

CONTROL ROOM INDICATION

CONTROL ROOM INDICATION includes any physical VALID indication on instrumentation, equipment status indication (ie, equipment status lights, amp meter indications, etc), annunciators associated with a piece of equipment or reliable verbal reports from plant personnel of equipment status or status of areas around equipment that may affect equipment status.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

DEGRADED PERFORMANCE

Equipment is considered to have DEGRADED PERFORMANCE when it is not fully capable of performing, with Reasonable Expectation or reliability, its design function. As an example, a motor that is not designed to be wetted or submerged has water at a level above any motor openings to the room environment.

EXPLOSION

A rapid, violent, unconfined combustion, or catastrophic failure of pressurized/energized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems, or components.

EXTORTION

An attempt to cause an action at the station by threat of force.

FAULTED

In a steam generator, the existence of secondary side leakage that results in an uncontrolled drop in steam generator pressure or the steam generator being completely depressurized.

FIRE

Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIREs. Observation of flame is preferred but is not required if large quantities of smoke and heat are observed.

FLOODING

A condition where water is entering the room faster than installed equipment is capable of removal, resulting in a rise of water level within the room.

HOSTAGE

A person(s) held as leverage against the station to ensure that demands will be met by the station.

HOSTILE ACTION

An act toward PLP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGEs, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILEs, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included.

HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on PLP. Non-terrorism-based EALs should be used to address such activities, (eg, violent acts between individuals in the owner controlled area).

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

HOSTILE FORCE

One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

IMMINENT

Mitigation actions have been ineffective, additional actions are not expected to be successful, and trended information indicates that the event or condition will occur. Where IMMINENT timeframes are specified, they shall apply.

INTRUSION

The act of entering without authorization. Discovery of a BOMB in a specified area is indication of INTRUSION into that area by a HOSTILE FORCE.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

NORMAL PLANT OPERATIONS

Activities at the plant site associated with routine testing, maintenance, or equipment operations, in accordance with normal operating or administrative procedures. Entry into abnormal or emergency operating procedures, or deviation from normal security or radiological controls posture, is a departure from NORMAL PLANT OPERATIONS.

PROJECTILE

An object directed toward PLP that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA

The area which normally encompasses all controlled areas within the security PROTECTED AREA fence. The PLP PROTECTED AREA boundary is within the security isolation zone and is defined in UFSAR, Figure 1-1, Plant Area Plan (Ref 3.2.5).

RUPTURED

In a steam generator, existence of primary-to-secondary leakage of a magnitude sufficient to require or cause a reactor trip and safety injection.

SABOTAGE

Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment inoperable. Equipment found tampered with or damaged due to malicious mischief may not meet the definition of SABOTAGE until this determination is made by security supervision.

SAFETY SIGNIFICANT AREAS

Areas that contain systems and components required for the safe shutdown functions of the plant (Ref 3.2.6).

SECURITY CONDITION

Any security event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION.

SIGNIFICANT TRANSIENT

An UNPLANNED event involving one or more of the following: (1) turbine runback greater than 25% thermal reactor power, (2) reactor trip, or (3) ECCS (SIAS) actuation

SITE BOUNDARY

The SITE BOUNDARY is also the exclusion area over which Entergy has control for the purpose of excluding personnel or property. The minimum exclusion area distance to an uncontrolled area is 677 meters (Ref 3.2.7).

STRIKE ACTION

Work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on PLP. The STRIKE ACTION must threaten to interrupt NORMAL PLANT OPERATIONS.

UNISOLABLE

A breach or leak that cannot be promptly isolated from the Control Room.

UNPLANNED

A parameter change or an event that is not the result of an intended evolution and requires corrective or mitigative actions.

VALID

An indication, report, or condition, is considered to be VALID when it is verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator’s operability, the condition’s existence, or the report’s accuracy is removed. Implicit in this definition is the need for timely assessment.

VISIBLE DAMAGE

Damage to equipment or structure that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (eg, paint chipping, scratches) should not be included.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

VITAL AREA

Any areas, normally within the PLP PROTECTED AREA, that contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation.

5.0 PLP-TO-NEI 99-01 EAL CROSS REFERENCE

This cross-reference is provided to facilitate association and location of a PLP EAL within the NEI 99-01 IC/EAL identification scheme. Further information regarding the development of the PLP EALs based on the NEI guidance can be found in the EAL Comparison Matrix.

PLP	NEI 99-01	
EAL	IC	Example EAL
AU1.1	AU1	1
AU1.2	AU1	2
AU1.3	AU1	3
AU2.1	AU2	1
AU2.2	AU2	2
AA1.1	AA1	1
AA1.2	AA1	2
AA1.3	AA1	3
AA2.1	AA2	2
AA2.2	AA2	1
AA3.1	AA3	1
AS1.1	AS1	1
AS1.2	AS1	2
AS1.3	AS1	4
AG1.1	AG1	1
AG1.2	AG1	2
AG1.3	AG1	4

PLP	NEI 99-01	
EAL	IC	Example EAL
EU1.1[1]	E-HU1	1
CU1.1	CU3	1
CU2.1	CU7	1
CU3.1	CU1	1
CU3.2	CU2	1
CU3.3	CU2	2
CU4.1	CU4	1
CU4.2	CU4	2
CU5.1	CU6	1, 2
CU6.1	CU8	2
CA1.1	CA3	1
CA3.1	CA1	1, 2
CA4.1	CA4	1, 2
CS3.1	CS1	1
CS3.2	CS1	2
CS3.3	CS1	3
CG3.1	CG1	1
CG3.2	CG1	2
FU1.1	FU1	1
FA1.1	FA1	1
FS1.1	FS1	1

[1] EAL based on guidance provided in NEI 99-01, Revision 6.

PLP	NEI 99-01	
EAL	IC	Example EAL
FG1.1	FG1	1
HU1.1	HU1	1
HU1.2	HU1	2
HU1.3	HU1	3
HU1.4	HU1	4
HU1.5	HU1	5
HU2.1	HU2	1
HU2.2	HU2	2
HU3.1	HU3	1
HU3.2	HU3	2
HU4.1	HU4	1, 2, 3
HU6.1	HU5	1
HA1.1	HA1	1
HA1.2	HA1	2
HA1.3	HA1	3
HA1.4	HA1	4
HA1.5	HA1	6
HA1.6	HA1	5
HA2.1	HA2	1
HA3.1	HA3	1
HA4.1	HA4	1, 2
HA5.1	HA5	1
HA6.1	HA6	1

PLP	NEI 99-01	
EAL	IC	Example EAL
HS4.1	HS4	1
HS5.1	HS2	1
HS6.1	HS3	1
HG4.1	HG1	1
HG4.2	HG1	2
HG6.1	HG2	1
SU1.1	SU1	1
SU3.1	SU8	1
SU4.1	SU2	1
SU5.1	SU3	1
SU6.1	SU6	1, 2
SU7.1	SU4	2
SU7.2	SU4	1
SU8.1	SU5	1, 2
SA1.1	SA5	1
SA3.1	SA2	1
SA5.1	SA4	1
SS1.1	SS1	1
SS2.1	SS3	1
SS3.1	SS2	1
SS5.1	SS6	1
SG1.1	SG1	1
SG3.1	SG2	1

6.0 ATTACHMENTS

6.1 Attachment 1, "Emergency Action Level Technical Bases"

6.2 Attachment 2, "Fission Product Barrier Loss / Potential Loss Matrix and Basis"

Category A - Abnormal Rad Release / Rad Effluent

EAL Group: ANY (EALs in this category are applicable to any plant condition, hot or cold.)

Many EALs are based on actual or potential degradation of fission product barriers because of the elevated potential for offsite radioactivity release. Degradation of fission product barriers though is not always apparent via non-radiological symptoms. Therefore, direct indication of elevated radiological effluents or area radiation levels are appropriate symptoms for emergency classification.

At lower levels, abnormal radioactivity releases may be indicative of a failure of containment systems or precursors to more significant releases. At higher release rates, offsite radiological conditions may result which require offsite protective actions. Elevated area radiation levels in plant may also be indicative of the failure of containment systems or preclude access to plant vital equipment necessary to ensure plant safety.

Events of this category pertain to the following subcategories:

1. Offsite Rad Conditions

   Direct indication of effluent radiation monitoring systems provides a rapid assessment mechanism to determine releases in excess of classifiable limits. Projected offsite doses, actual offsite field measurements or measured release rates via sampling indicate doses or dose rates above classifiable limits.

2. Onsite Rad Conditions & Spent Fuel Events

   Sustained general area radiation levels in excess of those indicating loss of control of radioactive materials or those levels which may preclude access to vital plant areas also warrant emergency classification.

3. CR/CAS Rad

Sustained general area radiation levels which may preclude access to areas requiring continuous occupancy also warrant emergency classification.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: **Any** release of gaseous or liquid radioactivity to the environment greater than 2 times the ODCM for 60 minutes or longer

EAL:

AU1.1 Unusual Event

VALID reading on gaseous monitor > Table A-1 column "UE" for ≥ 60 min. (Note 2)

Note 2: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.

Table A-1 Effluent Monitor Classification Thresholds

Monitor	GE	SAE	Alert	UE
GASEOUS				
Stack Normal Range (RIA-2326)	N/A	N/A	N/A	1.99E+05 cpm
Stack High Range (RIA-2327)	1.53E+03 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
ADV High Range Effluent (RIA-2328)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
Main Steam Line (RIA-2323/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID				
Liquid Radwaste Disch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
SG Blowdown (RIA-0707)	N/A	N/A	1.96E+06 cpm *	1.96E+04 cpm*
Service Water (RIA-0833)	N/A	N/A	1.80E+05 cpm *	1.80E+03 cpm*
Turbine Bldg Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm *

* with waste discharge **not** isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

This EAL addresses a 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.

Nuclear power plants incorporate features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases. The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The 2 x ODCM limit multiples are specified only to distinguish between emergency and non-emergency conditions. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged. For example, a release exceeding 4x ODCM for 30 minutes does not meet the threshold.

This EAL includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (eg, minimum dilution flow, maximum discharge flow, alarm setpoints, etc) on the applicable permit.

This EAL addresses radioactivity releases, that for whatever reason, cause effluent radiation monitor readings to exceed the threshold identified in the IC.

This EAL is intended for sites that have established effluent monitoring on non-routine release pathways for which a discharge permit would not normally be prepared.

Plant-Specific

The Stack Normal Range effluent monitor (RIA-2326) will be on-scale at the gaseous column "UE" threshold. The designation "N/A" in Table A-1 indicates that the listed instrument range is insufficient to indicate the specified value and therefore no value is used.

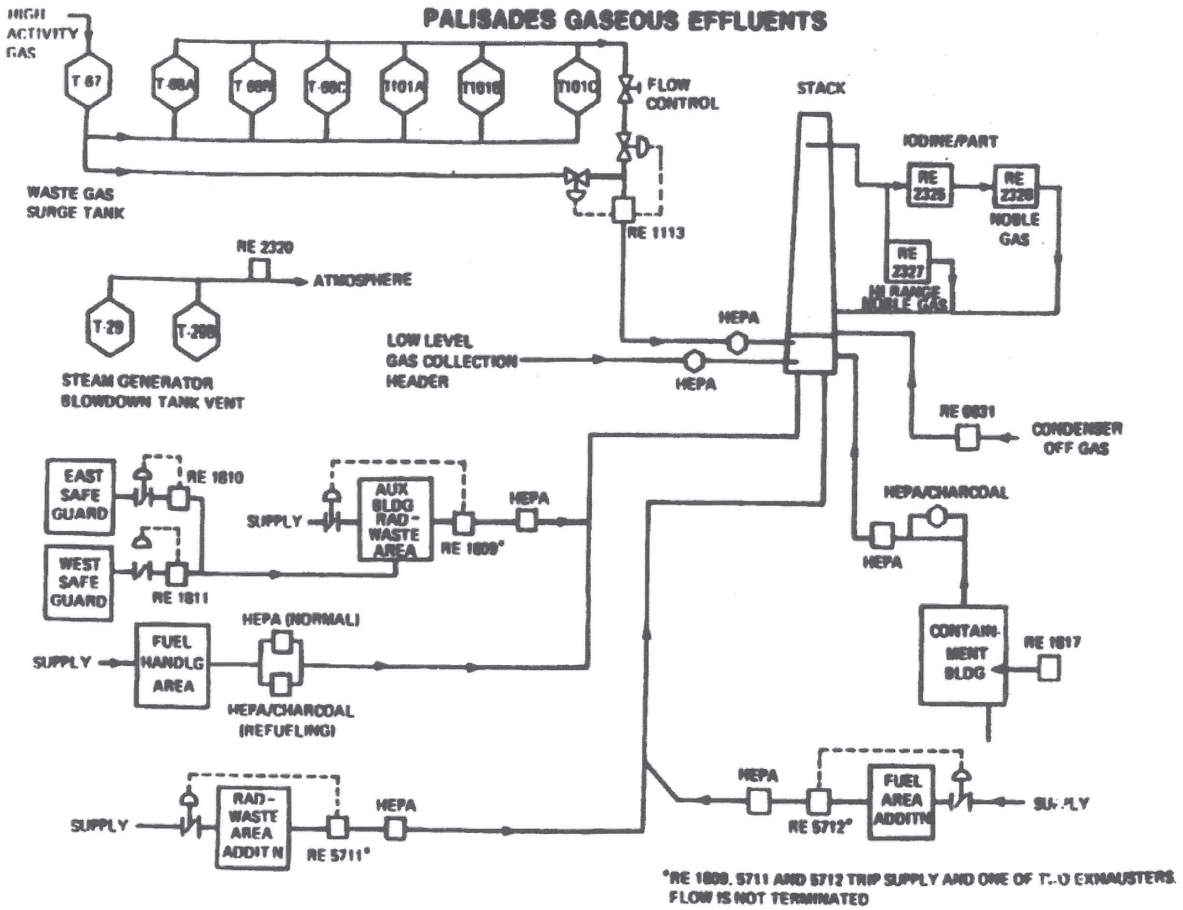
Engineering Change 77569 (Ref 1) describes the origin of the EAL threshold values and their modification to adjust for change in the 10 year site boundary annual average (max sector) meteorology. Consistent with Palisades ODCM and Regulatory Guide 1.21 Revision 2, changes of less than +/- 10% from the current 10 year site boundary average annual max sector X/Q (2.30E-6 seconds per cubic meter) are considered insignificant and do not require the EAL threshold values be updated.

PLP gaseous effluent paths are depicted in Figure A-1 (Ref 2).

PLP Basis Reference(s):

1. Engineering Change 77569
2. PLP ODCM
3. RGC 85-003, Setpoint Basis Correspondence RG Christie, May 15, 1985

Figure A-1



PALISADES EFFLUENT FLOW PATHS
GASEOUS

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: **Any** release of gaseous or liquid radioactivity to the environment greater than 2 times the ODCM for 60 minutes or longer

EAL:

AU1.2 Unusual Event

VALID reading on **any** liquid monitors > Table A-1 column "UE" for ≥ 60 min. (Note 2)

Note 2: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.

Table A-1 Effluent Monitor Classification Thresholds

Monitor	GE	SAE	Alert	UE
GASEOUS				
Stack Normal Range (RIA-2326)	N/A	N/A	N/A	1.99E+05 cpm
Stack High Range (RIA-2327)	1.53E+03 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
ADV High Range Effluent (RIA-2328)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
Main Steam Line (RIA-2323/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID				
Liquid Radwaste Disch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
SG Blowdown (RIA-0707)	N/A	N/A	1.96E+06 cpm *	1.96E+04 cpm*
Service Water (RIA-0833)	N/A	N/A	1.80E+05 cpm *	1.80E+03 cpm*
Turbine Bldg Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm *

* with waste discharge **not** isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

Mode Applicability:

All

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Basis:

Implementing Guidance

None

Generic

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

This EAL addresses a 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.

Nuclear power plants incorporate features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases. The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The 2 x ODCM limit multiples are specified only to distinguish between emergency and non-emergency conditions. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged. For example, a release exceeding 4x ODCM for 30 minutes does not meet the threshold.

This EAL includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (eg, minimum dilution flow, maximum discharge flow, alarm setpoints, etc) on the applicable permit.

This EAL also addresses radioactivity releases, that for whatever reason, cause effluent radiation monitor readings to exceed the threshold identified in the EAL established by a radioactivity discharge permit. This value may be associated with a planned batch release, or a continuous release path.

Plant-Specific

Liquid waste effluent is monitored by the Liquid Radwaste Discharge radiation monitor (RIA-1049). A high radiation alarm (EK-1365) from this monitor results in a signal to close the liquid waste discharge valves (CV-1049 and CV-1051). If these valves do not shut, the operators stop the pump being used for the discharge and shut the liquid waste RMS outlet valve (MV-CRW172). The alarm setpoint is established per Batch Release order (Ref 1), therefore the Table A-1 column "UE" threshold is provided as a multiple (2 times) the alarm setpoint.

The Steam Generator Blowdown liquid effluent monitor (RIA-0707) high alarm (EK-1365) results in a signal to close blowdown isolation valves (CV-0704, 0738, 0739, 0770 and 0771). The alarm is set at 9.80E+03 cpm (Ref 1), therefore the Table A-1 column "UE" threshold of 1.96E+04 cpm represents 2 times the alarm setpoint.

The Service Water Discharge (RIA-0833) and Turbine Building Sump (RIA-5211) radiation monitors provide alarm (EK-1365) indication only. The Service Water Discharge monitor is set to alarm at 9.00E+02 cpm. The Turbine Building Sump monitor is set to alarm at 4.10E+03 cpm (Ref 1). Therefore the Table A-1 column "UE" thresholds represent 2 times the alarm setpoints.

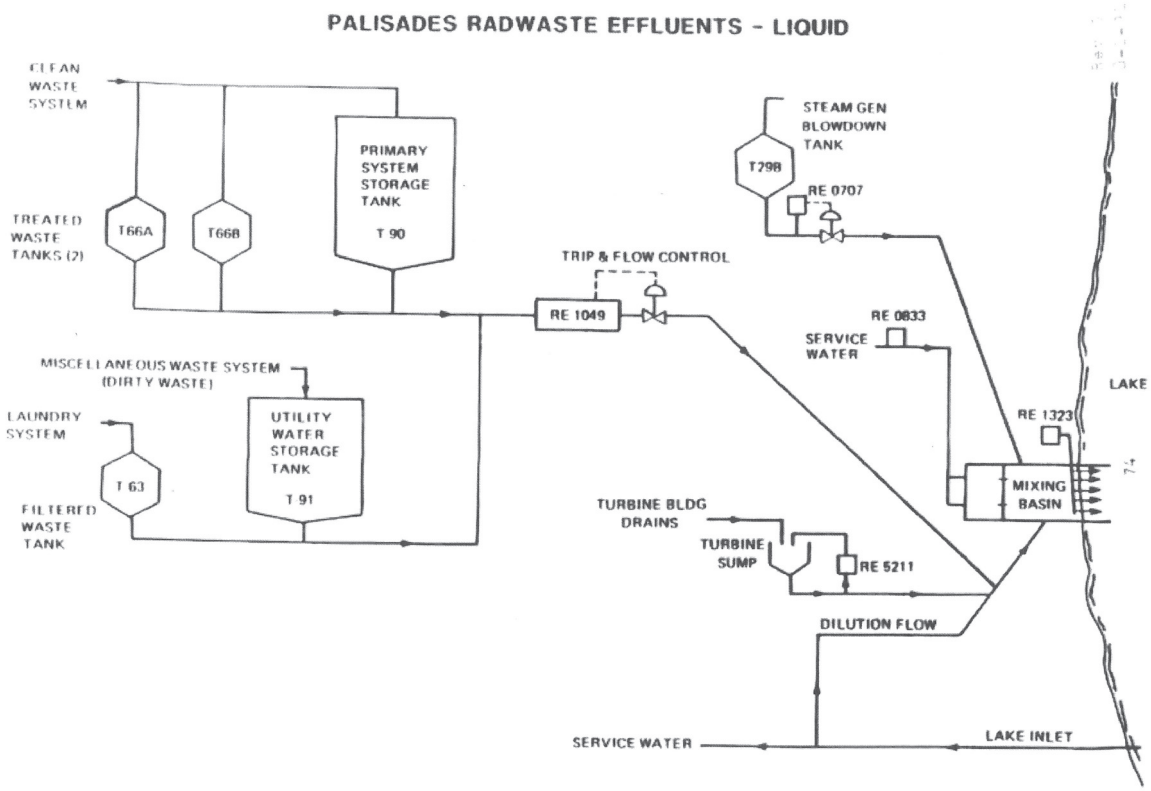
In all cases, the liquid effluent EAL thresholds only apply under conditions in which the effluent discharge path cannot be isolated within the specified time.

PLP liquid effluent paths are depicted in Figure A-2 (Ref 2).

PLP Basis Reference(s):

1. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (EC-13)," Attachment 3, "Process Liquid Monitoring High Radiation"
2. PLP ODCM

Figure A-2


PALISADES RADWASTE EFFLUENTS - LIQUID
CLEAN WASTE SYSTEM
TREATED WASTE TANKS (2)
T66A
T66B
PRIMARY SYSTEM STORAGE TANK
T 90
STEAM GEN BLOWDOWN TANK
T29B
RE 0707
TRIP & FLOW CONTROL
RE 1049
RE 0833
SERVICE WATER
LAKE
RE 1323
MISCELLANEOUS WASTE SYSTEM (DIRTY WASTE)
LAUNDRY SYSTEM
T 63
FILTERED WASTE TANK
UTILITY WATER STORAGE TANK
T 91
MIXING BASIN
TURBINE BLDG DRAINS
TURBINE SUMP
RE 5211
DILUTION FLOW
SERVICE WATER
LAKE INLET

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: **Any** release of gaseous or liquid radioactivity to the environment greater than 2 times the ODCM for 60 minutes or longer

EAL:

AU1.3 Unusual Event

Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x ODCM limits for ≥ 60 min. (Note 2)

Note 2: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

This EAL addresses a 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.

Nuclear power plants incorporate features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases. The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The 2 x ODCM limit multiples are specified only to distinguish between emergency and non-emergency conditions. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged. For example, a release exceeding 4x ODCM for 30 minutes does not meet the threshold.

This EAL includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (eg, minimum dilution flow, maximum discharge flow, alarm setpoints, etc) on the applicable permit.

This EAL addresses uncontrolled releases that are detected by sample analyses, particularly on unmonitored pathways, eg, spills of radioactive liquids into storm drains, heat exchanger leakage in river water systems, etc.

Plant-Specific

Releases in excess of two times the site Offsite Dose Calculation Manual (ODCM) (Ref 1) instantaneous limits that continue for 60 minutes or longer represent an uncontrolled situation and hence, a potential degradation in the level of safety. The final integrated dose (which is very low in the Unusual Event emergency class) is not the primary concern here; it is the degradation in plant control implied by the fact that the release was not isolated within 60 minutes. Therefore, it is not intended that the release be averaged over 60 minutes. For example, a release of 4 times the ODCM limit for 30 minutes does not exceed this initiating condition. Further, the ED should not wait until 60 minutes has elapsed, but should declare the event as soon as it is determined that the release duration has or will likely exceed 60 minutes.

Sample analyses are considered "confirmed" when samples have been obtained and analyzed in accordance with plant procedures and the results reported to the Shift Manager or Emergency Director according to established practices. Preliminary sample results that may become available prior to completion of the relevant procedural requirements are not "confirmed" and are not to be used in assessing this EAL.

PLP Basis Reference(s):

1. PLP ODCM

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: **Any** release of gaseous or liquid radioactivity to the environment greater than 200 times the ODCM for 15 minutes or longer

EAL:

AA1.1 Alert

VALID reading on gaseous monitor > Table A-1 column "Alert" for ≥ 15 min. (Note 2)

Note 2: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.

Table A-1 Effluent Monitor Classification Thresholds

Monitor	GE	SAE	Alert	UE
GASEOUS				
Stack Normal Range (RIA-2326)	N/A	N/A	N/A	1.99E+05 cpm
Stack High Range (RIA-2327)	1.53E+03 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
ADV High Range Effluent (RIA-2328)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
Main Steam Line (RIA-2323/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID				
Liquid Radwaste Disch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
SG Blowdown (RIA-0707)	N/A	N/A	1.96E+06 cpm *	1.96E+04 cpm*
Service Water (RIA-0833)	N/A	N/A	1.80E+05 cpm *	1.80E+03 cpm*
Turbine Bldg Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm *

* with waste discharge **not** isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

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.

Nuclear power plants incorporate features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases. The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The 200 x ODCM limit multiples are specified only to distinguish between emergency and non-emergency conditions. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged. For example, a release exceeding 600x ODCM for 5 minutes does not meet the threshold.

This EAL includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (eg, minimum dilution flow, maximum discharge flow, alarm setpoints, etc) on the applicable permit.

This EAL is intended for sites that have established effluent monitoring on non-routine release pathways for which a discharge permit would not normally be prepared.

Plant-Specific

The Stack High Range effluent monitor (RIA-2327) will be on-scale at the gaseous column "Alert" threshold (Ref 1). The designation "N/A" in Table A-1 indicates that the listed instrument range is insufficient to indicate the specified value and therefore no value is used.

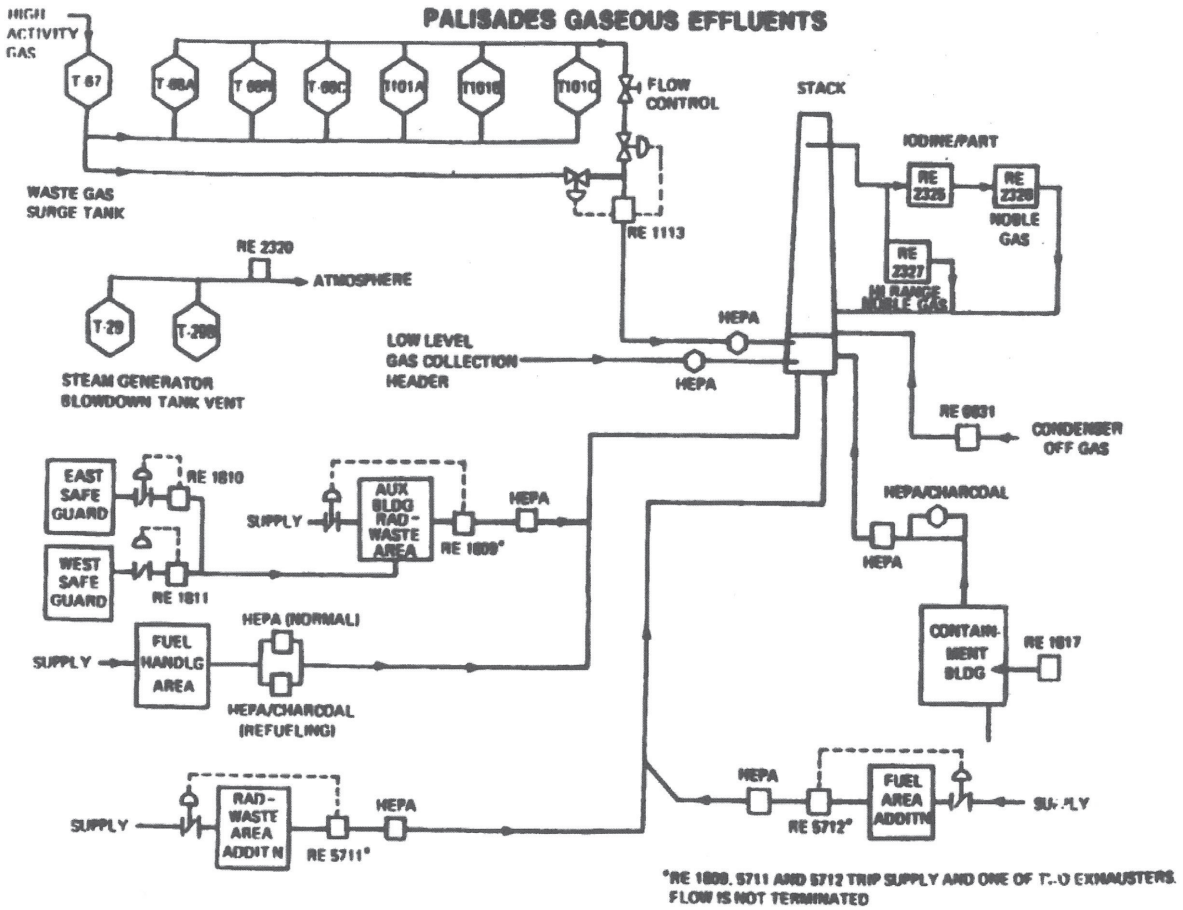
Engineering Change 77569 (Ref 1) describes the origin of the EAL threshold values and their modification to adjust for change in the 10 year site boundary annual average (max sector) meteorology. Consistent with Palisades ODCM and Regulatory Guide 1.21 Revision 2, changes of less than +/- 10% from the current 10 year site boundary average annual max sector X/Q (2.30E-6 seconds per cubic meter) are considered insignificant and do not require the EAL threshold values be updated.

PLP gaseous effluent paths are depicted in Figure A-1 (Ref 2).

PLP Basis Reference(s):

1. Engineering Change 77569
2. PLP ODCM
3. RGC 85-003, Setpoint Basis Correspondence RG Christie, May 15, 1985

Figure A-1



PALISADES EFFLUENT FLOW PATHS
GASEOUS

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: **Any** release of gaseous or liquid radioactivity to the environment greater than 200 times the ODCM for 15 minutes or longer

EAL:

AA1.2 Alert

VALID reading on **any** liquid monitors > Table A-1 column "Alert" for ≥ 15 min. (Note 2)

Note 2: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.

Table A-1 Effluent Monitor Classification Thresholds

Monitor	GE	SAE	Alert	UE
GASEOUS				
Stack Normal Range (RIA-2326)	N/A	N/A	N/A	1.99E+05 cpm
Stack High Range (RIA-2327)	1.53E+03 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
ADV High Range Effluent (RIA-2328)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
Main Steam Line (RIA-2323/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID				
Liquid Radwaste Disch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
SG Blowdown (RIA-0707)	N/A	N/A	1.96E+06 cpm *	1.96E+04 cpm*
Service Water (RIA-0833)	N/A	N/A	1.80E+05 cpm *	1.80E+03 cpm*
Turbine Bldg Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm *

* with waste discharge **not** isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

Mode Applicability:

All

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Basis:

Implementing Guidance

None

Generic

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

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.

Nuclear power plants incorporate features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases. The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The 200 x ODCM limit multiples are specified only to distinguish between emergency and non-emergency conditions. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged. For example, a release exceeding 600x ODCM for 5 minutes does not meet the threshold.

This EAL includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (eg, minimum dilution flow, maximum discharge flow, alarm setpoints, etc) on the applicable permit.

This EAL addresses radioactivity releases, that for whatever reason, cause effluent radiation monitor readings to exceed the threshold identified in the EAL established by the radioactivity discharge permit. This value may be associated with a planned batch release, or a continuous release path.

Plant-Specific

Liquid waste effluent is monitored by the Liquid Radwaste Discharge radiation monitor (RIA-1049). A high radiation alarm (EK-1365) from this monitor results in a signal to close the liquid waste discharge valves (CV-1049 and CV-1051). If these valves do not shut, the operators stop the pump being used for the discharge and shut the liquid waste RMS outlet valve (MV-CRW172). The alarm setpoint is established per Batch Release order (Ref 1), therefore the Table A-1 column "Alert" threshold is provided as a multiple (200 times) the alarm setpoint.

The Steam Generator Blowdown liquid effluent monitor (RIA-0707) high alarm (EK-1365) results in a signal to close blowdown isolation valves (CV-0704, 0738, 0739, 0770 and 0771). The alarm is set at 9.80E+03 cpm (Ref 1), therefore the Table A-1 column "Alert" threshold of 1.96E+06 cpm represents 200 times the alarm setpoint.

The Service Water Discharge (RIA-0833) and Turbine Building Sump (RIA-5211) radiation monitors provide alarm (EK-1365) indication only. The Service Water Discharge monitor is set to alarm at 9.00E+02 cpm. The Turbine Building Sump monitor is set to alarm at 4.10E+03 cpm (Ref 1). Therefore the Table A-1 column "Alert" thresholds represent 200 times the alarm setpoints.

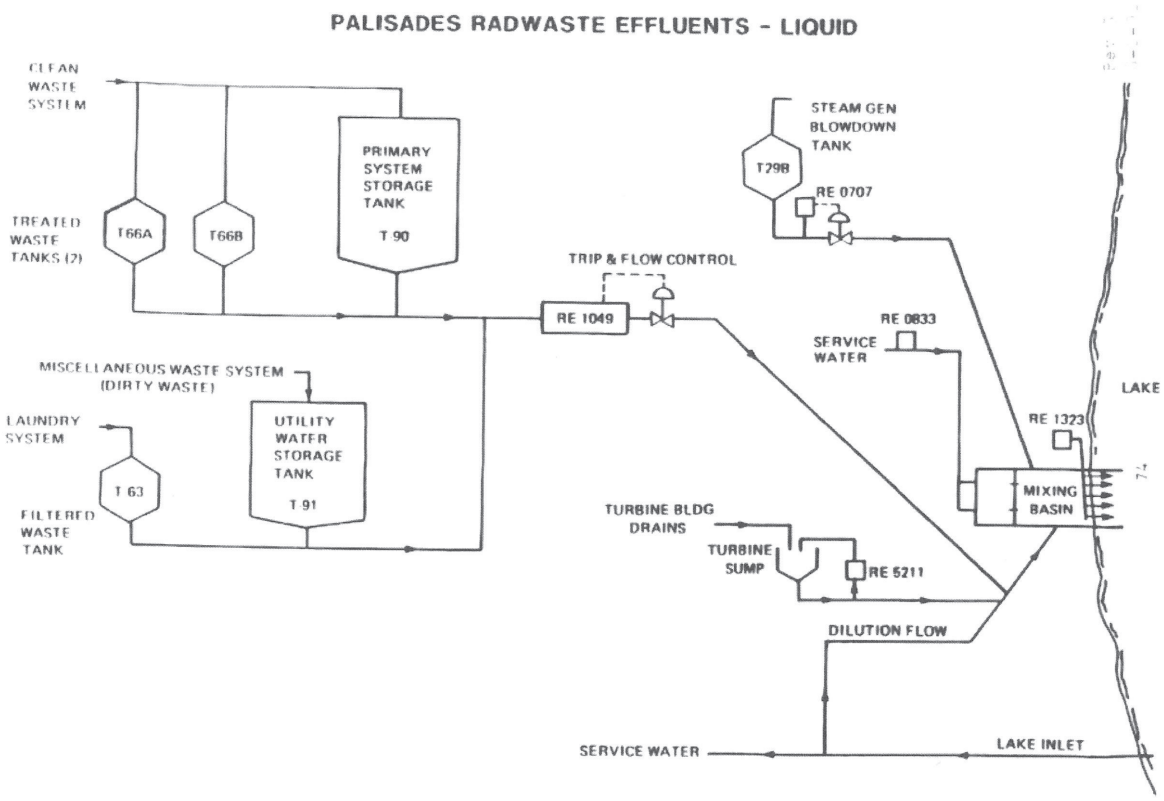
In all cases, the liquid effluent EAL thresholds only apply under conditions in which the effluent discharge path cannot be isolated within the specified time.

PLP liquid effluent paths are depicted in Figure A-2 (Ref 2).

PLP Basis Reference(s):

1. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (EC-13)," Attachment 3, "Process Liquid Monitoring High Radiation"
2. PLP ODCM

Figure A-2


PALISADES RADWASTE EFFLUENTS - LIQUID
CLEAN WASTE SYSTEM
TREATED WASTE TANKS (2)
T66A
T66B
PRIMARY SYSTEM STORAGE TANK
T 90
STEAM GEN BLOWDOWN TANK
T29B
RE 0707
TRIP & FLOW CONTROL
RE 1049
RE 0833
SERVICE WATER
LAKE
RE 1323
MISCELLANEOUS WASTE SYSTEM (DIRTY WASTE)
LAUNDRY SYSTEM
T 63
FILTERED WASTE TANK
UTILITY WATER STORAGE TANK
T 91
MIXING BASIN
TURBINE BLDG DRAINS
TURBINE SUMP
RE 5211
DILUTION FLOW
SERVICE WATER
LAKE INLET

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: **Any** release of gaseous or liquid radioactivity to the environment greater than 200 times the ODCM for 15 minutes or longer

EAL:

AA1.3 Alert

Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 x ODCM limits for ≥ 15 min. (Note 2)

Note 2: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

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.

Nuclear power plants incorporate features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases. The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The 200 x ODCM limit are specified only to distinguish between emergency and non-emergency conditions. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged. For example, a release exceeding 600 x ODCM for 5 minutes does not meet the threshold.

This EAL includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (eg, minimum dilution flow, maximum discharge flow, alarm setpoints, etc) on the applicable permit.

This EAL addresses uncontrolled releases that are detected by sample analyses, particularly on unmonitored pathways, eg, spills of radioactive liquids into storm drains, heat exchanger leakage.

Plant-Specific

Confirmed sample analyses in excess of two hundred times the site Offsite Dose Calculation Manual (ODCM) limits that continue for 15 minutes or longer represent an uncontrolled situation and hence, a potential degradation in the level of safety. This event escalates from the Unusual Event by raising the magnitude of the release by a factor of 100 over the Unusual Event level (ie, 200 times ODCM). Prorating the 500 mRem/yr basis of the 10 CFR 20 non-occupational MPC limits for both time (8766 hr/yr) and the 200 multiplier, the associated Exclusion Area Boundary dose rate would be approximately 10 mRem/hr. If sample analysis indicates the threshold is met and nothing is done within 15 minutes to effect a release reduction, the ED can conclude that the EAL threshold is met without second sample results.

Sample analyses are considered "confirmed" when samples have been obtained and analyzed in accordance with plant procedures and the results reported to the Shift Manager or Emergency Director according to established practices. Preliminary sample results that may become available prior to completion of the relevant procedural requirements are not "confirmed" and are not to be used in assessing this EAL.

PLP Basis Reference(s):

1. PLP ODCM

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity exceeds 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release

EAL:

AS1.1 Site Area Emergency

VALID reading on **any** radiation monitors > Table A-1 column "SAE" for ≥ 15 min. (Note 1)

Note 1: If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL AS1.2/AG1.2). Do **not** delay declaration awaiting dose assessment results

The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time

Table A-1 Effluent Monitor Classification Thresholds

Monitor	GE	SAE	Alert	UE
GASEOUS				
Stack Normal Range (RIA-2326)	N/A	N/A	N/A	1.99E+05 cpm
Stack High Range (RIA-2327)	1.53E+03 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
ADV High Range Effluent (RIA-2328)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
Main Steam Line (RIA-2323/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID				
Liquid Radwaste Disch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
SG Blowdown (RIA-0707)	N/A	N/A	1.96E+06 cpm *	1.96E+04 cpm*
Service Water (RIA-0833)	N/A	N/A	1.80E+05 cpm *	1.80E+03 cpm*
Turbine Bldg Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm *

* with waste discharge **not** isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed 10% of the EPA Protective Action Guides (PAGs). Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public.

The site specific monitor list in Table A-1 includes effluent monitors on all potential release pathways.

Since dose assessment is based on actual meteorology, whereas the monitor reading EAL is not, the results from these assessments may indicate that the classification is not warranted, or may indicate that a higher classification is warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (eg, initiated at a lower classification level), the dose assessment results override the monitor reading EAL.

Plant-Specific

The Table A-1 column "SAE" effluent monitor values are derived from RGC 85-003, Setpoint Basis Correspondence RG Christie, May 15, 1985 (Ref 1).

RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs.

The designation "N/A" in Table A-1 indicates that the listed instrument range is insufficient to indicate the specified value and therefore no value is used.

In accordance with the provisions of Note 1, if available dose assessment results are below the Table A-1 threshold and effluent monitor readings are above the Table A-1 threshold for ≥ 15 minutes, dose assessment results override the monitor readings and emergency classification under this EAL is not warranted.

Engineering Change 77569 (Ref 1) describes the origin of the EAL threshold values and their modification to adjust for change in the 10 year site boundary annual average (max

sector) meteorology. Consistent with Palisades ODCM and Regulatory Guide 1.21 Revision 2, changes of less than +/- 10% from the current 10 year site boundary average annual max sector X/Q (2.30E-6 seconds per cubic meter) are considered insignificant and do not require the EAL threshold values be updated.

PLP gaseous effluent paths are depicted in Figure A-1 (Ref 2).

PLP Basis Reference(s):

1. Engineering Change 77569
2. PLP ODCM
3. RGC 85-003, Setpoint Basis Correspondence RG Christie, May 15, 1985

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity exceeds 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release

EAL:

AS1.2 Site Area Emergency

Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed 10% of the EPA Protective Action Guides (PAGs). Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public.

Since dose assessment is based on actual meteorology, whereas the monitor reading EAL is not, the results from these assessments may indicate that the classification is not warranted, or may indicate that a higher classification is warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (eg, initiated at a lower classification level), the dose assessment results override the monitor reading EAL.

Plant-Specific

The 100 mRem TEDE dose is set at 10% of the EPA PAG, while the 500 mRem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.

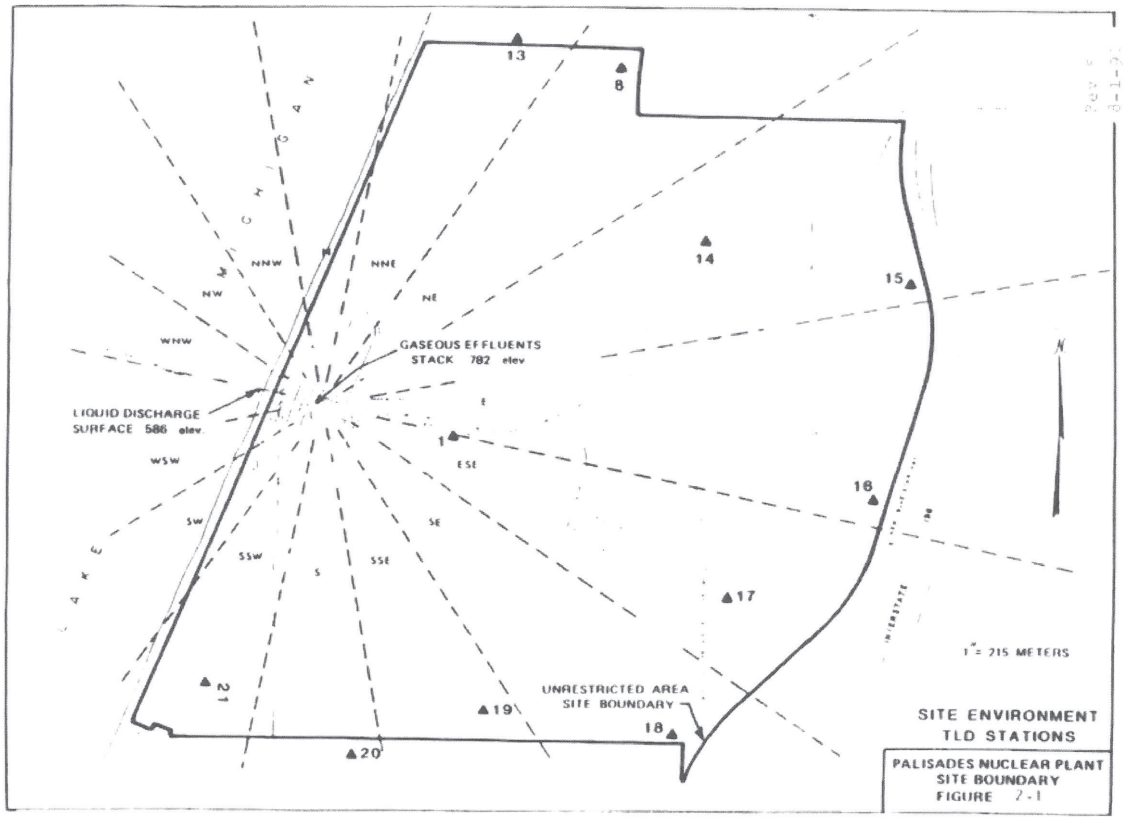
The SITE BOUNDARY is depicted on Figure A-3 (Ref 1).

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

PLP Basis Reference(s):

1. PLP ODCM
2. EI-6.0 "Offsite Dose Calculation and Recommendations for Protective Actions"

Figure A-3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SSW
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SSE
SE
ESE
GASEOUS EFFLUENTS
STACK 782 elev
LIQUID DISCHARGE
SURFACE 586 elev
LAKE MICHIGAN
UNRESTRICTED AREA
SITE BOUNDARY
1" = 215 METERS
SITE ENVIRONMENT
TLD STATIONS
PALISADES NUCLEAR PLANT
SITE BOUNDARY
FIGURE 2-1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity exceeds 100 mRem TEDE or 500 mRem thyroid CDE for the actual or projected duration of the release

EAL:

AS1.3 Site Area Emergency

Field survey results indicate closed window dose rates > 100 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY

OR

Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)

Note 1: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed 10% of the EPA Protective Action Guides (PAGs). Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public.

Since dose assessment is based on actual meteorology, whereas the monitor reading EAL is not, the results from these assessments may indicate that the classification is not warranted, or may indicate that a higher classification is warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (eg, initiated at a lower classification level), the dose assessment results override the monitor reading EAL.

