

From: Johann Britting <j.britting@holtec.com>
Sent: Thursday, September 12, 2024 4:01 PM
To: Mary Richmond
Cc: Laura Willingham; Daniel Barnhurst; Jean Fleming; James Miksa
Subject: [External_Sender] RE: Palisades Reauthorization of Power Operations- Environmental Audit Draft RCIs
Attachments: HDI PNP 2024-036 Environmental Audit RCI.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Mary,

As requested, please see attached .pdf for responses to each request for confirmatory information.

Thank you,

Johann Britting
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From: Mary Richmond <Mary.Richmond@nrc.gov>
Sent: Wednesday, September 4, 2024 4:22 PM
To: Jean Fleming <J.Fleming@holtec.com>; James Miksa <j.miksa@holtec.com>
Cc: Laura Willingham (USNRC) <Laura.Willingham@nrc.gov>; Daniel.Barnhurst <Daniel.Barnhurst@nrc.gov>; Johann Britting <j.britting@holtec.com>
Subject: Palisades Reauthorization of Power Operations- Environmental Audit Draft RCIs

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Holtec Decommissioning International, LLC (HDI), submitted a series of licensing and regulatory requests necessary to reauthorize power operations at the Palisades Nuclear Plant (PNP) through March 24, 2031, the end of the current operating license term under PNP’s Renewed Facility Operating License (RFOL) No. DPR-20. Collectively, these requests define the proposed U.S. Nuclear Regulatory Commission (NRC) Federal actions. In a letter dated, June 18, 2024, the NRC stated it had accepted the last submittal for review (ADAMS Accession No. ML24169A434).

On June 27, 2024, the NRC provided HDI a notice of the upcoming environmental regulatory audit along with the environmental regulatory audit plan and a list of draft Requests for Additional Information (RAI) (ADAMS Accession No. ML24248A056). During the environmental audit, the NRC reviewed documents that were made available on the applicant’s electronic information portal in response to the NRC draft RAIs. The NRC also participated in site visits and breakout sessions for each resource area with applicant personnel to gather information that will likely be used in the Environmental Assessment (EA). To the best of the NRC’s knowledge, this information on the applicant’s electronic information portal and discussed in breakout sessions, is not currently on the docket or publicly accessible. The NRC staff, therefore, requests that the applicant submits confirmation that the information gathered from the audit and listed below is correct or provides the associated corrected information. The NRC requests a response on or before September 13, 2024.

In the interim, please contact me with any questions or comments.

RCI-SW-3

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following information related to establishing a water resources baseline condition:

1. The intake structure is inspected annually by divers for integrity and other environmental conditions including zebra mussel build-up. No dredging of the intake structure, the barge slip, or other locations within Lake Michigan is anticipated for activities related to the preparation for return to power operations.

2. Sediment is removed from the mixing basin and storm drain outfalls. These activities do not involve dredging. Removed sediment will be tested for contamination before being shipped offsite or returned to its original location in accordance with environmental permits.

RCI-SW-5, 6, and 7

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following information related to establishing a water resources baseline condition:

1. In its current in-decommissioning status, PNP withdraws approximately 6,000 gpm (8.64 mgd) water from Lake Michigan to support spent fuel pool cooling. All of this water is returned to Lake Michigan.
2. In its current in-decommissioning status, PNP uses approximately 16,000 cubic ft of potable water per month (2.77 gpm or 3,986 gpd) from South Haven Municipal Water Authority.
3. There are no retention or detention ponds on the PNP site. Sanitary wastewater is treated and disposed of by infiltration at septic drain fields and solids are removed by a contractor.
4. For restart, plant service water from Lake Michigan is the source for the reverse osmosis system that provides makeup water to the plant water storage tanks.
5. Upon restart, typical discharge to Lake Michigan during PNP power operations would be 115.2 mgd (80,000 gpm). The “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) Section 3.2.2.1 stated that during normal Palisades operations, 98,000 gpm is withdrawn from Lake Michigan and 86,000 gpm is returned to the Lake, with the rest 12,000 gpm lost to evaporation from the cooling towers. Please confirm which of the two discharge rates (80,000 or 86,000 gpm) is accurate.

RCI-SW-10

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following information related to establishing a water resources baseline condition:

1. After plant shutdown, the cooling tower basins were drained. Currently, only rainwater is expected to accumulate in the basins. The basins drain by gravity. As part of the restart, water from Lake Michigan would be needed to fill the basins.
2. There are two stormwater outfalls on the south side of the old barge slip area and three on the north side. As part of restart, these stormwater outfalls will be repaired by removing riprap, performing repairs, and replacing the riprap. The repair activities would occur on the shore adjacent to the access path near the old barge slip. No repair activities would be performed in Lake Michigan waters.
3. Some herbicide application would occur in the cooling tower area. The topography of the terrain between the two cooling tower banks appears to support surface runoff from Cooling Tower B area to drain south to grassy and wooded areas. There are no catch basins, and no stormwater drains near and on the south side of Cooling Tower B.