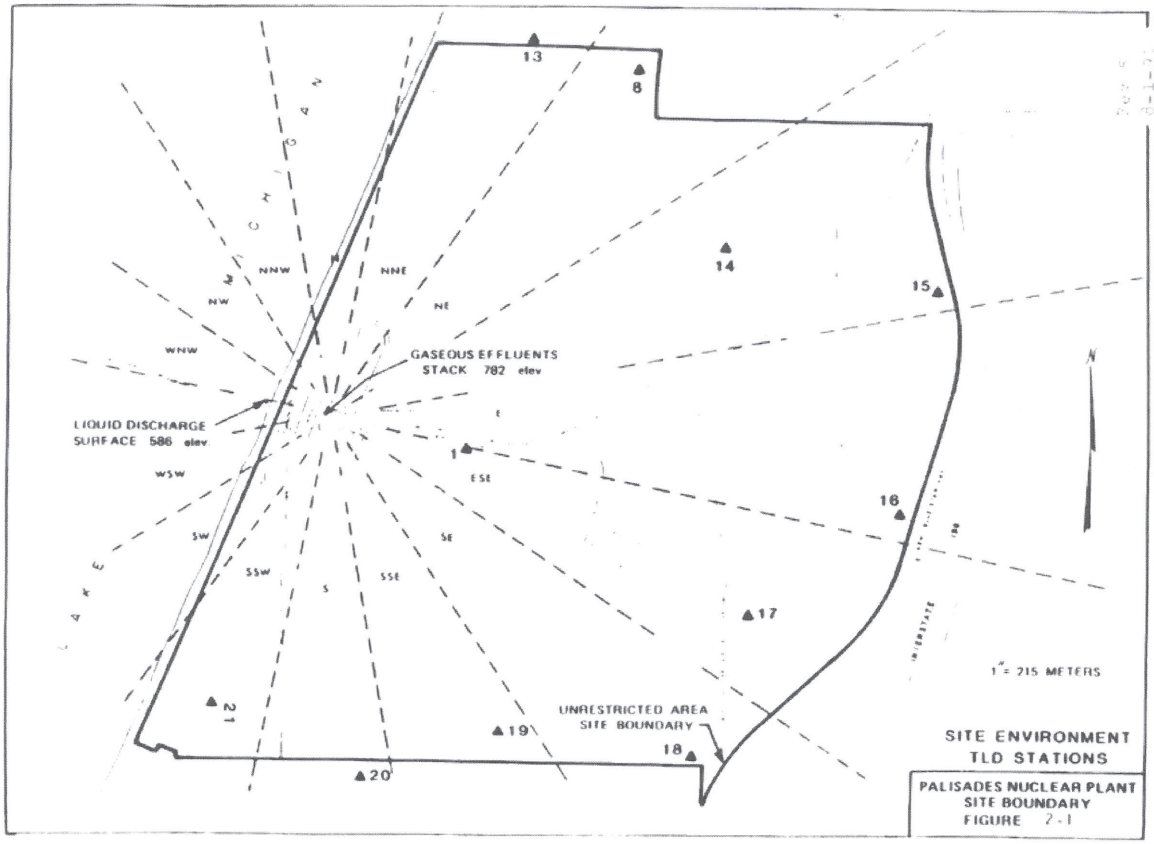
Plant-Specific

The SITE BOUNDARY is depicted on Figure A-3 (Ref 1).

PLP Basis Reference(s):

1. PLP ODCM

Figure A-3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GASEOUS EFFLUENTS
STACK 782 elev
LIQUID DISCHARGE
SURFACE 586 elev
UNRESTRICTED AREA
SITE BOUNDARY
1" = 215 METERS
SITE ENVIRONMENT
TLD STATIONS
PALISADES NUCLEAR PLANT
SITE BOUNDARY
FIGURE 2-1

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity greater than 1000 mRem TEDE or 5000 mRem thyroid CDE for the actual or projected duration of the release using actual meteorology

EAL:

AG1.1 General Emergency

VALID reading on **any** radiation monitors > Table A-1 column "GE" for ≥ 15 min. (Note 1)

Note 1: If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL AS1.2/AG1.2). Do **not** delay declaration awaiting dose assessment results

The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time

Table A-1 Effluent Monitor Classification Thresholds

Monitor	GE	SAE	Alert	UE
GASEOUS				
Stack Normal Range (RIA-2326)	N/A	N/A	N/A	1.99E+05 cpm
Stack High Range (RIA-2327)	1.53E+03 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
ADV High Range Effluent (RIA-2328)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
Main Steam Line (RIA-2323/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID				
Liquid Radwaste Disch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
SG Blowdown (RIA-0707)	N/A	N/A	1.96E+06 cpm *	1.96E+04 cpm*
Service Water (RIA-0833)	N/A	N/A	1.80E+05 cpm *	1.80E+03 cpm*
Turbine Bldg Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm *

* with waste discharge **not** isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed the EPA Protective Action Guides (PAGs). Public protective actions will be necessary. Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public and likely involve fuel damage.

The monitor list in Table A-1 includes effluent monitors on all potential release pathways.

Since dose assessment is based on actual meteorology, whereas the monitor reading EAL is not, the results from these assessments may indicate that the classification is not warranted, or may indicate that a higher classification is warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (eg, initiated at a lower classification level), the dose assessment results override the monitor reading EAL.

Plant-Specific

The Table A-1 column "GE" effluent monitor values are derived from RGC 85-003, Setpoint Basis Correspondence RG Christie, May 15, 1985 (Ref 1).

RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs.

The designation "N/A" in Table A-1 indicates that the listed instrument range is insufficient to indicate the specified value and therefore no value is used.

In accordance with the provisions of Note 1, if available dose assessment results are below the Table A-1 threshold and effluent monitor readings are above the Table A-1 threshold for ≥ 15 minutes, dose assessment results override the monitor readings and emergency classification under this EAL is not warranted.

Engineering Change 77569 (Ref 1) describes the origin of the EAL threshold values and their modification to adjust for change in the 10 year site boundary annual average (max

sector) meteorology. Consistent with Palisades ODCM and Regulatory Guide 1.21 Revision 2, changes of less than +/- 10% from the current 10 year site boundary average annual max sector X/Q (2.30E-6 seconds per cubic meter) are considered insignificant and do not require the EAL threshold values be updated.

PLP gaseous effluent paths are depicted in Figure A-1 (Ref 2).

PLP Basis Reference(s):

1. Engineering Change 77569
2. PLP ODCM
3. RGC 85-003, Setpoint Basis Correspondence RG Christie, May 15, 1985

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity greater than 1000 mRem TEDE or 5000 mRem thyroid CDE for the actual or projected duration of the release using actual meteorology

EAL:

AG1.2 General Emergency

Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed the EPA Protective Action Guides (PAGs). Public protective actions will be necessary. Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public and likely involve fuel damage.

Since dose assessment is based on actual meteorology, whereas the monitor reading EAL is not, the results from these assessments may indicate that the classification is not warranted, or may indicate that a higher classification is warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (eg, initiated at a lower classification level), the dose assessment results override the monitor reading EAL.

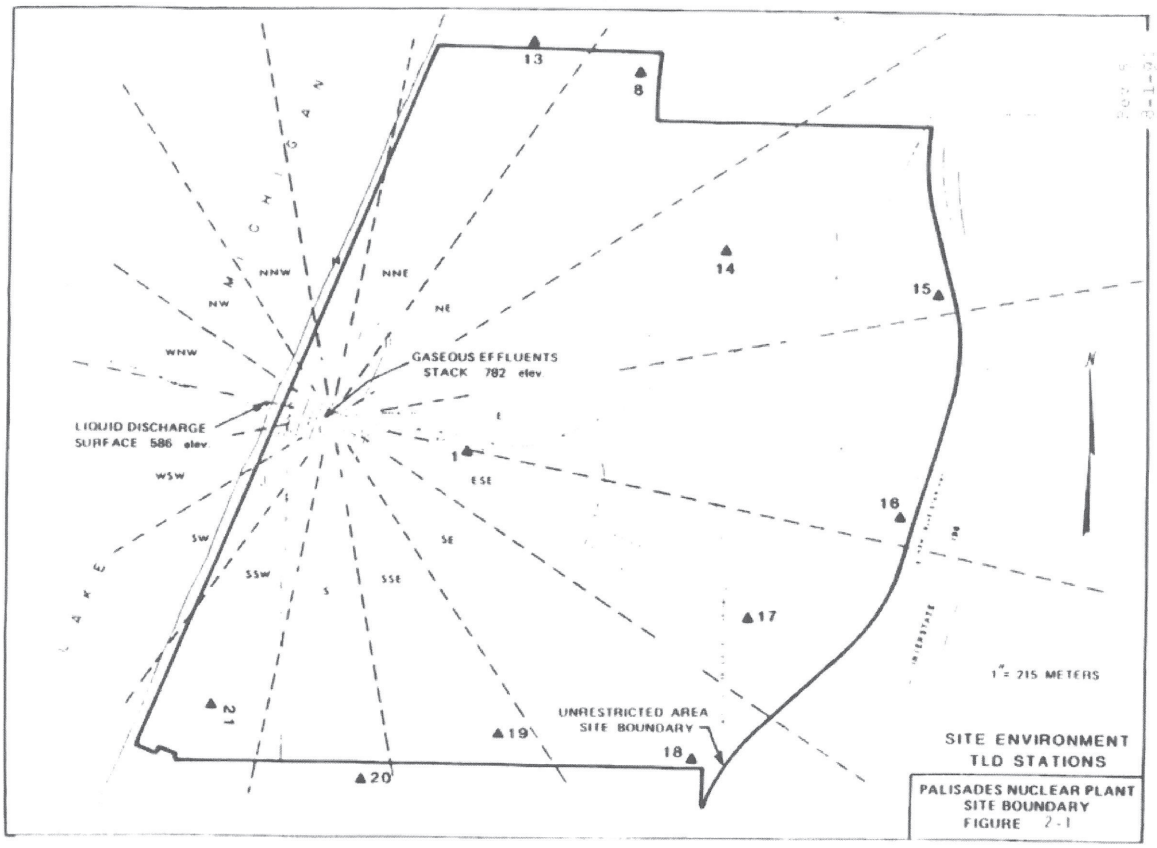
Plant-Specific

The 1000 mRem TEDE dose is set at 100% of the EPA PAG, while the 5000 mRem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE. The SITE BOUNDARY is depicted on Figure A-3 (Ref 1).

PLP Basis Reference(s):

1. PLP ODCM
2. EI-6.0 "Offsite Dose Calculation and Recommendations for Protective Actions"

Figure A-3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S
SSE
SE
ESE
GASEOUS EFFLUENTS
STACK 782 elev.
LIQUID DISCHARGE
SURFACE 586 elev.
UNRESTRICTED AREA
SITE BOUNDARY
1" = 215 METERS
SITE ENVIRONMENT
TLD STATIONS
PALISADES NUCLEAR PLANT
SITE BOUNDARY
FIGURE 2-1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 1 - Offsite Rad Conditions

Initiating Condition: Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity greater than 1000 mRem TEDE or 5000 mRem thyroid CDE for the actual or projected duration of the release using actual meteorology

EAL:

AG1.3 General Emergency

Field survey results indicate closed window dose rates > 1,000 mRem/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY

OR

Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)

Note 1: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed the EPA Protective Action Guides (PAGs). Public protective actions will be necessary. Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public and likely involve fuel damage.

Since dose assessment is based on actual meteorology, whereas the monitor reading EAL is not, the results from these assessments may indicate that the classification is not warranted, or may indicate that a higher classification is warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (eg, initiated at a lower classification level), the dose assessment results override the monitor reading EAL.

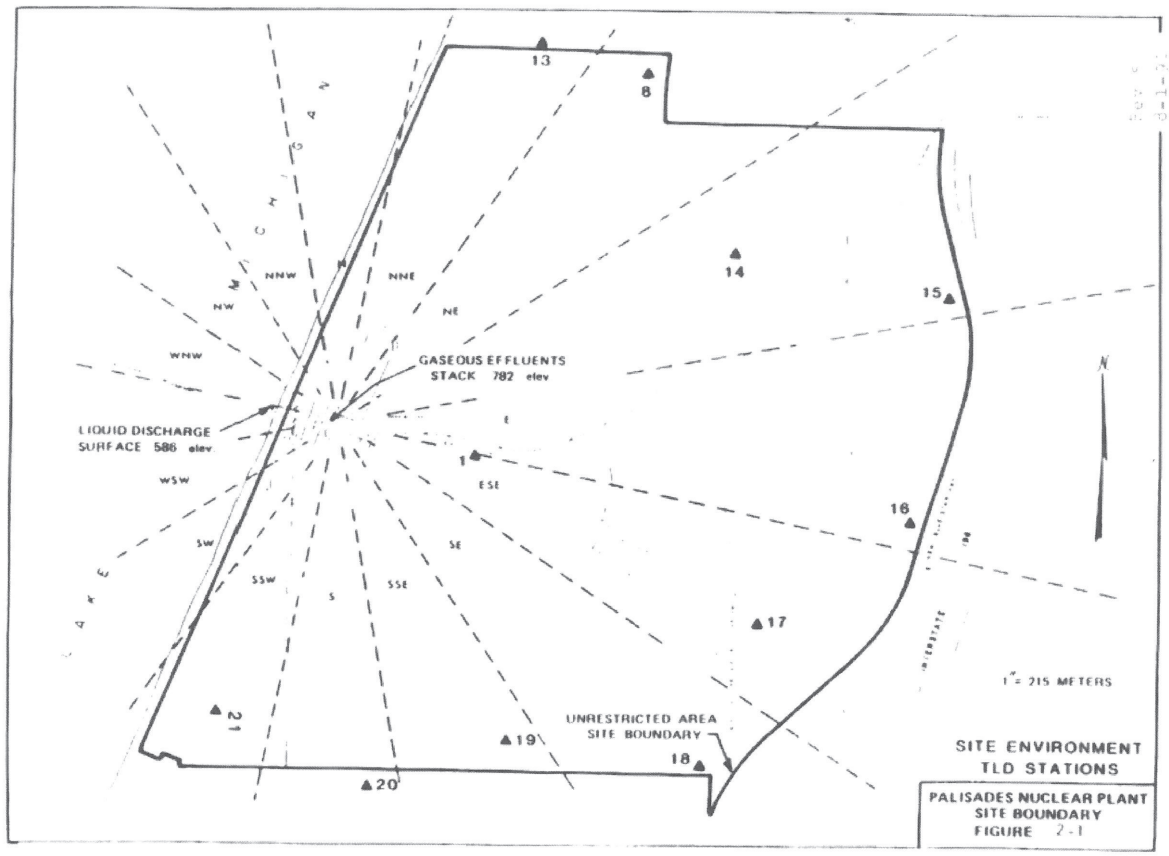
Plant-Specific

The SITE BOUNDARY is depicted on Figure A-3 (Ref 1).

PLP Basis Reference(s):

1. PLP ODCM

Figure A-3



TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 2 - Onsite Rad Conditions & Spent Fuel Events

Initiating Condition: UNPLANNED rise in plant radiation levels

EAL:

AU2.1 Unusual Event

UNPLANNED water level drop in a reactor refueling pathway as indicated by inability to restore and maintain level > 646 ft elevation (Note 3)

AND

VALID area radiation monitor reading rise on **any** of the following:

- Vent Monitor Fuel Handling Area (RIA-5712)
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-2313)
- Refueling Containment High Radiation (CHR) Monitors (RIA-2316 or RIA-2317)

Note 3: If loss of water level in the refueling pathway occurs while in Mode 5, 6 or DEF, consider classification under EALs CU3.1, CU3.2 or CU3.3

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses increased radiation levels as a result of water level decreases above irradiated fuel or events that have resulted, or may result, in UNPLANNED increases in radiation dose rates within plant buildings. These radiation increases represent a loss of control over radioactive material and represent a potential degradation in the level of safety of the plant.

The refueling pathway is a combination of cavities, tubes, canals and pools. While a radiation monitor could detect an increase in dose rate due to a drop in the water level, it might not be a reliable indication of whether or not the fuel is covered.

For refueling events where the water level drops below the RPV flange classification would be via EAL CU3.1, CU3.2 or CU3.3. This event escalates to an Alert per EAL AA2.1 if irradiated fuel outside the reactor vessel is uncovered. For events involving irradiated fuel in the reactor vessel, escalation would be via the Fission Product Barrier Table for events in operating modes 1-4.

Plant-Specific

The reactor refueling cavity, spent fuel pool and fuel transfer canal comprise the refueling pathway.

The definition of "... cannot be restored and maintained above..." allows the operator to visually observe the low water level condition, if possible, and to attempt water level restoration instructions as long as water level remains above the top of irradiated fuel.

When the fuel transfer canal is directly connected to the Spent Fuel Pool and refueling cavity, there could exist the possibility of uncovering irradiated fuel in the fuel transfer canal. Therefore, this EAL is applicable to conditions in which irradiated fuel is being transferred to and from the reactor vessel and refueling cavity.

The minimum allowable water level in the Spent Fuel Pool (SFP) and refueling cavity threshold is the Low Spent Fuel Pool water level, alarmed in the Control Room (annunciator EK-1309) at 646 ft elevation or 35 ft above the bottom of the pool (Ref 1, 2, 3).

The listed area radiation monitors are those that would likely see an increase in area radiation due to a loss of shielding resulting from a loss of pool inventory (Ref 4, 5). While a radiation monitor could detect a rise in dose due to a drop in the water level, it might not be a reliable indication, in and of itself, of whether or not the fuel is uncovered. For example, the reading on an area radiation monitor located on the refueling bridge may rise due to planned evolutions such as head lift, or even a fuel assembly being raised in the manipulator mast. Elevated radiation monitor indications will need to be combined with another indicator (or personnel report) of water loss.

Calculated dose rates above the spent fuel pool and resultant measured dose rates on a nearby ARM (RIA-2313) indicate that measurable increases of radiation will occur when SFP water level drops to approximately the 632 ft elevation and alarm below an elevation of approximately 630 ft elevation (Ref 6).

Calculated dose rates above the refueling cavity and resultant measured dose rates on nearby Containment High Range ARMs (RIA-2316 & 2317) indicate that measurable

increases of radiation will occur when reactor cavity water level drops to approximately the 638 ft elevation (approximately 14 ft of water in cavity) and alarm below an elevation of approximately 634 ft elevation (approximately 10 ft of water in cavity) (Ref 6).

This event escalates to an Alert if irradiated fuel outside the reactor vessel is uncovered.

PLP Basis Reference(s):

1. Technical Specifications 3.7.14, Spent Fuel Pool (SFP) Water Level
2. Technical Specifications 3.9.6, Refueling Cavity Water Level
3. ARP-8, Annunciator #9, Spent Fuel Pool Hi/Lo Level
4. UFSAR, Table 11-16, "Area Radiation Detectors"
5. UFSAR, Table 11-15, "Process Radiation Service and Equipment"
6. AOP-25, "Loss of Refueling Water Accident"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Radioactivity Release / Area Radiation

Subcategory: 2 - Onsite Rad Conditions & Spent Fuel Events

Initiating Condition: UNPLANNED rise in plant radiation levels

EAL:

AU2.2 Unusual Event

UNPLANNED VALID area radiation reading increases by a factor of 1000 over normal* levels

* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses increased radiation levels as a result of water level decreases above irradiated fuel or events that have resulted, or may result, in UNPLANNED increases in radiation dose rates within plant buildings. These radiation increases represent a loss of control over radioactive material and represent a potential degradation in the level of safety of the plant.

This EAL addresses increases in plant radiation levels that represent a loss of control of radioactive material resulting in a potential degradation in the level of safety of the plant.

This EAL excludes radiation level increases that result from planned activities such as use of radiographic sources and movement of radioactive waste materials. A specific list of ARMs is not required as it would restrict the applicability of the threshold. The intent is to identify loss of control of radioactive material in any monitored area.

Plant-Specific

Assessment of this EAL may be made with survey readings using portable instruments as well as installed radiation monitors.

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 2 - Onsite Rad Conditions & Spent Fuel Events

Initiating Condition: Damage to irradiated fuel or loss of water level that has resulted or will result in the uncovering of irradiated fuel outside the Reactor Vessel

EAL:

AA2.1 Alert

A VALID reading on **any** of the following radiation monitors due to damage to irradiated fuel or loss of water level (Note 3):

- Vent Monitor Fuel Handling Area (RIA-5712) > 1.00E+04 cpm
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-2313) > 15 mR/hr
- Refueling Containment High Radiation (CHR) Monitors (RIA-2316 or RIA-2317) > 80 mR/hr

Note 3: If loss of water level in the refueling pathway occurs while in Mode 5, 6 or DEF, consider classification under EALs CU3.1, CU3.2 or CU3.3

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses increases in radiation dose rates within plant buildings, and may be a precursor to a radioactivity release to the environment. These events represent a loss of control over radioactive material and represent an actual or substantial potential degradation in the level of safety of the plant.

This EAL addresses radiation monitor indications of fuel uncovery and/or fuel damage.

Increased ventilation monitor readings may be indication of a radioactivity release from the fuel, confirming that damage has occurred. Increased background at the ventilation monitor due to water level decrease may mask increased ventilation exhaust airborne activity and needs to be considered.

While a radiation monitor could detect an increase in dose rate due to a drop in the water level, it might not be a reliable indication of whether or not the fuel is covered.

Escalation of this emergency classification level, if appropriate, would be based on AS1.1, AS1.2, AS1.3, AG1.1, AG1.2 or AG1.3.

Plant-Specific

This EAL is defined by the specific areas where irradiated fuel is located such as the refueling cavity, reactor vessel, or spent fuel pool.

The bases for the area radiation high alarms and containment radiation high alarms are a spent fuel handling accident and are, therefore, appropriate for this EAL. Elevated readings on ventilation monitors may also be indication of a radioactivity release from the fuel, confirming that damage has occurred. However, elevated background at the monitor due to water level lowering may mask elevated ventilation exhaust airborne activity and needs to be considered. However, while radiation monitors may detect a rise in dose rate due to a drop in the water level, it might not be a reliable indication of whether or not the fuel is covered. For example, the monitor could in fact be properly responding to a known event involving transfer or relocation of a source stored in or near the fuel pool or responding to a planned evolution such as removal of the reactor head. Interpretation of these EAL thresholds requires some understanding of the actual radiological conditions present in the vicinity of the monitors.

Calculated dose rates above the spent fuel pool and resultant measured dose rates on a nearby ARM (RIA-2313) indicate that measurable increases of radiation will occur when SFP water level drops to approximately the 632 ft elevation and alarm below an elevation of approximately 630 ft elevation (Ref 4).

Calculated dose rates above the refueling cavity and resultant measured dose rates on nearby Containment High Range ARMs (RIA-2316 & 2317) indicate that measurable increases of radiation will occur when reactor cavity water level drops to approximately the 638 ft elevation (approximately 14 ft of water in cavity) and alarm below an elevation of approximately 634 ft elevation (approximately 10 ft of water in cavity) (Ref 4).

PLP Basis Reference(s):

1. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK 13 (EC 13)," Annunciator No 64
2. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK 13 (EC 13)," Annunciator No 66
3. RI-86E-1, "Refueling Isolation Monitors Calibration - Source Test"
4. AOP-25, "Loss of Refueling Water Accident"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 2 - Onsite Rad Conditions & Spent Fuel Events

Initiating Condition: Damage to irradiated fuel or loss of water level that has resulted or will result in the uncovering of irradiated fuel outside the Reactor Vessel

EAL:

AA2.2 Alert

A water level drop in the refueling cavity, SFP or fuel transfer canal that will result in irradiated fuel becoming uncovered (Note 3)

Note 3: If loss of water level in the refueling pathway occurs while in Mode 5, 6 or DEF, consider classification under EALs CU3.1, CU3.2 or CU3.3

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This event represents a loss of control over radioactive material and represent an actual or substantial potential degradation in the level of safety of the plant.

Escalation of this emergency classification level, if appropriate, would be based on AS1.1, AS1.2, AS1.3, AG1.1, AG1.2 or AG1.3.

Plant-Specific

This EAL is defined by the specific areas where irradiated fuel is located such as the refueling cavity, reactor vessel or Spent Fuel Pool (SFP).

There is no indirect indication that water level in the Spent Fuel Pool or refueling cavity has dropped to the level of the fuel other than visual observation. Since there is no level indicating system in the fuel transfer canal, visual observation of loss of water level would also be required. If available, video cameras may allow remote observation. Depending on available level indication, the declared threshold may need to be based on indications of makeup rate or lowering in Refueling Water Storage Tank level (Ref 1).

The movement of irradiated fuel assemblies within containment requires a minimum water level of 22.5 ft above the refueling cavity floor and 23 ft above the top of spent fuel in the SFP. During refueling activities, this maintains sufficient water level in the refueling cavity, fuel transfer canal and SFP. Sufficient water is necessary to retain iodine fission product activity in the water in the event of a fuel handling accident (Ref 2, 3).

Allowing level to decrease could result in spent fuel being uncovered, reducing spent fuel decay heat removal and creating an extremely hazardous radiation environment.

PLP Basis Reference(s):

1. AOP-25, "Loss of Refueling Water Accident"
2. Technical Specifications 3.9.6 Refueling Cavity Water Level
3. Technical Specifications 3.7.14 Spent Fuel Pool (SFP) Water Level
4. EA-KFK-90-01 "Fuel Submergence vs. Fuel Handling Activities"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: A - Abnormal Rad Release / Rad Effluent

Subcategory: 3 - CR/CAS Rad

Initiating Condition: Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions

EAL:

AA3.1 Alert

VALID dose rates > 15 mRem/hr in **EITHER** of the following areas requiring continuous occupancy to maintain plant safety functions:

Control Room (RIA-2310)

OR

CAS (RIA-2311)

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses increased radiation levels that: impact continued operation in areas requiring continuous occupancy to maintain safe operation or to perform a safe shutdown.

The cause and/or magnitude of the increase in radiation levels is not a concern of this EAL. The Emergency Director must consider the source or cause of the increased radiation levels and determine if any other EAL may be involved.

Areas requiring continuous occupancy include the Control Room and any other control stations that are staffed continuously, such as the security alarm station CAS.

Plant-Specific

The Control Room must be continuously occupied in all plant operating modes at PLP. The Central Alarm Station (CAS) is included in this EAL because of its importance to permitting access to areas required to assure safe plant operation. CAS is normally occupied twenty-four hours per day and procedures are in place to ensure the security function is continuously maintained.

CAS has no installed radiation monitoring capability. However, RIA-2311 will provide indication of increasing radiation levels prompting surveys.

PLP Basis Reference(s):

1. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK 13 (EC 13)"
2. SOP-39, "Area Radiation Monitoring System"

Category E - INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

EAL Group: Not Applicable (the EAL in this category is applicable independent of plant operating mode)

An INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) is a complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage. A significant amount of the radioactive material contained within a cask/canister must escape its packaging and enter the biosphere for there to be a significant environmental effect resulting from an accident involving the dry storage of spent nuclear fuel. Formal offsite planning is not required because the postulated worst-case accident involving an ISFSI has insignificant consequences to the public health and safety.

A Notification of Unusual Event is declared on the basis of the occurrence of an event of sufficient magnitude that a loaded cask CONFINEMENT BOUNDARY is damaged or violated. This includes classification based on a loaded fuel storage cask/canister CONFINEMENT BOUNDARY loss leading to the degradation of the fuel during storage or posing an operational safety problem with respect to its removal from storage.

A hostile security event that leads to a potential loss in the level of safety of the ISFSI is a classifiable event under Security category EAL HA4.1.

Minor surface damage that does not affect storage cask/canister boundary is excluded from the scope of these EALs.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: E - ISFSI

Subcategory: Not Applicable

Initiating Condition: Damage to a loaded cask CONFINEMENT BOUNDARY

EAL:

EU1.1 Unusual Event

Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading greater than the applicable values shown on Table E-1 on the spent fuel cask.

Table E-1 Cask Dose Rates

Cask System	Casks	Dose Rates
Ventilated Storage Cask System (VSC-24)	All	40 mrem/hr on the sides
		100 mrem/hr on the top
		100 mrem/hr at inlet and outlet ducts
Standardized NUHOMS	32PT HSM-001 thru HSM-011	1600 mrem/hr on the HSM front surface
		400 mrem/hr on the HSM door centerline
		16 mrem/hr on the end shield wall exterior
	24PTH HSM-H-012 thru HSM-H-024	2600 mrem/hr on the HSM front surface
		10 mrem/hr on the HSM door centerline
		20 mrem/hr on the end shield wall exterior
HI-STORM FW MPC	All	60 mrem/hr (gamma + neutron) on the top of the OVERPACK
		600 mrem/hr (gamma + neutron) on the OVERPACK, excluding inlet and outlet ducts

Mode Applicability:

Not applicable

Basis:

Implementing Guidance

None

Generic

This IC addresses an event that results in damage to the CONFINEMENT BOUNDARY of a storage cask containing spent fuel. It applies to irradiated fuel that is licensed for dry storage beginning at the point that the loaded storage cask is sealed. The issues of concern are the creation of a potential or actual release path to the environment, degradation of one or more fuel assemblies due to environmental factors, and configuration changes which could cause challenges in removing the cask or fuel from storage.

The existence of “damage” is determined by radiological survey. The technical specification multiple of “2 times” is used here to distinguish between non-emergency and emergency conditions. The emphasis for this classification is the degradation in the level of safety of the spent fuel cask and not the magnitude of the associated dose or dose rate. It is recognized that in the case of extreme damage to a loaded cask, the fact that the “on-contact” dose rate limit is exceeded may be determined based on measurement of a dose rate at some distance from the cask.

Security-related events for ISFSIs are covered under ICs PD-HU1 and PD-HA1.

Plant-Specific

The PNP ISFSIs utilize multiple dry spent fuel storage systems. These systems consist of the Ventilated Storage Cask System (VSC-24) (Reference 2); the NUHOMS® Horizontal Modular Storage System (32PT and 24PTH) (References 3 and 4); and the HI-STORM Flood/Wind (FW) Multipurpose Canister (MPC) Cask System (Reference 5). The dose rates included in Table E-1 equate to two-times the cask-specific technical specification allowable radiation value for each of the cask systems (References 2, 3, 4, and 5).

This EAL addresses any condition which indicates a loss of a cask CONFINEMENT BOUNDARY and thus a potential degradation in the level of safety of the ISFSI.

Minor surface damage that does not affect storage cask boundary is excluded from the scope of this EAL.

PLP Basis Reference(s):

1. NEI 99-01, Rev. 6, E-HU1
2. Renewal of Initial Certificate of Compliance and Amendments No. 1 through 6 of Certificate of Compliance No. 1007 for the VSC-24 Cask System, Enclosure # - Attachment A, Technical Specification 1.2.4
3. Renewal of Initial Certificate of Compliance and Amendments No. 1 through 11 and 13, Revision 1, and Amendment No. 14 of Certificate of Compliance No. 1004 for the Standardized NUHOMS® Horizontal Modular Storage System, Enclosure 16 (Amendment No. 7, Revision 1) Technical Specification 1.2.7a
4. Renewal of Initial Certificate of Compliance and Amendments No. 1 through 11 and 13, Revision 1, and Amendment No. 14 of Certificate of Compliance No. 1004 for the Standardized NUHOMS® Horizontal Modular Storage System, Enclosure 16 (Amendment No. 9, Revision 1) Technical Specification 1.2.7c
5. Issuance Certification of Compliance No. 1032, Amendment No. 1 Revision No. 1, for the HI-STORM Flood/Wind Multipurpose Canister Storage System (TAC No. L24775), Appendix A Technical Specification 5.3.4

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Category C - Cold Shutdown / Refueling System Malfunction
EAL Group: Cold Conditions (PCS temperature ≤ 200ºF);
EALs in this category are applicable only in
one or more cold operating modes.

Category C EALs are directly associated with cold shutdown or refueling system safety functions. Given the variability of plant configurations (eg, systems out-of-service for maintenance, containment open, reduced AC power redundancy, time since shutdown) during these periods, the consequences of any given initiating event can vary greatly. For example, a loss of decay heat removal capability that occurs at the end of an extended outage has less significance than a similar loss occurring during the first week after shutdown. Compounding these events is the likelihood that instrumentation necessary for assessment may also be inoperable. The cold shutdown and refueling system malfunction EALs are based on performance capability to the extent possible with consideration given to PCS integrity, CONTAINMENT CLOSURE, and fuel clad integrity for the applicable operating modes (5 - Cold Shutdown, 6 - Refuel, DEF - Defueled).

The events of this category pertain to the following subcategories:

1. Loss of AC Power

Loss of emergency plant electrical power can compromise plant safety system operability including decay heat removal and emergency core cooling systems which may be necessary to ensure fission product barrier integrity. This category includes loss of onsite and offsite power sources for the 2400 VAC vital buses.

2. Loss of DC Power

Loss of emergency plant electrical power can compromise plant safety system operability including decay heat removal and emergency core cooling systems which may be necessary to ensure fission product barrier integrity. This category includes loss of power to the 125 VDC buses.

3. Reactor Vessel/PCS Level

Reactor Vessel or PCS water level is directly related to the status of adequate core cooling and, therefore, fuel clad integrity. PCS levels associated with Category C EALs are listed in Figure C-1.

4. PCS Temperature

Uncontrolled or inadvertent temperature or pressure increases are indicative of a potential loss of safety functions.

5. Communications

Certain events that degrade plant operator ability to effectively communicate with essential personnel within or external to the plant warrant emergency classification.

6. Inadvertent Criticality

Inadvertent criticalities pose potential personnel safety hazards as well being indicative of losses of reactivity control.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 1 - Loss of AC Power

Initiating Condition: AC power capability to 2400 VAC safeguards buses reduced to a single power source for ≥ 15 min. such that **any** additional single power source failure would result in a complete loss of all 2400 VAC safeguards bus power

EAL:

CU1.1 Unusual Event

AC power capability to 2400 VAC safeguards buses 1C and 1D reduced to a single power source, Table C-1, for ≥ 15 min. (Note 4)

AND

Any additional single power source failure will result in a complete loss of all 2400 VAC safeguards bus power

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table C-1 AC Power Sources	
Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 (via backfeed) • Startup Transformer 1-2

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

The condition indicated by this EAL is the degradation of the off-site and on-site AC power systems such that any additional single failure would result in a complete loss of 2400 VAC safeguards bus AC. This condition could occur due to a loss of off-site power with a concurrent failure of all but one emergency generator to supply power to its emergency bus. The subsequent loss of this single power source would escalate the event to an Alert in accordance with EAL CA1.1.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

Plant-Specific

PLP essential buses are the 2400 VAC safeguards buses 1C and 1D. There are three offsite power sources available to these buses in shutdown conditions (Ref 1, 2):

- Safeguards Transformer 1-1: 345 kV to 2,400 volt transformer located in the switchyard
- Station Power Transformer 1-2 (via backfeed): 22 kV isophase bus and the 21 kV to 2,400 volt transformer - The delayed access circuit consists of one 345 kV transmission line, the 345 kV to 23 kV Main Transformer, the 22 kV isophase bus and the 21 kV to 2,400 volt Station Power Transformer 1-2. The delayed access circuit is established by opening the motor-operated disconnect switch in the isophase bus. This switch can be opened within 30 minutes. Opening the switch allows for backfeeding via the main and station power transformers following the operation of other switchyard and in-plant breakers. Because of the time required to establish this lineup, credit can only be taken for the backfeed if it was already established at the time of loss of other safeguards bus AC power sources.
- Start-Up Transformer 1-2: 345 kV transmission line between the switchyard and plant site and 345 kV to 2,400 volt transformer located within the Plant PROTECTED AREA.

There are two primary onsite AC power sources:

- Diesel Generator 1-1 for bus 1C
- Diesel Generator 1-2 for bus 1D

Due to the time required to establish lineups, credit is not taken in this EAL for Diesel Generator 1-3 (Supplemental Diesel) (Ref 3).

If multiple sources fail to energize the unit safeguards buses within 15 minutes, an Unusual Event is declared under this EAL. The subsequent loss of the single remaining power source escalates the event to an Alert under EAL CA1.1.

PLP Basis Reference(s):

1. USFAR 8.3.2, "Electrical Systems - 2,400 Volt System"
2. UFSAR 8.4.1, "Electrical Systems - Emergency Generators"
3. UFSAR 8.4.5, "Supplemental 2400 Volt Power Supply"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 1 - Loss of AC Power

Initiating Condition: Loss of **all** offsite and **all** onsite AC power to 2400 VAC safeguards buses for ≥ 15 min.

EAL:

CA1.1 Alert

Loss of **all** offsite and **all** onsite AC power, Table C-1, to 2400 VAC safeguards buses 1C and 1D for ≥ 15 min. (Note 4, Note 7)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Note 7: Even though an essential bus may be energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable.

Table C-1 AC Power Sources

Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 (via backfeed) • Startup Transformer 1-2

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel, DEF - Defueled

Basis:

Implementing Guidance

None

Generic

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal, Spent Fuel Heat Removal and the Ultimate Heat Sink.

The event can be classified as an Alert when in cold shutdown, refuel, or defueled mode because of the significantly reduced decay heat and lower temperature and pressure, increasing the time to restore one of the emergency busses, relative to that specified for the Site Area Emergency EAL.

Escalating to Site Area Emergency, if appropriate, is by EALs in Category A.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Plant-Specific

PLP essential buses are the 2400 VAC safeguards buses 1C and 1D. There are three offsite power sources available to these buses in shutdown conditions (Ref 1, 2):

- Safeguards Transformer 1-1: 345 kV to 2,400 volt transformer located in the switchyard.
- Station Power Transformer 1-2: 22 kV isophase bus and the 21 kV to 2,400 volt transformer - The delayed access circuit consists of one 345 kV transmission line, the 345 kV to 23 kV Main Transformer, the 22 kV isophase bus and the 21 kV to 2,400 volt Station Power Transformer 1-2. The delayed access circuit is established by opening the motor-operated disconnect switch in the isophase bus. This switch can be opened within 30 minutes. Opening the switch allows for backfeeding via the main and station power transformers following the operation of other switchyard and in-plant breakers. Because of the time required to establish this lineup, credit can only be taken for the backfeed if it was already established at the time of loss of other safeguards bus AC power sources.
- Start-Up Transformer 1-2: 345 kV transmission line between the switchyard and plant site and 345 kV to 2,400 volt transformer located within the Plant PROTECTED AREA.

There are two primary AC power sources:

- Diesel Generator 1-1 for bus 1C
- Diesel Generator 1-2 for bus 1D

Due to the time required to establish lineups, credit is not taken in this EAL for Diesel Generator 1-3 (Supplemental Diesel) (Ref 3).

PLP Basis Reference(s):

1. USFAR 8.3.2, "Electrical Systems - 2,400 Volt System"
2. UFSAR 8.4.1, "Electrical Systems - Emergency Generators"
3. UFSAR 8.4.5, "Supplemental 2400 Volt Power Supply"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 2 - Loss of DC Power

Initiating Condition: Loss of **required** DC power for ≥ 15 min.

EAL:

CU2.1 Unusual Event

< 105 VDC on **required** DC buses for ≥ 15 min. (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

The purpose of this EAL is to recognize a loss of DC power compromising the ability to monitor and control the removal of decay heat during Cold Shutdown or Refueling operations.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Plant-Specific

Less than 105 VDC bus voltage is based on the minimum bus voltage necessary for the operation of safety related equipment. GOP-14, "Shutdown Cooling Operations," specifies "required" DC buses (associated station batteries and battery chargers) while in cold conditions and required actions if a station battery is removed from service.

Station Battery #1 and Station Battery #2 have ample capacity to supply required DC loads (DC buses No. 1, ED-10 and No.2, ED-20) and preferred AC loads during a complete loss of AC power for at least four hours, assuming neither emergency diesel generator is available. The batteries are designed to furnish their maximum load down to an operating temperature of 70°F without dropping below 105 VDC, and the equipment supplied by the batteries is capable of operating satisfactorily at this voltage rating. 105 VDC represents ~80% of the manufacturers' rating for battery capacity of a nominal 131 VDC.

This EAL is the cold condition equivalent of the hot condition loss of DC power EAL SS2.1.

PLP Basis Reference(s):

1. UFSAR 8.4.2, "Electrical Systems - Station Batteries"
2. GOP-14, "Shutdown Cooling Operations"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: PCS leakage

EAL:

CU3.1 Unusual Event

PCS leakage results in the inability to maintain or restore **EITHER** of the following for ≥15 min. (Note 4):

Pressurizer level > 36%

OR

PCS level within the target band established by procedure (when the level band is established below 36%)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time

Mode Applicability:

5 - Cold Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL is considered to be a potential degradation of the level of safety of the plant. The inability to maintain or restore level is indicative of loss of PCS inventory.

Relief valve normal operation should be excluded from this EAL. However, a relief valve that operates and fails to close per design should be considered applicable to this EAL if the relief valve cannot be isolated.

Prolonged loss of PCS inventory may result in escalation to the Alert emergency classification level via either EAL CA3.1 or EAL CA4.1.

Plant-Specific

When pressurizer level drops to 36%, pressurizer heaters are deenergized (Ref 2). This condition is signaled by annunciator EK-0763 "PRESSURIZER LEVEL CH "A" LO-LO" and EK-0764 "PRESSURIZER LEVEL CH "B" LO-LO**"** (Ref 1).

In Cold Shutdown mode, pressurizer level may be intentionally lowered below the heater cutoff setpoint (eg, in preparation to detension the reactor vessel head, etc). For such evolutions, this EAL is applicable if PCS level cannot be restored and maintained within the prescribed target band specified by procedure.

PLP Basis Reference(s):

1. ARP-4, "Primary System Volume Level Scheme EK-07 (C-12)," 61 Pressurizer Level Hi-Lo
2. EOP Setpoint Basis
3. UFSAR, 4.3.7 Pressurizer

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: PCS Leakage

EAL:

CU3.2 Unusual Event

UNPLANNED Reactor Vessel level drop below **EITHER** of the following for ≥ 15 min. (Note 4):

Reactor Vessel flange (when the level band is established above the flange)

OR

Target band (when the level band is established below the flange)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time

Mode Applicability:

6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL is a precursor of more serious conditions and considered to be a potential degradation of the level of safety of the plant.

Refueling evolutions that decrease PCS water level below the Reactor Vessel flange are carefully planned and procedurally controlled. An UNPLANNED event that results in water level decreasing below the Reactor Vessel flange, or below the planned PCS water level for the given evolution (if the planned PCS water level is already below the Reactor Vessel flange), warrants declaration of a UE due to the reduced PCS inventory that is available to keep the core covered.

The allowance of 15 minutes was chosen because it is reasonable to assume that level can be restored within this time frame using one or more of the redundant means of refill that should be available. If level cannot be restored in this time frame then it may indicate a more serious condition exists.

Continued loss of PCS Inventory will result in escalation to the Alert emergency classification level via either EAL CA3.1 or EAL CA4.1.

This EAL involves a decrease in PCS level below the top of the Reactor Vessel flange that continues for 15 minutes due to an UNPLANNED event. This EAL is not applicable to decreases in flooded reactor cavity level, which is addressed by EAL AU2.1, until such time as the level decreases to the level of the vessel flange.

Plant-Specific

CU3.2 involves a decrease in Reactor Vessel level below the top of the Reactor Vessel flange that continues for 15 minutes due to an UNPLANNED event. The Reactor Vessel flange is at 624 ft 6 in. elevation (Ref 1) and can be monitored by:

- Reactor Vessel Level indicator LIA-0105 wide range 66% (Ref 1)
- Refueling Level Gauge LG-0105B 624 ft 6 in. elevation (when PCS depressurized and drained down from solid condition) (Ref 1). LG-0105B is a sight glass and subject to breakage which could become the source of a PCS leak. Normally, it is isolated and only placed in service when an operator is stationed at the sight glass.
- RVLMS UGS Region Sensor #5 uncovered (red light on): 102 in. above (fuel) bottom of fuel alignment plate or 621 ft 8 in. elevation, which would provide additional indication that the EAL had been exceeded (Ref 2, 3).

Figure C-1 illustrates the Reactor Vessel/PCS levels associated with Category C EALs.

This EAL involves a lowering in Reactor Vessel level below the top of the Reactor Vessel flange, or the inability to maintain water level above the intended level when level is being intentionally maintained below the flange, that continues for fifteen minutes due to an UNPLANNED event. This EAL is not applicable to drops in flooded refueling cavity level (covered by lowering spent fuel pool water level in EAL AU2.1) until such time as the level lowers to the level of the vessel flange. If level continues to lower and reaches the bottom of the PCS loop (616 ft 5.5 in.) (Ref 1, 4), escalation to the Alert level under EAL CA3.1 would be appropriate. If the level lowering is accompanied by PCS heatup, escalation to the Alert level under EAL CA4.1 may also be appropriate.

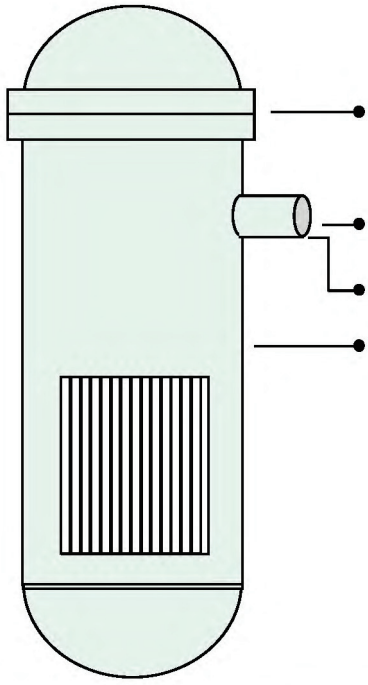
In Cold Shutdown mode, the PCS will normally be intact and standard PCS inventory and level monitoring means are available. In the Refuel mode, the PCS is not intact and Reactor Vessel level and inventory are monitored by different means. In the Refuel mode, normal means of core temperature indication and Reactor Vessel level indication may not be available. Redundant means of Reactor Vessel level indication will normally be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted.

PLP Basis Reference(s):

1. SOP-1B, "Primary Coolant System - Cooldown"
2. VEN-M1-BM, Sheet 28 - RLI Display Panel
3. M-398, Sheet 1005 - Level Setting Diagram RVLMS
4. UFSAR, Figure 4-2 (Hot Leg ID)

Figure C-1: Reactor Vessel/PCS Level Thresholds

Figure C-1 Reactor Vessel/PCS Level Thresholds



RVLMS Sensor Red Light	PCS Elevation	LIA-0105 Wide Range	EAL
#5 (621 ft. 8 in.)	624 ft. 6 in.	66%	CU3.2
		LIA-0105 LIA-0106	
------	617 ft. 0 in.	0%	CA3.1
#7 (616 ft. 6 in.)	------	------	CS3.1
#8 (614 ft. 0 in.)	------	------	CS3.2 CG3.1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: PCS Leakage

EAL:

CU3.3 Unusual Event

Reactor Vessel level **cannot** be monitored with a loss of PCS inventory as indicated by an unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage

Mode Applicability:

6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL is a precursor of more serious conditions and considered to be a potential degradation of the level of safety of the plant.

Refueling evolutions that decrease Reactor Vessel water level below the Reactor Vessel flange are carefully planned and procedurally controlled. An UNPLANNED event that results in water level decreasing below the Reactor Vessel flange, or below the planned Reactor Vessel water level for the given evolution (if the planned Reactor Vessel water level is already below the Reactor Vessel flange), warrants declaration of a UE due to the reduced PCS inventory that is available to keep the core covered.

Continued loss of PCS Inventory will result in escalation to the Alert emergency classification level via either EAL CA3.1 or EAL CA4.1.

This EAL addresses conditions in the refueling mode when normal means of core temperature indication and Reactor Vessel level indication may not be available. Redundant means of Reactor Vessel level indication will normally be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted. However, if all level indication were to be lost during a loss of PCS inventory event, the operators would need to determine that PCS inventory loss was occurring by observing sump and tank level changes. Sump and tank level increases must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of PCS leakage.

Plant-Specific

In this EAL, all level indication would be unavailable and, the Reactor Vessel inventory loss must be detected by Containment Sump or Primary System Drain Tank level changes.

Rising Containment Sump level can be monitored on the PPC (Ref 1). Rising Primary System Drain Tank level can be monitored at EC-40, "Radwaste Panel" annunciation for which will alarm both locally and in the Control Room (Ref 2, 3 4). Sump and tank level increases must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of PCS leakage.

PLP Basis Reference(s):

1. PPC Containment Sump Level Trends
2. P&ID Primary Coolant System M-201, Sheet 1 (A-8, G-8, F-1, D-1)
3. P&ID Radioactive Waste Treatment System Clean M-210, Sheet 2 (G-7, D-7)
4. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (C-13)" (Window #68)

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: Loss of Reactor Vessel/PCS inventory

EAL:

CA3.1 Alert

Loss of inventory as indicated by Reactor Vessel/PCS water level < 617 ft (0% on LIA-0105 or LIA-0106)

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL serves as a precursor to a loss of ability to adequately cool the fuel. The magnitude of this loss of water indicates that makeup systems have not been effective and may not be capable of preventing further Reactor Vessel level decrease and potential core uncovery. This condition will result in a minimum emergency classification level of an Alert.

The inability to restore and maintain level after reaching this setpoint would be indicative of a failure of the PCS barrier.

If Reactor Vessel level continues to lower then escalation to Site Area Emergency will be via EAL CS3.1, EAL CS3.2 or EAL CS3.3.

Plant-Specific

Figure C-1 illustrates the Reactor Vessel/PCS levels associated with Category C EALs (Ref 1, 2).

When Reactor Vessel water level decreases to 616 ft 5.5 in. elevation, the bottom of the PCS hot leg is uncovered (Ref 1, 2). Reactor Vessel Level Transmitter LT-0105 and Reactor Hot Leg Level Transmitter LT-0106 provide the closest readily available continuous indication of this level. Both transmitters will indicate approximately 0% at a level of 617 ft 0 in. (Ref 2).

This EAL serves as a precursor to a loss of ability to adequately cool the fuel. The magnitude of this loss of water indicates makeup systems have not been effective and may not be capable of preventing further PCS or Reactor Vessel level lowering and potential core uncovery. The bottom of the hot leg is the level equal to the bottom of the Reactor Vessel loop penetration, not the low point of the loop. This level was chosen because remote Reactor Vessel level indication may be lost and loss of suction to decay heat removal systems has occurred. The inability to restore and maintain level after reaching this setpoint infers a failure of the PCS barrier.

In Cold Shutdown, the decay heat available to raise PCS temperature during a loss of inventory or heat removal event may be significantly greater than in the Refuel mode. Entry into Cold Shutdown mode may be attained within hours of operating at power or hours after refueling is completed. Entry into the Refuel mode may not occur for many hours after the reactor has been shutdown (Ref 3). Thus, the heatup and the threat to damaging the fuel cladding may be lower for events that occur in the Refuel mode with irradiated fuel in the Reactor Vessel. Note that the heatup threat could be lower for Cold Shutdown conditions if the entry into Cold Shutdown was following a refueling.

In Cold Shutdown mode, the PCS will normally be intact and standard PCS inventory and level monitoring means are available. In the Refuel mode, the PCS is not intact and Reactor Vessel level and inventory are monitored by different means. In the Refuel mode, normal means of core temperature indication and Reactor Vessel level indication may not be available. Redundant means of Reactor Vessel level indication will normally be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted.

PLP Basis Reference(s):

1. UFSAR, Figure 4-2 (Hot Leg ID)
2. SOP-1B, "Primary Coolant System - Cooldown"
3. GOP-14, "Shutdown Cooling Operations," Attachment 7

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: Loss of Reactor Vessel/PCS inventory

EAL:

CA3.2 Alert

Reactor Vessel level **cannot** be monitored for ≥ 15 min. with a loss of PCS inventory as indicated by an unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL serves as a precursor to a loss of ability to adequately cool the fuel. The magnitude of this loss of water indicates that makeup systems have not been effective and may not be capable of preventing further Reactor Vessel level decrease and potential core uncovery. This condition will result in a minimum emergency classification level of an Alert.

The inability to restore and maintain level would be indicative of a failure of the PCS barrier.

If Reactor Vessel level continues to lower then escalation to Site Area Emergency will be via EAL CS3.1, EAL CS3.2 or EAL CS3.3.

Plant-Specific

Figure C-1 illustrates the Reactor Vessel/PCS levels associated with Category C EALs (Ref 1, 2).

In Cold Shutdown, the decay heat available to raise PCS temperature during a loss of inventory or heat removal event may be significantly greater than in the Refuel mode. Entry into Cold Shutdown mode may be attained within hours of operating at power or hours after refueling is completed. Entry into the Refuel mode may not occur for many hours after the reactor has been shutdown (Ref 3). Thus, the heatup and the threat to

damaging the fuel cladding may be lower for events that occur in the Refuel mode with irradiated fuel in the Reactor Vessel. Note that the heatup threat could be lower for Cold Shutdown conditions if the entry into Cold Shutdown was following a refueling.

In Cold Shutdown mode, the PCS will normally be intact and standard PCS inventory and level monitoring means are available. In the Refuel mode, the PCS is not intact and Reactor Vessel level and inventory are monitored by different means. In the Refuel mode, normal means of core temperature indication and Reactor Vessel level indication may not be available. Redundant means of Reactor Vessel level indication will normally be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted.

If all level indication is unavailable, the Reactor Vessel/PCS inventory loss must be detected by Containment Sump or Primary System Drain Tank level changes.

Rising Containment Sump level can be monitored on the PPC (Ref 4). Rising Primary System Drain Tank level can be monitored at EC-40, "Radwaste Panel" annunciation for which will alarm both locally and in the Control Room (Ref 5, 6, 7). Sump level increases must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of PCS leakage.

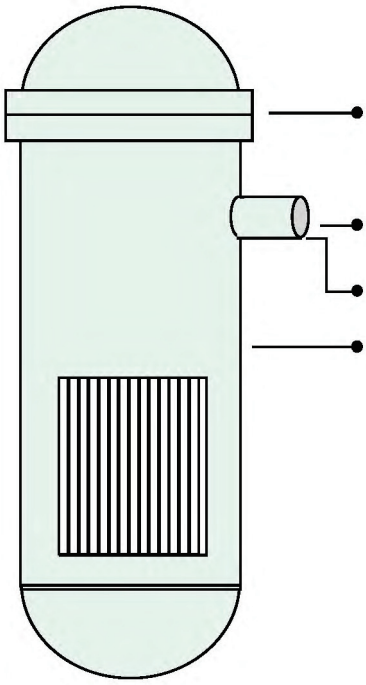
The 15-minute interval for the loss of level indication escalates the classification from CU3.3 to CA3.2 and has been chosen because it is half of the Site Area Emergency EAL duration. The interval allows this EAL to be an effective precursor to the Site Area Emergency EAL CS3.3. Therefore this EAL meets the definition for an Alert emergency.

PLP Basis Reference(s):

1. UFSAR, Figure 4-2 (Hot Leg ID)
2. SOP-1B, "Primary Coolant System - Cooldown"
3. GOP-14, "Shutdown Cooling Operations," Attachment 7
4. PPC Containment Sump Level Trends
5. P&ID Primary Coolant System M-201, Sheet 1 (A-8, G-8, F-1, D-1)
6. P&ID Radioactive Waste Treatment System Clean M-210, Sheet 2 (G-7, D-7)
7. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (C-13)" (Window #68)

Figure C-1: Reactor Vessel/PCS Level Thresholds

Figure C-1 Reactor Vessel/PCS Level Thresholds



	RVLMS Sensor Red Light	PCS Elevation	LIA-0105 Wide Range	EAL
Reactor vessel flange	#5 (621 ft. 8 in.)	624 ft. 6 in.	66%	CU3.2
			LIA-0105 LIA-0106	
6 in. above bottom of hotleg	------	617 ft. 0 in.	0%	CA3.1
Bottom of hotleg	#7 (616 ft. 6 in.)	------	------	CS3.1
11 in. above top of active fuel	#8 (614 ft. 0 in.)	------	------	CS3.2 CG3.1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: Loss of Reactor Vessel inventory affecting core decay heat removal capability

EAL:

CS3.1 Site Area Emergency

With CONTAINMENT CLOSURE **not** established, Reactor Vessel level < 616 ft 6 in. (Sensor #7 RVLMS red light)

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

Under the conditions specified by this EAL, continued decrease in Reactor Vessel level is indicative of a loss of inventory control. Inventory loss may be due to a PCS breach, pressure boundary leakage, or continued boiling in the Reactor Vessel. Thus, declaration of a Site Area Emergency is warranted.

Escalation to a General Emergency is via EAL CG3.1, EAL CG3.2, AG1.1, AG1.2 or AG1.3.

Plant-Specific

Figure C-1 illustrates the Reactor Vessel/PCS levels associated with Category C EALs (Ref 1, 2).

When Reactor Vessel water level drops to 616 ft 6 in. el., level is at the bottom of the PCS hot leg vessel penetration (Ref 1, 2). Reactor Vessel Level Transmitter LT-0105 and Reactor Hot Leg Level Transmitter LT-0106 provide the closest readily available continuous indication of this level. Both transmitters will indicate approximately 0% at a level of 617 ft 0 in. (Ref 2). RVLMS provides discrete Reactor Vessel level indications down to 11 in. above the top of fuel but is unable to detect 6" below the bottom ID of the

PCS loop penetration. The closest indication of this level is provided by RVLMS UGS Region Sensor #7 red light, ~40 in. above the fuel alignment plate at 616 ft 6 in. el. (Ref 3, 4). This indication allows clear escalation from CA1.1 and maintains the 6 in. difference in Reactor Vessel elevation between the Alert and Site Area Emergency classification prescribed by NEI 99-01.

Under the conditions specified in this EAL, continued lowering of Reactor Vessel water level is indicative of a loss of inventory control. Inventory loss may be due to a vessel breach, PCS pressure boundary leakage or continued boiling in the Reactor Vessel. The magnitude of this loss of water indicates that makeup systems have not been effective and may not be capable of preventing further PCS or Reactor Vessel water level lowering and core uncovery. The inability to restore and maintain level after reaching this setpoint infers a failure of the PCS barrier and potential loss of the Fuel Clad barrier.

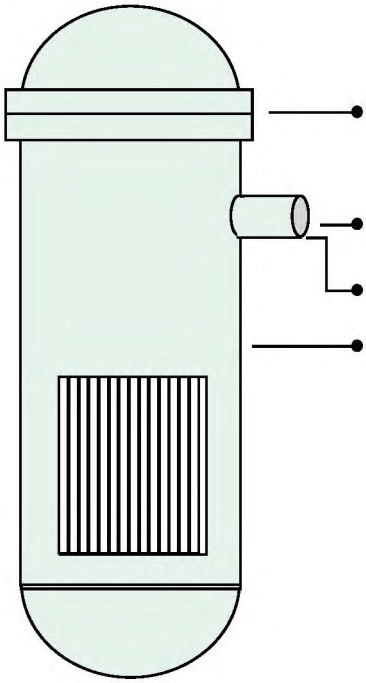
CONTAINMENT CLOSURE is defined as the actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions. As applied to PLP, a containment condition where at least one integral barrier to the release of radioactive material is being provided. CONTAINMENT CLOSURE Controls are used to track any impaired containment penetration so that at least one barrier to the release of radioactive material can be quickly established in the event of a loss of decay heat removal (Ref 5).

PLP Basis Reference(s):

1. UFSAR, Figure 4-2 (Hot Leg ID)
2. SOP-1B, "Primary Coolant System - Cooldown"
3. M-398, Sheet 1005, "Level Setting Diagram RVLMS"
4. EOP Setpoint Basis (Top Of Active Fuel region)
5. GOP-14, "Shutdown Cooling Operations," Attachment 1, "Terms and Definitions"

Figure C-1: Reactor Vessel/PCS Levels Thresholds

Figure C-1 Reactor Vessel/PCS Level Thresholds



RVLMS Sensor Red Light	PCS Elevation	LIA-0105 Wide Range	EAL
#5 (621 ft. 8 in.)	624 ft. 6 in.	66%	CU3.2
		LIA-0105 LIA-0106	
------	617 ft. 0 in.	0%	CA3.1
#7 (616 ft. 6 in.)	------	------	CS3.1
#8 (614 ft. 0 in.)	------	------	CS3.2 CG3.1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: Loss of Reactor Vessel inventory affecting core decay heat removal capability

EAL:

CS3.2 Site Area Emergency

With CONTAINMENT CLOSURE established, Reactor Vessel level < 614 ft 0 in. (Sensor #8 RVLMS red light)

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

Under the conditions specified by this EAL, continued decrease in Reactor Vessel level is indicative of a loss of inventory control. Inventory loss may be due to a PCS breach, pressure boundary leakage, or continued boiling in the Reactor Vessel. Thus, declaration of a Site Area Emergency is warranted.

Escalation to a General Emergency is via EAL CG3.1, EAL CG3.2, AG1.1, AG1.2 or AG1.3.

Plant-Specific

Figure C-1 illustrates the Reactor Vessel/PCS levels associated with Category C EALs (Ref 1, 2).

When Reactor Vessel water level drops to 613 ft 2 in. elevation (top of active fuel), core uncovery is about to occur. The closest indication of this level is provided by RVLMS UGS Region Sensor #8 red light, ~11 in. above the bottom of the fuel alignment plate at 614 ft, 0 in. el. (Ref 3, 4, 5). The level specified in this EAL threshold is lower than that specified in EAL CS3.1 when CONTAINMENT CLOSURE is not established.

Under the conditions specified in this EAL, continued lowering of PCS water level is indicative of a loss of inventory control. Inventory loss may be due to a vessel breach, PCS pressure boundary leakage or continued boiling in the Reactor Vessel. The magnitude of this loss of water indicates that makeup systems have not been effective and may not be capable of preventing further PCS or Reactor Vessel water level lowering and core uncovery. The inability to restore and maintain level after reaching this setpoint infers a failure of the PCS barrier and potential loss of the Fuel Clad barrier.

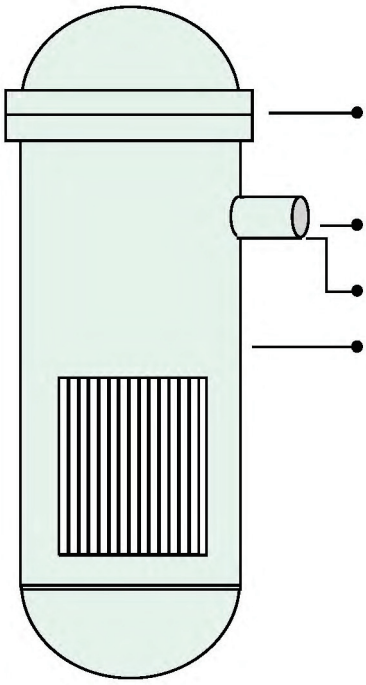
CONTAINMENT CLOSURE is defined as the actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions. As applied to PLP, a containment condition where at least one integral barrier to the release of radioactive material is being provided. CONTAINMENT CLOSURE Controls are used to track any impaired containment penetration so that at least one barrier to the release of radioactive material can be quickly established in the event of a loss of decay heat removal (Ref 5).

PLP Basis Reference(s):

1. UFSAR, Figure 4-2 (Hot Leg ID)
2. SOP-1B, "Primary Coolant System - Cooldown"
3. M-398, Sheet 1005, "Level Setting Diagram RVLMS"
4. EOP Setpoint Basis (Top Of Active Fuel region)
5. GOP-14, "Shutdown Cooling Operations," Attachment 1, "Terms and Definitions"

Figure C-1: Reactor Vessel/PCS Level Thresholds

Figure C-1 Reactor Vessel/PCS Level Thresholds



RVLMS Sensor Red Light	PCS Elevation	LIA-0105 Wide Range	EAL
#5 (621 ft. 8 in.)	624 ft. 6 in.	66%	CU3.2
		LIA-0105 LIA-0106	
------	617 ft. 0 in.	0%	CA3.1
#7 (616 ft. 6 in.)	------	------	CS3.1
#8 (614 ft. 0 in.)	------	------	CS3.2 CG3.1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: Loss of Reactor Vessel inventory affecting core decay heat removal capability

EAL:

CS3.3 Site Area Emergency

Reactor Vessel level **cannot** be monitored for ≥ 30 min. (Note 4) with a loss of PCS inventory as indicated by **any** of the following:

- Containment High Range Radiation Monitor > 40 R/hr
- Erratic Source Range Monitor indication
- Unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

Under the conditions specified by this EAL, continued decrease in Reactor Vessel level is indicative of a loss of inventory control. Inventory loss may be due to a PCS breach, pressure boundary leakage, or continued boiling in the Reactor Vessel. Thus, declaration of a Site Area Emergency is warranted.

Escalation to a General Emergency is via EAL CG3.1, EAL CG3.2, AG1.1, AG1.2 or AG1.3.

The 30-minute duration allows sufficient time for actions to be performed to recover inventory control equipment.

As water level in the Reactor Vessel lowers, the dose rate above the core will increase. The dose rate due to this core shine should result in radiation monitor indication and possible alarm.

Post-TMI studies indicated that the installed nuclear instrumentation will operate erratically when the core is uncovered and that this should be used as a tool for making such determinations.

Plant-Specific

In Refuel or Cold Shutdown mode, normal Reactor Vessel level indication (eg, RVLMS) may be unavailable but alternate means of level indication are normally installed (including visual observation) to assure that the ability to monitor level will not be interrupted (Ref 1).

If all means of level monitoring are not available, however, the Reactor Vessel inventory loss may be detected by the following indirect methods:

- As water level in the Reactor Vessel lowers, the dose rate above the core will rise. The dose rate due to this core shine should result in on-scale containment radiation monitor indication and possible alarm. Containment radiation is indicated on Containment High Range Radiation monitors RIA-2321 or RIA-2322. The containment radiation monitor alert alarm is set at 40 R/hr. The 40 R/hr setpoint has been selected to be operationally significant and above that expected under normal plant conditions while in the Refuel mode (Ref 2).
- Post-TMI studies indicated that the installed nuclear instrumentation will operate erratically when the core is uncovered and that source range monitors can be used as a tool for making such determinations. Two of the source range neutron flux indicators (NI-1/3A and NI-2/4A) provide CONTROL ROOM INDICATION (Ref 4). Another source range neutron flux indicator is located at Auxiliary Hot Shutdown Monitoring Panel C-150A (NI-1/3C) (Ref 5). Visual and audible indication is available in the Control Room and audible indication in containment when in service (Ref 6). Figure C-2 shows the response of the source range monitor during the first few hours of the TMI-2 accident. The instrument reported an increasing signal about 30 minutes into the accident. At this time, the reactor coolant pumps were running and the core was adequately cooled as indicated by the core outlet thermocouples. Hence, the increasing signal was the result of an increasing two-phase void fraction in the reactor core and vessel downcomer and the reduced shielding that the two-phase mixture provides to the source range monitor.

- If water level indication is unavailable, the PCS inventory loss may be detected by sump or tank level changes. Rising Containment Sump level can be monitored on the PPC (Ref 7). Rising Primary System Drain Tank level can be monitored at EC-40, "Radwaste Panel" annunciation for which will alarm both locally and in the Control Room (Ref 8, 9, 10). Sump/tank level increases must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of PCS leakage.

PLP Basis Reference(s):

1. GOP-14, "Shutdown Cooling Operations," Attachment 7
2. NMC Calculation EA-JLV-04-01 "Determination of Containment Radiation Monitor and Radiological Effluent Monitor EALs in Accordance with NEI 99-01 Revision 4"
3. ARP-33, "Auxiliary Systems Scheme EK-02 (C-11A) Annunciator Nos. 1 and 2" (Windows #13 & #14)
4. SOP-35, "Neutron Monitoring System"
5. PLP-RPT-13-00143, "Nuclear Safety Capability Assessment Fire Area Analysis Results"
6. PLP-RPT-12-0056, "Non-Power Operational Modes Transition Review"
7. GOP-11, "Refueling Operation and Fuel Handling," Attachment 2, "Refuel Handling Operation Shift Checklist"
8. PPC Containment Sump Level Trends
9. P&ID Primary Coolant System M-201, Sheet 1 (A-8, G-8, F-1, D-1)
10. P&ID Radioactive Waste Treatment System Clean M-210, Sheet 2 (G-7, D-7)
11. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (C-13)" (Window #68)

Figure C-2: Response of the TMI-2 Source Range Measurement During the First Six Hours of the Accident

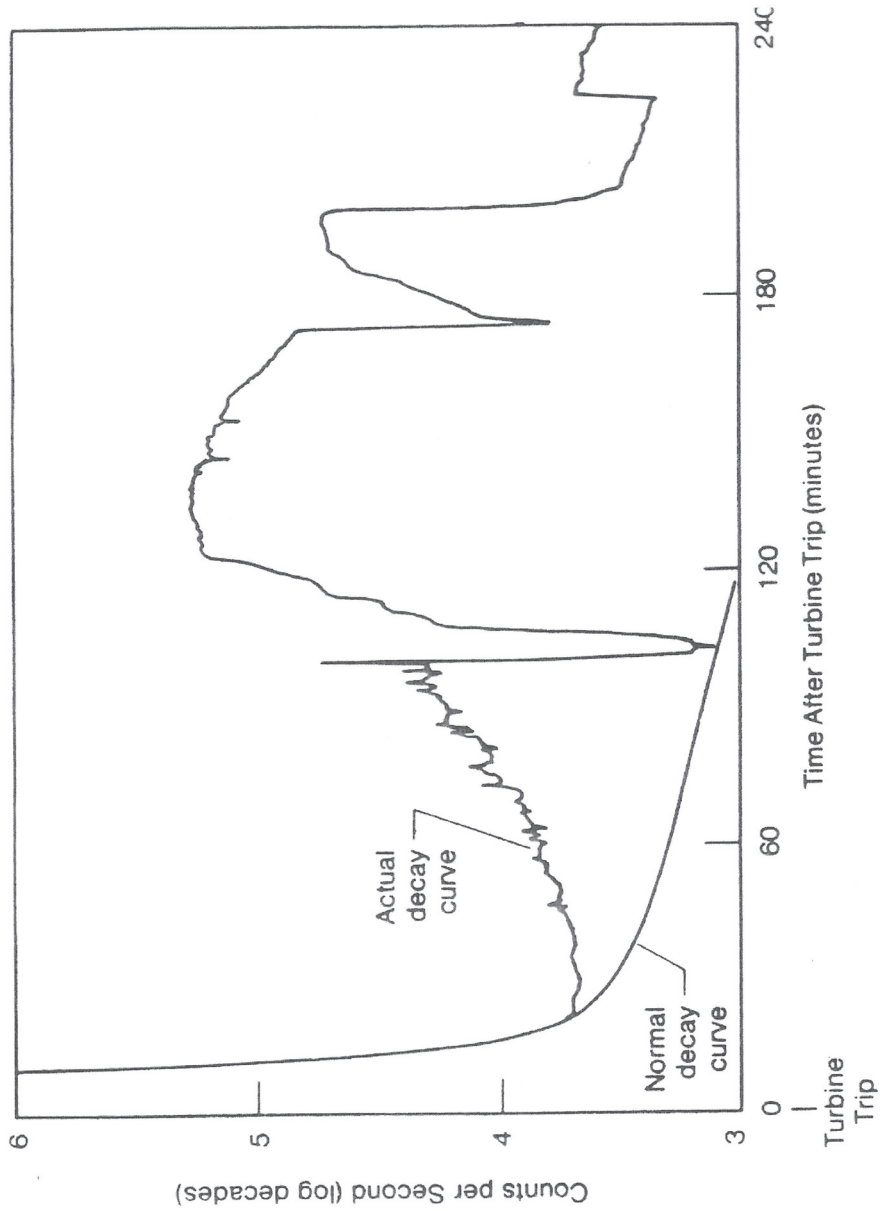
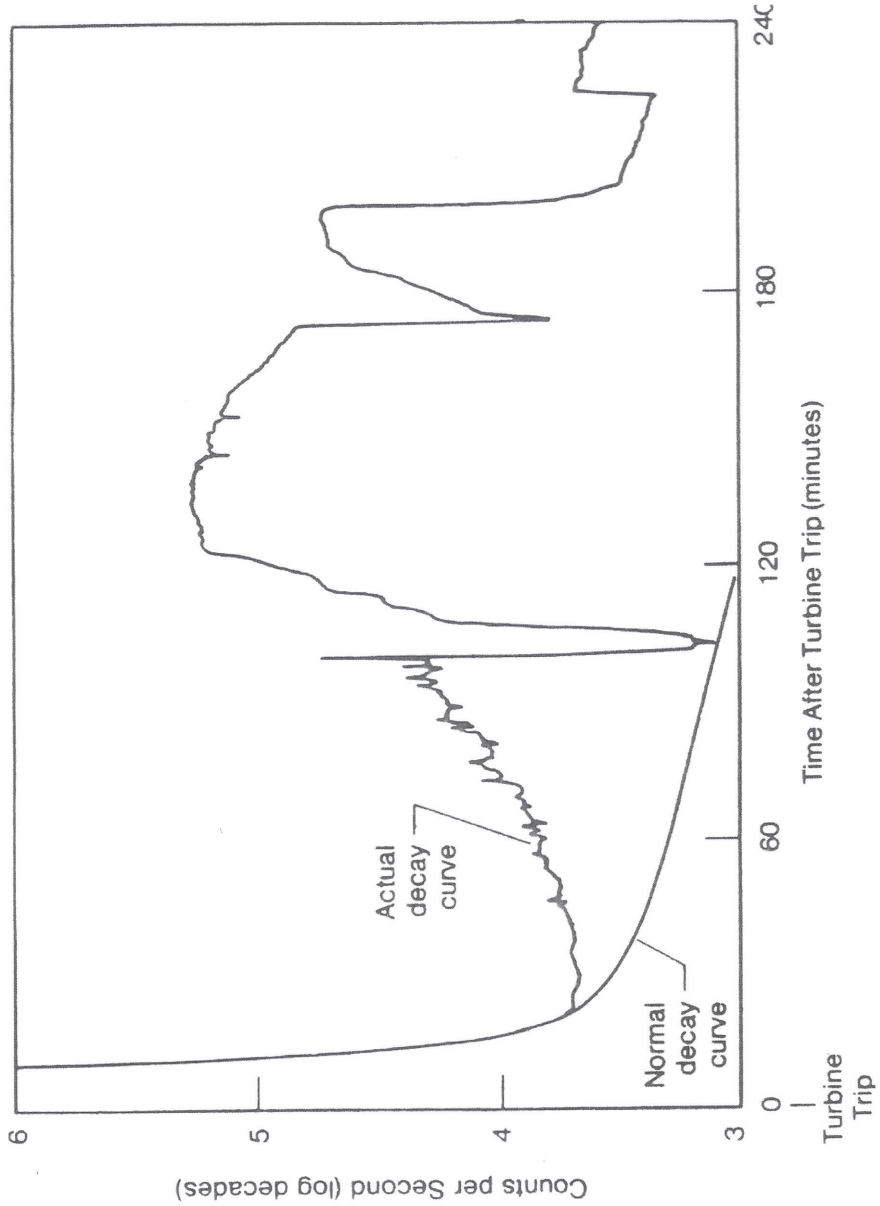


Figure C-2: Response of the TMI-2 Source Range Measurement During the First Six Hours of the Accident



TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: Loss of PCS inventory affecting fuel clad integrity with Containment challenged

EAL:

CG3.1 General Emergency

Reactor Vessel level < 614 ft 0 in. (Sensor #8 RVLMS red light) for ≥ 30 min. (Note 4)

AND

Any Containment Challenge Indication, Table C-2

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table C-2 Containment Challenge Indications
• CONTAINMENT CLOSURE **not** established
• Hydrogen concentration in containment ≥ 6%
• UNPLANNED rise in containment pressure

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL represents the inability to restore and maintain Reactor Vessel level to above the top of active fuel with containment challenged. Fuel damage is probable if Reactor Vessel level cannot be restored, as available decay heat will cause boiling, further reducing the Reactor Vessel level. With the containment breached or challenged then the potential for unmonitored fission product release to the environment is high. This represents a direct path for radioactive inventory to be released to the environment. This is consistent with the definition of a GE. The GE is declared on the occurrence of the loss or IMMINENT loss of function of all three barriers.

A number of variables can have a significant impact on heat removal capability challenging the fuel clad barrier. Examples include: mid-loop, reduced level/flange level, head in place, cavity flooded,

PCS venting strategy, decay heat removal system design, vortexing pre-disposition, steam generator U-tube draining

Analysis indicates that core damage may occur within an hour following continued core uncovery therefore, 30 minutes was conservatively chosen.

If CONTAINMENT CLOSURE is re-established prior to exceeding the 30 minute core uncovery time limit then escalation to General Emergency would not occur.

Plant-Specific

Figure C-1 illustrates the Reactor Vessel/PCS levels associated with Category C EALs (Ref 1, 2).

When Reactor Vessel water level drops to 613 ft 2 in. elevation (top of active fuel), core uncovery is about to occur. The closest indication of this level is provided by RVLMS UGS Region Sensor #8 red light, ~11 in. above the bottom of the fuel alignment plate at 614 ft 0 in. el. (Ref 3, 4, 5).

Under the conditions specified in this EAL, continued lowering of PCS water level is indicative of a loss of inventory control. Inventory loss may be due to a vessel breach, PCS pressure boundary leakage or continued boiling in the Reactor Vessel. The magnitude of this loss of water indicates that makeup systems have not been effective and may not be capable of preventing further PCS or Reactor Vessel water level lowering and core uncovery. The inability to restore and maintain level after reaching this setpoint infers a failure of the PCS barrier and potential loss of the Fuel Clad barrier. Fuel damage is probable if core submergence cannot be restored as available decay heat will cause boiling and further lowers the vessel level.

Three indications are associated with containment challenges:

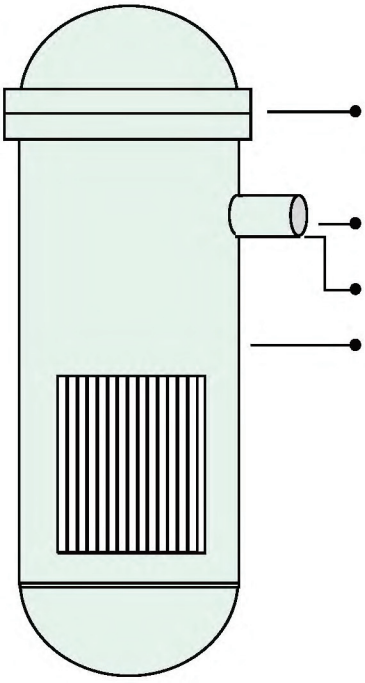
- CONTAINMENT CLOSURE is defined as the actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions. As applied to PLP, a containment condition where at least one integral barrier to the release of radioactive material is being provided. CONTAINMENT CLOSURE Controls are used to track any impaired containment penetration so that at least one barrier to the release of radioactive material can be quickly established in the event of a loss of decay heat removal (Ref 5).
- In the early stages of a core uncovery event, it is unlikely that hydrogen buildup due to a core uncovery could result in an explosive mixture of dissolved gases in containment. However, containment monitoring and/or sampling should be performed to verify this assumption. A combustible mixture can be formed when hydrogen gas concentration in the containment atmosphere is greater than 6% by volume (Ref 6).
- Any UNPLANNED increase in containment pressure in cold modes must be assumed to be as the result of either decay heat energy or gas generation in containment. The threshold is therefore indicative of conditions challenging CONTAINMENT CLOSURE.

PLP Basis Reference(s):

1. UFSAR, Figure 4-2 (Hot Leg ID)
2. SOP-1B, "Primary Coolant System - Cooldown"
3. M-398, Sheet 1005, "Level Setting Diagram RVLMS"
4. EOP Setpoint Basis (Top Of Active Fuel region)
5. GOP-14, "Shutdown Cooling Operations," Attachment 1, "Terms and Definitions"
6. Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a Loss-of-Coolant Accident"

Table C-1: Reactor Vessel/PCS Levels Thresholds

Figure C-1 Reactor Vessel/PCS Level Thresholds



RVLMS Sensor Red Light	PCS Elevation	LIA-0105 Wide Range	EAL
#5 (621 ft. 8 in.)	624 ft. 6 in.	66%	CU3.2
		LIA-0105 LIA-0106	
------	617 ft. 0 in.	0%	CA3.1
#7 (616 ft. 6 in.)	------	------	CS3.1
#8 (614 ft. 0 in.)	------	------	CS3.2 CG3.1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 3 - Reactor Vessel/PCS Level

Initiating Condition: Loss of PCS inventory affecting fuel clad integrity with Containment challenged

EAL:

CG3.2 General Emergency

Reactor Vessel level **cannot** be monitored with core uncovery indicated by **any** of the following for ≥ 30 min. (Note 4):

- Containment High Range Radiation Monitor > 40 R/hr
- Erratic Source Range Monitor indication
- Unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage

AND

Any Containment Challenge Indication, Table C-2

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time

Table C-2 Containment Challenge Indications
• CONTAINMENT CLOSURE **not** established • Hydrogen concentration in containment ≥ 6% • UNPLANNED rise in containment pressure

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL represents the inability to restore and maintain Reactor Vessel level to above the top of active fuel with containment challenged. Fuel damage is probable if Reactor Vessel level cannot be restored, as available decay heat will cause boiling, further reducing the Reactor Vessel level. With the containment breached or challenged then the potential for unmonitored fission product release to the environment is high. This represents a direct path for radioactive inventory to be released to the environment. This is consistent with the definition of a GE. The GE is declared on the occurrence of the loss or IMMINENT loss of function of all three barriers.

A number of variables can have a significant impact on heat removal capability challenging the fuel clad barrier. Examples include: mid-loop, reduced level/flange level, head in place, cavity flooded, PCS venting strategy, decay heat removal system design, vortexing pre-disposition, steam generator U-tube draining

Analysis indicates that core damage may occur within an hour following continued core uncovery therefore, 30 minutes was conservatively chosen.

If CONTAINMENT CLOSURE is re-established prior to exceeding the 30 minute core uncovery time limit then escalation to General Emergency would not occur.

Sump and tank level increases must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of PCS leakage.

As water level in the Reactor Vessel lowers, the dose rate above the core will increase. The dose rate due to this core shine should result in site specific monitor indication and possible alarm.

Post-TMI studies indicated that the installed nuclear instrumentation will operate erratically when the core is uncovered and that this should be used as a tool for making such determinations.

Plant-Specific

In Refuel or Cold Shutdown mode, normal Reactor Vessel level indication (eg, RVLMS) may be unavailable but alternate means of level indication are normally installed (including visual observation) to assure that the ability to monitor level will not be interrupted (Ref 1).

If all means of level monitoring are not available, however, the Reactor Vessel inventory loss may be detected by the following indirect methods:

- As water level in the Reactor Vessel lowers, the dose rate above the core will rise. The dose rate due to this core shine should result in on-scale containment radiation monitor indication and possible alarm. Containment radiation is indicated on Containment High Range Radiation monitors RIA-2321 or RIA-2322. The containment radiation monitor alert alarm is set at 40 R/hr. The 40 R/hr setpoint has been selected to be operationally significant and above that expected under normal plant conditions while in the Refuel mode (Ref 2).
- Post-TMI studies indicated that the installed nuclear instrumentation will operate erratically when the core is uncovered and that source range monitors can be used as a tool for making such determinations. Two of the source range neutron flux indicators (NI-1/3A and NI-2/4A) provide CONTROL ROOM INDICATION (Ref 4). Another source range neutron flux indicator is located at Auxiliary Hot Shutdown Monitoring Panel C-150A (NI-1/3C) (Ref 5). Visual and audible indication is available in the Control Room and audible indication in containment when in service (Ref 6). Figure C-2 shows the response of the source range monitor during the first few hours of the TMI-2 accident. The instrument reported an increasing signal about 30 minutes into the accident. At this time, the reactor coolant pumps were running and the core was adequately cooled as indicated by the core outlet thermocouples. Hence, the increasing signal was the result of an increasing two-phase void fraction in the reactor core and vessel downcomer and the reduced shielding that the two-phase mixture provides to the source range monitor.
- If water level indication is unavailable, the PCS inventory loss may be detected by sump or tank level changes. Rising Containment Sump level can be monitored on the PPC (Ref 7). Rising Primary System Drain Tank level can be monitored at EC-40, "Radwaste Panel" annunciation for which will alarm both locally and in the Control Room (Ref 8, 9, 10). Sump/tank level increases must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of PCS leakage.

Three indications are associated with Containment challenges:

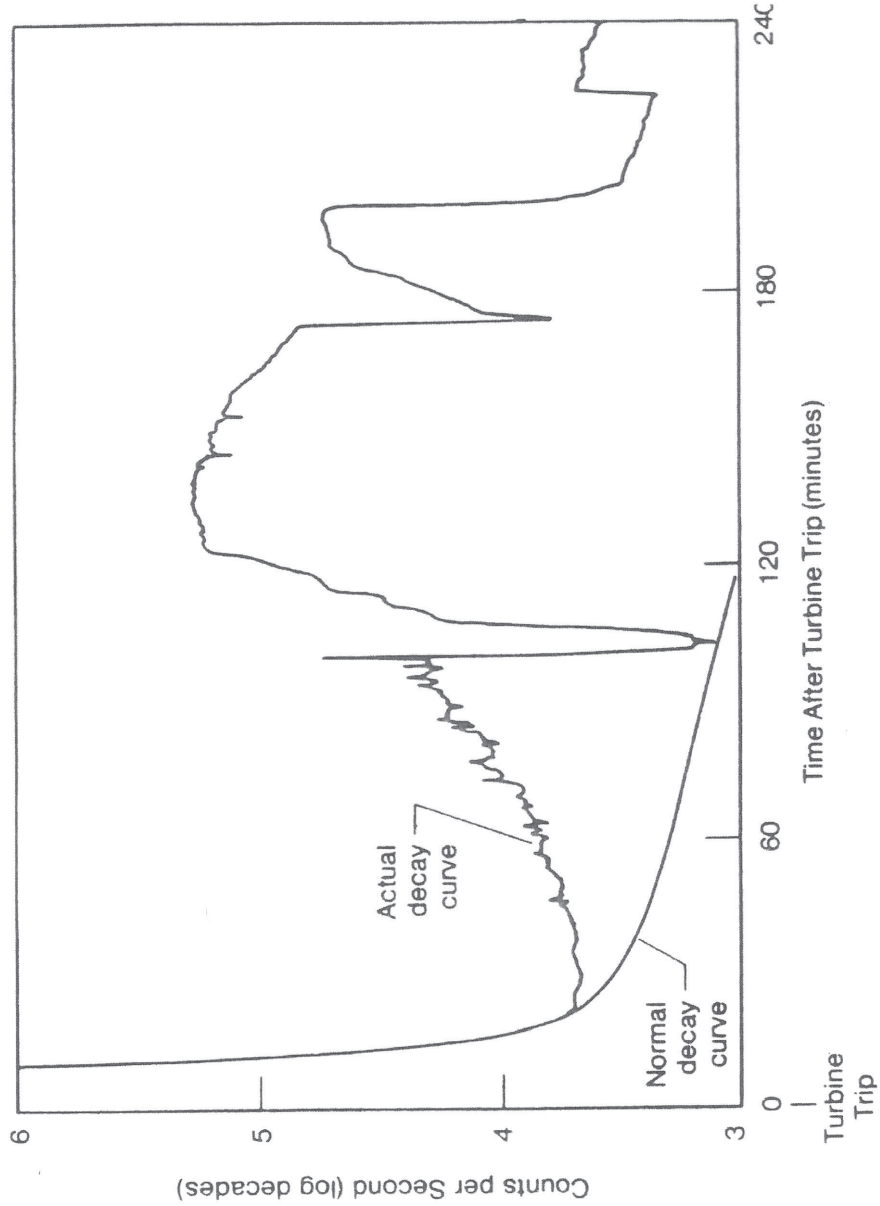
- CONTAINMENT CLOSURE is defined as the actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions. As applied to PLP, a containment condition where at least one integral barrier to the release of radioactive material is being provided. CONTAINMENT CLOSURE Controls are used to track any impaired containment penetration so that at least one barrier to the release of radioactive material can be quickly established in the event of a loss of decay heat removal (Ref 11).
- In the early stages of a core uncovery event, it is unlikely that hydrogen buildup due to a core uncovery could result in an explosive mixture of dissolved gases in containment. However, containment monitoring and/or sampling should be performed to verify this assumption. A combustible mixture can be formed when hydrogen gas concentration in the containment atmosphere is greater than 6% by volume (Ref 12).
- Any UNPLANNED increase in containment pressure in cold modes must be assumed to be as the result of either decay heat energy or gas generation in containment. The threshold is therefore indicative of conditions challenging CONTAINMENT CLOSURE.

PLP Basis Reference(s):

1. GOP-14, "Shutdown Cooling Operations," Attachment 7
2. NMC Calculation EA-JLV-04-01 "Determination of Containment Radiation Monitor and Radiological Effluent Monitor EALs in Accordance with NEI 99-01 Revision 4"
3. ARP-33, "Auxiliary Systems Scheme EK-02 (C-11A) Annunciator Nos. 1 and 2" (Windows #13 & #14)
4. SOP-35, "Neutron Monitoring System"
5. PLP-RPT-13-00143, "Nuclear Safety Capability Assessment Fire Area Analysis Results"
6. PLP-RPT-12-0056, "Non-Power Operational Modes Transition Review"

7. GOP-11, "Refueling Operation and Fuel Handling," Attachment 2, "Refuel Handling Operation Shift Checklist"
8. PPC Containment Sump Level Trends
9. P&ID Primary Coolant System M-201, Sheet 1 (A-8, G-8, F-1, D-1)
10. P&ID Radioactive Waste Treatment System Clean M-210, Sheet 2 (G-7, D-7)
11. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (C-13)" (Window #68)
12. GOP-14, "Shutdown Cooling Operations" Attachment 1, "Terms and Definitions"
13. Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a Loss-of-Coolant Accident"

Figure C-2: Response of the TMI-2 Source Range Measurement During the First Six Hours of the Accident (Ref 10, 11)



TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 4 - PCS Temperature

Initiating Condition: UNPLANNED loss of decay heat removal capability with irradiated fuel in the Reactor Vessel

EAL:

CU4.1 Unusual Event

UNPLANNED event results in PCS temperature > 200°F

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL is a precursor of more serious conditions and, as a result, is considered to be a potential degradation of the level of safety of the plant. In cold shutdown the ability to remove decay heat relies primarily on forced cooling flow. Operation of the systems that provide this forced cooling may be jeopardized due to the unlikely loss of electrical power or PCS inventory. Since the PCS usually remains intact in the cold shutdown mode a large inventory of water is available to keep the core covered.

During refueling the level in the Reactor Vessel will normally be maintained above the Reactor Vessel flange. Refueling evolutions that decrease water level below the Reactor Vessel flange are carefully planned and procedurally controlled. Loss of forced decay heat removal at reduced inventory may result in more rapid increases in PCS temperatures depending on the time since shutdown.

Normal means of core temperature indication and Reactor Vessel level indication may not be available in the refueling mode. Redundant means of Reactor Vessel level indication are therefore procedurally installed to assure that the ability to monitor level will not be interrupted. Escalation to Alert would be via EAL CA3.1 based on an inventory loss or EAL CA4.1 based on exceeding its temperature duration or pressure criteria.

Plant-Specific

Several instruments are capable of providing indication of PCS temperature with respect to the Technical Specification cold shutdown temperature limit (200°F) (Ref 1). These include the inservice Shut down cooling return temperature to the PCS TR-0351 "Shutdown Cooling Inlet & Outlet Recorder" (blue pen), CETs using the "Core Exit Thermocouple Recorders" TRI-0101A1, TRI-0101A2, TRI-0101B1, and TRI-0101B2 or alternatively PPC points TT0351B, TI-0303 or operable CETs. Use loop T_{Cold} indications from the control panels or the PPC (Ref 2).

PLP Basis Reference(s):

1. Technical Specifications Table 1.1-1
2. GOP-14, "Shutdown Cooling Operations," Attachment 9, "PCS Heat Removal Requirements"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 4 - PCS Temperature

Initiating Condition: UNPLANNED loss of decay heat removal capability with irradiated fuel in the Reactor Vessel

EAL:

CU4.2 Unusual Event

Loss of **all** PCS temperature and Reactor Vessel level indication for ≥ 15 min. (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL is a precursor of more serious conditions and, as a result, is considered to be a potential degradation of the level of safety of the plant. In cold shutdown the ability to remove decay heat relies primarily on forced cooling flow. Operation of the systems that provide this forced cooling may be jeopardized due to the unlikely loss of electrical power or PCS inventory. Since the PCS usually remains intact in the cold shutdown mode a large inventory of water is available to keep the core covered.

During refueling the level in the Reactor Vessel will normally be maintained above the Reactor Vessel flange. Refueling evolutions that decrease water level below the Reactor Vessel flange are carefully planned and procedurally controlled. Loss of forced decay heat removal at reduced inventory may result in more rapid increases in PCS temperatures depending on the time since shutdown.

Normal means of core temperature indication and Reactor Vessel level indication may not be available in the refueling mode. Redundant means of Reactor Vessel level indication are therefore procedurally installed to assure that the ability to monitor level will not be interrupted. However, if all level and temperature indication were to be lost in either the cold shutdown of refueling modes, this EAL would result in declaration of a UE if both temperature and level indication cannot be restored within 15 minutes from the loss of both means of indication. Escalation to Alert would be via EAL CA3.1 based on an inventory loss or EAL CA4.1 based on exceeding its temperature criteria.

Plant-Specific

Reactor Vessel/PCS water level may be monitored using any of the following instruments (Ref 3):

- LIA-0102A Pressurizer Cold Calibrated Level
- LI-0103A Pressurizer Cold Calibrated Level
- LG-0105B Refueling Level Gage (when PCS depressurized and drained down from solid condition). LG-0105B is a sight glass and subject to breakage which could become the source of a PCS leak. Normally, it is isolated and only placed in service when an operator is stationed at the sight glass.
- LIA-0106 Hot Leg Level
- LIA-0105 Reactor Vessel Level
- Reactor Vessel Level Monitoring System (RVLMS)
- Visual level indication (with the reactor head removed).

Several instruments are capable of providing indication of PCS temperature with respect to the Technical Specification cold shutdown temperature limit (200°F) (Ref 1). These include the inservice Shut down cooling return temperature to the PCS TR-0351 "Shutdown Cooling Inlet & Outlet Recorder" (blue pen), CETs using the "Core Exit Thermocouple Recorders" TRI-0101A1, TRI-0101A2, TRI-0101B1, and TRI-0101B2 or alternatively PPC points TT0351B, TI-0303 or operable CETs. Use loop T_{Cold} indications from the control panels or the PPC (Ref 2).

PLP Basis Reference(s):

1. Technical Specifications Table 1.1-1
2. GOP-14, "Shutdown Cooling Operations," Attachment 9, "PCS Heat Removal Requirements"
3. GOP-14, "Shutdown Cooling Operations," Attachment 7, "PCS Inventory Control Requirements"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 4 - PCS Temperature

Initiating Condition: Inability to maintain plant in cold shutdown

EAL:

CA4.1 Alert

An UNPLANNED event results in **EITHER**:

PCS temperature > 200°F for > Table C-3 duration

OR

PCS pressure increase > 10 psig due to a loss of PCS cooling (this condition is **not** applicable in solid plant conditions)

Table C-3 PCS Reheat Duration Thresholds

PCS Status	CONTAINMENT CLOSURE Status	Duration
Intact **AND** **not** reduced inventory	N/A	60 min.*
Not intact **OR** reduced inventory	Established	20 min.*
	Not established	0 min.

* If a PCS heat removal system is in operation within this time frame and PCS temperature is being reduced, the EAL is **not** applicable.

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

The PCS Reheat Duration Thresholds table addresses complete loss of functions required for core cooling for greater than 60 minutes during refuel and cold shutdown modes when PCS integrity is established. The 60 minute time frame should allow sufficient time to restore cooling without there being a substantial degradation in plant safety.

The PCS Reheat Duration Thresholds table also addresses the complete loss of functions required for core cooling for greater than 20 minutes during refuel and cold shutdown modes when CONTAINMENT CLOSURE is established but PCS integrity is not established or PCS inventory is reduced. The allowed 20 minute time frame was included to allow operator action to restore the heat removal function, if possible.

Finally, complete loss of functions required for core cooling during refuel and cold shutdown modes when neither CONTAINMENT CLOSURE nor PCS integrity are established is addressed. No delay time is allowed because the evaporated reactor coolant that may be released into the containment during this heatup condition could also be directly released to the environment.

The note (*) indicates that this EAL is not applicable if actions are successful in restoring an PCS heat removal system to operation and PCS temperature is being reduced within the specified time frame.

The 10 psig pressure increase addresses situations where, due to high decay heat loads, the time provided to restore temperature control, should be less than 60 minutes. The PCS pressure setpoint was chosen because it is the lowest pressure that the site can read on installed Control Board instrumentation that is equal to or greater than 10 psig.

Escalation to Site Area Emergency would be via EAL CS3.1 should boiling result in significant Reactor Vessel level loss leading to core uncovery.

A loss of Technical Specification components alone is not intended to constitute an Alert. The same is true of a momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available.

The Emergency Director must remain alert to events or conditions that lead to the conclusion that exceeding the EAL is IMMINENT. If, in the judgment of the Emergency Director, an IMMINENT situation is at hand, the classification should be made as if the threshold has been exceeded.

Plant-Specific

Several instruments are capable of providing indication of PCS temperature with respect to the Technical Specification cold shutdown temperature limit (200°F) (Ref 1). These include the inservice Shut down cooling return temperature to the PCS TR-0351 (blue pen) or

alternatively PPC point TT0351B, TI-0303 or operable CETs. Use loop T_{Cold} indications from the control panels or the PPC (Ref 2).

CONTAINMENT CLOSURE is defined as the actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions. As applied to PLP, a containment condition where at least one integral barrier to the release of radioactive material is being provided. CONTAINMENT CLOSURE Controls are used to track any impaired containment penetration so that at least one barrier to the release of radioactive material can be quickly established in the event of a loss of decay heat removal (Ref 3).

PCS Reduced Inventory is the condition of the PCS when fuel is in the Reactor Vessel and the level is lower than three feet below the reactor vessel flange. At PLP this level is conservatively defined as Reactor Vessel water level ≤ 623 ft 0 in. (1.5 ft below the vessel flange) (Ref 3, 4).

The pressure rise of greater than 10 psig infers an PCS temperature in excess of the Technical Specification cold shutdown limit (200°F) for which this EAL would otherwise permit up to sixty minutes to restore PCS cooling before declaration of an Alert (PCS intact). This EAL therefore covers situations in which it is determined that, due to high decay heat loads, the time provided to reestablish temperature control should be less than sixty minutes (as indicated by significant PCS re-pressurization).

Escalation to a Site Area Emergency would be under EAL CS3.1 should boiling result in significant Reactor Vessel level loss leading to core uncovery.

PLP Basis Reference(s):

1. Technical Specifications Table 1.1-1
2. GOP-14, "Shutdown Cooling Operations," Attachment 9, "PCS Heat Removal Requirements"
3. GOP-14, "Shutdown Cooling Operations," Attachment 1, "Terms and Definitions"
4. GOP-14, "Shutdown Cooling Operations," Section 6.3 "Reduced Inventory"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 5 - Communications

Initiating Condition: Loss of **all** onsite or offsite communications capabilities

EAL:

CU5.1 Unusual Event

Loss of **all** Table C-4 onsite (internal) communication methods affecting the ability to perform routine operations

OR

Loss of **all** Table C-4 offsite (external) communication methods affecting the ability to perform offsite notifications

Table C-4 Communications Systems

System	Onsite (internal)	Offsite (external)
Telephone System	X	X
Onsite/offsite radio system	X	
Public address system	X	
Power failure phones		X
FTS phone system		X
Satellite phone		X

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel, DEF - Defueled

Basis:

Implementing Guidance

None

Generic

The purpose of this EAL is to recognize a loss of communications capability that either defeats the plant operations staff ability to perform routine tasks necessary for plant operations or the ability to communicate issues with off-site authorities. The loss of off-site communications ability is expected to be significantly more comprehensive than the condition addressed by 10 CFR 50.72.

The availability of one method of ordinary off-site communications is sufficient to inform federal, state, and local authorities of plant issues. This EAL is intended to be used only when extraordinary means (eg, relaying of information from radio transmissions, individuals being sent to off-site locations, etc) are being utilized to make communications possible.

Plant-Specific

Onsite/offsite communications systems are listed in Table C-4 (Ref 1, 2, 3).

This EAL is the cold condition equivalent of the hot condition EAL SU6.1.

PLP Basis Reference(s):

1. UFSAR, 7.7.8, "Instrumentation and Controls - In-Plant Communication System"
2. SOP-31, "Plant Lighting and Communications"
3. EI-15.2, "Communications Tests"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: C - Cold Shutdown / Refueling System Malfunction

Subcategory: 6 - Inadvertent Criticality

Initiating Condition: Inadvertent criticality

EAL:

CU6.1 Unusual Event

UNPLANNED sustained positive startup rate observed on nuclear instrumentation

Mode Applicability:

5 - Cold Shutdown, 6 - Refuel

Basis:

Implementing Guidance

None

Generic

This EAL addresses criticality events that occur in Cold Shutdown or Refueling modes such as fuel mis-loading events and inadvertent dilution events. This EAL indicates a potential degradation of the level of safety of the plant, warranting a UE classification.

Escalation would be by Emergency Director judgment.

Plant-Specific

The term "sustained" is used to allow exclusion of expected short-term positive startup rates from planned fuel bundle or control rod movements during core alteration. These short-term positive startup rates are the result of the rise in neutron population due to subcritical multiplication (Ref 1).

PLP Basis Reference(s):

1. SOP-35, "Neutron Monitoring System"

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Category H - Hazards

EAL Group: ANY (EALs in this category are applicable to any plant condition, hot or cold.)

Hazards are non-plant, system-related events that can directly or indirectly affect plant operation, reactor plant safety or personnel safety.

The events of this category pertain to the following subcategories:

1. Natural or Destructive Phenomena

Natural events include hurricanes, earthquakes or tornados that have potential to cause plant structure or equipment damage of sufficient magnitude to threaten personnel or plant safety. Non-naturally occurring events that can cause damage to plant facilities and include aircraft crashes, missile impacts, etc.

2. FIRE or EXPLOSION

FIREs can pose significant hazards to personnel and reactor safety. Appropriate for classification are FIREs within the site PROTECTED AREA or which may affect operability of equipment needed for safe shutdown

3. Hazardous Gas

Non-naturally occurring events that can cause damage to plant facilities and include toxic, asphyxiant, corrosive or flammable gas leaks.

4. Security

Unauthorized entry attempts into the PROTECTED AREA, BOMB threats, SABOTAGE attempts, and actual security compromises threatening loss of physical control of the plant.

5. Control Room Evacuation

This subcategory addresses events that are indicative of loss of Control Room habitability. If the Control Room must be evacuated, additional support for monitoring and controlling plant functions is necessary through the emergency response facilities.

6. Judgment

The EALs defined in other categories specify the predetermined symptoms or events that are indicative of emergency or potential emergency conditions and thus warrant classification. While these EALs have been developed to address the full spectrum of possible emergency conditions which may warrant classification and subsequent implementation of the Emergency Plan, a provision for classification of emergencies based on operator/management experience and judgment is still necessary. The EALs of this category provide the Emergency Director the latitude to classify emergency conditions consistent with the established classification criteria based upon Emergency Director judgment.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.1 Unusual Event

Seismic event identified by:

Earthquake felt in plant

AND

National Earthquake Information Center (Note 6)

Note 6: The NEIC can be contacted by going to the USGS NEIC website: http://earthquake.usgs.gov or alternatively calling (303) 273-8500. Select **option #1 and then option #2** and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLP coordinates: **42º 19' 22" north latitude, 86º 18' 52" west longitude**.

Mode Applicability:

All

Basis:

Implementing Guidance

Consistent with part (b) of the definition of "felt earthquake" below, if the seismic monitor records an event, then the intent of the EAL threshold is met. If the seismic monitor does not record an event, then the intent of the EAL threshold is not met.

Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

Damage may be caused to some portions of the site, but should not affect ability of safety functions to operate.

As defined in the EPRI-sponsored Guidelines for Nuclear Plant Response to an Earthquake, dated October 1989, a "felt earthquake" is: An earthquake of sufficient intensity such that: (a) the vibratory ground motion is felt at the nuclear plant site and recognized as an earthquake based on a consensus of control room operators on duty at the time, and (b) for plants with operable seismic instrumentation, the seismic switches of the plant are activated.

The National Earthquake Center can confirm if an earthquake has occurred in the area of the plant.

Plant-Specific

PLP has a triaxial strong-motion accelerograph installed in the Training Building to record any significant seismic events. Ground motion acceleration of 0.02 g activates the seismic monitor and registers an event. Activation of the seismic monitor at 0.02 g was determined to be the lowest instrument setting to reliably discriminate a seismic event from other sources that may impart vibration to the instrument. The seismic monitor can be accessed by the Control Room staff via a network connection to determine if an event has been recorded.

The National Earthquake Information Center (NEIC) can confirm seismic activity in the vicinity of the PLP by going to the USGS NEIC website: http://earthquake.usgs.gov Alternatively, the NEIC can be contacted by calling (303) 273-8500 (normal hours), or (303) 273-8428 (off normal hours). Select option #1 and then option #2 and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLP coordinates: **42º 19' 22" north latitude, 86º 18' 52" west longitude** (Ref 3).

PLP Basis Reference(s):

1. AOP-38, "Acts of Nature"
2. UFSAR, 5.7.9 "Seismic Instrumentation"
3. UFSAR, 2.4 "Seismicity"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.2 Unusual Event

Tornado striking within PROTECTED AREA boundary

OR

Sustained high winds > 95 mph

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL is based on a tornado striking (touching down) or high winds within the PROTECTED AREA.

Escalation of this emergency classification level, if appropriate, would be based on VISIBLE DAMAGE, or by other in plant conditions, via EAL HA1.2.

Plant-Specific

All Class 1 safe shutdown structures are designed for a sustained wind velocity of 100 mph (Ref 2). However, full-scale on the instrumentation used for classification is 100 mph (Ref 4). A value of 95 mph was chosen as the classification threshold, as this will still be on-scale.

Wind speed indication is provided at both the 10 (MWS10) and 60 (MWS60) meter elevation (Ref 1, 3).

PLP Basis Reference(s):

1. AOP-38, "Acts of Nature"
2. UFSAR, 5.3.1.1, "Wind and Tornado Loadings - Design Parameters"
3. Engineering Manual Procedure EM-33 "Meteorological Monitoring System"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.3 Unusual Event

Internal FLOODING that has the potential to affect safety-related equipment required by Technical Specifications for the current operating mode in **any** Table H-1 area

Table H-1 Internal FLOODING Areas

- Emergency Diesel Generator Rooms
- Engineered Safeguards Rooms
- Auxiliary Feedwater Pump Room
- Switchgear Room 1C
- Switchgear Room 1D
- Screen House
- Component Cooling Water Pump Room
- Cable Spreading Room

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses the effect of internal FLOODING caused by events such as component failures, equipment misalignment, or outage activity mishaps.

Escalation of this emergency classification level, if appropriate, would be based on an electrical shock hazard that precludes access to operate or monitor safety equipment or CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems in the flooded area required for the safe shutdown of the plant via EAL HA1.3, or by other plant conditions.

Plant-Specific

This threshold addresses the affect of FLOODING caused by internal events such as component failures, Circulating, Component Cooling or Service Water line ruptures, equipment misalignment, FIRE suppression system actuation, and outage activity mishaps. The internal FLOODING areas contain systems that are (Ref 1):

- Required for safe shutdown of the plant
- Not designed to be wetted or submerged
- Susceptible to internal FLOODING events

Classification of this EAL should not be delayed while corrective actions are being taken to isolate the water source. An assessment of the "potential" that the FLOODING will adversely affect required safety-related equipment is therefore appropriate. Classification of this EAL should occur when it becomes apparent that a Technical Specification LCO for the equipment will be exceeded.

PLP Basis Reference(s):

1. DBD-7.08, "Plant Protection Against Flooding"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.4 Unusual Event

Turbine failure resulting in casing penetration or damage to turbine or generator seals

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

These EALs are categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses main turbine rotating component failures of sufficient magnitude to cause observable damage to the turbine casing or to the seals of the turbine generator. Generator seal damage observed after generator purge does not meet the intent of this EAL because it did not impact normal operation of the plant.

Of major concern is the potential for leakage of combustible fluids (lubricating oils) and gases (hydrogen cooling) to the plant environs. Actual FIREs and flammable gas build up are appropriately classified via EAL HU2.1 and EAL HU3.1.

This EAL is consistent with the definition of a UE while maintaining the anticipatory nature desired and recognizing the risk to non-safety related equipment.

Escalation of this emergency classification level, if appropriate, would be to EAL HA1.4 based on damage done by PROJECTILEs generated by the failure or in conjunction with a steam generator tube rupture. These latter events would be classified by the Category A EALs or Category F EALs.

Plant-Specific

The turbine generator stores large amounts of rotational kinetic energy in its rotor. In the unlikely event of a major mechanical failure, this energy may be transformed into both rotational and translational energy of rotor fragments. These fragments may impact the surrounding stationary parts. If the energy-absorbing capability of these stationary turbine generator parts is insufficient, external PROJECTILEs will be released. These ejected PROJECTILEs may impact various plant structures, including those housing safety related equipment.

In the event of PROJECTILE ejection, the probability of a strike on a plant region is a function of the energy and direction of an ejected PROJECTILE and of the orientation of the turbine with respect to the plant region (Ref 1).

PLP Basis Reference(s):

1. UFSAR, 5.5, "Missile Protection"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting the PROTECTED AREA

EAL:

HU1.5 Unusual Event

Ultimate heat sink water level > 590 ft elevation

OR

Ultimate heat sink water level ≤ 570 ft elevation

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL is categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

This EAL addresses other site specific phenomena that can also be precursors of more serious events.

Plant-Specific

This threshold addresses high and low ultimate heat sink (lake) water level conditions that could be a precursor of more serious events.

The high lake water level threshold is ground level, which is approximately four feet below the design flood-seiche event level of 594.1 ft elevation. This level is obtained by adding a 10.9 ft onshore surge height to a maximum monthly mean lake level of 583.2 ft elevation. When lake water level approaches 590 ft elevation, AOP-38, "Acts of Nature," requires initiation of a plant shutdown (Ref 1, 2, 3).

The low lake level threshold at 570 ft ensures water level is well above the sluice gate opening which is at 568.25 ft elevation. Water level at this elevation ensures adequate NPSH to SWS pumps. The NPSH calculation assumes a minimum water level of 4 feet above the bottom of the pump suction bell which corresponds to an elevation of 557.25 ft. Violation of the SWS pump submergence requirement should never become a factor unless the Lake Michigan water level falls below the top of the sluice gate opening. AOP-35, "Loss of Service Water," requires tripping the reactor when service water bay level lowers below 572 ft (Ref 4).

PLP Basis Reference(s):

1. AOP-38, "Acts of Nature"
2. UFSAR, 5.4, "Water Level Design"
3. UFSAR, 2.2.2, "General Lake Hydrology"
4. AOP-35, "Loss of Service Water"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting VITAL AREAs

EAL:

HA1.1 Alert

Seismic event identified by **EITHER** of the following:

Earthquake felt in plant

OR

National Earthquake Information Center (Note 6)

AND

Earthquake > OBE (0.1 g) confirmed by **EITHER** of the following:

CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

OR

Seismic instrumentation

Note 6: The NEIC can be contacted by going to the USGS NEIC website: http://earthquake.usgs.gov or alternatively calling (303) 273-8500. Select **option #1 and then option #2** and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLP coordinates: **42º 19' 22" north latitude, 86º 18' 52" west longitude**.

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

These EALs escalate from HU1.1 in that the occurrence of the event has resulted in VISIBLE DAMAGE to 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 occurrence of VISIBLE DAMAGE and/or degraded system response is intended to discriminate against lesser events. The initial report should not be interpreted as mandating a lengthy damage assessment prior to classification. No attempt is made in this EAL to assess the actual magnitude of the damage. The significance here is not that a particular system or structure was damaged, but rather, that the event was of sufficient magnitude to cause this degradation.

Escalation of this emergency classification level, if appropriate, would be based on System Malfunction EALs.

Seismic events of this magnitude can result in a VITAL AREA being subjected to forces beyond design limits, and thus damage may be assumed to have occurred to plant safety systems.

The National Earthquake Information Center can confirm if an earthquake has occurred in the area of the plant.

Plant-Specific

This EAL is based on the UFSAR design basis operating earthquake of 0.1 g acceleration (Ref 3). Seismic events of this magnitude can cause damage to plant safety functions.

PLP has a triaxial strong-motion accelerograph installed in the Training Building to record any significant seismic events. It measures ground surface motion. The seismic monitor can be accessed by the Control Room staff via a network connection to determine if an event has been recorded and, if so, read the peak motion detected for the event.

The National Earthquake Information Center (NEIC) can confirm seismic activity in the vicinity of the PLP by going to the USGS NEIC website: http://earthquake.usgs.gov or alternatively, the NEIC can be contacted by calling (303) 273-8500. Select **option #1 and then option #2** and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLP coordinates: **42º 19' 22" north latitude, 86º 18' 52" west longitude** (Ref 3).

PLP Basis Reference(s):

1. AOP-12, "Acts of Nature"
2. UFSAR, 5.7.9 "Seismic Instrumentation"
3. UFSAR, 2.4 "Seismicity"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting VITAL AREAs

EAL:

HA1.2 Alert

Tornado striking or sustained high winds > 95 mph resulting in **EITHER**:

VISIBLE DAMAGE to **any** Table H-2 structure containing systems or components required for safe shutdown of the plant

OR

CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

Table H-2 Safe Shutdown Areas

- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-58)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-81)
- Fuel Oil Storage Tank (T-10A)

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL escalates from HU1.2 in that the occurrence of the event has resulted in VISIBLE DAMAGE to 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 occurrence of VISIBLE DAMAGE and/or degraded system response is intended to discriminate against lesser events. The initial report should not be interpreted as mandating a lengthy damage assessment prior to classification. No attempt is made in this EAL to assess the actual magnitude of the damage. The significance here is not that a particular system or structure was damaged, but rather, that the event was of sufficient magnitude to cause this degradation.

Escalation of this emergency classification level, if appropriate, would be based on System Malfunction EALs.

This EAL is based on a tornado striking (touching down) or high winds that have caused VISIBLE DAMAGE to structures containing functions or systems required for safe shutdown of the plant.

Plant-Specific

Table H-2 Safe Shutdown Areas include all Class I Structures and structures containing Class I equipment and systems needed for safe shutdown (Ref 1).

This threshold addresses events that may have resulted in a Safe Shutdown Area being subjected to forces beyond design limits and thus damage may be assumed to have occurred to plant safety systems. Safe Shutdown Areas are VITAL AREAs that house equipment the operation of which may be needed to ensure the reactor safely reaches and is maintained in cold shutdown. Safe Shutdown Areas include structures that contain the equipment of concern. The Alert classification is appropriate if relevant plant parameters indicate that the performance of safety systems in the affected Safe Shutdown Areas has been degraded. No attempt should be made to fully inventory the actual magnitude of the damage or quantify the degradation of safety system performance prior to declaration of an Alert under this threshold.

This EAL is based on the structural design basis of 100 mph reduced to 95 mph due to instrumentation limitations. Wind loads of this magnitude can cause damage to safety functions (Ref 2, 3, 4).

Wind speed indication is provided at both the 10 (MWS10) and 60 (MWS60) meter elevation (Ref 2, 4).

PLP Basis Reference(s):

1. AOP-40, "Fire Which Threatens Safety-Related Equipment"
2. AOP-38, "Acts of Nature"
3. UFSAR, 5.3.1.1, "Wind and Tornado Loadings - Design Parameters"
4. Engineering Manual Procedure EM-33 "Meteorological Monitoring System"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting VITAL AREAs

EAL:

HA1.3 Alert

Internal FLOODING in **any** Table H-1area resulting in **EITHER**:

An electrical shock hazard that precludes access to operate or monitor safety equipment

OR

CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems in the flooded area required for the safe shutdown of the plant

Table H-1 Internal FLOODING Areas
• Emergency Diesel Generator Rooms • Engineered Safeguards Rooms • Auxiliary Feedwater Pump Room • Switchgear Room 1C • Switchgear Room 1D • Screen House • Component Cooling Water Pump Room • Cable Spreading Room

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

Escalation of this emergency classification level, if appropriate, would be based on System Malfunction EALs.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

This EAL addresses the effect of internal FLOODING caused by events such as component failures, equipment misalignment, or outage activity mishaps. It is based on the DEGRADED PERFORMANCE of systems, or has created industrial safety hazards (eg, electrical shock) that preclude necessary access to operate or monitor safety equipment. The inability to access, operate or monitor safety equipment represents an actual or substantial potential degradation of the level of safety of the plant.

FLOODING as used in this EAL describes a condition where water is entering the room faster than installed equipment is capable of removal, resulting in a rise of water level within the room. Classification of this EAL should not be delayed while corrective actions are being taken to isolate the water source.

Plant-Specific

This threshold addresses the affect of FLOODING caused by internal events such as component failures, Circulating, Component Cooling or Service Water line ruptures, equipment misalignment, FIRE suppression system actuation, and outage activity mishaps. The internal FLOODING areas contain systems that are (Ref 1):

- Required for safe shutdown of the plant
- Not designed to be wetted or submerged
- Susceptible to internal FLOODING events

Classification of this EAL should not be delayed while corrective actions are being taken to isolate the water source.

Uncontrolled internal FLOODING that has degraded safety-related equipment or created a safety hazard precluding access necessary for the safe operation or monitoring of safety equipment warrants declaration of an Alert. The Alert classification is appropriate under this EAL if access is currently needed or if it is anticipated that access will be needed at some time in the future.

PLP Basis Reference(s):

1. DBD-7.08, "Plant Protection Against Flooding"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting VITAL AREAS

EAL:

HA1.4 Alert

Turbine failure-generated PROJECTILEs resulting in **EITHER**:

VISIBLE DAMAGE to or penetration of **any** Table H-2 structure containing systems or components required for safe shutdown of the plant

OR

CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

Table H-2 Safe Shutdown Areas

- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-58)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-81)
- Fuel Oil Storage Tank (T-10A)

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL escalates from HU1.4 in that the occurrence of the event has resulted in VISIBLE DAMAGE to 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 occurrence of VISIBLE DAMAGE and/or degraded system response is intended to discriminate against lesser events. The initial report should not be interpreted as mandating a lengthy damage assessment prior to classification. No attempt is made in this EAL to assess the actual magnitude of the damage. The significance here is not that a particular system or structure was damaged, but rather, that the event was of sufficient magnitude to cause this degradation.

Escalation of this emergency classification level, if appropriate, would be based on System Malfunction EALs.

This EAL addresses the threat to safety related equipment imposed by PROJECTILEs generated by main turbine rotating component failures. Therefore, this EAL is consistent with the definition of an Alert in that the potential exists for actual or substantial potential degradation of the level of safety of the plant.

Plant-Specific

The turbine generator stores large amounts of rotational kinetic energy in its rotor. In the unlikely event of a major mechanical failure, this energy may be transformed into both rotational and translational energy of rotor fragments. These fragments may impact the surrounding stationary parts. If the energy-absorbing capability of these stationary turbine generator parts is insufficient, external PROJECTILEs will be released. These ejected PROJECTILEs may impact various plant structures, including those housing safety related equipment.

Table H-2 Safe Shutdown Areas include all Class I Structures and structures containing Class I equipment and systems needed for safe shutdown (Ref 1).

PLP Basis Reference(s):

1. AOP-40, "Fire Which Threatens Safety-Related Equipment"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting VITAL AREAs

EAL:

HA1.5 Alert

Ultimate heat sink water level > 594 ft elevation

OR

Ultimate heat sink water level ≤ 569 ft elevation

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses other site specific phenomena that result in VISIBLE DAMAGE to VITAL AREAs or results in indication of damage to safety structures, systems, or components containing functions and systems required for safe shutdown of the plant that can also be precursors of more serious events.

Plant-Specific

This threshold covers high and low water level conditions that may have resulted in a plant VITAL AREA being subjected to levels beyond design limits, and thus damage may be assumed to have occurred to plant safety systems.

The high lake (UHS) water level threshold is the design flood-seiche event level of 594.1 ft elevation (rounded down to 594 ft). This level is obtained by adding a 10.9 ft onshore surge height to a maximum monthly mean lake level of 583.2 ft elevation. When lake water level approaches 590 ft elevation, AOP-38, "Acts of Nature," requires initiation of a plant shutdown. When lake water level exceeds 590 ft water may start to enter the Turbine Building/Screen House, AOP-38 requires tripping the reactor (Ref 1, 2, 3).

The low lake (UHS) water level corresponds to the Screen House sluice gate opening of 568.25 ft elevation (rounded to 569 ft). Water level at this elevation ensures adequate NPSH to SWS pumps. The NPSH calculation assumes a minimum water level of 4 feet above the bottom of the pump suction bell which corresponds to an elevation of 557.25 ft Violation of the SWS pump submergence requirement should never become a factor unless the Lake Michigan water level falls below the top of the sluice gate opening. (Ref 4)

PLP Basis Reference(s):

1. AOP-38, "Acts of Nature"
2. UFSAR, 5.4, "Water Level Design"
3. UFSAR, 2.2.2, "General Lake Hydrology"
4. AOP-35, "Loss of Service Water"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 1 - Natural or Destructive Phenomena

Initiating Condition: Natural or destructive phenomena affecting VITAL AREAs

EAL:

HA1.6 Alert

Vehicle crash resulting in **EITHER**:

VISIBLE DAMAGE to **any** Table H-2 structure containing systems or components required for safe shutdown of the plant

OR

CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

Table H-2 Safe Shutdown Areas

- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-58)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-81)
- Fuel Oil Storage Tank (T-10A)

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

The occurrence of VISIBLE DAMAGE and/or degraded system response is intended to discriminate against lesser events. The initial report should not be interpreted as mandating a lengthy damage assessment prior to classification. No attempt is made in this EAL to assess the actual magnitude of the damage. The significance here is not that a particular system or structure was damaged, but rather, that the event was of sufficient magnitude to cause this degradation.

Escalation of this emergency classification level, if appropriate, would be based on System Malfunction EALs.

This EAL addresses vehicle crashes within the PROTECTED AREA that results in VISIBLE DAMAGE to VITAL AREAs or indication of damage to safety structures, systems, or components containing functions and systems required for safe shutdown of the plant.

Plant-Specific

This EAL is intended to address crashes of vehicle types large enough to cause significant damage to plant structures containing functions and systems required for safe shutdown of the plant. Vehicle types include automobiles, aircraft, trucks, cranes, forklifts, waterborne craft, etc.

Table H-2 Safe Shutdown Areas include all Class I Structures and structures containing Class I equipment and systems needed for safe shutdown (Ref 1).

PLP Basis Reference(s):

1. AOP-40, "Fire Which Threatens Safety-Related Equipment"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 2 - FIRE or EXPLOSION

Initiating Condition: FIRE within the PROTECTED AREA **not** extinguished within 15 min. of detection or EXPLOSION within the PROTECTED AREA

EAL:

HU2.1 Unusual Event

FIRE **not** extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in **any** Table H-2 area (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table H-2 Safe Shutdown Areas

- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-58)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-81)
- Fuel Oil Storage Tank (T-10A)

Mode Applicability:

All

Basis:

Implementing Guidance

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Generic

This EAL addresses the magnitude and extent of FIREs that may be potentially significant precursors of damage to safety systems. It addresses the FIRE, and not the degradation in performance of affected systems that may result.

As used here, detection is visual observation and report by plant personnel or sensor alarm indication.

The 15 minute time period begins with a credible notification that a FIRE is occurring, or indication of a FIRE detection system alarm/actuation. Verification of a FIRE detection system alarm/actuation includes actions that can be taken within the control room or other nearby PLP location to ensure that it is not spurious. An alarm is assumed to be an indication of a FIRE unless it is disproved within the 15 minute period by personnel dispatched to the scene. In other words, a personnel report from the scene may be used to disprove a sensor alarm if received within 15 minutes of the alarm, but shall not be required to verify the alarm.

The intent of this 15 minute duration is to size the FIRE and to discriminate against small FIREs that are readily extinguished (eg, smoldering waste paper basket).

Plant-Specific

Table H-2 Safe Shutdown Areas include all Class I Structures and structures containing Class I equipment and systems needed for safe shutdown (Ref 1).

PLP Basis Reference(s):

1. AOP-40, "Fire Which Threatens Safety-Related Equipment"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 2 - FIRE or EXPLOSION

Initiating Condition: FIRE within the PROTECTED AREA **not** extinguished within 15 min. of detection or EXPLOSION within the PROTECTED AREA

EAL:

HU2.2 Unusual Event

EXPLOSION of sufficient force to damage permanent structures or equipment within the PROTECTED AREA

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses the magnitude and extent of EXPLOSIONs that may be potentially significant precursors of damage to safety systems. It addresses the EXPLOSION, and not the degradation in performance of affected systems that may result.

This EAL addresses only those EXPLOSIONs of sufficient force to damage permanent structures or equipment within the PROTECTED AREA.

No attempt is made to assess the actual magnitude of the damage. The occurrence of the EXPLOSION is sufficient for declaration.

The Emergency director also needs to consider any security aspects of the EXPLOSION, if applicable.

Escalation of this emergency classification level, if appropriate, would be based on EAL HA2.1.

Plant-Specific

While some EXPLOSIONs may also result in FIREs that exceed EAL HU2.1, no FIRE is necessary to declare an emergency in the event of an EXPLOSION. If a FIRE also occurs as a result of (or with) an EXPLOSION, declare the Unusual Event based on the EXPLOSION and monitor the progress of the FIRE for potential escalation due to FIRE damage (Ref 1).

The phrase "of sufficient force to damage permanent structures or equipment" appears in the EAL wording to emphasize the relative magnitude of an EXPLOSION that warrants emergency classification. Attributes of an EXPLOSION include:

- Rapid, violent and unconfined combustion, or
- Catastrophic failure of pressurized/energized equipment

If the event occurs within or near permanent structures or equipment but is not accompanied by rapid, violent and unconfined combustion (eg, vehicle backfire) nor catastrophic failure (eg, lifting relief valve, AOV diaphragm venting, vehicle tire blowout, etc), the event should not be classified.

PLP Basis Reference(s):

1. AOP-40, "Fire Which Threatens Safety-Related Equipment"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 2 - FIRE or EXPLOSION

Initiating Condition: FIRE or EXPLOSION affecting the operability of plant safety systems required to establish or maintain safe shutdown

EAL:

HA2.1 Alert

FIRE or EXPLOSION resulting in **EITHER**:

VISIBLE DAMAGE to **any** safety-related structure, system, or component within **any** Table H-2 area

OR

CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of **any** safety-related structure, system, or component within **any** Table H-2 area

Table H-2 Safe Shutdown Areas

- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-58)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-81)
- Fuel Oil Storage Tank (T-10A)

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

VISIBLE DAMAGE is used to identify the magnitude of the FIRE or EXPLOSION and to discriminate against minor FIREs and EXPLOSIONs.

The reference to structures containing safety systems or components is included to discriminate against FIREs or EXPLOSIONs in areas having a low probability of affecting safe operation. The significance here is not that a safety system was degraded but the fact that the FIRE or EXPLOSION was large enough to cause damage to these systems.

The use of VISIBLE DAMAGE should not be interpreted as mandating a lengthy damage assessment prior to classification. The declaration of an Alert and the activation of the Technical Support Center will provide the Emergency Director with the resources needed to perform detailed damage assessments.

The Emergency Director also needs to consider any security aspects of the EXPLOSION.

Escalation of this emergency classification level, if appropriate, will be based on EALs in Category S, Category F or Category A.

Plant-Specific

Table H-2 Safe Shutdown Areas include all Class I Structures and structures containing Class I equipment and systems needed for safe shutdown (Ref 1).

PLP Basis Reference(s):

1. AOP-40, "Fire Which Threatens Safety-Related Equipment"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 3 - Hazardous Gas

Initiating Condition: Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS

EAL:

HU3.1 Unusual Event

Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL is based on the release of toxic, corrosive, asphyxiant or flammable gases of sufficient quantity to affect NORMAL PLANT OPERATIONS.

The fact that SCBA may be worn does not eliminate the need to declare the event.

This EAL is not intended to require significant assessment or quantification. It assumes an uncontrolled process that has the potential to affect plant operations. This would preclude small or incidental releases, or releases that do not impact structures needed for plant operation.

An asphyxiant is a gas capable of reducing the level of oxygen in the body to dangerous levels. Most commonly, asphyxiants work by merely displacing air in an enclosed environment. This reduces the concentration of oxygen below the normal level of around 19%, which can lead to breathing difficulties, unconsciousness or even death.

Escalation of this emergency classification level, if appropriate, would be based on EAL HA3.1.

Plant-Specific

NORMAL PLANT OPERATIONS is defined to mean activities at the plant site associated with routine testing, maintenance, or equipment operations, in accordance with normal operating or administrative procedures. Entry into abnormal or emergency operating procedures, or deviation from normal security or radiological controls posture, is a departure from NORMAL PLANT OPERATIONS.

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 3 - Hazardous Gas

Initiating Condition: Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS

EAL:

HU3.2 Unusual Event

Recommendation by local, county or state officials to evacuate or shelter site personnel based on offsite event

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

Escalation of this emergency classification level, if appropriate, would be based on EAL HA3.1.

Plant-Specific

None

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 3 - Hazardous Gas

Initiating Condition: Access to a VITAL AREA is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of operable equipment required to maintain safe operations or safely shutdown the reactor

EAL:

HA3.1 Alert

Access to **any** Table H-2 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shut down the reactor (Note 5)

Note 5: If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should **not** be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.

Table H-2 Safe Shutdown Areas

- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-58)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-81)
- Fuel Oil Storage Tank (T-10A)

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

Gases in a VITAL AREA can affect the ability to safely operate or safely shutdown the reactor.

The fact that SCBA may be worn does not eliminate the need to declare the event.

Declaration should not be delayed for confirmation from atmospheric testing if the atmosphere poses an immediate threat to life and health or an immediate threat of severe exposure to gases. This could be based upon documented analysis, indication of personal ill effects from exposure, or operating experience with the hazards.

If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then this EAL should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.

An asphyxiant is a gas capable of reducing the level of oxygen in the body to dangerous levels. Most commonly, asphyxiants work by merely displacing air in an enclosed environment. This reduces the concentration of oxygen below the normal level of around 19%, which can lead to breathing difficulties, unconsciousness or even death.

An uncontrolled release of flammable gasses within a facility structure has the potential to affect safe operation of the plant by limiting either operator or equipment operations due to the potential for ignition and resulting equipment damage/personnel injury. Flammable gasses, such as hydrogen and acetylene, are routinely used to maintain plant systems (hydrogen) or to repair equipment/components (acetylene - used in welding). This EAL assumes concentrations of flammable gasses which can ignite/support combustion.

Escalation of this emergency classification level, if appropriate, will be based on EALs in Category S, Category F or Category A.

Plant-Specific

Table H-2 Safe Shutdown Areas include all Class I Structures and structures containing Class I equipment and systems needed for safe shutdown (Ref 1).

This EAL would apply even if the detrimental gas affects only a single train of a multi-train system when the system is required to maintain safe operations or safely shut down the reactor. For example: classification under this EAL would be required if one EDG room is flooded with an asphyxiant gas and cannot be entered while the second EDG room is unaffected. If the diesel generator in the first EDG room were tagged out and inoperable prior to the gas release, however, classification under this EAL would not be required.

PLP Basis Reference(s):

1. AOP-40, "Fire Which Threatens Safety-Related Equipment"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 4 - Security

Initiating Condition: Confirmed SECURITY CONDITION or threat which indicates a potential degradation in the level of safety of the plant

EAL:

HU4.1 Unusual Event

A SECURITY CONDITION that does **not** involve a HOSTILE ACTION as reported by Security Shift Leader

OR

A credible site-specific security threat notification

OR

A validated notification from NRC providing information of an aircraft threat

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

Note: Timely and accurate communication between Security Shift Supervision and the Control Room is crucial for the implementation of effective Security EALs.

Security events which do not represent a potential degradation in the level of safety of the plant are reported under 10 CFR 73.71 or in some cases under 10 CFR 50.72. Security events assessed as HOSTILE ACTIONs are classifiable under EAL HA4.1, EAL HS4.1 and EAL HG4.1.

A higher initial classification could be made based upon the nature and timing of the security threat and potential consequences. The licensee shall consider upgrading the emergency response status and emergency classification level in accordance with the PLP Security Plan.

First Condition

Reference is made to security shift supervision because these individuals are the designated personnel on-site qualified and trained to confirm that a security event is occurring or has occurred. Training on security event classification confirmation is closely controlled due to the strict secrecy controls placed on the plant Security Plan.

This threshold is based on the PLP Security Plan. The PLP Security Plan is based on guidance provided by NEI 03-12 (Ref 1).

Second Condition

This threshold is included to ensure that appropriate notifications for the security threat are made in a timely manner. This includes information of a credible threat. Only the plant to which the specific threat is made need declare the Unusual Event.

The determination of "credible" is made through use of information found in the PLP Security Plan.

Third Condition

The intent of this EAL is to ensure that notifications for the aircraft threat are made in a timely manner and that Offsite Response Organizations and plant personnel are at a state of heightened awareness regarding the credible threat. It is not the intent of this EAL to replace existing non-hostile related EALs involving aircraft.

This EAL is met when a plant receives information regarding an aircraft threat from NRC. Validation is performed by calling the NRC or by other approved methods of authentication. Only the plant to which the specific threat is made need declare the Unusual Event.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an airliner (airliner is meant to be a large aircraft with the potential for causing significant damage to the plant). The status and size of the plane may be provided by NORAD through the NRC.

Escalation to Alert emergency classification level via EAL HA4.1 would be appropriate if the threat involves an airliner within 30 minutes of the plant.

Plant-Specific

None

PLP Basis Reference(s):

1. PLP Security Plan

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 4 - Security

Initiating Condition: HOSTILE ACTION within the Owner Controlled Area or airborne attack threat

EAL:

HA4.1 Alert

A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by Security Shift Leader

OR

A validated notification from NRC of an airliner attack threat within 30 min. of the site

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

Note: Timely and accurate communication between Security Shift Supervision and the Control Room is crucial for the implementation of effective Security EALs.

This EAL addresses the contingency for a very rapid progression of events, such as that experienced on September 11, 2001. They are not premised solely on the potential for a radiological release. Rather the issue includes the need for rapid assistance due to the possibility for significant and indeterminate damage from additional air, land or water attack elements.

The fact that the site is under serious attack or is an identified attack target with minimal time available for further preparation or additional assistance to arrive requires a heightened state of readiness and implementation of protective measures that can be effective (such as on-site evacuation, dispersal or sheltering).

First Condition

This condition addresses the potential for a very rapid progression of events due to a HOSTILE ACTION. It is not intended to address incidents that are accidental events or acts of civil disobedience, such as small aircraft impact, hunters, or physical disputes between employees within the Owner Controlled Area. Those events are adequately addressed by other EALs.

Note that this condition is applicable for any HOSTILE ACTION occurring, or that has occurred, in the Owner Controlled Area. This includes ISFSIs such as PLP that are outside the PROTECTED AREA but still within the Owner Controlled Area.

Second Condition

This condition addresses the immediacy of an expected threat arrival or impact on the site within a relatively short time.

The intent of this condition is to ensure that notifications for the airliner attack threat are made in a timely manner and that Offsite Response Organizations (OROs) and plant personnel are at a state of heightened awareness regarding the credible threat. Airliner is meant to be a large aircraft with the potential for causing significant damage to the plant.

This condition is met when a plant receives information regarding an airliner attack threat from NRC and the airliner is within 30 minutes of the plant. Only the plant to which the specific threat is made need declare the Alert.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an airliner (airliner is meant to be a large aircraft with the potential for causing significant damage to the plant). The status and size of the plane may be provided by NORAD through the NRC.

Plant-Specific

None

PLP Basis Reference(s):

1. PLP Security Plan

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 4 - Security

Initiating Condition: HOSTILE ACTION within the PROTECTED AREA

EAL:

HS4.1 Site Area Emergency

A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by Security Shift Leader

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This condition represents an escalated threat to plant safety above that contained in the Alert in that a HOSTILE FORCE has progressed from the Owner Controlled Area to the PROTECTED AREA.

This EAL addresses the contingency for a very rapid progression of events, such as that experienced on September 11, 2001. It is not premised solely on the potential for a radiological release. Rather the issue includes the need for rapid assistance due to the possibility for significant and indeterminate damage from additional air, land or water attack elements.

The fact that the site is under serious attack with minimal time available for further preparation or additional assistance to arrive requires Offsite Response Organization (ORO) readiness and preparation for the implementation of protective measures.

This EAL addresses the potential for a very rapid progression of events due to a HOSTILE ACTION. It is not intended to address incidents that are accidental events or acts of civil disobedience, such as small aircraft impact, hunters, or physical disputes between employees within the PROTECTED AREA. Those events are adequately addressed by other EALs.

Escalation of this emergency classification level, if appropriate, would be based on actual plant status after impact or progression of attack.

Plant-Specific

None

PLP Basis Reference(s):

1. PLP Security Plan

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 4 - Security

Initiating Condition: HOSTILE ACTION resulting in loss of physical control of the facility

EAL:

HG4.1 General Emergency

A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL encompasses conditions under which a HOSTILE ACTION has resulted in a loss of physical control of VITAL AREAs (containing vital equipment or controls of vital equipment) required to maintain safety functions and control of that equipment cannot be transferred to and operated from another location.

If control of the plant equipment necessary to maintain safety functions can be transferred to another location, then the threshold is not met.

Plant-Specific

Safety functions include:

- Reactivity control
- Maintenance of vital auxiliaries
- PCS inventory control
- PCS pressure control
- PCS & Core heat removal
- Containment Isolation
- Containment Atmosphere Maintenance of Vital Auxiliaries - Water
- Maintenance of Vital Auxiliaries - Air

These safety functions are maintained by meeting the Safety Function Acceptance Criteria specified in Emergency Operating Procedures (Ref 2).

PLP Basis Reference(s):

1. PLP Security Plan
2. CEN-152 Combustion Engineering Emergency Procedure Guidelines - Functional Recovery Guideline

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 4 - Security

Initiating Condition: HOSTILE ACTION resulting in loss of physical control of the facility

EAL:

HG4.2 General Emergency

A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems

AND

IMMINENT fuel damage is likely

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses failure of spent fuel cooling systems as a result of HOSTILE ACTION if IMMINENT fuel damage is likely, such as when a freshly off-loaded reactor core is in the spent fuel pool.

Plant-Specific

None

PLP Basis Reference(s):

1. PLP Security Plan

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 5 - Control Room Evacuation

Initiating Condition: Control Room evacuation has been initiated

EAL:

HA5.1 **Alert**
Control Room evacuation has been initiated

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

With the control room evacuated, additional support, monitoring and direction through the Technical Support Center and/or other emergency response facilities may be necessary.

Inability to establish plant control from outside the control room will escalate this event to a Site Area Emergency.

Plant-Specific

AOP-41, "Alternate Safe Shutdown," provides specific instructions for evacuating the Control Room and establishing plant control at remote Panels C-150/C-150A and Panel C-33.

EAL HS5.1 requires escalation to a Site Area Emergency if control of the plant cannot be established within 15 minutes. The fifteen minute interval begins when the Shift Manager physically leaves the Control Room.

PLP Basis Reference(s):

1. AOP-41, "Alternate Safe Shutdown"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 5 - Control Room Evacuation

Initiating Condition: Control Room evacuation has been initiated and plant control **cannot** be established

EAL:

HS5.1 Site Area Emergency

Control Room evacuation has been initiated

AND

Control of the plant **cannot** be established per AOP-41, "Alternate Safe Shutdown" procedure within 15 min.

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

The intent of this EAL is to capture those events where control of the plant cannot be reestablished in a timely manner. In this case, expeditious transfer of control of safety systems has not occurred (although fission product barrier damage may not yet be indicated).

The intent of the EAL is to establish control of important plant equipment and knowledge of important plant parameters in a timely manner. Primary emphasis should be placed on those components and instruments that supply protection for and information about safety functions. Typically, these safety functions are reactivity control (ability to shutdown the reactor and maintain it shutdown), reactor water level (ability to cool the core), and decay heat removal (ability to maintain a heat sink).

The determination of whether or not control is established at the remote shutdown panel is based on Emergency Director (ED) judgment. The Emergency Director is expected to make a reasonable, informed judgment within the site specific time for transfer that the licensee has control of the plant from the remote shutdown panel.

Escalation of this emergency classification level, if appropriate, would be by EALs in Category F or Category A.

Plant-Specific

AOP-41, Alternate Safe Shutdown, provides specific instructions for evacuating the Control Room and establishing plant control at the remote Panels C-150/C-150A and Panel C-33. AOP-41 also specifies required times for completing individual operator actions to control the plant. The required times for completing all of these actions are greater than 15 minutes with the exception of isolating atmospheric steam dumps. Steam dumps need to be isolated within six minutes to avoid overcooling the PCS. However, this action would be completed prior to establishing control at C-150/C-150A or C-33. The 15 minute limit is established to ensure control is established at C-150/C-150A or C-33 in sufficient time to allow completion of the remaining actions in AOP-41. (Ref 1)

PLP Basis Reference(s):

1. AOP-41, "Alternate Safe Shutdown"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 6 - Judgment

Initiating Condition: Other conditions existing which in the judgment of the Emergency Director warrant declaration of a UE

EAL:

HU6.1 Unusual Event

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. **No** releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the UE emergency classification level.

Plant-Specific

None

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 6 - Judgment

Initiating Condition: Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert

EAL:

HA6.1 Alert

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. **Any** releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE).

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the Alert emergency classification level.

Plant-Specific

None

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 6 - Judgment

Initiating Condition: Other conditions existing which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency

EAL:

HS6.1 Site Area Emergency

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. **Any** releases are **not** expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY.

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for Site Area Emergency.

Plant-Specific

None

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: H - Hazards

Subcategory: 6 - Judgment

Initiating Condition: Other conditions exist that in the judgment of the Emergency Director warrant declaration of a General Emergency

EAL:

HG6.1 General Emergency

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE) offsite for more than the immediate site area.

Mode Applicability:

All

Basis:

Implementing Guidance

None

Generic

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for General Emergency.

Plant-Specific

None

PLP Basis Reference(s):

None

Category S - System Malfunction

EAL Group: Hot Conditions (PCS temperature > 200ºF);
EALs in this category are applicable only in
one or more hot operating modes.

Numerous system-related equipment failure events that warrant emergency classification have been identified in this category. They may pose actual or potential threats to plant safety.

The events of this category pertain to the following subcategories:

1. Loss of AC Power

Loss of emergency plant electrical power can compromise plant safety system operability including decay heat removal and emergency core cooling systems which may be necessary to ensure fission product barrier integrity. This category includes loss of onsite and offsite power sources for the 2400 VAC vital buses.

2. Loss of DC Power

Loss of emergency plant electrical power can compromise plant safety system operability including decay heat removal and emergency core cooling systems which may be necessary to ensure fission product barrier integrity. This category includes loss of power to the 125 VDC buses.

3. Criticality & RPS Failure

Inadvertent criticalities pose potential personnel safety hazards as well being indicative of losses of reactivity control.

Events related to failure of the Reactor Protection System (RPS) to initiate and complete reactor trips. In the plant licensing basis, postulated failures of the RPS to complete a reactor trip comprise a specific set of analyzed events referred to as Anticipated Transient Without Scram (ATWS) events. For EAL classification however, ATWS is intended to mean any trip failure event that does not achieve reactor

shutdown. If RPS actuation fails to assure reactor shutdown, positive control of reactivity is at risk and could cause a threat to fuel clad, PCS and Containment integrity.

4. Inability to Reach or Maintain Shutdown Conditions

System malfunctions may lead to failure of the plant to be brought to the required plant operating condition required by technical specifications if a limiting condition for operation (LCO) is not met.

5. Instrumentation

Certain events that degrade plant operator ability to effectively assess plant conditions within the plant warrant emergency classification. Losses of annunciators are in this subcategory.

6. Communications

Certain events that degrade plant operator ability to effectively communicate with essential personnel within or external to the plant warrant emergency classification.

7. Fuel Clad Degradation

During normal operation, reactor coolant fission product activity is very low. Small concentrations of fission products in the coolant are primarily from the fission of tramp uranium in the fuel clad or minor perforations in the clad itself. Any significant increase from these base-line levels (2% - 5% clad failures) is indicative of fuel failures and is covered under Category F, Fission Product Barrier Degradation. However, lesser amounts of clad damage may result in coolant activity exceeding Technical Specification limits. These fission products will be circulated with the reactor coolant and can be detected by coolant sampling and/or the Letdown radiation monitor.

8. PCS Leakage

The Reactor Vessel provides a volume for the coolant that covers the reactor core. The Reactor Vessel and associated pressure piping (primary coolant system) together provide a barrier to limit the release of radioactive material should the reactor fuel clad integrity fail.

Excessive PCS leakage greater than Technical Specification limits are utilized to indicate potential pipe cracks that may propagate to an extent threatening fuel clad, PCS and Containment integrity.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 1 - Loss of AC Power

Initiating Condition: Loss of **all** offsite AC power to 2400 VAC safeguards buses for ≥ 15 min.

EAL:

SU1.1 Unusual Event

Loss of **all** offsite AC power, Table S-1, to 2400 VAC safeguards buses 1C and 1D for ≥ 15 min. (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table S-1 AC Power Sources	
Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 • Startup Transformer 1-2

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

Prolonged loss of off-site AC power reduces required redundancy and potentially degrades the level of safety of the plant by rendering the plant more vulnerable to a complete loss of AC power to emergency buses.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of off-site power.

Plant-Specific

PLP essential buses are the 2400 VAC safeguards buses 1C and 1D. There are three offsite power sources available to these buses in hot conditions (Ref 1, 2):

- Safeguards Transformer 1-1: 345 kV to 2,400 volt transformer located in the switchyard.
- Start-Up Transformer 1-2: 345 kV transmission line between the switchyard and plant site and 345 kV to 2,400 volt transformer located within the Plant PROTECTED AREA.
- Station Power Transformer 1-2: 22 kV isophase bus and the 21 kV to 2,400 volt transformer

There are two primary onsite AC power sources:

- Diesel Generator 1-1 for bus 1C
- Diesel Generator 1-2 for bus 1D

Diesel Generator 1-1 will start when an undervoltage is sensed on 2400 Volt Bus 1C and Diesel Generator 1-2 will start when an undervoltage is sensed on 2400 Volt Bus 1D (Ref 2).
Due to the time required to establish lineups, credit is not taken in this EAL for Diesel Generator 1-3 (Supplemental Diesel) (Ref 3).

PLP Basis Reference(s):

1. USFAR 8.3.2, "Electrical Systems - 2,400 Volt System"
2. UFSAR 8.4.1, "Electrical Systems - Emergency Generators"
3. UFSAR 8.4.5, "Supplemental 2400 Volt Power Supply"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 1 - Loss of AC Power

Initiating Condition: AC power capability to 2400 VAC safeguards buses reduced to a single power source for ≥ 15 min. such that **any** additional single power source failure would result in a complete loss of all 2400 VAC safeguards bus power

EAL:

SA1.1 Alert

AC power capability to 2400 VAC safeguards buses 1C and 1D reduced to a single power source, Table S-1, for ≥ 15 min. (Note 4)

AND

Any additional single power source failure will result in a complete loss of all 2400 VAC safeguards bus power

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table S-1 AC Power Sources

Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 • Startup Transformer 1-2

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

The condition indicated by this EAL is the degradation of the off-site and on-site AC power systems such that any additional single failure would result in a complete loss of 2400 VAC safeguards bus AC. This condition could occur due to a loss of off-site power with a concurrent failure of one emergency generator to supply power to its emergency buses. Another related condition could be the loss of all off-site power and loss of on-site emergency generators with only one train of 2400 VAC safeguards buses being backfed from the unit main generator, or the loss of on-site emergency generators with only one train of 2400 VAC safeguards buses being backfed from off-site power. The subsequent loss of this single power source would escalate the event to a Site Area Emergency in accordance with EAL SS1.1.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

Plant-Specific

PLP essential buses are the 2400 VAC safeguards buses 1C and 1D. There are three offsite power sources available to these buses in hot conditions (Ref 1, 2):

- Safeguards Transformer 1-1: 345 kV to 2,400 volt transformer located in the switchyard.
- Station Power Transformer 1-2: 22 kV isophase bus and the 21 kV to 2,400 volt transformer
- Start-Up Transformer 1-2: 345 kV transmission line between the switchyard and plant site and 345 kV to 2,400 volt transformer located within the Plant PROTECTED AREA.

There are two primary onsite AC power sources:

- Diesel Generator 1-1 for bus 1C
- Diesel Generator 1-2 for bus 1D

Diesel Generator 1-1 will start when an undervoltage is sensed on 2400 Volt Bus 1C and Diesel Generator 1-2 will start when an undervoltage is sensed on 2400 Volt Bus 1D (Ref 2).

Due to the time required to establish lineups, credit is not taken in this EAL for Diesel Generator 1-3 (Supplemental Diesel) (Ref 3).

If the capability for multiple sources to energize the unit safeguards buses within 15 minutes is not restored, an Alert is declared under this EAL. The subsequent loss of the single remaining power source escalates the event to a Site Area Emergency under EAL SS1.1.

PLP Basis Reference(s):

1. USFAR 8.3.2, "Electrical Systems - 2,400 Volt System"
2. UFSAR 8.4.1, "Electrical Systems - Emergency Generators"
3. UFSAR 8.4.5, "Supplemental 2400 Volt Power Supply"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 1 - Loss of AC Power

Initiating Condition: Loss of **all** offsite and **all** onsite AC power to 2400 VAC safeguards buses for ≥ 15 min.

EAL:

SS1.1 Site Area Emergency

Loss of **all** offsite and **all** onsite AC power, Table S-1, to 2400 VAC safeguards buses 1C and 1D for ≥ 15 min. (Note 4, Note 7)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Note 7: Even though an essential bus may be energized, if necessary loads (ie, loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable

Table S-1 AC Power Sources	
Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 • Startup Transformer 1-2

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

Loss of all AC power to emergency buses compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all AC power to 2400 VAC safeguards buses will lead to loss of Fuel Clad, PCS, and Containment, thus this event can escalate to a General Emergency.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of off-site power.

Escalation to General Emergency is via EALs in Category F or EAL SG1.1.

Plant-Specific

PLP essential buses are the 2400 VAC safeguards buses 1C and 1D. There are three offsite power sources available to these buses in hot conditions (Ref 1, 2):

- Safeguards Transformer 1-1: 345 kV to 2,400 volt transformer located in the switchyard.
- Station Power Transformer 1-2: 22 kV isophase bus and the 21 kV to 2,400 volt transformer
- Start-Up Transformer 1-2: 345 kV transmission line between the switchyard and plant site and 345 kV to 2,400 volt transformer located within the Plant PROTECTED AREA.

There are two primary onsite AC power sources:

- Diesel Generator 1-1 for bus 1C
- Diesel Generator 1-2 for bus 1D

Diesel Generator 1-1 will start when an undervoltage is sensed on 2400 Volt Bus 1C and Diesel Generator 1-2 will start when an undervoltage is sensed on 2400 Volt Bus 1D (Ref 2).
Due to the time required to establish lineups, credit is not taken in this EAL for Diesel Generator 1-3 (Supplemental Diesel) (Ref 3).

Consideration should be given to operable loads necessary to remove decay heat or provide Reactor Vessel makeup capability when evaluating loss of all AC power to safeguards buses. Even though an essential bus may be energized, if necessary loads (ie, loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable.

PLP Basis Reference(s):

1. USFAR 8.3.2, "Electrical Systems - 2,400 Volt System"
2. UFSAR 8.4.1, "Electrical Systems - Emergency Generators"
3. UFSAR 8.4.5, "Supplemental 2400 Volt Power Supply"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S -System Malfunction

Subcategory: 1 - Loss of Power

Initiating Condition: Prolonged loss of **all** offsite and **all** onsite AC power to 2400 VAC safeguards vital buses

EAL:

SG1.1 General Emergency

Loss of **all** offsite and **all** onsite AC power, Table S-1, to 2400 VAC safeguards buses 1C and 1D

AND EITHER:

Restoration of at least one 2400 VAC safeguards bus within 4 hours is **not** likely

OR

Average of qualified CETs readings > 700 ºF

(Note 7, Note 8)

Table S-1 AC Power Sources	
Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 • Startup Transformer 1-2

Note 7: Even though an essential bus may be energized, if necessary loads (ie, loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable

Note 8: 1-3 D/G or backfeed can be used to avoid entry into SG1.1 only if one of the power sources is supplying power to a safeguards bus within the 4 hour time period allowed.

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

Loss of all AC power to emergency buses compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all AC power to emergency buses will lead to loss of fuel clad, PCS, and containment, thus warranting declaration of a General Emergency.

This EAL is specified to assure that in the unlikely event of a prolonged loss of all AC power to 2400 VAC safeguards buses, timely recognition of the seriousness of the event occurs and that declaration of a General Emergency occurs as early as is appropriate, based on a reasonable assessment of the event trajectory.

The likelihood of restoring at least one safeguards bus is based on a realistic appraisal of the situation since a delay in an upgrade decision based on only a chance of mitigating the event could result in a loss of valuable time in preparing and implementing public protective actions.

In addition, under these conditions, fission product barrier monitoring capability may be degraded.

Plant-Specific

PLP essential buses are the 2400 VAC safeguards buses 1C and 1D. There are four offsite power sources available to these buses (Ref 1, 2):

- Safeguards Transformer 1-1 - 345 kV to 2,400 volt transformer located in the switchyard.
- Start-Up Transformer 1-2 - 345 kV transmission line between the switchyard and plant site and 345 kV to 2,400 volt transformer located within the Plant PROTECTED AREA.
- Station Power Transformer 1-2 - 22 kV isophase bus and the 21 kV to 2,400 volt transformer
- Main Transformer Backfeed - The delayed access circuit consists of one 345 kV transmission line, the 345 kV to 23 kV Main Transformer, the 22 kV isophase bus and the 21 kV to 2,400 volt Station Power Transformer 1-2. The delayed access

circuit is established by opening the motor-operated disconnect switch in the isophase bus. This switch can be opened within 30 minutes. Opening the switch allows for backfeeding via the main and station power transformers following the operation of other switchyard and in-plant breakers. Because of the time required to establish this lineup, credit can only be taken for the backfeed if it was already established at the time of loss of other safeguards bus AC power sources.

There are two primary onsite AC power sources:

- Diesel Generator 1-1 for bus 1C
- Diesel Generator 1-2 for bus 1D

Diesel Generator 1-1 will start when an undervoltage is sensed on 2400 Volt Bus 1C and Diesel Generator 1-2 will start when an undervoltage is sensed on 2400 Volt Bus 1D (Ref 2).

In addition to the two primary Emergency Diesel Generators, PLP has installed SBO Supplemental Diesel Generator 1-3. The supplemental diesel generator is sized to provide an alternate source of power for operation of the battery chargers and the control room heating, ventilation and air conditioning system. Additionally, the diesel is sized to provide for core heat removal via either the steam generators utilizing an auxiliary feedwater pump, or via once through cooling utilizing a high pressure safety injection pump. The Supplemental Diesel 1-3 is manually started and connected to the 2400 volts buses locally at the diesel and at nearby switchgear. Connection to the 2400 volt buses can only be made to a dead bus. No provisions are provided for automatically starting the diesel or synchronizing the diesel generator onto an energized AC bus. Because of the time required to establish this lineup, credit is not taken for the Supplemental Diesel 1-3 as an onsite AC power source until such time as it is established and powering needed loads (Ref 3).

Consideration should be given to operable loads necessary to remove decay heat or provide Reactor Vessel makeup capability when evaluating loss of all AC power to safeguards buses. Even though an essential bus may be energized, if necessary loads (ie, loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable.

The 4 hours to restore AC power is based on the site blackout coping analysis performed in conformance with 10 CFR 50.63 and Regulatory Guide 1.155, "Station Blackout" (Ref 4, 5).

Core Exit Thermocouples (CETs) are a component of the Inadequate Core Cooling Instrumentation and provide an indirect indication of fuel cladding temperature by measuring the temperature of the reactor coolant that leaves the core region (Ref 6). The average of qualified CETs readings > 700 ºF indicates a significant superheat condition. PCS superheat signals the transition from a subcooled to a superheated regime. In a superheated regime, heat transfer mechanics are not as efficient as the subcooled condition and could lead to film boiling and a rapid rise in cladding temperatures. 700 ºF is the highest CET temperature expected for any UFSAR analyzed accident and is a limiting condition to remain in an Optimal Recovery Procedure (Ref 7). VALID indication of significant superheat is a potential Fuel Clad barrier loss condition because the possible rapid rise in cladding temperatures may lead to cladding failure.

PLP Basis Reference(s):

1. USFAR 8.3.2, "Electrical Systems - 2,400 Volt System"
2. UFSAR 8.4.1, "Electrical Systems - Emergency Generators"
3. UFSAR 8.4.5, "Supplemental 2400 Volt Power Supply"
4. UFSAR 8.4.2, "Electrical Systems - Station Batteries"
5. EA-SBO-1 "Station Blackout Coping Evaluation for 10 CFR 50.63"
6. UFSAR, 7.6, "Instrumentation and Controls"
7. EOP Setpoint Basis "PCS Subcooling"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 2 - Loss of DC Power

Initiating Condition: Loss of **all** vital DC power for ≥ 15 min.

EAL:

SS2.1 Site Area Emergency

< 105 VDC on DC bus No. 1 (ED-10) **AND** DC bus No. 2 (ED-20) for ≥ 15 min. (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

Loss of all DC power compromises 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.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation to a General Emergency would occur by EALs in Category A and Category F.

Plant-Specific

Station Battery #1 and Station Battery #2 have ample capacity to supply required DC loads (DC busses No. 1, ED-10 and No.2, ED-20) and preferred AC loads during a complete loss of AC power for at least four hours, assuming neither emergency diesel generator is available. The batteries are designed to furnish their maximum load down to an operating temperature of 70 degrees F without dropping below 105 VDC, and the equipment supplied by the batteries is capable of operating satisfactorily at this voltage rating. 105 VDC represents ~80% of the manufacturers' rating for battery capacity of a nominal 131 VDC (Ref 1).

This EAL is the hot condition equivalent of the cold condition loss of DC power EAL CU2.1.

PLP Basis Reference(s):

1. UFSAR 8.4.2, "Electrical Systems - Station Batteries"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 3 - Criticality & RPS Failure

Initiating Condition: Inadvertent criticality

EAL:

SU3.1 Unusual Event

An UNPLANNED sustained positive startup rate observed on nuclear instrumentation

Mode Applicability:

3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL addresses inadvertent criticality events. This EAL indicates a potential degradation of the level of safety of the plant, warranting a UE classification. This EAL excludes inadvertent criticalities that occur during planned reactivity changes associated with reactor startups (eg, criticality earlier than estimated).

Escalation would be by EALs in Category F, as appropriate to the operating mode at the time of the event.

Plant-Specific

The term "sustained" is used to allow exclusion of expected short-term positive startup rates. These short-term positive startup rates are the result of the rise in neutron population due to subcritical multiplication.

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 3 - Criticality & RPS Failure

Initiating Condition: Automatic trip fails to shut down the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor

EAL:

SA3.1 Alert

An automatic trip failed to shut down the reactor

AND

Manual actions taken at the reactor control console successfully shut down the reactor as indicated by reactor power ≤ 5%

Mode Applicability:

1 - Power Operation, 2 - Startup

Basis:

Implementing Guidance

None

Generic

The reactor should be considered shutdown when it producing less heat than the maximum decay heat load for which the safety systems are designed (typically 3 to 5% power).

Manual trip actions taken at the reactor control console are any set of actions by the reactor operator(s) which causes or should cause control rods to be rapidly inserted into the core and shuts down the reactor.

The manual trip pushbuttons on the control room console panels are not considered an automatic input into the Reactor Protection System.

This condition indicates failure of the automatic protection system to trip the reactor. This condition is more than a potential degradation of a safety system in that a front line automatic protection system did not function in response to a plant transient. Thus the plant safety has been compromised because design limits of the fuel may have been exceeded. An Alert is indicated because conditions may exist that lead to potential loss of fuel clad barrier or PCS barrier and because of the failure of the Reactor Protection System to automatically shut down the plant.

If manual actions taken at the reactor control console fail to shut down the reactor, the event would escalate to a Site Area Emergency.

Plant-Specific

Following a successful reactor trip, nuclear power promptly drops to about six percent of the original power level and then decays to a level some 8 decades less at a startup rate (SUR) of about (-)1/3 DPM. The reactor power drop continues until reactor power reaches the point at which the influence of source neutrons on reactor power starts to be observable. A predictable post-trip response from an automatic reactor trip signal should therefore consist of a prompt drop in reactor power as sensed by the nuclear instrumentation (NI) and a negative SUR as nuclear power drops into the source range (Ref 1).

The Auxiliary Feedwater (AFW) system is designed to provide SG makeup at maximum decay heat generation rates. The limiting analyzed event for AFW is loss of feedwater during which reactor power decreases to decay heat levels as shown in UFSAR, Figure 14.13-1. During this period Reactor power drops from approximately 5% to 1%. The power level associated with decay heat removal capability for trip failure events has therefore been identified as 5% rated thermal power (Ref 2, 3).

If reactor power is above 5%, the reactor is producing more heat than the AFW system is designed to remove. The Alert emergency classification is required whenever the Shift Manager determines that a automatic reactor trip did not succeed in reducing reactor power to 5% or lower.

EOP-1.0, "Standard Post Trip Actions," instructs the operator to push both reactor trip pushbuttons on Control Room panels EC-02 and EC-06. Manual trips are not considered successful if action taken away from the Control Room panels EC-02 and EC-06 is required to trip the reactor (Ref 1). If opening Control Rod Drive clutch power feeder breakers 42-1 RPS and 42-2 RPS with a standing reactor trip signal present, placing all CRD clutch power toggle switches to CLUTCH OFF or emergency borating are required to shutdown the reactor, manual trips are not considered to be successful and classification under EAL SS3.1 would be required.

A reactor trip from the ATWS trip signal also warrants an Alert classification, as it is a ‘second line of defense’ trip equivalent to the manual pushbutton trips. The ATWS trip circuitry uses a diverse trip methodology. This trip methodology accomplishes a reactor trip via the same circuitry as the EC-06 Reactor Trip manual pushbutton (Ref 4). An Alert classification is appropriate as the ATWS trip setpoint (PCS pressure greater than 2375 psia) is designed to avoid overlap with the RPS trips or PCS safety valves (Ref 5).

In the event that the operator identifies a reactor trip is IMMINENT and successfully initiates a manual reactor trip before the automatic trip setpoint is reached, no declaration is required. The successful manual trip of the reactor before it reaches its automatic trip setpoint or reactor trip signals caused by instrumentation channel failures do not lead to a potential fission product barrier loss. If manual reactor trip actions at the main control boards (following an unsuccessful automatic reactor trip) fail to reduce reactor power to or below 5%, the event escalates to the Site Area Emergency under EAL SS3.1.

PLP Basis Reference(s):

1. EOP-1.0, "Standard Post-Trip Actions"
2. UFSAR, 9.7 "Auxiliary Feedwater System"
3. UFSAR, Figure 14.13-1
4. UFSAR, Figure 7-1 - "RPS Block Diagram"
5. UFSAR, 7.2 Reactor Protection System

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 3 - Criticality & RPS Failure

Initiating Condition: Automatic trip fails to shut down the reactor and manual actions taken from the reactor control console are **not** successful in shutting down the reactor

EAL:

SS3.1 Site Area Emergency

An automatic trip failed to shut down the reactor

AND

Manual actions taken at the reactor control console do **not** shut down the reactor as indicated by reactor power > 5%

Mode Applicability:

1 - Power Operation, 2 - Startup

Basis:

Implementing Guidance

None

Generic

Under these conditions, the reactor is producing more heat than the maximum decay heat load for which the safety systems are designed and efforts to bring the reactor subcritical are unsuccessful. A Site Area Emergency is warranted because conditions exist that lead to IMMINENT loss or potential loss of both fuel clad and PCS.

The reactor should be considered shutdown when it producing less heat than the maximum decay heat load for which the safety systems are designed.

Manual trip actions taken at the reactor control console are any set of actions by the reactor operator(s) at which causes or should cause control rods to be rapidly inserted into the core and shuts down the reactor. The manual trip pushbuttons on the control room console panels are not considered an automatic input into the Reactor Protection System.

Manual trip actions are not considered successful if action away from the reactor control console is required to trip the reactor. This EAL is still applicable even if actions taken away from the reactor control console are successful in shutting the reactor down because the design limits of the fuel may have been exceeded or because of the gross failure of the Reactor Protection System to shutdown the plant.

Escalation of this event to a General Emergency would be due to a prolonged condition leading to an extreme challenge to either core-cooling or heat removal.

Plant-Specific

Following a successful reactor trip, nuclear power promptly drops to about six percent of the original power level and then decays to a level some 8 decades less at a startup rate (SUR) of about (-)1/3 DPM. The reactor power drop continues until reactor power reaches the point at which the influence of source neutrons on reactor power starts to be observable. A predictable post-trip response from an automatic reactor trip signal should therefore consist of a prompt drop in reactor power as sensed by the nuclear instrumentation (NI) and a negative SUR as nuclear power drops into the source range (Ref 1).

The Auxiliary Feedwater (AFW) system is designed to provide SG makeup at maximum decay heat generation rates. The limiting analyzed event for AFW is loss of feedwater during which reactor power decreases to decay heat levels as shown in UFSAR, Figure 14.13-1. During this period Reactor power drops from approximately 5% to 1%. The power level associated with decay heat removal capability for trip failure events has therefore been identified as 5% rated thermal power (Ref 2, 3).

If reactor power is above 5%, the reactor is producing more heat than the AFW system is designed to remove. The Site Area Emergency classification is required whenever the Shift Manager determines that both the automatic reactor trip and manual trip did not succeed in reducing reactor power to 5% or lower.

EOP-1.0, "Standard Post Trip Actions," instructs the operator to push both reactor trip pushbuttons on Control Room panels EC-02 and EC-06. Manual trips are not considered successful if action taken away from the Control Room panels EC-02 and EC-06 is required to trip the reactor (Ref 1). If opening Control Rod Drive clutch power feeder breakers 42-1 RPS and 42-2 RPS with a standing reactor trip signal present, placing all CRD clutch power toggle switches to CLUTCH OFF or emergency borating are required to shutdown the reactor, manual trips are not considered to be successful and classification under EAL SS3.1 would be required.

Emergency boration is thus required and there is an actual major failure of a system intended for protection of the public. The combination of failure of both front line and backup protection systems to function in response to a plant transient, along with the continued production of heat poses a direct threat to the Fuel Clad and PCS barriers and warrants declaration of a Site Area Emergency.

PLP Basis Reference(s):

1. EOP-1.0, "Standard Post-Trip Actions"
2. UFSAR, 9.7 "Auxiliary Feedwater System"
3. UFSAR, Figure 14.13-1

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 3 - Criticality & RPS Failure

Initiating Condition: Automatic trip and **all** manual actions fail to shut down the reactor and indication of an extreme challenge to the ability to cool the core exists

EAL:

SG3.1 General Emergency

An automatic trip fails to shut down the reactor

AND

All manual actions do **not** shut down the reactor as indicated by reactor power > 5%

AND EITHER of the following exist or have occurred due to continued power generation:

Average of qualified CETs readings > 1,200ºF

OR

Any PCS/Core Heat Removal safety function criteria in Table S-5 is met for ≥ 15 min. (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table S-5 PCS/Core Heat Removal Safety Function Criteria
• **Both SG levels ≤ -84%** • **Both PCS loop delta Ts ≥ 10ºF (forced circulation)** **OR** **Core delta T ≥ 50°F (natural circulation)** • **PCS subcooling < 25°F based on average of qualified CETs**

Mode Applicability:

1 - Power Operation, 2 - Startup

Basis:

Implementing Guidance

None

Generic

Under these conditions, the reactor is producing more heat than the maximum decay heat load for which the safety systems are designed and efforts to bring the reactor subcritical are unsuccessful.

The reactor should be considered shutdown when it producing less heat than the maximum decay heat load for which the safety systems are designed. In the event either of these challenges exists at a time that the reactor has not been brought below the power associated with the safety system design a core melt sequence exists. In this situation, core degradation can occur rapidly. For this reason, the General Emergency declaration is intended to be anticipatory of the fission product barrier table declaration to permit maximum off-site intervention time.

Plant-Specific

Following a successful reactor trip, nuclear power promptly drops to about six percent of the original power level and then decays to a level some 8 decades less at a Startup Rate (SUR) of about (-)1/3 DPM. The reactor power drop continues until reactor power reaches the point at which the influence of source neutrons on reactor power starts to be observable. A predictable post-trip response from an automatic reactor trip signal should therefore consist of a prompt drop in reactor power as sensed by the Nuclear Instrumentation (NI) and a negative SUR as nuclear power drops into the source range (Ref 1).

The Auxiliary Feedwater (AFW) system is designed to provide SG makeup at maximum decay heat generation rates. The limiting analyzed event for AFW is loss of feedwater during which reactor power decreases to decay heat levels as shown in UFSAR, Figure 14.13-1. During this period Reactor power drops from approximately 5% to 1%. The power level associated with decay heat removal capability for trip failure events has therefore been identified as 5% rated thermal power (Ref 2, 3).

If reactor power is above 5%, the reactor is producing more heat than the AFW system is designed to remove. Emergency boration is thus required and there is an actual major failure of a system intended for protection of the public. The combination of failure of both front line and backup protection systems to function in response to a plant transient, along with the continued production of heat poses a direct threat to the Fuel Clad and PCS barriers.

Core Exit Thermocouples (CETs) are a component of the Inadequate Core Cooling Instrumentation and provide an indirect indication of fuel cladding temperature by measuring the temperature of the reactor coolant that leaves the core region (Ref 4). The extreme challenge to the ability to cool the core is intended to mean that the core exit temperatures are at or approaching 1,200ºF. The extreme challenge to core cooling threshold temperature of 1,200ºF is consistent with CEOG Generic Accident Management Guidelines for Phase 1, "Initial Diagnosis" for core exit temperature. Although clad rupture due to high temperature is not expected for CET readings less than the threshold, temperatures of this magnitude signal severe superheating of the primary coolant and core uncovery (Ref 5).

Inability to remove heat from the PCS to the ultimate heat sink (lake or atmosphere) is a loss of function required for hot shutdown with the reactor at pressure and temperature and thus represents potential loss of the Fuel Clad and PCS barriers. If auxiliary feedwater flow is insufficient to remove the amount of heat required by design from at least one steam generator, an extreme challenge should be considered to exist. The Table S-5 PCS/Core Heat Removal safety function criteria are the inverse of the PCS/Core Heat Removal safety function status acceptance criteria specified in the EOPs (Ref 6). The inverse is used to improve human factoring of the EALs. All of the criteria in the EALs are based on the condition that if you meet a condition then you are in the EAL. If the normal safety functions as specified in the EOPs is used then the NOT meeting a condition results in the EAL entrance. The inverse wording is as follows:

Original Safety Function acceptance wording	**Inverse Safety Function wording**
Any SG levels > -84%	Both SG levels ≤ -84%
PCS loop delta T < 50°F (10°F with forced circulation)	Both PCS loop delta Ts ≥ 10ºF (forced circulation) OR Core delta T ≥ 50°F (natural circulation)
PCS subcooling ≥ 25°F based on average of qualified CETs	PCS subcooling < 25°F based on average of qualified CETs

The process of checking the safety functions in EOPs is periodic and continuous as long as the procedure is in use. The fifteen minute interval (subject to Note 4) provides a suitable opportunity to assess plant conditions with respect to the threshold criteria. When a safety function acceptance criteria is not met in the EOPs then the safety function criteria in the EALs is being met.

If the delta T exceeds the specified value, this could indicate that heat removal ability from a S/G has been lost. It is expected that during an asymmetric cooldown that one of the S/Gs will not be removing heat such as the case where a S/G has been isolated or may be excessively removing heat during an Excess Steam Demand Event. Because of these types of conditions, the safety function specifies that both loop delta Ts have to exceed the value indicating that both S/Gs are no longer removing heat from the PCS. If all PCPs are stopped, the most accurate indication of the core delta T is the Average of Qualified CET temperature minus Tc wide range temperature. Only one S/G is necessary to remove adequate heat from the core and PCS. As pointed out in the EOP basis documents, it is expected that the core delta T of 50°F will be exceeded during the period when natural circulation is being established. The EOP basis document specifies that at the start of natural circulation or even during a natural circulation cooldown, if an asymmetric S/G cooldown is initiated, the full-power delta T (50°F) value may be briefly exceeded. This is acceptable as long as the least affected S/G remains operable. Eventually the delta T will fall below the full-power delta T limit and this acceptance criteria will be met.

The combination of these conditions (reactor power greater than 5% with loss of subcooling margin or inability to remove heat from the PCS) indicates the ultimate heat sink function is under extreme challenge, a core melt sequence may exist and rapid degradation of the fuel cladding could begin. To permit maximum offsite intervention time, the General Emergency declaration is appropriate in anticipation of an inevitable General Emergency declaration due to loss and potential loss of fission product barriers.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

PLP Basis Reference(s):

1. EOP-1.0, "Standard Post-Trip Actions"
2. UFSAR, 9.7 "Auxiliary Feedwater System"
3. UFSAR, Figure 14.13-1
4. UFSAR, 7.6, "Instrumentation and Controls"
5. CEOG Generic Accident Management Guidelines - Phase 1, "Initial Diagnosis"
6. EOP-9.0, "Functional Recovery Procedure" Basis (HR-1, HR-2 & HR-3)

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 4 - Inability to Reach or Maintain Shutdown Conditions

Initiating Condition: Inability to reach required shutdown within Technical Specification limits

EAL:

SU4.1 Unusual Event

Plant is **not** brought to required operating mode within Technical Specifications LCO required action completion time

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

Limiting Conditions of Operation (LCOs) require the plant to be brought to a required operating mode when the Technical Specification required configuration cannot be restored. Depending on the circumstances, this may or may not be an emergency or precursor to a more severe condition. In any case, the initiation of plant shutdown required by the site Technical Specifications requires a four hour report under 10 CFR 50.72 (b) Non-emergency events. The plant is within its safety envelope when being shut down within the allowable required action completion time in the Technical Specifications. An immediate UE is required when the plant is not brought to the required operating mode within the allowable required action completion time in the Technical Specifications. Declaration of a UE is based on the time at which the LCO-specified required action completion time period elapses under the site Technical Specifications and is not related to how long a condition may have existed.

Plant-Specific

None

PLP Basis Reference(s):

1. Technical Specifications 3.0, Limiting Conditions for Operations (LCO) Applicability

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 5 - Instrumentation

Initiating Condition: UNPLANNED loss of safety system annunciation or indication in the Control Room for ≥ 15 min.

EAL:

SU5.1 Unusual Event

UNPLANNED loss of > approximately 75% of annunciation or indication, Table S-2, on main control boards for ≥ 15 min. (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table S-2 Safety System Annunciators & Indicators

- EC-02/12 - Reactor/PCPs
- EC-03/13 - Safety Injection/Containment Cooling & Isolation systems / Ventilation
- EC-04 - Electrical
- EC-06 - RPS
- EC-08 - Service Water/Component Cooling
- EC-11 (Rear) - Rad Monitors
- EC-11A (Front) - Control Room HVAC / Reactor Vessel Level / Core Exit Thermocouples
- EC-27 - Thermal Margin Monitors

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL is intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment.

Recognition of the availability of computer based indication equipment is considered.

"Planned" loss of annunciators or indicators includes scheduled maintenance and testing activities.

Quantification is arbitrary, however, it is estimated that if approximately 75% of the safety system annunciators or indicators are lost, there is an increased risk that a degraded plant condition could go undetected. It is not intended that plant personnel perform a detailed count of the instrumentation lost but use the value as a judgment threshold for determining the severity of the plant conditions.

It is further recognized that plant design provides redundant safety system indication powered from separate uninterruptible power supplies. While failure of a large portion of annunciators is more likely than a failure of a large portion of indications, the concern is included in this EAL due to difficulty associated with assessment of plant conditions. The loss of specific, or several, safety system indicators should remain a function of that specific system or component operability status. This will be addressed by the specific Technical Specification. The initiation of a Technical Specification imposed plant shutdown related to the instrument loss will be reported via 10 CFR 50.72. If the shutdown is not in compliance with the Technical Specification action, the UE is based on EAL SU4.1.

Annunciators or indicators for this EAL include those identified in the Abnormal Operating Procedures, in the Emergency Operating Procedures, and in other EALs (eg, area, process, and/or effluent rad monitors, etc).

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

This UE will be escalated to an Alert based on a concurrent loss of compensatory indications or if a SIGNIFICANT TRANSIENT is in progress during the loss of annunciation or indication.

Plant-Specific

Table S-2 annunciators and indicators (Ref 1 - 7) for this EAL include those identified in the Off Normal Procedures, in the Emergency Operating Procedures, and in other EALs (eg, area, process, and/or effluent rad monitors, etc).

PLP Basis Reference(s):

1. ARP-4, "Primary System Volume Level Pressure Scheme EK-07 (C-12)"
2. ARP-5, "Primary Coolant Pump Steam Generator and Rod Drives Scheme EK-09 (C-12)"
3. ARP-7, "Auxiliary Systems Scheme EK-11 (C-13)"
4. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (C-13)"
5. ARP-21, "Reactor Protective System Scheme EK-06 (C-06)"
6. ARP-33. "Auxiliary Systems Scheme EK-02 (C-11A)"
7. P&ID Equipment Location Reactor and Aux Bldg M-4 (C-5/6) [For EC-02, 03, 04, 06, 08, 11, 11A, 12, 13 & 27]

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 5 - Instrumentation

Initiating Condition: UNPLANNED loss of safety system annunciation or indication in the Control Room with either (1) a SIGNIFICANT TRANSIENT in progress, or (2) compensatory indicators are unavailable

EAL:

SA5.1 Alert

UNPLANNED loss of > approximately 75% of annunciation or indication, Table S-2, on main control boards for ≥ 15 min. (Note 4)

AND EITHER:

A SIGNIFICANT TRANSIENT is in progress, Table S-3

OR

Compensatory indications are unavailable (Palisades Process Computer)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table S-2 Safety System Annunciators & Indicators
• EC-02/12 - Reactor/PCPs • EC-03/13 - Safety Injection/Containment Cooling & Isolation systems / Ventilation • EC-04 - Electrical • EC-06 - RPS • EC-08 - Service Water/Component Cooling • EC-11 (Rear) - Rad Monitors • EC-11A (Front) - Control Room HVAC / Reactor Vessel Level / Core Exit Thermocouples • EC-27 - Thermal Margin Monitors

Table S-3 SIGNIFICANT TRANSIENTs
• Turbine runback > 25% thermal power • Reactor trip • ECCS (SIAS) actuation

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL is intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment during a SIGNIFICANT TRANSIENT.

"Planned" loss of annunciators or indicators includes scheduled maintenance and testing activities.

Quantification is arbitrary, however, it is estimated that if approximately 75% of the safety system annunciators or indicators are lost, there is an increased risk that a degraded plant condition could go undetected. It is not intended that plant personnel perform a detailed count of the instrumentation lost but use the value as a judgment threshold for determining the severity of the plant conditions. It is also not intended that the Shift Manager be tasked with making a judgment decision as to whether additional personnel are required to provide increased monitoring of system operation.

It is further recognized that most plant designs provide redundant safety system indication powered from separate uninterruptible power supplies. While failure of a large portion of annunciators is more likely than a failure of a large portion of indications, the concern is included in this EAL due to difficulty associated with assessment of plant conditions. The loss of specific, or several, safety system indicators should remain a function of that specific system or component operability status. This will be addressed by the specific Technical Specification. The initiation of a Technical Specification imposed plant shutdown related to the instrument loss will be reported via 10 CFR 50.72. If the shutdown is not in compliance with the Technical Specification action, the UE is based on EAL SU4.1.

Annunciators or indicators for this EAL include those identified in the Abnormal Operating Procedures, in the Emergency Operating Procedures, and in other EALs (eg, area, process, and/or effluent rad monitors, etc).

"Compensatory indications" in this context includes computer based information such as Palisades Process Computer. If both a major portion of the annunciation system and all computer monitoring are unavailable, the Alert is required.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

This Alert will be escalated to a Site Area Emergency if the operating crew cannot monitor the transient in progress due to a concurrent loss of compensatory indications with a SIGNIFICANT TRANSIENT in progress during the loss of annunciation or indication.

Plant-Specific

Table S-2 annunciators and indicators (Ref 1 - 7) for this EAL include those identified in the Off Normal Procedures, in the Emergency Operating Procedures, and in other EALs (eg, area, process, and/or effluent rad monitors, etc).

Palisades Process Computer is considered compensatory indication (Ref 8).

SIGNIFICANT TRANSIENTs are listed in Table S-3.

PLP Basis Reference(s):

1. ARP-4, "Primary System Volume Level Pressure Scheme EK-07 (C-12)"
2. ARP-5, "Primary Coolant Pump Steam Generator and Rod Drives Scheme EK-09 (C-12)"
3. ARP-7, "Auxiliary Systems Scheme EK-11 (C-13)"
4. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (C-13)"
5. ARP-21, "Reactor Protective System Scheme EK-06 (C-06)"
6. ARP-33, "Auxiliary Systems Scheme EK-02 (C-11A)"
7. P&ID Equipment Location Reactor and Aux Bldg M-4 (C-5/6) [For EC-02, 03, 04, 06, 08, 11, 11A, 12, 13 & 27]
8. UFSAR, 7.6.2.5, "Instrumentation and Controls - Palisades Plant Computer"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 5 - Instrumentation

Initiating Condition: Inability to monitor a SIGNIFICANT TRANSIENT in progress

EAL:

SS5.1 Site Area Emergency

Loss of > approximately 75% of annunciation or indication, Table S-2, on main control boards for ≥ 15 min. (Note 4)

AND

A SIGNIFICANT TRANSIENT is in progress, Table S-3

AND

Compensatory indications are unavailable (Palisades Process Computer)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table S-2 Safety System Annunciators & Indicators
• EC-02/12 - Reactor/PCPs • EC-03/13 - Safety Injection/Containment Cooling & Isolation systems / Ventilation • EC-04 - Electrical • EC-06 - RPS • EC-08 - Service Water/Component Cooling • EC-11 (Rear) - Rad Monitors • EC-11A (Front) - Control Room HVAC / Reactor Vessel Level / Core Exit Thermocouples • EC-27 - Thermal Margin Monitors

Table S-3 SIGNIFICANT TRANSIENTs
• Turbine runback > 25% thermal power • Reactor trip • ECCS (SIAS) actuation

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL is intended to recognize the threat to plant safety associated with the complete loss of capability of the control room staff to monitor plant response to a SIGNIFICANT TRANSIENT.

"Planned" and "UNPLANNED" actions are not differentiated since the loss of instrumentation of this magnitude is of such significance during a transient that the cause of the loss is not an ameliorating factor.

Quantification is arbitrary, however, it is estimated that if approximately 75% of the safety system annunciators or indicators are lost, there is an increased risk that a degraded plant condition could go undetected. It is not intended that plant personnel perform a detailed count of the instrumentation lost but use the value as a judgment threshold for determining the severity of the plant conditions. It is also not intended that the Shift Manager be tasked with making a judgment decision as to whether additional personnel are required to provide increased monitoring of system operation.

It is further recognized that most plant designs provide redundant safety system indication powered from separate uninterruptible power supplies. While failure of a large portion of annunciators is more likely than a failure of a large portion of indications, the concern is included in this EAL due to difficulty associated with assessment of plant conditions. The loss of specific, or several, safety system indicators should remain a function of that specific system or component operability status. This will be addressed by the specific Technical Specification. The initiation of a Technical Specification imposed plant shutdown related to the instrument loss will be reported via 10 CFR 50.72. If the shutdown is not in compliance with the Technical Specification action, the NOUE is based on EAL SU4.1

A Site Area Emergency is considered to exist if the control room staff cannot monitor safety functions needed for protection of the public while a SIGNIFICANT TRANSIENT is in progress.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Annunciators for this EAL are limited to include those identified in the Abnormal Operating Procedures, in the Emergency Operating Procedures, and in other EALs (eg, area, process, and/or effluent rad monitors, etc).

Indications needed to monitor safety functions necessary for protection of the public include CONTROL ROOM INDICATIONs, computer generated indications and dedicated annunciation capability.

"Compensatory indications" in this context includes computer based information such as the Palisades Process Computer.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Plant-Specific

Table S-2 annunciators and indicators (Ref 1 - 7) for this EAL include those identified in the Off Normal Procedures, in the Emergency Operating Procedures, and in other EALs (eg, area, process, and/or effluent rad monitors, etc).

Palisades Process Computer is considered compensatory indication (Ref 8).

SIGNIFICANT TRANSIENTs are listed in Table S-3.

PLP Basis Reference(s):

1. ARP-4, "Primary System Volume Level Pressure Scheme EK-07 (C-12)"
2. ARP-5, "Primary Coolant Pump Steam Generator and Rod Drives Scheme EK-09 (C-12)"
3. ARP-7, "Auxiliary Systems Scheme EK-11 (C-13)"
4. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (C-13)"
5. ARP-21, "Reactor Protective System Scheme EK-06 (C-06)"
6. ARP-33, "Auxiliary Systems Scheme EK-02 (C-11A)"
7. P&ID Equipment Location Reactor and Aux Bldg M-4 (C-5/6) [For EC-02, 03, 04, 06, 08, 11, 11A, 12, 13 & 27]
8. UFSAR, 7.6.2.5, "Instrumentation and Controls - Palisades Plant Computer"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 6 - Communications

Initiating Condition: Loss of **all** onsite or offsite communications capabilities

EAL:

SU6.1 Unusual Event

Loss of **all** Table S-4 onsite (internal) communication methods affecting the ability to perform routine operations

OR

Loss of **all** Table S-4 offsite (external) communication methods affecting the ability to perform offsite notifications

Table S-4 Communications Systems

System	Onsite (internal)	Offsite (external)
Telephone System	X	X
Onsite/offsite radio system	X	
Public address system	X	
Power failure phones		X
FTS phone system		X
Satellite phone		X

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Generic

The purpose of this EAL is to recognize a loss of communications capability that either defeats the plant operations staff ability to perform routine tasks necessary for plant operations or the ability to communicate issues with off-site authorities.

The loss of off-site communications ability is expected to be significantly more comprehensive than the condition addressed by 10 CFR 50.72.

The availability of one method of ordinary off-site communications is sufficient to inform federal, state, and local authorities of plant problems. This EAL is intended to be used only when extraordinary means (eg, relaying of information from non-routine radio transmissions, individuals being sent to off-site locations, etc) are being used to make communications possible.

Plant-Specific

Onsite/offsite communications systems are listed in Table S-4 (Ref 1, 2, 3).

This EAL is the hot condition equivalent of the cold condition EAL CU5.1.

PLP Basis Reference(s):

1. UFSAR, 7.7.8, "Instrumentation and Controls - In-Plant Communication System"
2. SOP-31, "Plant Lighting and Communications"
3. EI-15.2, "Communications Tests"

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 7 - Fuel Clad Degradation

Initiating Condition: Fuel clad degradation

EAL:

SU7.1 Unusual Event

PCS specific activity ≥ 40 µCi/gm dose equivalent I-131

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL is included because it is a precursor of more serious conditions and, as result, is considered to be a potential degradation of the level of safety of the plant.

Escalation of this EAL to the Alert level is via the EALs in Category F.

This threshold addresses coolant samples exceeding coolant technical specifications for transient iodine spiking limits.

Plant-Specific

The Technical Specification safety analysis shows the radiological consequences of an SGTR accident are within a small fraction of the 10 CFR 100 dose guideline limits. Operation with iodine specific activity levels greater than the steady-state LCO limit of 1.0 µCi/gm is permissible for up to 48 hours provided the activity levels do not exceed the transient iodine spiking limit of 40 µCi/gm. Though the referenced Technical Specification limits are mode dependent (only applicable in modes 1, 2 and Mode 3 with PCS average temperature ≥ 500 ºF), it is appropriate that the EAL be applicable in all hot modes (1 - 4), as it indicates a potential degradation in the level of safety of the plant. The 40 µCi/gm Technical Specification limit accommodates an iodine spike phenomenon that may occur following changes in thermal power and during reactor startup and shutdown. The Technical Specification LCO limits are established to minimize the offsite radioactivity dose consequences in the event of a steam generator tube rupture (SGTR) accident (Ref 1, 2).

PLP Basis Reference(s):

1. Technical Specification B.3.4.16 Primary Coolant System - PCS Specific Activity

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 7 - Fuel Clad Degradation

Initiating Condition: Fuel clad degradation

EAL:

SU7.2 Unusual Event

Any VALID Containment Isolation High Radiation Monitor (RIA-1805 thru 1808) PPC urgent alarm (0.45 Rem/hr)

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL is included because it is a precursor of more serious conditions and, as result, is considered to be a potential degradation of the level of safety of the plant.

Escalation of this EAL to the Alert level is via the EALs in Category F.

This threshold addresses radiation monitor readings that provide indication of a degradation of fuel clad integrity.

Plant-Specific

This EAL addresses indication of gross failed fuel that may be in excess of Technical Specification (Ref 5) coolant activity limits.

The Containment Isolation High Radiation Monitors initiates containment isolation on 2 out of 4 coincidence logic at a high alarm reading of 10 R/hr. Assured effectiveness of these monitors has been verified by actual testing for the case of core damage assuming approximately 1% failed fuel without LOCA. A special test conducted in 1980 in response to NUREG-0737 verified that with approximately 1% failed fuel the Containment Isolation High Radiation monitors would indicate 4.5 Rem/hr. The PPC urgent alarm is set at one tenth of that value, 0.45 Rem/hr, indicating fuel clad degradation. (Ref 4)

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

PLP Basis Reference(s):

1. ARP-8, "Safeguards Safety Injection and Isolation Scheme EK-13 (EC-13)" (Window #63)
2. UFSAR, 7.3.3.3, "Design Analysis"
3. Consumers Power Company, Response to NUREG-0737, December 19, 1980 (Item II.E.4.3 - Special Test of April 15, 1980)
4. PPC Containment Isolation High Radiation Monitor Urgent Alarm Setpoints
5. Technical Specification B.3.4.16 Primary Coolant System - PCS Specific Activity

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: S - System Malfunction

Subcategory: 8 - PCS Leakage

Initiating Condition: PCS leakage

EAL:

SU8.1 Unusual Event

Unidentified or pressure boundary leakage > 10 gpm

OR

Identified leakage > 25 gpm

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

This EAL is included as a UE because it may be a precursor of more serious conditions and, as result, is considered to be a potential degradation of the level of safety of the plant. The 10 gpm value for the unidentified or pressure boundary leakage was selected as it is observable with normal CONTROL ROOM INDICATIONs. Lesser values must generally be determined through time-consuming surveillance tests (eg, mass balances).

Relief valve normal operation should be excluded from this EAL. However, a relief valve that operates and fails to close per design should be considered applicable to this EAL if the relief valve cannot be isolated.

The EAL for identified leakage is set at a higher value due to the lesser significance of identified leakage in comparison to unidentified or pressure boundary leakage. In either case, escalation of this EAL to the Alert level is via EALs in Category F.

Plant-Specific

DWO-1, Operator's Daily/Weekly Items Modes 1, 2, 3 and 4, provides instructions for calculating primary system leak rate relative to the Technical Specification limits (Ref 1). AOP-23, Primary Coolant Leak, provides direction for determining PCS leakage for off normal events and for operations troubleshooting (Ref 2).

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

PLP Basis Reference(s):

1. DWO-1, "Operator's Daily/Weekly Items Modes 1, 2, 3 and 4"
2. AOP-23 "Primary Coolant Leak"
3. UFSAR, 7.4, "Primary Coolant Pressure Boundary Leakage Detection"

Category F - Fission Product Barrier Degradation

EAL Group: Hot Conditions (PCS temperature > 200ºF); EALs in this category are applicable only in one or more hot operating modes.

EALs in this category represent threats to the defense in depth design concept that precludes the release of highly radioactive fission products to the environment. This concept relies on multiple physical barriers any one of which, if maintained intact, precludes the release of significant amounts of radioactive fission products to the environment. The primary fission product barriers are:

A. Reactor Fuel Clad (FC): The Fuel Clad barrier consists of the zircalloy fuel bundle tubes that contain the fuel pellets.
B. Primary Coolant System (PCS): The PCS Barrier includes the PCS primary side and its connections up to and including the pressurizer safety and relief valves, and other connections up to and including the primary isolation valves.
C. Containment (CNMT): The Containment Barrier includes the containment building and connections up to and including the outermost containment isolation valves. This barrier also includes the main steam, feedwater, and blowdown line extensions outside the containment building up to and including the outermost secondary side isolation valve.

The EALs in this category require evaluation of the loss and potential loss thresholds listed in the fission product barrier matrix of Table F-1 (Attachment 2). "Loss" and "Potential Loss" signify the relative damage and threat of damage to the barrier. "Loss" means the barrier no longer assures containment of radioactive materials. "Potential Loss" means integrity of the barrier is threatened and could be lost if conditions continue to degrade. The number of barriers that are lost or potentially lost and the following criteria determine the appropriate emergency classification level:

Unusual Event:
Any loss or any potential loss of Containment

Alert:
Any loss or any potential loss of either Fuel Clad or PCS

Site Area Emergency:
Loss or potential loss of any two barriers

General Emergency:
Loss of any two barriers and loss or potential loss of the third barrier

The logic used for Category F EALs reflects the following considerations:

- The Fuel Clad Barrier and the PCS Barrier are weighted more heavily than the Containment Barrier. UE EALs associated with PCS and Fuel Clad Barriers are addressed under Category S.
- At the Site Area Emergency level, there must be some ability to dynamically assess how far present conditions are from the threshold for a General Emergency. For example, if Fuel Clad and PCS Barrier "Loss" thresholds existed, that, in addition to off-site dose assessments, would require continual assessments of radioactive inventory and containment integrity. Alternatively, if both Fuel Clad and PCS Barrier "Potential Loss" thresholds existed, the ED would have more assurance that there was no immediate need to escalate to a General Emergency.
- The ability to escalate to higher emergency classification levels as an event deteriorates must be maintained. For example, PCS leakage steadily increasing would represent an increasing risk to public health and safety.
- The Containment Barrier should not be declared lost or potentially lost based on exceeding Technical Specification action statement criteria, unless there is an event in progress requiring mitigation by the Containment barrier. When no event is in progress (Loss or Potential Loss of either Fuel Clad and/or PCS) the Containment Barrier status is addressed by Technical Specifications.

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: Fission Product Barrier Degradation

Subcategory: N/A

Initiating Condition: **Any** loss or **any** potential loss of Containment

EAL:

FU1.1 Unusual Event

Any loss or **any** potential loss of Containment (Table F-1)

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

None

Plant-Specific

Fuel Clad, PCS and Containment comprise the fission product barriers. Table F-1 (Attachment 2) lists the fission product barrier thresholds, bases and references.

Fuel Clad and PCS barriers are weighted more heavily than the Containment barrier. Unlike the Fuel Clad and PCS barriers, the loss of either of which results in an Alert (EAL FA1.1), loss of the Containment barrier in and of itself does not result in the relocation of radioactive materials or the potential for degradation of core cooling capability. However, loss or potential loss of the Containment barrier in combination with the loss or potential loss of either the Fuel Clad or PCS barrier results in declaration of a Site Area Emergency under EAL FS1.1.

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: Fission Product Barrier Degradation

Subcategory: N/A

Initiating Condition: **Any** loss or **any** potential loss of either Fuel Clad or PCS

EAL:

FA1.1 Alert

Any loss or **any** potential loss of either Fuel Clad or PCS (Table F-1)

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

None

Plant-Specific

Fuel Clad, PCS and Containment comprise the fission product barriers. Table F-1 (Attachment 2) lists the fission product barrier thresholds, bases and references.

At the Alert classification level, Fuel Clad and PCS barriers are weighted more heavily than the Containment barrier. Unlike the Containment barrier, loss or potential loss of either the Fuel Clad or PCS barrier may result in the relocation of radioactive materials or degradation of core cooling capability. Note that the loss or potential loss of Containment barrier in combination with loss or potential loss of either Fuel Clad or PCS barrier results in declaration of a Site Area Emergency under EAL FS1.

PLP Basis Reference(s):

None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: Fission Product Barrier Degradation

Subcategory: N/A

Initiating Condition: Loss or potential loss of **any** two barriers

EAL:

FS1.1 Site Area Emergency

Loss or potential loss of **any** two barriers (Table F-1)

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

None

Plant-Specific

Fuel Clad, PCS and Containment comprise the fission product barriers. Table F-1 (Attachment 2) lists the fission product barrier thresholds, bases and references.

At the Site Area Emergency classification level, each barrier is weighted equally. A Site Area Emergency is therefore appropriate for any combination of the following conditions:

- One barrier loss and a second barrier loss (ie, loss - loss)
- One barrier loss and a second barrier potential loss (ie, loss - potential loss)
- One barrier potential loss and a second barrier potential loss (ie, potential loss - potential loss)

At the Site Area Emergency classification level, the ability to dynamically assess the proximity of present conditions with respect to the threshold for a General Emergency is important. For example, the existence of Fuel Clad and PCS Barrier loss thresholds in addition to offsite dose assessments would require continual assessments of radioactive inventory and Containment integrity in anticipation of reaching a General Emergency classification. Alternatively, if both Fuel Clad and PCS potential loss thresholds existed, the Emergency Director would have greater assurance that escalation to a General Emergency is less IMMINENT.

PLP Basis Reference(s):
None

TITLE: EMERGENCY ACTION LEVEL TECHNICAL BASES

Category: Fission Product Barrier Degradation

Subcategory: N/A

Initiating Condition: Loss of **any** two barriers and loss or potential loss of the third barrier

EAL:

FG1.1 General Emergency

Loss of **any** two barriers

AND

Loss or potential loss of the third barrier (Table F-1)

Mode Applicability:

1 - Power Operation, 2 - Startup, 3 - Hot Standby, 4 - Hot Shutdown

Basis:

Implementing Guidance

None

Generic

None

Plant-Specific

Fuel Clad, PCS and Containment comprise the fission product barriers. Table F-1 (Attachment 2) lists the fission product barrier thresholds, bases and references.

At the General Emergency classification level each barrier is weighted equally. A General Emergency is therefore appropriate for any combination of the following conditions:

- Loss of Fuel Clad, PCS and Containment barriers
- Loss of Fuel Clad and PCS barriers with potential loss of Containment barrier
- Loss of PCS and Containment barriers with potential loss of Fuel Clad barrier
- Loss of Fuel Clad and Containment barriers with potential loss of PCS barrier

PLP Basis Reference(s):

None

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Introduction - Matrix and Bases

Table F-1 lists the threshold conditions that define the Loss and Potential Loss of the three fission product barriers (Fuel Clad, Primary Coolant System, and Containment). The table is structured so that each of the three barriers occupies adjacent columns. Each fission product barrier column is further divided into two columns; one for Loss thresholds and one for Potential Loss thresholds.

The first column of the table (to the left of the Fuel Clad Loss column) lists the categories (types) of fission product barrier thresholds. The fission product barrier categories are:

A. Core Cooling / Heat Removal

B. Inventory

C. Radiation / Coolant Activity

D. Isolation Status

E. Judgment

Each category occupies a row in Table F-1 thus forming a matrix defined by the category rows and the Loss/Potential Loss columns. The intersection of each category row with each Loss/Potential Loss column forms a cell in which one or more fission product barrier thresholds appear. If NEI 99-01 does not define a threshold for a barrier Loss/Potential Loss, the word "None" is entered in the cell.

Thresholds are assigned sequential numbers within each Loss and Potential Loss column beginning with number one. In this manner, a threshold can be identified by its category title and number. For example, the first Fuel Clad barrier Loss in Category A is "FC Loss A.1," the third Containment barrier Potential Loss is "CNMT P-Loss B.3," etc.

If a cell in Table F-1 contains more than one numbered threshold, each of the numbered thresholds, if exceeded, signifies a Loss or Potential Loss of the barrier. It is not necessary to exceed all of the thresholds in a category before declaring a barrier Loss/Potential Loss.

Subdivision of Table F-1 by category facilitates association of plant conditions to the applicable fission product barrier Loss and Potential Loss thresholds. This structure promotes a systematic approach to assessing the classification status of the fission product barriers.

When equipped with knowledge of plant conditions related to the fission product barriers, the EAL-user first scans down the category column of Table F-1, locates the likely category and then reads across the row of fission product barrier Loss and Potential Loss thresholds in that category to determine if any threshold has been exceeded. If a threshold has not been exceeded in that category row, the EAL-user proceeds to the next likely category and continues review of the row of thresholds in the new category.

The EAL-user must examine each of the three fission product barriers to determine if other barrier thresholds in the category are lost or potentially lost. For example, if containment radiation is sufficiently high (ie, greater than 20,000 R/hr), a Loss of the Fuel Clad and PCS barriers and a Potential Loss of the Containment barrier exist. Barrier Losses and Potential Losses are then applied to the algorithms given in EALs FG1.1, FS1.1, FA1.1 and FU1.1 to determine the appropriate emergency classification.

In the remainder of this Attachment, the Fuel Clad barrier threshold bases appear first, followed by the PCS barrier and finally the Containment barrier threshold bases. In each barrier, the bases are given according category Loss followed by category Potential Loss beginning with Category A, then B…E.

Table F-1 Fission Product Barrier Matrix

	Fuel Clad Barrier (FC)		Primary Coolant System Barrier (PCS)		Containment Barrier (CNMT)	
Category	**Loss**	**Potential Loss**	**Loss**	**Potential Loss**	**Loss**	**Potential Loss**
A **Core Cooling / Heat Removal**	1. CET readings > 1,200°F based on average of qualified CETs	1. CET readings > 700°F based on average of qualified CETs 2. **Any** PCS/Core Heat Removal safety function criterion in Table F-2 is met for ≥ 15 min. (Note 4) **Table F-2 PCS/Core Heat Removal Safety Function Criteria** • Both SG levels ≤ -84% • Both PCS loop delta Ts ≥ 10°F (forced circulation) OR Core delta T ≥ 50°F (natural circulation) • PCS subcooling < 25°F based on average of qualified CETs	None	1. Once Through Core Cooling flow established 2. **Any** PCS/Core Heat Removal safety function criterion in Table F-2 is met for ≥ 15 min. (Note 4) 3. PCS cooldown rate > 100°F/hr **AND** PZR pressure > maximum limits of EOP Supplement 1	None	1. CET readings **cannot** be restored < 1,200°F based on average of qualified CETs within 15 min. 2. CET readings **cannot** be restored < 700°F based on average of qualified CETs **AND** Reactor vessel water level **cannot** be restored > 614 ft 0 in. (Sensor #8 RVLMS green light) within 15 min.
B **Inventory**	None	3. Reactor Vessel level < 614 ft 0 in. (Sensor #8 RVLMS red light)	1. PCS leak rate > available makeup capacity as indicated by a loss of PCS subcooling (< 25°F based on average of qualified CETs) 2. RUPTURED SG results in an ECCS (SIAS) actuation	4. PCS leak rate > 50 gpm	1. A containment pressure rise followed by a rapid unexplained drop in containment pressure 2. Containment pressure or sump level response **not** consistent with LOCA conditions 3. RUPTURED SG is also FAULTED outside of containment 4. Primary-to-secondary leakrate > 10 gpm **AND** UNISOLABLE prolonged steam release from affected SG to the environment	3. Containment pressure ≥ 55 psig and rising 4. Containment hydrogen concentration ≥ 6% 5. Containment pressure > 4 psig with < one full train of containment cooling systems operating
C **Radiation / Coolant Activity**	2. Containment High Range Radiation Monitor readings > 2,000 R/hr as indicated on RIA-2321 and/or RIA-2322 3. Failed Fuel Survey Point dose rate value for primary coolant > 1 R/hr	None	3. Containment High Range Radiation Monitor readings > 200 R/hr as indicated on RIA-2321 and/or RIA-2322	None	None	6. Containment High Range Radiation Monitor readings > 20,000 R/hr as indicated on RIA-2321 and/or RIA-2322

D **Isolation Status**	None	None	None	None	5. Failure of **all** valves in **any one** line to close **AND** Direct downstream pathway to the environment exists after containment isolation signal	None
E **Judgment**	4. **Any** condition in the opinion of the Emergency Director that indicates loss of the fuel clad barrier	4. **Any** condition in the opinion of the Emergency Director that indicates potential loss of the fuel clad barrier	4. **Any** condition in the opinion of the Emergency Director that indicates loss of the PCS barrier	5. **Any** condition in the opinion of the Emergency Director that indicates potential loss of the PCS barrier	6. **Any** condition in the opinion of the Emergency Director that indicates loss of the containment barrier	7. **Any** condition in the opinion of the Emergency Director that indicates potential loss of the containment barrier

Barrier: Fuel Clad

Category: A. Core Cooling/Heat Removal

Degradation Threat: Loss

Threshold:

1. CET readings > 1,200°F based on average of qualified CETs

Basis:

Implementing Guidance

None

Generic

The 1,200°F reading corresponds to significant superheating of the coolant.

Plant-Specific

Core Exit Thermocouples (CETs) provide an indirect indication of fuel cladding temperature by measuring the temperature of the primary coolant that leaves the core region (Ref 2). The "Loss" threshold temperature of 1,200°F is consistent with CEOG Generic Accident Management Guidelines, "Phase 1.0 - Initial Diagnosis," for core exit temperature. Although clad rupture due to high temperature is not expected for CET readings less than the threshold, temperatures of this magnitude signal severe superheating of the primary coolant and core uncovery (Ref 1).

PLP Basis Reference(s):

1. GAMG, "Combustion Engineering Generic Accident Management Guidelines
2. UFSAR, 7.6, "CET System"

Barrier: Fuel Clad

Category: A. Core Cooling/Heat Removal

Degradation Threat: Potential Loss

Threshold:

1. CET readings > 700°F based on average of qualified CETs

Basis:

Implementing Guidance

None

Generic

CET readings > 700 ºF indicates superheat corresponding to a loss of subcooling.

Plant-Specific

Core Exit Thermocouples (CETs) are a component of the Inadequate Core Cooling Instrumentation and provide an indirect indication of fuel cladding temperature by measuring the temperature of the reactor coolant that leaves the core region (Ref 2). A superheat condition is indicated by a CET reading above the saturation temperature for the existing PCS pressure. PCS superheat signals the transition from a subcooled to a superheated regime. In a superheated regime, heat transfer mechanics are not as efficient as the subcooled condition and could lead to a rapid rise in cladding temperatures. VALID indication of significant superheat (CETs > 700°F) is a potential Fuel Clad barrier loss condition because the possible rapid rise in cladding temperatures may lead to cladding failure (Ref 1).

PLP Basis Reference(s):

1. EOP Setpoint Basis
2. UFSAR, 7.6, "CET System"

Barrier: Fuel Clad

Category: A. Core Cooling/Heat Removal

Degradation Threat: Potential Loss

Threshold:

2. **Any** PCS/Core Heat Removal safety function criterion in Table F-2 is met for ≥ 15 min. (Note 4)

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table F-2 PCS/Core Heat Removal Safety Function Criteria
• **Both SG levels ≤ -84%** • **Both PCS loop delta Ts ≥ 10ºF (forced circulation)** **OR** **Core delta T ≥ 50°F (natural circulation)** • **PCS subcooling < 25°F based on average of qualified CETs**

Basis:

Implementing Guidance

None

Generic

This subcategory addresses other site specific thresholds that may be included to indicate loss or potential loss of the Fuel Clad barrier.

Plant-Specific

The steam generators (SGs) provide the normal means of heat transfer from the PCS to the main condenser and ultimate heat sink. EOP-4.0, "Loss of Coolant Accident Recovery," (Ref 1), requires maintenance of SG heat removal at all times during a LOCA. Once PCS pressure and temperature are reduced, PCS heat removal can be provided by Shutdown Cooling (SDC). Once the SDC is placed in service, the SG heat sink capability is no longer necessary.

Core and PCS heat removal is available if CET readings are less than superheated and the delta T criteria are met. If PCS subcooling approaches 25°F, the margin to superheated conditions is being reduced. Following an uncomplicated reactor trip, subcooling margin should be in excess of 50°F. Subcooling margin greater than 25°F ensures the fluid surrounding the core is sufficiently cooled and provides margin for reestablishing flow should subcooling deteriorate when SI flow is secured (Ref 2).

The Table F-2 PCS/Core Heat Removal safety function criteria are the inverse of the PCS/Core Heat Removal safety function status acceptance criteria specified in the EOPs (Ref 6). The inverse is used to improve human factoring of the EALs. All of the criteria in the EALs are based on the condition that if the condition is met then the EAL is met. If the normal safety functions as specified in the EOPs are used then the NOT meeting an EOP safety function criterion would result in being in the EAL. Further clarification was added with the second safety function criteria. If the delta T exceeds the specified value this could indicate that heat removal ability from a S/G has been lost. It is expected that during an asymmetric cooldown that one of the S/Gs will not be removing heat such as the case were a S/G has been isolated or may be excessively removing heat such as during an Excess Steam Demand Event. Because of these types of conditions, the safety function specifies that both loop delta Ts have to exceed the value indicating that both S/Gs are no longer removing heat from the PCS. If all PCPs are stopped, the most accurate indication of the core delta temperature is the Average of Qualified CET temperature minus Tc wide range temperature. Only one S/G is necessary to remove adequate heat from the core and PCS. As pointed out in the EOP basis documents, it is expected that the core delta T of 50°F will be exceeded during the period when natural circulation is being established. The EOP basis document specifies that at the start of natural circulation or even during a natural circulation cooldown, if an asymmetric S/G cooldown is initiated, the full-power delta T (50°F) value may be briefly exceeded. This is acceptable as long as the least affected S/G remains operable. Eventually the delta T will fall below the full-power delta T limit and the acceptance criteria will be met. The inverse wording is as follows:

Original Safety Function acceptance wording	Inverse Safety Function wording
Any SG levels > -84%	Both SG levels ≤ -84%
PCS loop delta T < 50°F (10°F with forced circulation)	Both PCS loop delta Ts ≥ 10ºF (forced circulation) OR Core delta T ≥ 50°F (natural circulation)
PCS subcooling ≥ 25°F based on average of qualified CETs	PCS subcooling < 25°F based on average of qualified CETs

The process of checking the safety functions in EOPs is periodic and continuous as long as the procedure is in use. The fifteen minute interval (subject to Note 4) provides a suitable opportunity to assess plant conditions with respect to the threshold criteria. When a safety function acceptance criteria is not met in the EOPs then the safety function criterion in the EALs is being met.

The combination of these conditions indicates the ultimate heat sink function is under extreme challenge. This threshold addresses loss of functions required for hot shutdown with the reactor at pressure and temperature and thus a potential loss of the Fuel Clad barrier. This is also a potential loss of the PCS barrier and therefore results in at least a Site Area Emergency.

PLP Basis Reference(s):

1. EOP-4.0, "Loss of Coolant Accident Recovery"
2. EOP-9.0, "Functional Recovery Procedure Basis"

Barrier: Fuel Clad

Category: B. Inventory

Degradation Threat: Loss

Threshold:

None

Barrier: Fuel Clad

Category: B. Inventory

Degradation Threat: Potential Loss

Threshold:

3. Reactor Vessel level < 614 ft 0 in. (Sensor #8 RVLMS red light)

Basis:

Implementing Guidance

Sensor #8 RVLMS red light may briefly illuminate as part of the designed plant response. For that case, declaration requirements are not met.

Generic

There is no Loss threshold associated with this item.

The site specific value for the Potential Loss threshold corresponds to the top of the active fuel.

Plant-Specific

The Reactor Vessel Level Monitoring System (RVLMS) is based on the CE Heated Junction Thermocouple (HJTC) system. The HJTC system measures reactor coolant liquid inventory with discrete HJTC sensors located at different levels within a separator tube ranging from the fuel alignment plate (ie, near top of active fuel) to the top of the Reactor Vessel head. The basic principle of system operation is detection of a temperature difference between heated and unheated thermocouples (Ref 1).

When Reactor Vessel water level drops to 613 ft 2 in. elevation (Top Of Active Fuel), core uncovery is about to occur. The closest indication of this level is provided by RVLMS UGS Region Sensor #8 red light, ~11 in. above the bottom of the fuel alignment plate at 614 ft 0 in. el. (Ref 2, 3, 4).

Reactor Vessel water level below the top of the core may lead to a Severe Accident Management Guideline "Badly Damaged (BD)" condition. The BD descriptor signifies possible core overheating to the point of clad ballooning/collapse and melting (Ref 5).

The lowest indication on the RVLMS is 11 inches above the bottom of the fuel alignment plate, which is approximately the top of the active fuel. RVLMS reading less than 11 inches above the bottom of the fuel alignment plate, elevation 614 ft 0 in., therefore, signals inadequate coolant inventory, loss of subcooling and the occurrence of possible fuel cladding damage (Ref 2, 5, 6).

Sensor #8 RVLMS red light may briefly illuminate during a normal response to a loss of inventory. According to Section 2.11, existing guidance for classifying transient events such as this addresses the period of time of event recognition and classification (15 minutes). However, in cases when EAL declaration criteria may be met momentarily during the normal expected response of the plant, declaration requirements should not be considered to be met when the conditions are a part of the designed plant response, or result from appropriate Operator actions.

PLP Basis Reference(s):

1. UFSAR 7.4.6.3, "Reactor Vessel Level Monitoring System RVLMS"
2. M-398, Sheet 1005, "Level Setting Diagram RVLMS"
3. EOP Setpoint Basis (Top Of Active Fuel region)
4. GOP-14, "Shutdown Cooling Operations," Attachment 1, "Terms and Definitions"
5. GAMG, "Combustion Engineering Generic Accident Management Guidelines
6. PLP SAMG, "Phase 1.0 Initial Diagnosis"

Barrier: Fuel Clad

Category: C. Radiation / Coolant Activity

Degradation Threat: Loss

Threshold:

2. Containment High Range Radiation Monitor readings > 2,000 R/hr as indicated on RIA-2321 and/or RIA-2322.

Basis:

Implementing Guidance

None

Generic

The 2,000 R/hr containment radiation monitor reading is a value which indicates the release of primary coolant, with elevated activity indicative of fuel damage, into the containment.

Primary coolant concentrations of this magnitude are several times larger than the maximum concentrations (including iodine spiking) allowed within technical specifications and are therefore indicative of fuel damage.

This value is higher than that specified for PCS barrier Loss threshold #3. Thus, this threshold indicates a loss of both the Fuel Clad barrier and PCS barrier that appropriately escalates the emergency classification level to a Site Area Emergency.

There is no Potential Loss threshold associated with this item.

Plant-Specific

Containment radiation is indicated on RIA-2321 and RIA-2322. The Containment High Range Radiation Monitors alarm at 400 R/hr (Ref 2).

The reading is calculated assuming the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory associated with a concentration of 300 μCi/gm dose equivalent I-131 into the containment atmosphere (Ref 1).

PLP Basis Reference(s):

1. NMC Calculation EA-JLV-04-01, "Determination of Containment Radiation Monitor and Radiological Effluent Monitor EALs in Accordance with NEI 99-01 Revision 4"
2. ARP-33, "Auxiliary Systems Scheme EK-02 (C-11A)," Annunciator Nos. 1 and 2

Barrier: Fuel Clad
Category: C. Radiation / Coolant Activity
Degradation Threat: Loss
Threshold:

3. Failed Fuel Survey Point dose rate value for primary coolant > 1 R/hr

Basis:

Implementing Guidance

None

Generic

The post accident sample dose rate value corresponds to 300 μCi/gm I-131 equivalent. Assessment by the EAL Task Force indicates that this amount of coolant activity is well above that expected for iodine spikes and corresponds to less than 5% fuel clad damage. This amount of radioactivity indicates significant clad damage and thus the Fuel Clad Barrier is considered lost.

There is no Potential Loss threshold associated with this item.

Plant-Specific

PLP is unable to analyze a primary coolant sample of 300 uCi/gm due to high dose rates experienced at the NSSS sample panel. Therefore, a dose rate is used in lieu of a sample to definitively indicate fuel clad degradation. The dose rate value used for the primary coolant is specified in accordance with Emergency Implementing Procedure, EI-7.0, "Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates," a sample is taken to measure contact dose rates at the Failed Fuel Survey Point on the PCS sample line (Ref 1). The sample is taken to measure contact dose rates at the Failed Fuel Survey Point on the PCS sample line. The site dose rate value within the first few hours for the primary coolant of approximately 1 R/hr at the NSSS sample sink is well above that expected for iodine spikes and corresponds to less than 5% fuel clad damage. This amount of radioactivity indicates significant clad damage and thus the Fuel Clad Barrier is considered lost (Ref 1).

PLP Basis Reference(s):

1. EI-7.0, "Emergency Post Accident Sampling and Determination of Fuel Failure Using Dose Rates," Attachment 2, "NSSS Sample Panel Piping Dose Rates"

Barrier: Fuel Clad

Category: C. Radiation / Coolant Activity

Degradation Threat: Potential Loss

Threshold:

None

Barrier: Fuel Clad

Category: D. Isolation Status

Degradation Threat: Loss

Threshold:

None

Barrier: Fuel Clad

Category: D. Isolation Status

Degradation Threat: Potential Loss

Threshold:

None

Barrier: Fuel Clad

Category: E. Judgment

Degradation Threat: Loss

Threshold:

4. **Any** condition in the opinion of the Emergency Director that indicates loss of the Fuel Clad barrier

Basis:

Implementing Guidance

None

Generic

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the Fuel Clad barrier is lost. In addition, the inability to monitor the barrier should also be incorporated in this threshold as a factor in Emergency Director judgment that the barrier may be considered lost.

Plant-Specific

The Emergency Director judgment threshold addresses any other factors relevant to determining if the Fuel Clad barrier is lost. Such a determination should include IMMINENT barrier degradation, barrier monitoring capability and dominant accident sequences.

PLP Basis Reference(s):

None

Barrier: Fuel Clad

Category: E. Judgment

Degradation Threat: Potential Loss

Threshold:

4. **Any** condition in the opinion of the Emergency Director that indicates potential loss of the Fuel Clad barrier.

Basis:

Implementing Guidance

None

Generic

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the Fuel Clad barrier is l potentially lost. In addition, the inability to monitor the barrier should also be incorporated in this threshold as a factor in Emergency Director judgment that the barrier may be considered potentially lost.

Plant-Specific

The Emergency Director judgment threshold addresses any other factors relevant to determining if the Fuel Clad barrier is potentially lost. Such a determination should include IMMINENT barrier degradation, barrier monitoring capability and dominant accident sequences.

PLP Basis Reference(s):

None

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Barrier: Primary Coolant System

Category: A. Core Cooling/Heat Removal

Degradation Threat: Loss

Threshold:

None

Barrier: Primary Coolant System

Category: A. Core Cooling/Heat Removal

Degradation Threat: Potential Loss

Threshold:

1. Once Through Core Cooling flow established

Basis:

Implementing Guidance

None

Generic

This subcategory addresses other site specific thresholds that may be included to indicate loss or potential loss of the PCS barrier.

Plant-Specific

PLP is a CE plant with Once Through Core Cooling (OTCC) capability and has a procedure that intentionally opens the PCS barrier to cool the core when normal means fail. This procedure is employed when the heat removal function is extremely challenged. Establishment of Once Through Core Cooling flow represents a potential loss of the PCS barrier due to PORVs being intentionally maintained open to establish adequate core heat removal capability.

PLP Basis Reference(s):

1. EOP-7.0, "Loss of All Feedwater Recovery"

Barrier: Primary Coolant System

Category: A. Core Cooling/Heat Removal

Degradation Threat: Potential Loss

Threshold:

2. **Any** PCS/Core Heat Removal safety function criterion in Table F-2 is met for ≥ 15 min. (Note 4).

Note 4: The ED should **not** wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.

Table F-2 PCS/Core Heat Removal Safety Function Criteria
• **Both SG levels ≤ -84%** • **Both PCS loop delta Ts ≥ 10ºF (forced circulation)** **OR** **Core delta T ≥ 50°F (natural circulation)** • **PCS subcooling < 25°F based on average of qualified CETs**

Basis:

Implementing Guidance

None

Generic

This subcategory addresses other site specific thresholds that may be included to indicate loss or potential loss of the PCS barrier.

Plant-Specific

The steam generators (SGs) provide the normal means of heat transfer from the PCS to the main condenser and ultimate heat sink. EOP-4.0, "Loss of Coolant Accident Recovery," (Ref 1), requires maintenance of SG heat removal at all times during a LOCA. Once PCS pressure and temperature are reduced, PCS heat removal can be provided by Shutdown Cooling (SDC). Once the SDC is placed in service, the SG heat sink capability is no longer necessary.

Core and PCS heat removal is available if CET readings are less than superheated and the delta T criteria are met. If PCS subcooling approaches 25°F, the margin to superheated conditions is being reduced. Following an uncomplicated reactor trip, subcooling margin should be in excess of 50°F. Subcooling margin greater than 25°F ensures the fluid surrounding the core is sufficiently cooled and provides margin for reestablishing flow should subcooling deteriorate when SI flow is secured (Ref 2).

The Table F-2 PCS/Core Heat Removal safety function criteria are the inverse of the PCS/Core Heat Removal safety function status acceptance criterion specified in the EOPs (Ref 6). The inverse is used to improve human factoring of the EALs. All of the criteria in the EALs are based on the condition that if the condition is met then the EAL is met. If the normal safety functions as specified in the EOPs are used then the NOT meeting a condition results in the EAL entrance. The inverse wording is as follows:

Original Safety Function acceptance wording	**Inverse Safety Function wording**
Any SG levels > -84%	Both SG levels ≤ -84%
PCS loop delta T < 50°F (10°F with forced circulation)	Both PCS loop delta Ts ≥ 10ºF (forced circulation) OR Core delta T ≥ 50°F (natural circulation)
PCS subcooling ≥ 25°F based on average of qualified CETs	PCS subcooling < 25°F based on average of qualified CETs

The process of checking the safety functions in EOPs is periodic and continuous as long as the procedure is in use. The fifteen minute interval (subject to Note 4) provides a suitable opportunity to assess plant conditions with respect to the threshold criteria. When a safety function acceptance criteria is not met in the EOPs then the safety function criterion in the EALs is being met.

Further clarification was added with the second safety function criteria. If the delta T exceeds the specified value this could indicate that heat removal ability from a S/G has been lost. It is expected that during an asymmetric cooldown that one of the S/Gs will not be removing heat such as the case were a S/G has been isolated or may be excessively removing heat such as during an Excess Steam Demand Event. Because of these types of conditions, the safety function specifies that both loop delta Ts have to exceed the value indicating that both S/Gs are no longer removing heat from the PCS. If all PCPs are stopped, the most accurate indication of the core delta temperature is the Average of Qualified CET temperature minus Tc wide range temperature. Only one S/G is necessary to remove adequate heat from the core and PCS. As pointed out in the EOP basis documents, it is expected that the core delta T of 50°F will be exceeded during the period when natural circulation is being established. The EOP basis document specifies that at the start of natural circulation or even during a natural circulation cooldown, if an asymmetric S/G cooldown is initiated, the full-power delta T (50°F) value may be briefly exceeded. This is acceptable as long as the least affected S/G remains operable. Eventually the delta T will fall below the full-power delta T limit and this acceptance criterion will be met.

The combination of these conditions indicates the ultimate heat sink function is under extreme challenge. This threshold addresses loss of functions required for hot shutdown with the reactor at pressure and temperature and thus a potential loss of the Fuel Clad barrier. This is also a potential loss of the PCS barrier and therefore results in at least a Site Area Emergency.

PLP Basis Reference(s):

1. EOP-4.0, "Loss of Coolant Accident Recovery"
2. EOP-9.0, "Functional Recovery Procedure Basis"

Barrier: Primary Coolant System

Category: A. Core Cooling/Heat Removal

Degradation Threat: Potential Loss

Threshold:

3. PCS cooldown rate > 100°F/hr

   AND

   PZR pressure > maximum limits of EOP Supplement 1

Basis:

Implementing Guidance

None

Generic

This subcategory addresses other site specific thresholds that may be included to indicate loss or potential loss of the PCS barrier.

Plant-Specific

Per EOP-6.0, "Excess Steam Demand Event," the potential exists for pressurized thermal shock from an excessive cooldown rate and repressurization (Ref 1).

100°F/hr is the maximum Technical Specifications LCO on PCS cooldown rate. The LCO for the rate of change of temperature restricts stresses caused by thermal gradients and also ensures the validity of the P/T limit curves (Ref 2).

The intent of EOP Supplement 1 is to provide the plant PCS pressure/temperature curves that define the acceptable combinations of PCS pressure and temperature. The lower subcooling limit and the upper pressurized thermal shock (PTS) limit define the boundaries for PCS operation. The "maximum limits" of EOP Supplement 1 refer to the PTS region, not the loss of subcooling region of the curves.

The Variable Low Temperature Overpressure Protection (VLTOP) limit and 200°F subcooling curves provide the upper pressure limits to the onset of pressurized thermal shock. The 200°F subcooling curve provides an extra margin to PTS any time the PCS has experienced a cooldown exceeding 100°F/hr or uncontrolled cooldown below 500°F. No curves have been developed, nor analysis performed, for operation outside of the VLTOP or 200°F subcooled curves. If PCS conditions enter this area the operator must immediately restore PCS conditions to within the "operating region," review PCS cooldown rates, and possibly perform a PCS heat soak to allow PCS cooldown rates to return to within the Technical Specification limits. (Ref 1, 3)

The combination of the conditions of this potential loss threshold indicates the PCS barrier is under significant challenge.

PLP Basis Reference(s):

1. EOP-6.0, "Excess Steam Demand Event"
2. Technical Specifications Figure 3.4.3-2
3. EOP Supplement 1, "Pressure Temperature Limit Curves"

Barrier: Primary Coolant System

Category: B. Inventory

Degradation Threat: Loss

Threshold:

1. PCS leak rate > available makeup capacity as indicated by PCS subcooling < 25°F based on average of qualified CETs.

Basis:

Implementing Guidance

None

Generic

This threshold addresses conditions where leakage from the PCS is greater than available inventory control capacity such that a loss of subcooling has occurred. The loss of subcooling is the fundamental indication that the inventory control systems are inadequate in maintaining PCS pressure and inventory against the mass loss through the leak.

Plant-Specific

Subcooling margin greater than or equal to 25ºF ensures the fluid surrounding the core is sufficiently cooled and provides margin for reestablishing flow should subcooling deteriorate when SIS flow is secured (Ref 1, 2 3).

AOP-23, Primary Coolant Leak, provides a list of conditions that may be observed when excessive PCS leakage occurs and provides appropriate actions to prevent and mitigate the consequences of PCS leakage (Ref 4).

Following an uncomplicated reactor trip, subcooling margin should be in the range of 50°F to 75°F. Subcooling margin greater than or equal to 25°F ensures the fluid surrounding the core is sufficiently cooled and provides margin for reestablishing flow should subcooling deteriorate when SIS flow is secured. The loss of subcooling is therefore the fundamental indication that the inventory control systems are incapable of counteracting the mass loss through the leak in the PCS (Ref 5).

The loss of subcooling as a result of inability to establish PCS heat transfer to the ultimate heat sink is indicative of potential losses of the Fuel Clad and PCS barriers.

PLP Basis Reference(s):

1. EOP Setpoint Basis
2. EOP-1.0, "Standard Post-Trip Actions"
3. EOP-4.0, "Loss of Coolant Accident Recovery Basis," Section 1.0, "Introduction"
4. AOP-23, "Primary Coolant Leak"
5. EOP-1.0, "Standard Post-Trip Actions Basis"

Barrier: Primary Coolant System

Category: B. Inventory

Degradation Threat: Loss

Threshold:

2. RUPTURED SG results in an ECCS (SIAS) actuation

Basis:

Implementing Guidance

None

Generic

This threshold addresses the full spectrum of Steam Generator (SG) tube rupture events in conjunction with containment barrier loss thresholds. It addresses RUPTURED SG(s) for which the leakage is large enough to cause actuation of ECCS (SIAS). This is consistent to the PCS leak rate barrier potential loss threshold.

By itself, this threshold will result in the declaration of an Alert. However, if the SG is also FAULTED (ie, two barriers failed), the declaration escalates to a Site Area Emergency per Containment barrier loss thresholds.

There is no potential loss threshold associated with this item.

Plant-Specific

By definition of the term "RUPTURED," the size of the primary-to-secondary leakage considered in this PCS Loss threshold must be sufficient to require or cause a reactor trip and safety injection. ECCS (SIAS) actuation in conjunction with the RUPTURED SG, therefore, emphasizes the magnitude of the rupture threatening this fission product barrier.

PLP Basis Reference(s):

1. EOP-5.0, "Steam Generator Tube Rupture Recovery"

Barrier: Primary Coolant System

Category: B. Inventory

Degradation Threat: Potential Loss

Threshold:

4. PCS leak rate > 50 gpm

Basis:

Implementing Guidance

None

Generic

This threshold is based on the apparent inability to maintain normal liquid inventory within the Primary Coolant System (PCS) by normal operation of the Chemical and Volume Control System which is considered to be the flow rate equivalent to one charging pump discharging to the charging header. Isolating letdown is a standard abnormal operating procedure action and may prevent unnecessary classifications when a non-PCS leakage path such as a CVCS leak exists. The intent of this condition is met if attempts to isolate Letdown are not successful. Additional charging pumps being required is indicative of a substantial PCS leak.

Plant-Specific

The normal operating charging pump is variable speed, with a **capacity** of 33 to 53 gpm. The other two charging pumps are fixed speed, with a lower capacity of 40 gpm each. PLP has low capacity charging pumps, therefore, a 50 gpm leak rate value is used to indicate the Potential Loss (Ref 1, 2, 3).

Relief valve normal operation should be excluded from this threshold. However, a relief valve that operates and fails to close per design should be considered applicable to this threshold if the relief valve cannot be isolated.

PLP Basis Reference(s):

1. AOP-23, "Primary Coolant Leak"
2. EOP Setpoint Basis
3. UFSAR, 9.10, "Chemical and Volume Control System"

Barrier: Primary Coolant System

Category: C. Radiation / Coolant Activity

Degradation Threat: Loss

Threshold:

3. Containment High Range Radiation Monitor readings > 200 R/hr as indicated on RIA-2321 and/or RIA-2322

Basis:

Implementing Guidance

None

Generic

The site specific reading is a value which indicates the release of reactor coolant to the containment.

This reading is less than that specified for Fuel Clad barrier threshold 2. Thus, this threshold would be indicative of a PCS leak only. If the radiation monitor reading increased to that specified by Fuel Clad barrier threshold, fuel damage would also be indicated.

There is no Potential Loss threshold associated with this item.

Plant-Specific

The 200 R/hr reading is a value which indicates the release of reactor coolant to the containment. The reading is calculated assuming the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory associated with normal operating concentrations (ie, within Technical Specifications) into the containment atmosphere (Ref 1). This reading is less than that specified for Fuel Clad Barrier EAL #2. Thus, this EAL would be indicative of a PCS leak only. If the radiation monitor reading increased to that specified by Fuel Clad Barrier EAL #2, fuel damage would also be indicated.

Containment radiation is indicated on Containment High Range Radiation Monitors RIA-2321 and RIA-2322. The Containment High Range Radiation Monitors high alarm occurs at 400 R/hr (Ref 2).

PLP Basis Reference(s):

1. NMC Calculation EA-JLV-04-01, "Determination of Containment Radiation Monitor and Radiological Effluent Monitor EALs in Accordance with NEI 99-01 Revision 4"
2. ARP-33, "Auxiliary Systems Scheme EK-02 (C-11A)" Annunciator Nos. 1 and 2

Barrier: Primary Coolant System

Category: C. Radiation / Coolant Activity

Degradation Threat: Potential Loss

Threshold:

None

Barrier: Primary Coolant System

Category: D. Isolation Status

Degradation Threat: Loss

Threshold:

None

Barrier: Primary Coolant System

Category: D. Isolation Status

Degradation Threat: Potential Loss

Threshold:

None

Barrier: Primary Coolant System

Category: E. Judgment

Degradation Threat: Loss

Threshold:

4. **Any** condition in the opinion of the Emergency Director that indicates loss of the PCS barrier.

Basis:

Implementing Guidance

None

Generic

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the PCS barrier is lost. In addition, the inability to monitor the barrier should also be incorporated in this threshold as a factor in Emergency Director judgment that the barrier may be considered lost.

Plant-Specific

The Emergency Director judgment threshold addresses any other factors relevant to determining if the PCS barrier is lost. Such a determination should include IMMINENT barrier degradation, barrier monitoring capability and dominant accident sequences.

PLP Basis Reference(s):

None

Barrier: Primary Coolant System

Category: E. Judgment

Degradation Threat: Potential Loss

Threshold:

5. **Any** condition in the opinion of the Emergency Director that indicates potential loss of the PCS barrier.

Basis:

Implementing Guidance

None

Generic

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the PCS barrier is potentially lost. In addition, the inability to monitor the barrier should also be incorporated in this threshold as a factor in Emergency Director judgment that the barrier may be considered potentially lost.

Plant-Specific

The Emergency Director judgment threshold addresses any other factors relevant to determining if the PCS barrier is potentially lost. Such a determination should include IMMINENT barrier degradation, barrier monitoring capability and dominant accident sequences.

PLP Basis Reference(s):

None

Barrier: Containment

Category: A. Core Cooling / Heat Removal

Degradation Threat: Loss

Threshold:

None

Barrier: Containment

Category: A. Core Cooling / Heat Removal

Degradation Threat: Potential Loss

Threshold:

1. CET readings **cannot** be restored < 1,200°F based on average of qualified CETs within 15 min.

Basis:

Implementing Guidance

None

Generic

There is no Loss threshold associated with this item.

The conditions in this threshold represents an IMMINENT core melt sequence which, if not corrected, could lead to vessel failure and an increased potential for containment failure. In conjunction with the Core Cooling and PCS Leakage criteria in the Fuel Clad and PCS barrier columns, this threshold would result in the declaration of a General Emergency -- loss of two barriers and the potential loss of a third. If the function restoration procedures are ineffective, there is no "success" path.

The function restoration procedures are those emergency operating procedures that address the recovery of the core cooling critical safety functions. The procedure is considered effective if the temperature is decreasing or if the vessel water level is increasing.

Whether or not the procedures will be effective should be apparent within 15 minutes. The Emergency Director should make the declaration as soon as it is determined that the procedures have been, or will be ineffective.

Plant-Specific

This threshold indicates significant core exit superheating and core uncovery. If Core Exit Thermocouple (CET) readings are greater than 1,200°F, Fuel Clad barrier is lost. CETs are a component of the Inadequate Core Cooling Instrumentation system and provide an indirect indication of fuel cladding temperature by measuring the temperature of the reactor coolant that leaves the core region. The "Loss" threshold temperature of 1,200°F is consistent with CEOG Generic Accident Management Guidelines, "Phase 1.0 - Initial

Diagnosis," for core exit temperature. Although clad rupture due to high temperature is not expected for CET readings less than the threshold, temperatures of this magnitude signal severe superheating of the primary coolant and core uncovery (Ref 1). Events that result in CET readings above this threshold are classified severe accidents and lead to a Severe Accident Management Guideline "Badly Damaged (BD)" condition. The BD descriptor signifies possible core overheating to the point that clad ballooning/collapse may occur and portions of the core may have melted.

It must also be assumed the loss of PCS inventory is a result of a loss of the PCS barrier. These conditions, if not mitigated, can lead to core melt which in turn may result in a loss of containment. Severe accident analyses (eg, NUREG-1150) have concluded that function restoration procedures can arrest core degradation within the Reactor Vessel in a significant fraction of the core damage scenarios, and the likelihood of containment failure is very small in these events. Given this, it is appropriate to provide a reasonable period to allow function restoration procedures to arrest the core melt sequence. The phrase "cannot be restored <" infers CET readings have exceeded the threshold temperature and procedural guidance used to restore PCS inventory has been attempted but is thus far unsuccessful. Whether or not guidance is effective should be apparent within fifteen minutes. The ED should make the declaration as soon as it is determined the guidance has not been or will not be effective in restoring temperature below the threshold (Ref 3).

PLP Basis Reference(s):

1. GAMG, "Combustion Engineering Generic Accident Management Guidelines
2. UFSAR, 7.6, "CET System"
3. EOP-9.0, "Functional Recovery Procedure Basis"

Barrier: Containment

Degradation Threat: Potential Loss

Category: A. Core Cooling / Heat Removal

Threshold:

2. CET readings **cannot** be restored < 700°F based on average of qualified CETs

   AND

   Reactor vessel water level **cannot** be restored > 614 ft 0 in.
   (Sensor #8 RVLMS green light) within 15 min.

Basis:

Implementing Guidance

None

Generic

There is no Loss threshold associated with this item.

The conditions in this threshold represents an IMMINENT core melt sequence which, if not corrected, could lead to vessel failure and an increased potential for containment failure. In conjunction with the Core Cooling and PCS Leakage criteria in the Fuel Clad and PCS barrier columns, this threshold would result in the declaration of a General Emergency -- loss of two barriers and the potential loss of a third. If the function restoration procedures are ineffective, there is no "success" path.

The function restoration procedures are those emergency operating procedures that address the recovery of the core cooling critical safety functions. The procedure is considered effective if the temperature is decreasing or if the vessel water level is increasing.

Whether or not the procedures will be effective should be apparent within 15 minutes. The Emergency Director should make the declaration as soon as it is determined that the procedures have been, or will be ineffective.

Plant-Specific

This threshold indicates loss of inventory control resulting in significant core exit superheating. The Reactor Vessel Level Monitoring System (RVLMS) can provide indication of potential core uncovery when level decreases to less than 614 ft 0 in. (Sensor #8 RVLMS red light). RVLMS is based on the CE Heated Junction Thermocouple (HJTC) system. The HJTC system measures reactor coolant liquid inventory with discrete HJTC sensors located at different levels within a separator tube ranging from the fuel alignment plate (ie, near top of active fuel) to the Reactor Vessel head. The basic principle of system operation is detection of a temperature difference between heated and unheated thermocouples (Ref 1).

When Reactor Vessel water level drops to 613 ft 2 in. elevation (top of active fuel), core uncovery is about to occur. The closest indication of this level is provided by RVLMS UGS Region Sensor #8 red light, ~11 in. above the bottom of the fuel alignment plate at 614 ft 0 in. el. (Ref 2, 3, 4).

Reactor Vessel water level below the top of the core may lead to a Severe Accident Management Guideline "Badly Damaged (BD)" condition. The BD descriptor signifies possible core overheating to the point that clad ballooning/collapse may occur and portions of the core may have melted (Ref 5). Reactor Vessel water level at the last RVLMS alarm signals inadequate coolant inventory, loss of subcooling and the occurrence of possible fuel cladding damage.

It must be assumed the loss of PCS inventory is a result of a loss of the PCS barrier. These conditions, if not mitigated, likely lead to core melt which in turn may result in a loss of containment. Severe accident analyses (eg, NUREG-1150) have concluded that function restoration procedures can arrest core degradation within the Reactor Vessel in a significant fraction of the core damage scenarios, and that the likelihood of containment failure is very small in these events. Given this, it is appropriate to provide a reasonable period to allow function restoration procedures to arrest the core melt sequence. The phrase "cannot be restored >" infers core uncovery has begun and procedural guidance used to restore PCS inventory has been attempted but is thus far unsuccessful. Whether or not guidance is effective should be apparent within fifteen minutes. The ED should make the declaration as soon as it is determined that the guidance has not been or will not be effective in restoring vessel water level above the threshold (Ref 6).

PLP Basis Reference(s):

1. UFSAR 7.4.6.3, "Reactor Vessel Level Monitoring System RVLMS"
2. M-398, Sheet 1005, "Level Setting Diagram RVLMS"
3. EOP Setpoint Basis (Top Of Active Fuel region)
4. GOP-14, "Shutdown Cooling Operations," Attachment 1, "Terms and Definitions"
5. GAMG, "Combustion Engineering Generic Accident Management Guidelines
6. EOP-9.0, "Functional Recovery Procedure Basis"

Barrier: Containment

Category: B. Inventory

Degradation Threat: Loss

Threshold:

1. A containment pressure rise followed by a rapid unexplained drop in containment pressure.

Basis:

Implementing Guidance

None

Generic

Rapid unexplained loss of pressure (ie, not attributable to containment spray or condensation effects) following an initial pressure increase from a primary or secondary high energy line break indicates a loss of containment integrity. Containment pressure should increase as a result of mass and energy release into containment from a LOCA. Thus, pressure not increasing indicates containment bypass and a loss of containment integrity.

This indicator relies on operator recognition of an unexpected response for the condition and therefore does not have a specific value associated with it. The unexpected response is important because it is the indicator for a containment bypass condition.

Plant-Specific

UFSAR, Section 14.1.1 describes containment pressure response for a bounding LOCA.

Containment pressure peaks at approximately 46 psig at 20 seconds after event initiation (Ref 1, 2).

PLP Basis Reference(s):

3. UFSAR 14.17, "Loss of Coolant Accident"
4. UFSAR, Figure 14.17.1-14, "Containment Pressure"

Barrier: Containment

Category: B. Inventory

Degradation Threat: Loss

Threshold:

2. Containment pressure or sump level response **not** consistent with LOCA conditions

Basis:

Implementing Guidance

None

Generic

Containment sump levels should increase as a result of mass and energy release into containment from a LOCA. Thus, sump level not increasing indicates containment bypass and a loss of containment integrity.

This indicator relies on operator recognition of an unexpected response for the condition and therefore does not have a specific value associated with it. The unexpected response is important because it is the indicator for a containment bypass condition.

Plant-Specific

The expected containment pressure and temperature response versus time are given in UFSAR, Figures 14.18.1-1 and 14.18.1.-2 for the most severe LOCAs (double guillotine hot leg break) (Ref 1, 2).

PLP Basis Reference(s):

1. UFSAR, Figure 14.18.1-1, "LOCA Containment Pressure Profile"
2. UFSAR, Figure 14.18.1-2, "LOCA Containment Temperature Profile"

Barrier: Containment

Category: B. Inventory

Degradation Threat: Loss

Threshold:

3. RUPTURED SG is also FAULTED outside of containment.

Basis:

Implementing Guidance

None

Generic

The loss threshold recognizes that SG tube leakage can represent a bypass of the containment barrier as well as a loss of the PCS barrier.

Users should realize that this threshold and containment loss B.4 could be considered redundant. This was recognized during the development process. The inclusion of a threshold that uses Emergency Procedure commonly used terms like "RUPTURED and FAULTED" adds to the ease of the classification process and has been included based on this human factor concern.

This threshold results in a UE for smaller breaks that; (1) do not exceed the normal charging capacity threshold in PCS leak rate barrier Potential Loss threshold, or (2) do not result in ECCS actuation in PCS SG tube rupture barrier Loss threshold. For larger breaks, PCS barrier threshold criteria would result in an Alert. For SG tube ruptures which may involve multiple steam generators or UNISOLABLE secondary line breaks, this threshold would exist in conjunction with PCS barrier thresholds and would result in a Site Area Emergency. Escalation to General Emergency would be based on "Potential Loss" of the Fuel Clad Barrier.

This threshold addresses the condition in which a RUPTURED steam generator is also FAULTED. This condition represents a bypass of the PCS and containment barriers and is a subset of the containment loss B.4. In conjunction with PCS leak rate barrier loss threshold, this would always result in the declaration of a Site Area Emergency.

Plant-Specific

A FAULTED SG means the existence of secondary side leakage that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized. A RUPTURED SG means the existence of primary-to-secondary leakage of a magnitude sufficient to require or cause a reactor trip and safety injection.

PNP Basis Reference(s):

None

Barrier: Containment

Category: B. Inventory

Degradation Threat: Loss

Threshold:

4. Primary-to-secondary leakrate > 10 gpm
   AND
   UNISOLABLE steam release from affected SG to the environment

Basis:

Implementing Guidance

None

Generic

The loss threshold recognizes that SG tube leakage can represent a bypass of the Containment barrier as well as a loss of the PCS barrier.

This threshold results in a UE for smaller breaks that; (1) do not exceed the normal charging capacity threshold in PCS leak rate barrier Potential Loss threshold, or (2) do not result in ECCS actuation in PCS SG tube rupture barrier Loss threshold. For larger breaks, PCS barrier threshold criteria would result in an Alert. For SG tube ruptures which may involve multiple steam generators or UNISOLABLE secondary line breaks, this threshold would exist in conjunction with PCS barrier thresholds and would result in a Site Area Emergency. Escalation to General Emergency would be based on "Potential Loss" of the Fuel Clad Barrier.

This threshold addresses SG tube leaks that exceed 10 gpm in conjunction with an UNISOLABLE release path to the environment from the affected steam generator. The threshold for establishing the UNISOLABLE secondary side release is intended to be a prolonged release of radioactivity from the RUPTURED steam generator directly to the environment. This could be expected to occur when the main condenser is unavailable to accept the contaminated steam (ie, SG tube rupture with concurrent loss of off-site power and the RUPTURED steam generator is required for plant cooldown or a stuck open relief valve). If the main condenser is available, there may be releases via air ejectors, gland seal exhausters, and other similar controlled, and often monitored, pathways. These pathways do not meet the intent of an UNISOLABLE release path to the environment. These minor releases are assessed using EALs in Category A.

Plant-Specific

By definition, an UNISOLABLE steam release is one that cannot be promptly isolated from the Control Room and is therefore a prolonged release. As used here, an UNISOLABLE release from the affected SG has existed for the time frame expected when implementing EOP-5.0, "Steam Generator Tube Rupture," (Ref 1). Cooldowns conducted to allow controlled isolation of the affected SG per emergency procedures are not considered releases when assessing this threshold. The criterion for the release is met if the objective of EOP-5.0 to isolate the affected SG cannot be met.

PLP Basis Reference(s):

1. EOP-5.0, "Steam Generator Tube Rupture Basis"

Barrier: Containment

Category: B. Inventory

Degradation Threat: Potential Loss

Threshold:

3. Containment pressure ≥ 55 psig and rising

Basis:

Implementing Guidance

None

Generic

The site specific pressure is based on the containment design pressure.

Plant-Specific

This threshold is the containment design pressure and is in excess of that expected from the design basis loss of coolant accident (LOCA). Proper actuation and operation of the containment spray system when required should maintain containment pressure well below the design pressure. Containment pressure peaks at approximately 46 psig at 20 seconds after event initiation (Ref 1, 2).

The pressure-time responses for the spectrum of LOCAs considered in the plant design basis are described in Section 14 of the UFSAR. The threshold is therefore indicative of a loss of both PCS and Fuel Clad barriers in that it should not be reached without severe core degradation (metal-water reaction) or failure to scram in combination with PCS breach. This condition would be expected to require the declaration of a General Emergency.

PLP Basis Reference(s):

1. UFSAR 14.17, "Loss of Coolant Accident"
2. UFSAR, Figure 14.17.1-14, "Containment Pressure"

Barrier: Containment
Category: B. Inventory
Degradation Threat: Potential Loss
Threshold:

4. Containment hydrogen concentration ≥ 6%

Basis:

Implementing Guidance

None

Generic

Existence of an explosive mixture means a hydrogen and oxygen concentration of at least the lower deflagration limit curve exists. The indications of potential loss under this EAL corresponds to some of those leading to containment potential loss threshold A.1.

Plant-Specific

After a LOCA, the containment atmosphere is a homogeneous mixture of steam, air, solid and gaseous fission products, hydrogen, and water droplets containing boron and sodium hydroxide. During and following a LOCA, the hydrogen concentration in the containment results from radiolytic decomposition of water, metal-water reaction, and aluminum/zinc reaction with the spray solution. If hydrogen concentration reaches or exceeds the lower flammability limit (6%) in an oxygen rich environment, a potentially explosive mixture exists. If the combustible mixture ignites inside containment, loss of the Containment barrier could occur. To generate such levels of combustible gas, loss of the Fuel Clad and PCS barriers must also have occurred. Since this threshold is also indicative of loss of both Fuel Clad and PCS barriers with the potential loss of the Containment barrier, it therefore will likely warrant declaration of a General Emergency.

Standard industry reference documents list the lowest potentially explosive concentration for hydrogen in a standard atmosphere as 6.0% (Ref 1).

PLP Basis Reference(s):

1. Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a Loss-of-Coolant Accident," dated November 1978

Barrier: Containment

Category: B. Inventory

Degradation Threat: Potential Loss

Threshold:

5. Containment pressure > 4 psig with < one full train of containment cooling systems operating.

Basis:

Implementing Guidance

To meet the intent of this EAL, "one full train of containment cooling systems" is defined as 100% of the required post-accident cooling capability in accordance with Technical Specifications 3.6.6 (Ref 2).

For manual actions taken in accordance with approved procedures and Operations protocols that successfully place at least one full train of containment cooling in service, the EAL threshold for classification was not met. Where manual actions are either not immediately available or not successful within the requirements for timely emergency classification (within 15 minutes), the EAL threshold is considered met at the time of the failure to automatically actuate.

Generic

This threshold represents a potential loss of containment in that the containment heat removal/depressurization system (eg, containment sprays, CACs, etc, but not including containment venting strategies) are either lost or performing in a degraded manner, as indicated by containment pressure greater than the setpoint at which the equipment was supposed to have actuated.

Plant-Specific

The containment pressure setpoint (4 psig) is the pressure at which the equipment should actuate and begin performing its function (Ref 1).

The design of the Containment Spray System and Containment Air Cooler System is to limit the temperature and pressure that could be experienced following either a Loss of Coolant Accident (LOCA) or a Main Steam Line Break (MSLB). During an MSLB or large break LOCA event, a minimum of one containment cooling train is required to maintain the containment peak pressure and temperature below the design limits.

The threshold is not met if containment pressure is greater than 4 psig and the operator is in the process of placing a train of containment cooling systems in service.

PLP Basis Reference(s):

1. EOP Setpoint Basis
2. Technical Specifications 3.6.6 Containment Cooling Systems

Barrier: Containment

Category: C. Radiation / Coolant Activity

Degradation Threat: Loss

Threshold:

None

Barrier: Containment

Category: C. Radiation / Coolant Activity

Degradation Threat: Potential Loss

Threshold:

6. Containment High Range Radiation Monitor readings > 20,000 R/hr as indicated on RIA-2321 and/or RIA-2322.

Basis:

Implementing Guidance

None

Generic

There is no Loss threshold associated with this item.

The site specific reading is a value which indicates significant fuel damage well in excess of the thresholds associated with both loss of Fuel Clad and loss of PCS barriers. A major release of radioactivity requiring off-site protective actions from core damage is not possible unless a major failure of fuel cladding allows radioactive material to be released from the core into the reactor coolant.

Regardless of whether containment is challenged, this amount of activity in containment, if released, could have such severe consequences that it is prudent to treat this as a potential loss of containment, such that a General Emergency declaration is warranted.

Plant-Specific

The 20,000 R/hr containment radiation monitor reading is a value that indicates significant fuel damage well in excess of that required for loss of the PCS barrier and the Fuel Clad barrier (Ref 1). NUREG-1228 "Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents" states that such readings do not exist when the amount of cladding damage is less than 20%. A major release of radioactivity requiring offsite protective actions from core damage is not possible unless a major failure into the reactor coolant has occurred. Regardless of whether the Containment barrier itself is challenged, this amount of activity in containment could have severe consequences if released. It is, therefore, prudent to treat this as a potential loss of the Containment barrier. The reading is higher than that specified for Fuel Clad barrier Loss #2 and PCS barrier Loss #3. Containment radiation readings at or above the Containment barrier potential loss threshold, therefore, signify a loss of two fission product barriers and potential loss of a third, indicating the need to upgrade the emergency classification to a General Emergency.

Containment radiation is indicated on Containment High Range Radiation Monitors RIA-2321 and RIA-2322 (Ref 1). The Containment High Range Radiation Monitors high alarm occurs at 400 R/hr (Ref 2).

PLP Basis Reference(s):

1. NMC Calculation EA-JLV-04-01, "Determination of Containment Radiation Monitor and Radiological Effluent Monitor EALs in Accordance with NEI 99-01 Revision 4"
2. ARP-33, "Auxiliary Systems Scheme EK-02 (C-11A)," Annunciator Nos 1 and 2

Barrier: Containment

Category: D. Isolation Status

Degradation Threat: Loss

Threshold:

5. Failure of **all** valves in **any one** line to close

   AND

   Direct downstream pathway to the environment exists after containment isolation signal

Basis:

Implementing Guidance

For manual actions taken in accordance with approved procedures and Operations protocols that successfully isolate an open containment penetration, the EAL threshold for classification was not met. Where manual actions are either not immediately available or not successful within the requirements for timely emergency classification (within 15 minutes), the EAL threshold is considered met at the time of the failure to automatically isolate.

Generic

This threshold addresses incomplete containment isolation that allows direct release to the environment.

The use of the modifier "direct" in defining the release path discriminates against release paths through interfacing liquid systems. The existence of an in-line charcoal filter does not make a release path indirect since the filter is not effective at removing fission product noble gases. Typical filters have an efficiency of 95-99% removal of iodine. Given the magnitude of the core inventory of iodine, significant releases could still occur. In addition, since the fission product release would be driven by boiling in the reactor vessel, the high humidity in the release stream can be expected to render the filters ineffective in a short period.

There is no Potential Loss threshold associated with this item.

Plant-Specific

This barrier threshold is applicable only after a containment isolation signal has been received.

The Component Cooling Water System is designed to cool components carrying radioactive and potentially radioactive fluids. It provides a monitored intermediate barrier between these fluids and the Service Water System which transfers the heat to the lake. Thus, the probability of leakage of contaminated fluid into the lake is greatly reduced. The parts of the system located inside containment are isolated in the event of a containment high-pressure signal (CHP). Failure of the signal to close the isolation valves with an air cooler line break inside containment, for example, would not constitute a "direct" downstream pathway to the environment as long as the system remains filled with water.

PLP Basis Reference(s):

1. UFSAR 9.3, "Component Cooling System"

Barrier: Containment

Category: D. Isolation Status

Degradation Threat: Potential Loss

Threshold:

None

Barrier: Containment

Category: E. Judgment

Degradation Threat: Loss

Threshold:

6. **Any** condition in the opinion of the Emergency Director that indicates loss of the Containment barrier

Basis:

Implementing Guidance

None

Generic

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the Containment barrier is lost. In addition, the inability to monitor the barrier should also be incorporated in this threshold as a factor in Emergency Director judgment that the barrier may be considered lost.

The Containment barrier should not be declared lost or potentially lost based on exceeding Technical Specification action statement criteria, unless there is an event in progress requiring mitigation by the Containment barrier. When no event is in progress (Loss or Potential Loss of either Fuel Clad and/or PCS) the Containment barrier status is addressed by Technical Specifications.

Plant-Specific

The Emergency Director judgment threshold addresses any other factors relevant to determining if the Containment barrier is lost. Such a determination should include IMMINENT barrier degradation, barrier monitoring capability and dominant accident sequences.

PLP Basis Reference(s):

None

Barrier: Containment

Category: E. Judgment

Degradation Threat: Potential Loss

Threshold:

7. **Any** condition in the opinion of the Emergency Director that indicates potential loss of the Containment barrier.

Basis:

Implementing Guidance

None

Generic

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the Containment barrier is potentially lost. In addition, the inability to monitor the barrier should also be incorporated in this threshold as a factor in Emergency Director judgment that the barrier may be considered potentially lost.

The Containment barrier should not be declared lost or potentially lost based on exceeding Technical Specification action statement criteria, unless there is an event in progress requiring mitigation by the Containment barrier. When no event is in progress (Loss or Potential Loss of either Fuel Clad and/or PCS) the Containment barrier status is addressed by Technical Specifications.

Plant-Specific

The Emergency Director judgment threshold addresses any other factors relevant to determining if the Containment barrier is potentially lost. Such a determination should include IMMINENT barrier degradation, barrier monitoring capability and dominant accident sequences.

PLP Basis Reference(s):

None

Attachment 4 to Enclosure

HDI PNP 2024-005

Proposed Power Operations Emergency Action Level Wall Chart

2 pages follow

GENERAL EMERGENCY

A — Abnorm. Rad Release / Rad Effluent

1 — Offsite Rad Conditions

AG1.1 1 2 3 4 5 6 DEF

VALID reading on any radiation monitors > Table A-1 column "GE" for ≥ 15 min. (Note 1)

AG1.2 1 2 3 4 5 6 DEF

Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY

AG1.3 1 2 3 4 5 6 DEF

Field survey results indicate closed window dose rates > 1,000 mR/hr/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY
OR
Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)

2 — Onsite Rad Conditions & Spent Fuel Events

Table A-1 Effluent Monitor Classification Thresholds

	Monitor	GE	SAE	ALERT	UE
GASEOUS	Stack Normal Range (RIA-2326)	N/A	N/A	N/A	1.59E+05 cpm
	Stack High Range (RIA-2327)	1.53E+02 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
	Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
	ADV High Range Effluent (RIA-2329)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
	Main Steam Line (RIA-2325/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID	Liquid Radwaste Disch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
	SG Blowdown (RIA-0707)	N/A	N/A	1.98E+06 cpm*	1.98E+04 cpm*
	Service water (RIA-0633)	N/A	N/A	1.80E+05 cpm*	1.80E+03 cpm*
	Turbine Bldg. Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm*

* with waste discharge not isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

AA2.1 1 2 3 4 5 6 DEF

A VALID reading on any of the following radiation monitors due to damage to irradiated fuel or loss of water level (Note 3):
- Vent Monitor Fuel Handling Area (RIA-5712) > 1.00E+04 cpm
- Spent Fuel Pool Area Radiation Monitors (RIA-5708 or RIA-2313) > 15 mR/hr
- Refueling Containment High Radiation (CHR) Monitors (RIA-2318 or RIA-2317) > 80 mR/hr

AA2.2 1 2 3 4 5 6 DEF

A water level drop in the refueling cavity, SFP or fuel transfer canal that will result in irradiated fuel becoming uncovered (Note 3)

AU2.1 1 2 3 4 5 6 DEF

UNPLANNED water level drop in a reactor refueling pathway as indicated by inability to restore and maintain level > 646 ft elevation (Note 3)
AND
VALID area radiation monitor reading rise on any of the following:
- Vent Monitor Fuel Handling Area (RIA-5712)
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-2313)
- Refueling Containment High Radiation (CHR) Monitors (RIA-2316 or RIA-2317)

AU2.2 1 2 3 4 5 6 DEF

UNPLANNED VALID area radiation reading increases by a factor of 1000 over normal* levels
* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value

3 — CR/CAS Rad

AA3.1 1 2 3 4 5 6 DEF

VALID dose rates > 15 mRem/hr in EITHER of the following areas requiring continuous occupancy to maintain plant safety functions:
Control Room (RIA-2310)
OR
CAS (RIA-2311)

H — Hazards & Other Conditions Affecting Plant Safety

1 — Natural or Destructive Phenomena

Table H-1 Internal Flooding Areas
- Emergency Diesel Generator Rooms
- Engineered Safeguards Rooms
- Auxiliary Feedwater Pump Room
- Switchgear Room 1C
- Switchgear Room 1D
- Screen House
- Component Cooling Water Pump Room
- Cable Spreading Room

Table H-2 Safe Shutdown Areas
- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-48)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-61)
- Fuel Oil Storage Tank (T-10A)

Notes
1. If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL AS1.2/AG1.2). Do not delay declaration awaiting dose assessment results
   The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time
2. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.
3. If loss of water level in the refueling pathway occurs while in Mode 5, 6 or DEF, consider classification under EALs CU3.1, CU3.2 or CU3.3
4. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.
5. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.
6. The NEIC can be contacted by going to the USGS NEIC website: http://earthquake.usgs.gov or alternately by calling (303)273-8500. Select option #1 and then option #2 and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLI coordinates: 42° 19' 23" north latitude, 86° 18' 02" west longitude.
7. Even though an essential bus may be energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable.
8. 1-3 DG or backfeed can be used to exist entry into SG1.1 only if one of the power sources is supplying power to a safeguards bus within the 4 hour time period allowed.

Table E-1 Cask Dose Rates

Cask System	Casks	Dose Rates
Ventilated Storage Cask System (VSC-24)	All	40 mrem/hr on the sides
		100 mrem/hr on the top
		190 mrem/hr at inlet and outlet ducts
Standardized NUHOMS	32PT HSM-001 thru HSM-011	1600 mrem/hr on the HSM front surface
		400 mrem/hr on the HSM door centerline
		16 mrem/hr on the end shield wall exterior
	24PTH HSM-H012 thru HSM-H-020	2600 mrem/hr on the HSM front surface
		10 mrem/hr on the HSM door centerline
		20 mrem/hr on the end shield wall exterior
HI-STORM FW MPC	All	60 mrem/hr (gamma + neutron) on the top of the OVERPACK
		600 mrem/hr (gamma + neutron) on the OVERPACK, excluding inlet and outlet ducts

HA1.1 1 2 3 4 5 6 DEF

Seismic event identified by EITHER of the following:
Earthquake felt in plant
OR
National Earthquake Information Center (Note 6)
AND
Earthquake > OBE (0.1 g) confirmed by EITHER of the following:
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant
OR
Seismic instrumentation

HA1.2 1 2 3 4 5 6 DEF

Tornado striking or sustained high winds > 95 mph resulting in EITHER:
VISIBLE DAMAGE to any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA1.3 1 2 3 4 5 6 DEF

Internal FLOODING in any Table H-1 area resulting in EITHER:
An electrical shock hazard that precludes access to operate or monitor safety equipment
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems in the flooded area required for the safe shutdown of the plant

HA1.4 1 2 3 4 5 6 DEF

Turbine failure-generated PROJECTILES resulting in EITHER:
VISIBLE DAMAGE to or penetration of any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA1.5 1 2 3 4 5 6 DEF

Ultimate heat sink water level < 594 ft elevation
OR
Ultimate heat sink water level ≥ 660 ft elevation

HA1.6 1 2 3 4 5 6 DEF

Vehicle crash resulting in EITHER:
VISIBLE DAMAGE to any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA1.7 1 2 3 4 5 6 DEF

FIRE or EXPLOSION resulting in EITHER:
VISIBLE DAMAGE to any safety-related structure, system, or component within any Table H-2 area
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of any safety-related structure, system, or component within any Table H-2 area

HA1.1 1 2 3 4 5 6 DEF

Access to any Table H-2 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shut down the reactor (Note 5)

2 — Fire or Explosion

3 — Hazardous Gas

4 — Security

HG4.1 1 2 3 4 5 6 DEF

A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions

HG4.2 1 2 3 4 5 6 DEF

A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems
AND
IMMINENT fuel damage is likely

HS4.1 1 2 3 4 5 6 DEF

A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by Security Shift Leader

HA4.1 1 2 3 4 5 6 DEF

A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by Security Shift Leader
OR
A validated notification from NRC of an airliner attack threat within 30 min. of the site

HA4.1 1 2 3 4 5 6 DEF

A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by Security Shift Leader
OR
A credible site-specific security threat notification
OR
A validated notification from NRC providing information of an aircraft threat.

5 — Control Room Evacuation

None

HS5.1 1 2 3 4 5 6 DEF

Control Room evacuation has been initiated
AND
Control of the plant cannot be established per AOP-41 "Alternate Safe Shutdown" procedure within 15 min.

HA5.1 1 2 3 4 5 6 DEF

Control Room evacuation has been initiated

None

6 — Judgment

HG6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE) offsite for more than the immediate site area

HS6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE) beyond the SITE BOUNDARY

HA6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE)

HU6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs

E — ISFSI

None

None

None

EU1.1 N/A

Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading greater than the applicable values shown on Table E-1 on the spent fuel cask.

Modes: 1 Power Operation | 2 Startup | 3 Hot Standby | 4 Hot Shutdown | 5 Cold Shutdown | 6 Refuel | DEF Defueled

Palisades Power Plant

BEP Supplement 1
EAL Wall Charts
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Page 1 of 2

GENERAL EMERGENCY

S — System Malfunct.

1 — Loss of Power

SG1.1 1 2 3 4

Loss of all offsite and all onsite AC power, Table S-1, to 2400 VAC safeguards buses 1C and 1D
AND EITHER:
Restoration of at least one 2400 VAC safeguards bus within 4 hours is not likely
OR
Average of qualified CETs readings > 700°F (Note 7, Note 8)

2 — Loss of DC Power

None

3 — Criticality & RPS Failure

SG3.1 1 2

An automatic trip fails to shut down the reactor
AND
All manual actions do not shut down the reactor as indicated by reactor power > 5%
AND EITHER of the following exist or have occurred due to continued power generation:
Average of qualified CETs readings > 1,200°F
OR
Any PCS/Core Heat Removal safety function criterion in Table S-6 is met
for ≥ 15 min. (Note 4)

4 — Inability to Reach Shutdown Conditions

None

5 — Inst.

None

6 — Comm.

Table S-2 Safety System Annunciators & Indicators
- EC-02/12 - Reactor/PCPs
- EC-03/13 - Safety Injection/Containment Cooling & Isolation systems / Ventilation
- EC-04 - Electrical
- EC-08 - RPS
- EC-09 - Service Water/Component Cooling
- EC-11 (Rear) - Rad Monitors
- EC-11A (Front) - Control Room HVAC / Reactor Vessel Level / Core Exit Thermocouples
- EC-27 - Thermal Margin Monitors

7 — Fuel Clad Degradation

Table S-3 SIGNIFICANT TRANSIENTS
- Turbine runback > 25% thermal power
- Reactor trip
- ECCS (SIAS) actuation

None

8 — PCS Leakage

None

Table S-4 Communications Systems

System	Onsite (Internal)	Offsite (External)
Telephone System	X	X
Onsite/Offsite radio system	X	
Public address system	X	
Power failure phones		X
FTS phone system		X
Satellite Phone		X

F — Fission Product Barriers

FG1.1 1 2 3 4

Loss of any two barriers
AND
Loss or potential loss of third barrier (Table F-1)

FS1.1 1 2 3 4

Loss or potential loss of any two barriers (Table F-1)

FA1.1 1 2 3 4

Any loss or any potential loss of either Fuel Clad or PCS (Table F-1)

Table F-1 Fission Product Barrier Matrix

	Fuel Clad Barrier (FC)		Primary Coolant System Barrier (PCS)		Containment Barrier (CNMT)	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
A — Core Cooling / Heat Removal	1. CET readings > 1,200°F based on average of qualified CETs	1. CET readings > 700°F based on average of qualified CETs 2. Any PCS/Core Heat Removal safety function criterion in Table F-2 is met for ≥ 15 min. (Note 4)	None	1. Once Through Core Cooling flow established 2. Any PCS/Core Heat Removal safety function criterion in Table F-2 is met 3. PCS cooldown rate > 100°F/hr AND PZR pressure > maximum limits of EOP Supplement 1	None	1. CET readings cannot be restored < 1,200°F based on average of qualified CETs within 15 min. 2. CET readings cannot be restored < 700°F based on average of qualified CETs AND Reactor vessel water level cannot be restored > 614.8 ft. (Sensor #8 RVLMS green light) within 15 min.
B — Inventory	None	3. Reactor Vessel level < 614.8 ft (Sensor #8 RVLMS red light)	1. PCS leak rate > available makeup capacity as indicated by PCS subcooling < 26°F based on average of qualified CETs 2. RUPTURED SG results in an ECCS (SIAS) actuation	4. PCS leak rate > 50 gpm	1. A containment pressure rise followed by a rapid unexplained drop in containment pressure 2. Containment pressure or sump level response not consistent with LOCA conditions 3. RUPTURED SG is also FAULTED outside of containment 4. Primary-to-secondary leakrate > 10 gpm AND UNISOLABLE steam release from affected SG to the environment	3. Containment pressure ≥ 56 psig and rising 4. Containment hydrogen concentration ≥ 6% 5. Containment pressure > 4 psig with < one full train of containment cooling systems operating
C — Radiation / Coolant Activity	2. Containment High Range Radiation Monitor readings > 2,000 R/hr as indicated on RIA-2321 and/or RIA-2322 3. Failed Fuel Survey Point dose rate value for primary coolant > 1 R/hr	None	3. Containment High Range Radiation Monitor readings > 200 R/hr as indicated on RIA-2321 and/or RIA-2322	None	None	6. Containment High Range Radiation Monitor readings > 20,000 R/hr as indicated on RIA-2321 and/or RIA-2322
D — Isolation Status	None	None	None	None	5. Failure of all valves in any one line to close AND Direct downstream pathway to the environment exists after containment isolation signal	None
E — Judgment	4. Any condition in the opinion of the Emergency Director that indicates loss of the fuel clad barrier	4. Any condition in the opinion of the Emergency Director that indicates potential loss of the fuel clad barrier	4. Any condition in the opinion of the Emergency Director that indicates loss of the PCS barrier	5. Any condition in the opinion of the Emergency Director that indicates potential loss of the PCS barrier	6. Any condition in the opinion of the Emergency Director that indicates loss of the containment barrier	7. Any condition in the opinion of the Emergency Director that indicates potential loss of the containment barrier

Notes
1. If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL AS1.2/AG1.2). Do not delay declaration awaiting dose assessment results
   The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time
2. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.
3. If loss of water level in the refueling pathway occurs while in Mode 5, 6 or DEF, consider classification under EALs CU3.1, CU3.2 or CU3.3
4. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.
5. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.
6. The NEIC can be contacted by going to the USGS NEIC website: http://earthquake.usgs.gov or alternately by calling (303) 273-8500. Select option #1 and then option #2 and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLI coordinates: 42° 19' 23" north latitude, 86° 18' 02" west longitude.
7. Even though an essential bus may be energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable.
8. 1-3 DG or backfeed can be used to exist entry into SG1.1 only if one of the power sources is supplying power to a safeguards bus within the 4 hour time period allowed.

Table F-2 PCS/Core Heat Removal Safety Function Criteria
- Both SG levels ≤ -84%
- Both PCS loop delta Ts ≥ 10°F (forced circulation)
  OR
  Core delta T ≥ 80°F (natural circulation)
- PCS subcooling < 26°F based on average of qualified CETs

UNUSUAL EVENT

S — System Malfunct.

1 — Loss of Power

SU1.1 1 2 3 4

Loss of all offsite AC power, Table S-1, to 2400 VAC safeguards buses 1C and 1D for ≥ 15 min. (Note 4)

Table S-1 AC Power Sources

Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 • Startup Transformer 1-2

2 — Loss of DC Power

SS2.1 1 2 3 4

< 105 VDC on DC bus No. 1 (ED-10) AND DC bus No. 2 (ED-20) for ≥ 15 min. (Note 4)

None

3 — Criticality & RPS Failure

SS3.1 1 2

An automatic trip fails to shut down the reactor
AND
Manual actions taken at the reactor control console do not shut down the reactor as indicated by reactor power > 5%

Table S-6 PCS/Core Heat Removal Safety Function Criteria
- Both SG levels ≤ -84%
- Both PCS loop delta Ts ≥ 10°F (forced circulation)
  OR
  Core delta T ≥ 80°F (natural circulation)
- PCS subcooling < 26°F based on average of qualified CETs

SA3.1 1 2

An automatic trip failed to shut down the reactor
AND
Manual actions taken at the reactor control console successfully shut down the reactor as indicated by reactor power ≤ 5%

SU3.1 3 4

An UNPLANNED sustained positive startup rate observed on nuclear instrumentation

4 — Inability to Reach Shutdown Conditions

None

SA4.1 1 2 3 4

AC power capability to 2400 VAC safeguards buses 1C and 1D reduced to a single power source, Table S-1, for ≥ 15 min. (Note 4)
AND
Any additional single power source failure will result in a complete loss of all 2400 VAC safeguards bus power

None

SU4.1 1 2 3 4

Plant is not brought to required operating mode within Technical Specifications LCO required action completion time

5 — Inst.

SS5.1 1 2 3 4

Loss of > approximately 75% of annunciation or indication, Table S-2, on main control boards for ≥ 15 min. (Note 4)
AND
A SIGNIFICANT TRANSIENT is in progress, Table S-3
AND
Compensatory Indications are unavailable (Palisades Process Computer)

SA5.1 1 2 3 4

UNPLANNED loss of > approximately 75% of annunciation or indication, Table S-2, on main control boards for ≥ 15 min. (Note 4)
AND EITHER:
A SIGNIFICANT TRANSIENT is in progress, Table S-3
OR
Compensatory indications are unavailable (Palisades Process Computer)

SU5.1 1 2 3 4

UNPLANNED loss of > approximately 75% of annunciation or indication, Table S-2, on main control boards for ≥ 15 min. (Note 4)

6 — Comm.

SU6.1 1 2 3 4

Loss of all Table S-4 onsite (internal) communication methods affecting the ability to perform routine operations
OR
Loss of all Table S-4 offsite (external) communication methods affecting the ability to perform offsite notifications

7 — Fuel Clad Degradation

SU7.1 1 2 3 4

PCS specific activity ≥ 40 µCi/gm dose equivalent I-131

SU7.2 1 2 3 4

Any VALID Containment Isolation High Radiation Monitor (HA-1805 thru 1808) PPC urgent alarm (0.45 Rem/hr)

8 — PCS Leakage

SU8.1 1 2 3 4

Unidentified or pressure boundary leakage > 10 gpm
OR
Identified leakage > 25 gpm

F — Fission Product Barriers

FU1.1 1 2 3 4

Any loss or any potential loss of Containment (Table F-1)

EAL Identifier

XXX.X

Category (A, H, E, S, F) — Sequential number within subcategory/classification

Emergency classification (G, S, A, U) — Subcategory number (1 if no subcategory)

MODE 1, 2, 3 or 4

GENERAL EMERGENCY

A — Abnorm. Rad Release / Rad Effluent

1 — Offsite Rad Conditions

AG1.1 1 2 3 4 5 6 DEF

VALID reading on any radiation monitors > Table A-1 column "GE" for 2.15 min. (Note 1)

AG1.2 1 2 3 4 5 6 DEF

Dose assessment using actual meteorology indicates doses > 1,000 mRem TEDE or 5,000 mRem thyroid CDE at or beyond the SITE BOUNDARY

AG1.3 1 2 3 4 5 6 DEF

Field survey results indicate closed window dose rates > 1,000 mR/hr/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY
OR
Analyses of field survey samples indicate thyroid CDE > 5,000 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)

2 — Onsite Rad Conditions & Spent Fuel Events

Table A-1 Effluent Monitor Classification Thresholds

	Monitor	GE	SAE	ALERT	UE
GASEOUS	Stack Normal Range (RIA-2328)	N/A	N/A	N/A	1.09E+05 cpm
	Stack High Range (RIA-2327)	1.53E+02 mRem/hr	1.53E+02 mRem/hr	1.74E+01 mRem/hr	N/A
	Stack High Range Effluent (RIA-2328)**	2.21E+02 mRem/hr	2.21E+01 mRem/hr	N/A	N/A
	ADV High Range Effluent (RIA-2328)**	1.58E+02 mRem/hr	1.58E+01 mRem/hr	N/A	N/A
	Main Steam Line (RIA-2323/RIA-2324)	2.54E+05 cpm	2.54E+04 cpm	N/A	N/A
LIQUID	Liquid Radwaste Ditch (RIA-1049)	N/A	N/A	200 X High Alarm*	2 X High Alarm*
	SG Blowdown (RIA-0707)	N/A	N/A	1.96E+08 cpm*	1.96E+04 cpm*
	Service water (RIA-0833)	N/A	N/A	1.60E+05 cpm*	1.60E+03 cpm*
	Turbine Bldg. Sumps (RIA-5211)	N/A	N/A	8.20E+05 cpm*	8.20E+03 cpm*

* with waste discharge not isolated ** RIA-2328 is a backup monitor which can be physically directed for monitoring the Stack or ADVs

AG1.4 1 2 3 4 5 6 DEF

Field survey results indicate closed window dose rates > 100 mR/hr/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY
OR
Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)

AA2.1 1 2 3 4 5 6 DEF

A VALID reading on any of the following radiation monitors due to damage to irradiated fuel or loss of water level (Note 3)
- Vent Monitor Fuel Handling Area (RIA-5712)
  - 3305-04 cpm
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-5313) > 15 mR/hr
- Refueling Containment High Radiation (CHR) Monitors (RIA-2315 or RIA-2317) > 90 mR/hr

AA2.2 1 2 3 4 5 6 DEF

A water level drop in the refueling cavity, SFP or fuel transfer canal that will result in irradiated fuel becoming uncovered (Note 3)

AU2.1 1 2 3 4 5 6 DEF

UNPLANNED water level drop in the reactor refueling pathway as indicated by inability to restore and maintain level > 646 ft elevation (Note 3)
AND
VALID area radiation monitor reading rise on any of the following:
- Vent Monitor Fuel Handling Area (RIA-5712)
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-5313)
- Refueling Containment High Radiation (CHR) Monitors (RIA-2315 or RIA-2317)

AU2.2 1 2 3 4 5 6 DEF

UNPLANNED valid area radiation reading increases by a factor of 1000 over normal* levels
* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value

3 — CR/CAB Rad

AA3.1 1 2 3 4 5 6 DEF

VALID dose rates > 15 mRem/hr in EITHER of the following areas requiring continuous occupancy to maintain plant safety functions:
Control Room (RIA-2310)
OR
CAS (RIA-2311)

H — Hazards & Other Conditions Affecting Plant Safety

1 — Natural or Destructive Phenomena

Table H-1 Internal Flooding Areas

- Emergency Diesel Generator Rooms
- Engineered Safeguards Rooms
- Auxiliary Feedwater Pump Room
- Switchgear Room 1C
- Switchgear Room 1D
- Screen House
- Component Cooling Water Pump Room
- Cable Spreading Room

Table H-2 Safe Shutdown Areas

- Containment Structure
- Auxiliary Building
- Turbine Building
- Screenhouse
- Safety Injection Refueling Water Tank (T-58)
- Condensate Storage Tank (T-2)
- Primary System Makeup Tank (T-81)
- Fuel Oil Storage Tank (T-10A)

Notes

1. If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL AS1.2/AG1.2). Do not delay declaration awaiting dose assessment results
   The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time
2. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.
3. If loss of water level in the refueling pathway occurs while in Mode 5, 6 or DEF, consider classification under EALs CU3.1, CU3.2 or CU3.3
4. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.
5. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HA3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.
6. The NEIC can be contacted by going to the USGS NEIC website: http://earthquake.usgs.gov or alternately calling (303 273-8500, select option 1 and then option #2 and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLP coordinates: 42° 19' 22" north latitude, 86° 19' 52" west longitude.
7. Even though an essential bus may be energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable.
8. 1-3 D/G or backfeed can be used to avoid entry into SG1.1 only if one of the power sources is supplying power to a safeguards bus within the 4 hour time period allowed.

Table E-1 Cask Dose Rates

Cask System	Casks	Dose Rates
Ventilated Storage Cask System (VSC-24)	All	40 mrem/hr on the sides
		100 mrem/hr on the top
		100 mrem/hr at inlet and outlet ducts
Standardized NUHOMS	32PT HSM-001 thru HSM-011	1600 mrem/hr on the HSM front surface
		400 mrem/hr on the HSM door centerline
		16 mrem/hr on the end shield wall exterior
	24PTH HSM-H12 thru HSM-H-22H	2600 mrem/hr on the HSM front surface
		70 mrem/hr on the HSM door centerline
		20 mrem/hr on the end shield wall exterior
HI-STORM FW MPC	All	60 mrem/hr (gamma + neutron) on the top of the OVERPACK
		600 mrem/hr (gamma + neutron) on the OVERPACK, excluding inlet and outlet ducts

HA1.1 1 2 3 4 5 6 DEF

Seismic event identified by EITHER of the following:
Earthquake felt in plant
OR
National Earthquake Information Center (Note 6)
AND
Earthquake > OBE (0.1 g) confirmed by EITHER of the following:
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant
OR
Seismic instrumentation

HA1.2 1 2 3 4 5 6 DEF

Tornado striking or sustained high winds > 86 mph resulting in EITHER:
VISIBLE DAMAGE to any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA1.3 1 2 3 4 5 6 DEF

Internal FLOODING in any Table H-1 area resulting in EITHER:
An electrical shock hazard that precludes access to operate or monitor safety equipment
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems in the flooded area required for the safe shutdown of the plant

HA1.4 1 2 3 4 5 6 DEF

Turbine failure-generated PROJECTILES resulting in EITHER:
VISIBLE DAMAGE to or penetration of any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA1.5 1 2 3 4 5 6 DEF

Ultimate heat sink water level < 594 ft elevation
OR
Ultimate heat sink water level ≥ 569 ft elevation

HA1.6 1 2 3 4 5 6 DEF

Vehicle crash resulting in EITHER:
VISIBLE DAMAGE to any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA2.1 1 2 3 4 5 6 DEF

FIRE or EXPLOSION resulting in EITHER:
VISIBLE DAMAGE to any safety-related structure, system, or component within any Table H-2 area
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of any safety-related structure, system, or component within any Table H-2 area

HA3.1 1 2 3 4 5 6 DEF

Access to any Table H-2 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shut down the reactor (Note 5)

HA4.1 1 2 3 4 5 6 DEF

A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by Security Shift Leader
OR
A validated notification from NRC of an airliner attack threat within 30 min. of the site

HA5.1 1 2 3 4 5 6 DEF

Control Room evacuation has been initiated

HA6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE)

E — ISFSI

None

SITE AREA EMERGENCY

A — Abnorm. Rad Release / Rad Effluent

1 — Offsite Rad Conditions

AS1.1 1 2 3 4 5 6 DEF

VALID reading on any radiation monitors > Table A-1 column "SAE" for 2.15 min. (Note 1)

AS1.2 1 2 3 4 5 6 DEF

Dose assessment using actual meteorology indicates doses > 100 mRem TEDE or 500 mRem thyroid CDE at or beyond the SITE BOUNDARY

AS1.3 1 2 3 4 5 6 DEF

Field survey results indicate closed window dose rates > 100 mR/hr/hr expected to continue for ≥ 60 min. at or beyond the SITE BOUNDARY
OR
Analyses of field survey samples indicate thyroid CDE > 500 mRem for 1 hr of inhalation at or beyond the SITE BOUNDARY (Note 1)

2 — Onsite Rad Conditions & Spent Fuel Events

AA2.1 1 2 3 4 5 6 DEF

A VALID reading on any of the following radiation monitors due to damage to irradiated fuel or loss of water level (Note 3)
- Vent Monitor Fuel Handling Area (RIA-5712)
  - 3305-04 cpm
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-5313) > 15 mR/hr
- Refueling Containment High Radiation (CHR) Monitors (RIA-2315 or RIA-2317) > 90 mR/hr

AA2.2 1 2 3 4 5 6 DEF

A water level drop in the refueling cavity, SFP or fuel transfer canal that will result in irradiated fuel becoming uncovered (Note 3)

AA3.1 1 2 3 4 5 6 DEF

VALID dose rates > 15 mRem/hr in EITHER of the following areas requiring continuous occupancy to maintain plant safety functions:
Control Room (RIA-2310)
OR
CAS (RIA-2311)

H — Hazards & Other Conditions Affecting Plant Safety

1 — Natural or Destructive Phenomena

HS1.1 1 2 3 4 5 6 DEF

Seismic event identified by:
Earthquake felt in plant
AND
National Earthquake Information Center (Note 6)

HS1.2 1 2 3 4 5 6 DEF

Tornado striking or sustained high winds > 86 mph
OR
Sustained high winds > 86 mph

HS1.3 1 2 3 4 5 6 DEF

Internal FLOODING that has the potential to affect safety-related equipment required by Technical Specifications for the current operating mode in any Table H-1 area

HS1.4 1 2 3 4 5 6 DEF

Turbine failure resulting in casing penetration or damage to turbine or generator seals

HS1.5 1 2 3 4 5 6 DEF

Ultimate heat sink water level < 590 ft elevation
OR
Ultimate heat sink water level ≤ 570 ft elevation

HS2.1 1 2 3 4 5 6 DEF

FIRE not extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in any Table H-2 area (Note 4)
OR
EXPLOSION of sufficient force to damage permanent structures or equipment within the PROTECTED AREA

HS3.1 1 2 3 4 5 6 DEF

Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS

HS3.2 1 2 3 4 5 6 DEF

Recommendation by local, county or state officials to evacuate or shelter site personnel based on an offsite event

4 — Security

HS4.1 1 2 3 4 5 6 DEF

A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions

HS4.2 1 2 3 4 5 6 DEF

A HOSTILE ACTION has caused failure of Spent Fuel Cooling systems
AND
IMMINENT fuel damage is likely

HS5.1 1 2 3 4 5 6 DEF

Control Room evacuation has been initiated
AND
Control of the plant cannot be established per AOP-41 "Alternate Safe Shutdown" procedure within 15 min.

6 — Judgment

HS6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of, or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE) offsite for more than the immediate site area

E — ISFSI

None

ALERT

A — Abnorm. Rad Release / Rad Effluent

1 — Offsite Rad Conditions

AA1.1 1 2 3 4 5 6 DEF

VALID reading on gaseous monitor > Table A-1 column "Alert" for 2.15 min. (Note 2)

AA1.2 1 2 3 4 5 6 DEF

VALID reading on any liquid monitors > Table A-1 column "Alert" for 2.15 min. (Note 2)

AA1.3 1 2 3 4 5 6 DEF

Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 X CODCM limits for 2.15 min. (Note 2)

2 — Onsite Rad Conditions & Spent Fuel Events

AA2.1 1 2 3 4 5 6 DEF

A VALID reading on any of the following radiation monitors due to damage to irradiated fuel or loss of water level (Note 3)
- Vent Monitor Fuel Handling Area (RIA-5712)
  - 3305-04 cpm
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-5313) > 15 mR/hr
- Refueling Containment High Radiation (CHR) Monitors (RIA-2315 or RIA-2317) > 90 mR/hr

AA2.2 1 2 3 4 5 6 DEF

A water level drop in the refueling cavity, SFP or fuel transfer canal that will result in irradiated fuel becoming uncovered (Note 3)

AA3.1 1 2 3 4 5 6 DEF

VALID dose rates > 15 mRem/hr in EITHER of the following areas requiring continuous occupancy to maintain plant safety functions:
Control Room (RIA-2310)
OR
CAS (RIA-2311)

H — Hazards & Other Conditions Affecting Plant Safety

1 — Natural or Destructive Phenomena

HA1.1 1 2 3 4 5 6 DEF

Seismic event identified by EITHER of the following:
Earthquake felt in plant
OR
National Earthquake Information Center (Note 6)
AND
Earthquake > OBE (0.1 g) confirmed by EITHER of the following:
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant
OR
Seismic instrumentation

HA1.2 1 2 3 4 5 6 DEF

Tornado striking or sustained high winds > 86 mph resulting in EITHER:
VISIBLE DAMAGE to any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA1.3 1 2 3 4 5 6 DEF

Internal FLOODING in any Table H-1 area resulting in EITHER:
An electrical shock hazard that precludes access to operate or monitor safety equipment
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems in the flooded area required for the safe shutdown of the plant

HA1.4 1 2 3 4 5 6 DEF

Turbine failure-generated PROJECTILES resulting in EITHER:
VISIBLE DAMAGE to or penetration of any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA1.5 1 2 3 4 5 6 DEF

Ultimate heat sink water level < 594 ft elevation
OR
Ultimate heat sink water level ≤ 569 ft elevation

HA1.6 1 2 3 4 5 6 DEF

Vehicle crash resulting in EITHER:
VISIBLE DAMAGE to any Table H-2 structure containing systems or components required for safe shutdown of the plant
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of systems required for the safe shutdown of the plant

HA2.1 1 2 3 4 5 6 DEF

FIRE or EXPLOSION resulting in EITHER:
VISIBLE DAMAGE to any safety-related structure, system, or component within any Table H-2 area
OR
CONTROL ROOM INDICATION of DEGRADED PERFORMANCE of any safety-related structure, system, or component within any Table H-2 area

HA3.1 1 2 3 4 5 6 DEF

Access to any Table H-2 area is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shut down the reactor (Note 5)

HA4.1 1 2 3 4 5 6 DEF

A HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area as reported by Security Shift Leader
OR
A validated notification from NRC of an airliner attack threat within 30 min. of the site

HA5.1 1 2 3 4 5 6 DEF

Control Room evacuation has been initiated

HA6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels (1,000 mRem TEDE and 5,000 mRem thyroid CDE)

E — ISFSI

None

UNUSUAL EVENT

A — Abnorm. Rad Release / Rad Effluent

1 — Offsite Rad Conditions

AU1.1 1 2 3 4 5 6 DEF

VALID reading on any radiation monitors > Table A-1 column "UE" for 2 60 min. (Note 2)

AU1.2 1 2 3 4 5 6 DEF

VALID reading on any liquid monitors > Table A-1 column "UE" for 2 60 min. (Note 2)

AU1.3 1 2 3 4 5 6 DEF

Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 x CODCM limits for ≥ 60 min. (Note 2)

2 — Onsite Rad Conditions & Spent Fuel Events

AU2.1 1 2 3 4 5 6 DEF

UNPLANNED water level drop in the reactor refueling pathway as indicated by inability to restore and maintain level > 646 ft elevation (Note 3)
AND
VALID area radiation monitor reading rise on any of the following:
- Vent Monitor Fuel Handling Area (RIA-5712)
- Spent Fuel Pool Area Radiation Monitors (RIA-5709 or RIA-5313)
- Refueling Containment High Radiation (CHR) Monitors (RIA-2315 or RIA-2317)

AU2.2 1 2 3 4 5 6 DEF

UNPLANNED valid area radiation reading increases by a factor of 1000 over normal* levels
* Normal levels can be considered as the highest reading in the past 24 hours excluding the current peak value

3 — CR/CAB Rad

AU3.1 1 2 3 4 5 6 DEF

Loss of all offsite and all onsite AC power, Table C-1, to 2400 VAC safeguards buses 1C and 1D for ≥ 15 min. (Note 4)
AND
Any additional single power source failure will result in a complete loss of all 2400 VAC safeguards bus power

H — Hazards & Other Conditions Affecting Plant Safety

1 — Natural or Destructive Phenomena

HU1.1 1 2 3 4 5 6 DEF

Seismic event identified by:
Earthquake felt in plant
AND
National Earthquake Information Center (Note 6)

HU1.2 1 2 3 4 5 6 DEF

Tornado striking within PROTECTED AREA boundary
OR
Sustained high winds > 86 mph

HU1.3 1 2 3 4 5 6 DEF

Internal FLOODING that has the potential to affect safety-related equipment required by Technical Specifications for the current operating mode in any Table H-1 area

HU1.4 1 2 3 4 5 6 DEF

Turbine failure resulting in casing penetration or damage to turbine or generator seals

HU1.5 1 2 3 4 5 6 DEF

Ultimate heat sink water level < 570 ft elevation

HU2.1 1 2 3 4 5 6 DEF

FIRE not extinguished within 15 min. of Control Room notification or verification of a Control Room FIRE alarm in any Table H-2 area (Note 4)

HU2.3 1 2 3 4 5 6 DEF

EXPLOSION of sufficient force to damage permanent structures or equipment within the PROTECTED AREA

HU3.1 1 2 3 4 5 6 DEF

Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS

HU3.2 1 2 3 4 5 6 DEF

Recommendation by local, county or state officials to evacuate or shelter site personnel based on an offsite event

4 — Security

HU4.1 1 2 3 4 5 6 DEF

A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by Security Shift Leader
OR
A credible site-specific security threat notification
OR
A validated notification from NRC providing information of an aircraft threat

HU5.1 1 2 3 4 5 6 DEF

Control Room evacuation has been initiated

6 — Judgment

HU6.1 1 2 3 4 5 6 DEF

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs

E — ISFSI

EU1.1 N/A

Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading greater than the applicable values shown on Table E-1 on the spent fuel cask.

GENERAL EMERGENCY

C — Cold SD/ Refuel System Malfunct.

1 — Loss of AC Power

None

2 — Loss of DC Power

None

3 — Reactor Vessel/ PCS Level

CG3.1 1 2 3 4 5 6

Reactor Vessel level < 614 ft 0 in. (Sensor #8 RVLMS red light) for ≥ 30 min. (Note 4)
AND
Any Containment Challenge Indication, Table C-2

CG3.2 1 2 3 4 5 6

Reactor Vessel level cannot be monitored with core uncovery indicated by any of the following for ≥ 30 min. (Note 4):
- Containment High Range Radiation Monitor > 40 R/hr
- Erratic Source Range Monitor Indication
- Unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage

AND
Any Containment Challenge Indication, Table C-2

SITE AREA EMERGENCY

C — Cold SD/ Refuel System Malfunct.

1 — Loss of AC Power

None

Table C-1 AC Power Sources

Onsite	• Diesel Generator 1-1 • Diesel Generator 1-2
Offsite	• Safeguards Transformer 1-1 • Station Power Transformer 1-2 (via backfeed) • Startup Transformer 1-2

2 — Loss of DC Power

None

3 — Reactor Vessel/ PCS Level

CS3.1 1 2 3 4 5 6

With CONTAINMENT CLOSURE not established, Reactor Vessel level < 614 ft 0 in. (Sensor #8 RVLMS red light)

CS3.2 1 2 3 4 5 6

Reactor Vessel level cannot be monitored for ≥ 30 min. (Note 4) with a loss of PCS inventory as indicated by any of the following:
- Containment High Range Radiation Monitor > 40 R/hr
- Erratic Source Range Monitor Indication
- Unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage

Figure C-1 Reactor Vessel/PCS Level Thresholds

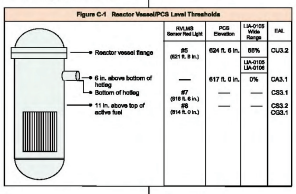

Table C-2 Containment Challenge Indications

- CONTAINMENT CLOSURE not established
- Hydrogen concentration in containment ≥ 6%
- UNPLANNED rise in containment pressure

Table C-3 PCS Reheat Duration Thresholds

* If a PCS heat removal system is in operation within this time frame and PCS temperature is being reduced, the EAL is not applicable

PCS Status	CONTAINMENT CLOSURE Status	Duration
Intact AND not reduced inventory	N/A	60 min.*
Not Intact OR reduced inventory	Established	20 min.*
	Not established	0 min.

4 — PCS Temp.

None

5 — Comm.

None

6 — Inadvertent Criticality

None

ALERT

C — Cold SD/ Refuel System Malfunct.

1 — Loss of AC Power

CA1.1 1 2 3 4 5 6 DEF

Loss of all offsite and all onsite AC power, Table C-1, to 2400 VAC safeguards buses 1C and 1D for ≥ 15 min. (Note 4, Note 7)

2 — Loss of DC Power

None

3 — Reactor Vessel/ PCS Level

CA3.1 1 2 3 4 5 6

Loss of inventory as indicated by Reactor Vessel/PCS water level < 617 ft (0% on LIA-0105 or LIA-0106)

CA3.2 1 2 3 4 5 6

Reactor Vessel level cannot be monitored for ≥ 15 min. with a loss of PCS inventory as indicated by an unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage (Note 4)

Table C-2 Containment Challenge Indications

- CONTAINMENT CLOSURE not established
- Hydrogen concentration in containment ≥ 6%
- UNPLANNED rise in containment pressure

Table C-3 PCS Reheat Duration Thresholds

* If a PCS heat removal system is in operation within this time frame and PCS temperature is being reduced, the EAL is not applicable

PCS Status	CONTAINMENT CLOSURE Status	Duration
Intact AND not reduced inventory	N/A	60 min.*
Not Intact OR reduced inventory	Established	20 min.*
	Not established	0 min.

4 — PCS Temp.

None

CA4.1 1 2 3 4 5 6

An UNPLANNED event results in EITHER:
PCS temperature > 208 °F for ≥ Table C-3 duration
OR
PCS pressure increase > 10 psig due to a loss of PCS cooling (this condition is not applicable in solid plant conditions)

5 — Comm.

None

6 — Inadvertent Criticality

None

Notes

1. If dose assessment results are available, declaration should be based on dose assessment instead of radiation monitor values (see EAL AS1.2/AG1.2). Do not delay declaration awaiting dose assessment results
   The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time
2. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.
3. If loss of water level in the refueling pathway occurs while in Mode 5, 6 or DEF, consider classification under EALs CU3.1, CU3.2 or CU3.3
4. The ED should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.
5. If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then EAL HU3.1 should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.
6. The NEIC can be contacted by going to the USGS NEIC website: https://earthquake.usgs.gov or alternatively by calling (303) 273-8500. Select option #1 and then option #2 and inform the analyst you wish to confirm recent seismic activity in the vicinity of Palisades Power Plant. Provide the analyst with the following PLP coordinates: 42° 19' 22" north latitude, 86° 19' 52" west longitude.
7. Even though an essential bus may be energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable.
8. 1-3 D/G or backfeed can be used to avoid entry into SG1.1 only if one of the power sources is supplying power to a safeguards bus within the 4 hour time period allowed.

Table C-4 Communications Systems

System	Onsite (Internal)	Offsite (external)
Telephone System	X	X
Onsite/offsite radio system	X	
Public address system	X	
Power failure phones		X
PTS phone system		X
Satellite Phone		X

EAL Identifier

XXX.X

Category (A, H, E, S, F, C) — Sequential number within subcategory/classification
Emergency classification (G, S, A, U) — Subcategory number (1 if no subcategory)

UNUSUAL EVENT

C — Cold SD/ Refuel System Malfunct.

1 — Loss of AC Power

None

2 — Loss of DC Power

CU2.1

< 106 VDC on required DC buses for ≥ 15 min. (Note 4)

3 — Reactor Vessel/ PCS Level

CU3.1

PCS leakage results in the inability to maintain or restore EITHER of the following for ≥ 15 min. (Note 4):
Pressurizer level > 36%
OR
PCS level within the target band established by procedure (when the level band is established below 36%)

CU3.2

UNPLANNED Reactor Vessel level drop below EITHER of the following for ≥ 15 min. (Note 4):
Reactor Vessel flange (when the level band is established above the flange)
OR
Target band (when the level band is established below the flange)

CU3.3

Reactor Vessel level cannot be monitored with a loss of PCS inventory as indicated by an unexplained level rise in Containment Sump or Primary System Drain Tank attributable to PCS leakage

4 — PCS Temp.

CU4.1

UNPLANNED event results in PCS temperature > 200 °F

CU4.5

Loss of all PCS temperature and Reactor Vessel level indication for ≥ 15 min. (Note 4)

5 — Comm.

CU5.1

Loss of all Table C-4 onsite (internal) communication methods affecting the ability to perform routine operations
OR
Loss of all Table C-4 offsite (external) communication methods affecting the ability to perform offsite notifications

6 — Inadvertent Criticality

CU6.1

UNPLANNED sustained positive startup rate observed on nuclear instrumentation

Modes:

1	2	3	4	5	6	DEF
Power Operation	Startup	Hot Standby	Hot Shutdown	Cold Shutdown	Refuel	Defueled

Palisades Power Plant

SEP Supplement 1
EAL Wall Charts
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Page 2 of 2

MODE 5, 6 or DEF

Attachment 5 to Enclosure

HDI PNP 2024-005

Summary of EAL Technical Bases Changes (Revisions 5 thru 8)

5 pages follow

EAL Technical Basis Revision #	Effective Date	Summary of Changes

4	7/13/2011	• Complete re-write of the emergency classification scheme. The scheme was submitted to the NRC by letter dated May 6, 2010 (ADAMS Accession No. ML101440477), and supplemented by letter dated March 9, 2011 (ADAMS Accession No. ML110750097). The emergency classification scheme was approved by the NRC by letter dated May 26, 2011 (ADAMS Accession No. ML111300431)
		• Subsequent revisions following NRC approval, prior to implementation, were editorial in nature and consisted of the following changes:
		  • Added FTS [Federal Telephone System] and RMS [Radiation Monitoring System] to the Abbreviations/Acronyms list
		  • AA3.1: Changed RIA-2304 to RIA-2311 in the plant specific basis
		  • EU1.1: Added clarification that the MSB [Multi-assembly Sealed Basket] is associated with the Sierra Pacific Nuclear Associates cask.
		  • CU3.1: Changed plant specific to provide a list of the correct alarms
		  • Figure C-1: Changed to better graphically represent the height difference for RVLMS [Reactor Vessel Level Monitoring System] probe and the core and to tie the instrument LIA-0105 and LIA-0106 to the appropriate PCS [Primary Coolant System] level. Change also made to the wall chart
		  • CU3.3, CA3.2, CS3.3 and CG3.2: Eliminated the example of changing indicating lights as a reason for RVLMS not being available.
		  • CU3.3: Changed RCS [Reactor Coolant System] to PCS
		  • CS3.3 and CG3.2: Deleted the repeating words “source range monitors such as”
		  • CU4.1 and CU4.2: Added in noun name descriptor instrument identification. Added in the CET [Core Exit Thermocouple] recorders as an available instrument.
		  • CU4.2: Added in “visual viewing of water level” as an indication of water level.
		  • HU1.1 and HA1.1: Changed the order of the sentences to reflect the correct order for getting information. Wall charts were also changed in the same manner.

EAL Technical Basis Revision #	Effective Date	Summary of Changes
		• HA1.3: Editorial changes to improve readability. • HG4.1: Changed to list the plant-specific safety functions and not the manufactures generic safety functions. • HS5.1: Editorial change to list the correct control panel. • SA1.1 and SG1.1: Removed the last bullet in table S-1. This aligns the chart and basis document. • SG1.1: Added the word “it to “is” in two places to improve readability. • SU3.1: Removed reference to fuel moves since no fuel moves or rod movement will occur that will produce a startup rate while in modes 3 and 4. • SG3.1: Changed emergency feedwater to auxiliary feedwater. • Fission Product Barrier Introduction: Changed the title for the A through E listing to be the same as on the chart. • Changed 164 to 614 in the Core heat removal A2 item basis - Editorial • Incorporated DRN-11-00787 update basis • Incorporated DRN-10-00573 to address the bottom red LED on RVLMS coming in and then quickly going green again as a result of the short period of partial core uncovery before the SITs inject into the PCS.
5	11/23/2011	• Editorial change to add the word “Mode” prior to each mode number in section 2.8 • Added a new section 2.13 that discusses how “equipment required” in its various forms is interpreted. • New definition for Degraded Performance, Flooding and Control Room Indication. Changed EALs to be capital letters where those definitions are used. • Changed the order of options for contacting the United States Geological Survey National Earthquake Information Center (NEIC) since it may be quicker to use the website where information may be more readily available. Changed how to access NEIC using the telephone.

EAL Technical Basis Revision #	Effective Date	Summary of Changes
		• The definition of flooding found in the body of the EAL plant specific basis was removed because the definition was added to the definition section of the basis document. • Changed “Fast boration” to “Emergency boration” throughout the document. • Changed the logic for the safety functions to be if the condition is met, then the EAL is applicable, versus if conditions do NOT meet the safety function. • Clarified the safety function associated with delta-T to align with the EOPs.
6	5/15/2013	• Implementing Guidance: Added a section to the Basis of each EAL to provide a uniform spot for quick reference to pertinent information for classifying an event under that EAL. The intent is to use this section to provide key information that highlights information that is already in the basis or already known and trained as a standing interpretation. The word "None" is provided if no specific information is presented. • References Section 3.2.2: Reference changed to properly refer to the current location of the EAL Wall Chart as "Site Emergency Plan Supplement 1." • HU 1.1 and HA 1.1: Editorial change to reference proper section of FSAR for Seismic Instrumentation as 5.7.9 instead of 5.9.9. • Added new Section 2.15, "Emergency Declaration Timeliness," to incorporate timeliness information for classifying EALs that was previously incorporated into EI-1, "Emergency Classification and Actions." • Manual Actions: Incorporated existing interpretation guidance into applicable EALs from the EP Job Aid on taking manual actions that may preclude the need for emergency classification: 1) CNMT Loss 5 and 2) CNMT Potential Loss 5. • FC Loss 2, PCS Loss 3 and Containment Potential 6: Changed "RIA-2321 and RIA-2322" to "RIA-2321 and/or RIA-2322," to clarify original intent that classification is made if either or both radiation monitors reach the specified threshold. • FC Potential Loss 3: Added note to new Implementing Guidance section that EAL is not met for RVLMS Sensor #8 when red light is briefly lit, as part of designed plant

EAL Technical Basis Revision #	Effective Date	Summary of Changes
		response. This information was re-located from the Plant Specific Basis paragraphs for ease of reference. • HU1.5 UHS: Lowered the low lake level threshold for an Unusual Event from 572 ft. to 570 ft. • Containment Potential Loss 5: Add note to Implementing Guidance that to meet the intent of this EAL, "one full train of containment cooling systems" is defined as 100% of the required post-accident cooling capability in accordance with Technical Specifications 3.6.6 (Ref 2). Deleted information from Plant Specific Basis concerning containment cooling train equipment composition associated with electrical power supply independence. • HU1.1 Seismic Event: Incorporated implementing guidance that the seismic monitor recording an event corresponds to existing information in the generic basis for the definition of a felt earthquake which may include seismic switches being activated. Also deleted outdated information in the Plant Specific Basis regarding previously removed seismic detection instruments from containment.
7	8/4/2015	• Removed the after-hours telephone number for the NEIC throughout the procedure because it is no longer valid. • Deleted references to EA-APR-95-007, "Appendix R Safe Shutdown Equipment List and Logic Diagrams" of Attachment 1. Replaced with PLP-RPT-13-00143, "Nuclear Safety Capability Assessment Fire Area Analysis Results" and PLP-RPT-12-0056, "Non-Power Operational Modes Transition Review." • EAL CS 3.3: Deleted reference 5. EA-APR-95-007, "Appendix R Safe Shutdown Equipment List and Logic Diagrams" of Attachment 1 and replaced with PLP-RPT-13-00143, "Nuclear Safety Capability Assessment Fire Area Analysis Results." Added as a new reference 6. PLP-RPT-12-0056, "Non-Power Operational Modes Transition Review." Renumbered remaining references. • EAL CG 3.2: Deleted reference 5. EA-APR-95-007, "Appendix R Safe Shutdown Equipment List and Logic Diagrams" of Attachment 1 and replaced with PLP-RPT-13-00143, "Nuclear Safety Capability Assessment Fire Area Analysis Results." Added as a

EAL Technical Basis Revision #	Effective Date	Summary of Changes
		new reference 6. PLP-RPT-12-0056, "Non-Power Operational Modes Transition Review." Renumbered remaining references. • EAL HU 1.1: Re-worded sentence in Note 6 to reflect the removal of the after-hours telephone number for the NEIC. Removed the after-hours telephone number for NEIC in the Plant-Specific Basis. • EAL HA 1.1: Re-worded sentence in Note 6 to reflect the removal of the after-hours telephone number for the NEIC. Removed the after-hours telephone number for NEIC in the Plant-Specific Basis.
8	5/31/2018	• Revised EALs AU 1.1, AU 1.2, AA 1.1, AA 1.2, AS 1.1, and AG 1.1 Table A-1 gaseous effluent values to reflect updated site boundary 10-year average annual meteorology. • Revised EALs AU 1.1, AA 1.1, AS1.1, and AG 1.1 “Plant Specific” language to clarify the origin of Table A-1 values and add tolerance for when EAL Table A-1 values need to be updated. • Revised EALs AU 1.1, AA 1.1, AS 1.1, and AG 1.1 “PLP Basis References” to delete an unused reference and to address Condition Report LO-PLPLO-2018-00014-00005 and DRN 18-00153, to update EAL threshold values for radiation monitor readings to include the [then] current ODCM atmospheric dispersion values.. • Revised EALs HU 1.1 and HA 1.1 to update the USGS NEIC earthquake information web address. • Revised EAL CA 1.1 to add Note 7 reference and text for clarity and consistency. • Updated procedure alpha numeric designation from ONP nomenclature to AOP nomenclature throughout the document.

Attachment 6 to Enclosure

HDI PNP 2024-005

On-Shift and Augmentation Emergency Response Organization Staffing Plan Comparison Table

6 pages follow

Minimum On-Shift and Augmentation Emergency Response Organization Staffing Plan Comparison Tables

Table 1: Comparison Between Table B-1 to Revision 2 of NUREG-0654 and the Proposed POSED Minimum Staffing Table

	NUREG-0654 Rev. 2					Proposed PNP POSEP			
			TSC/OSC		EOF/JIC /JIS			TSC / OSC / EOF / JIS	
			Alert or Greater		SAE or Greater			Alert or Greater	
Function	Position Title	On-Shift	60 min (1) (2)	90 min (1) (2)	60 min (3)	Position Title	On-Shift	60 Min	90 Min
Command and Control	Operations Shift Manager	1				Shift Manager	1		
	Emergency Coordinator		1			Emergency Plant Manager		1	
	Emergency Director				1	EOF Emergency Director		1	
Communications	Communicator	1(1)				Shift Communicator	1		
	ORO Communicator		1			ORO Communicator		1	
	NRC Communicator		1			ENS Communicator		1	
	Communicator (EOF)				1	EOF Communicator		1	
Radiation Protection	RP Personnel(4)	2	3	3		RP Technician	2	3	3
Supervision of Radiation Protection and Site Radiation Protection	Operations Shift Manager	1				Shift Manager	1		
	Site RP Coordinator		1			Radiological Assessment Coordinator (TSC)		1	
	RP Manager				1	Radiological Assessment Coordinator (EOF)		1	
Dose Assessments/Projections	Dose Assessment / Projection Staff	(1)	1		1	Shift Dose Assessor (Chem Tech)	1		
						Remote Dose Assessor		1	
Emergency Classification	Emergency Classification Advisor(1)	1	1			Emergency Classification Advisor	1(a)	1(a)	
Engineering	Core/Thermal Hydraulics Engineer(1)	1	1	As needed		Shift Technical Advisor/Shift Engineer	1(b)		
						Remote Reactor Engineer		1	(h)
	Electrical/I&C Engineer		1	As needed		Remote Electrical/I&C Engineer		1	(h)
	Mechanical Engineer		1	As needed		Remote Mechanical Engineer		1	(h)
Security	Security Staffing	Per Security Plan				Security Staffing	(d)		
	Security Liaison (TSC)		1			Security Liaison		1	

Function	NUREG-0654 Rev. 2					Proposed PNP POSEP			
	Position Title	On-Shift	TSC/OSC Alert or Greater 60 min (1) (2)	TSC/OSC Alert or Greater 90 min (1) (2)	EOF/JIC /JIS SAE or Greater 60 min (3)	Position Title	On-Shift	TSC / OSC / EOF / JIS Alert or Greater 60 Min	TSC / OSC / EOF / JIS Alert or Greater 90 Min
Repair Team Activities	Mechanic		1	As needed		OSC Mechanic		1	(h)
	Electrician		1	As needed		OSC Electrician		2	(h)
	I&C			1 Additional as needed		I&C Technician		1	(h)
						Radwaste Operator		1	
Supervision of Repair Team Activities	Lead OSC Supervisor		1			OSC Manager		1	
	Electrical Supervisor			1		Electrical/I&C Coordinator			1
	I&C Supervisor			1					
	Mechanical Supervisor			1		Mechanical Coordinator			1
	RP Supervisor			1		Rad/Chem Coordinator			1
Field Monitoring Teams(c)	Onsite FMT		1			Onsite Monitor		1	
			1			Onsite Driver		1	
	Offsite FMT A		1			Offsite Team A Monitor		1	
			1			Offsite Team A Driver		1	
	Offsite FMT B			1		Offsite Team B Monitor			1
				1		Offsite Team B Driver			1
Media Information	JIC / JIS staff		(5)		Staff to perform JIC/JIS-related tasks.	JIS staff(e)		(e)	
Information Technology(6)	IT Lead TSC(1)			1		IT Lead TSC		(g)	
	IT Lead EOF/JIC/JIS(1)				1	IT Lead EOF/JIC/JIS			(g)

Red Text indicates differences between Table B-1 of NUREG-0654 Revision 2 and the Proposed PNP POSEP.

NUREG-0654, Rev. 2 Notes

(1) Other 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. A 10 CFR Part 50, Appendix E on-shift staffing analysis must be performed to support assignment of multiple roles to individual responders on-shift. For augmented ERO positions, a performance-based approach is acceptable for evaluating whether augmented personnel can adequately perform collateral functions without having competing priorities.

(2) Specified TSC/OSC personnel should be capable of performing their required functions within 60 (90) minutes of an Alert or higher EAL classification. Emergency response facility activation timing is not the concern; it is whether the facility staff is performing the stated function(s) within the time specified.

(3) Specified EOF/JIC/JIS personnel should be capable of performing their required functions within 60 minutes of an SAE or higher EAL classification. Emergency response facility activation timing is not the concern; it is whether the facility staff is performing the stated function(s) within the time specified. Note: For JIC/JIS, licensees should use whatever term is used for the media support function/program/ location as applicable.

(4) Two qualified radiation protection personnel for a single unit site or one per unit for a multi-unit site.

(5) Does not need to be performed in the TSC/OSC, but needs to be established at this point.

(6) IT staff is only required to be described in the emergency plan if critical digital assets are identified per 10 CFR 73.54.

Proposed PNP POSEP Table B-1 Notes

(a) Assigned as a collateral function to an on-shift SRO other than the Shift Manager.

(b) Other 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. An on-shift staffing analysis was performed to support assignment of multiple roles to individual responders on-shift.

(c) FMTs operate onsite and within the EPZ as directed by the EOF Radiological Assessment Coordinator.

(d) Per the security plan.

(e) JIS per Communications Emergency Response Plan. Does not need to be performed in the JIC, but the JIS function needs to be established within 60 minutes.

(f) ERO staffing of the JIC is concurrent with other ERFs (although facility activation is coordinated with the ORO public information personnel and has no time requirement).

(g) IT personnel monitor critical digital assets remotely and respond any time an issue is identified. IT personnel provide continuous coverage and redundancy exists for communication systems and digital EP assets.

(h) Additional support personnel may be requested depending on the event

Table 2: Comparison Between Figure 5-2 to Revision 32 of the PNP SEP and the Proposed POSEP Minimum Staffing Table

Major Functional Area (as defined in Figure 5-2 of PNP SEP Rev. 32)	PNP SEP, Revision 32				Proposed PNP POSEP			
			Staff Augmentation Capability and Response Time				TSC / OSC / EOF / JIS	
							Alert or Greater	
	Position Title or Expertise	On-Shift	60 min	90 min	Position Title	On-Shift	60 Min	90 Min
Plant Operations and Assessment of Operational Aspects	Shift Engineer/STA (SRO)	1			Shift Engineer/STA (SRO)	1		
	Shift Manager	1			Shift Manager	1		
	Control Room Supervisor(SRO)	1			Control Room Supervisor (SRO)	1		
	Nuclear Control Operators	2			Nuclear Control Operators	2		
	Nuclear Plant Operators**	6			Nuclear Plant Operators	6		
Emergency Director	Shift Manager	1*			Shift Manager	1		
	Emergency Plant Manager (TSC)		1		Emergency Plant Manager (TSC)		1	
	EOF Emergency Director		1		EOF Emergency Director		1	
Notification/ Communication	Communicators	1			Shift Communicator	1		
			3		ORO Communicator		1	
					ENS Communicator		1	
					EOF Communicator		1	
Radiological Accident Assessment and Support of Operational Accident Assessment	Senior Manager / Senior RP Expertise	1*	2		Shift Manager	1		
					Emergency Classification Advisor	1[a]	1[a]	
					Radiological Assessment Coordinator (TSC)		1	
					Radiological Assessment Coordinator (EOF)		1	
	Chem Technicians (Dose Assessment)	1	1		On-Shift Chem Tech / Remote Dose Assessor	1	1	
Radiation Protection	RP Technicians	2	3	3	RP Technicians	2	3	3
Plant System Engineering, Repair, and Corrective Actions	Core/Thermal Hydraulics Engineer[1]	1*	1		Shift Technical Advisor/Shift Engineer	1[b]		
					Remote Reactor Engineer		1	[h]
	Electrical		1		Remote Electrical/I&C Engineer		1	[h]
	Mechanical		1		Remote Mechanical Engineer		1	[h]
Repair Team Activities	Mechanical Maintenance	1*	1		OSC Mechanic		1	[h]
	Electrical Maintenance	1*	2		OSC Electrician		2	[h]
	I&C Technician		1		I&C Technician		1	[h]
	Radwaste Operator		1		Radwaste Operator		1	
	OSC Manager		1		OSC Manager		1	
	Electrical/I&C Coordinator			1	Electrical/I&C Coordinator			1
	Mechanical Coordinator			1	Mechanical Coordinator			1
	Rad/Chem Coordinator			1	Rad/Chem Coordinator			1

Major Functional Area (as defined in Figure 5-2 of PNP SEP Rev. 32)	PNP SEP, Revision 32				Proposed PNP POSEP			
	Position Title or Expertise	On-Shift	Staff Augmentation Capability and Response Time		Position Title	On-Shift	TSC / OSC / EOF / JIS Alert or Greater	
			60 min	90 min			60 Min	90 Min
Field Monitoring Teams	RP Technician		1		Onsite Team Technician		1	
					Onsite Team Driver		1	
	RP Technician & Driver		1		Offsite Team A Technician		1	
			1		Offsite Team A Driver		1	
	RP Technician & Driver			1	Offsite Team B Technician			1
				1	Offsite Team B Driver			1
Fire Fighting		Fire Brigade per Tech Specs	Local Support			Fire Brigade per Tech Specs	Local Support	
Rescue Operations and First-Aid		2*	Local Support		(2)			
Site Access Control and Personnel	Security Personnel	Per Security Plan			(2)			
Media Information	JIC Staff				JIS staff[(e)]		(e)	
Information Technology	N/A	N/A			IT Lead TSC		(g)	
					IT Lead EOF/JIC/JIS			(g)

PNP SEP, Rev. 32 Notes

* May be provided by shift personnel assigned other functions.

** Each of up to 2 of the 6 on-shift NPO positions may be filled by a fire brigade qualified person who is also minor maintenance qualified; or alternately by 2 persons per required NPO, one fire brigade qualified and the other minor maintenance qualified. The intent of specifying these substitutions is to allow use of task-qualified personnel other than fully-qualified NPOs for up to 2 of the 6 on-shift NPO positions.

1. Staff augmentation personnel are required to respond as quickly as possible, within the required response time.
2. The Shift Manager may call out additional designated ERO members, or the full ERO complement, at any time in an emergency event regardless of classification.
3. Even when they are not on duty, staff augmentation personnel are to respond to an emergency call out when they are fit for duty and otherwise available for timely response.

Proposed PNP POSEP Table B-1 Notes

(a) Assigned as a collateral function to an on-shift SRO other than the Shift Manager.

(b) Other 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. An on-shift staffing analysis was performed to support assignment of multiple roles to individual responders on-shift.

(c) FMTs operate onsite and within the EPZ as directed by the EOF Radiological Assessment Coordinator.

(d) Per the security plan.

(e) JIS per Communications Emergency Response Plan. Does not need to be performed in the JIC, but the JIS function needs to be established within 60 minutes.

(f) ERO staffing of the JIC is concurrent with other ERFs (although facility activation is coordinated with the ORO public information personnel and has no time requirement).

(g) IT personnel monitor critical digital assets remotely and respond any time an issue is identified. IT personnel provide continuous coverage and redundancy exists for communication systems and digital EP assets.

(h) Additional support personnel may be requested depending on the event