RCI-GW-4

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following statements regarding the 2024 radiological releases to groundwater are correct:

1. In groundwater samples collected in January 2024 through June 28, 2024, tritium was detected in one groundwater monitoring well (MW-2) at 686 pCi/L. Gamma radionuclides were not detected in any groundwater sample above minimum detectable activity.
2. The minimum detectable activity for gamma radionuclides in site groundwater samples are derived from standard ODCM guidance for environmental water samples as found in Table 4.12-1 in NUREG-1301/1302.

RCI-TE-2

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that ongoing site surveys have not detected Pitcher's thistle on the PNP site and that there have been no sightings of Pitcher's thistle on the PNP site since 2005 at either previously known location.

RCI-TE-5

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that although milkweed is known to occur on the PNP site in maintained areas, transmission Right-of-Ways (ROWS), roadsides, and some dune areas, resumption of PNP operations would not impact milkweed habitat, because activities related to PNP restart operations would be limited to previously disturbed areas.

RCI-TE-7

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that there will be no changes to current management practices, plans, and procedures for the resumption of PNP power operations, and, therefore, the procedures for evaluating environmental changes and impacts during activities related to the resumption of power operation or operations remain the same.

RCI-HCR-2

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,*” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that an archaeological survey conducted by HDI, or its contractors, occurred in March 2024 for the potential Small Modular Reactor project (see ML24086A582) and included the entire approximate 432-acre PNP site. Further confirm that:

1. The Archaeological survey involved both shovel testing and surface survey, and that no shovel testing was performed on the sand dunes which are protected.
2. The Archaeological survey identified three archaeological sites, two pre-contact and one historic, and that all were recommended as ineligible for listing on the National Register of Historic Places.
3. The draft Archaeological survey report was transmitted to Federally recognized Indian Tribes for a 30-day review and comment period and that, to-date, no comments have been received and the report is being reviewed by the Michigan State Historic Preservation Office.

RCI-HCR-3

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant*,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that a historic architectural survey was conducted by HDI, or its contractors, in June 2024 for the potential Small Modular Reactor project (see ML24086A582). Further confirm that:

1. The historic architectural survey identified only one potentially eligible historic structure, the reactor containment building. No other structures, facilities or aspects of the built environment were identified as eligible or potentially eligible for listing on the National Register of Historic Places at PNP.
2. While planned interior and exterior renovations may occur at the Feedwater Purity Building at the Palisades Nuclear Plant, the structure itself was not identified as eligible or potentially eligible for the National Register of Historic Places based on the June 2024 architectural survey and report. The architectural survey report is being finalized for submission to the Michigan State Historic Preservation Office.

RCI-A-1:

Based on review of the “*Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant*,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, the staff discussed the applicability of the information contained within “*NUREG-1437, Revision 2, Generic Environmental Impact Statement for License Renewal of Nuclear Plants*”, Volume 3, Appendix E – Environmental Impact of Postulated Accidents (2024 GEIS, Revision 2) (ML24087A133) and within “*NUREG-1437, Revision 2, Generic Environmental Impact Statement for License Renewal of Nuclear Plants*” (1996 GEIS) (ML040690738). Please confirm:

1. Any information used to reach a conclusion that the NRC staff’s estimation of the PNP environmental impact of postulated accidents remains applicable.
2. For Design Basis Accidents (DBAs), as indicated during the audit, confirm that due to the requirements for PNP to maintain its licensing basis and implement aging management programs for the resumption of power operations and the remaining licensing renewal period, the environmental impacts following restart are not expected to differ significantly from the 2024 GEIS, Revision 2 DBA assessment, and confirm that the NRC’s generic assessment for this issue remains valid for PNP.
3. For, Severe Accident Impacts and Mitigation Alternatives, as indicated during the audit, confirm that new information was reviewed to determine if the 2024 GEIS, Revision 2 Severe Accident impact determination continues to be valid for PNP upon resumption of power operations. That is, the evaluation for the potential resumption of power operations at PNP found no new and significant information regarding Severe Accidents and Severe Accident Mitigation Alternatives (SAMAs) for PNP which demonstrates that impacts due to Severe Accidents remains consistent with the 2024 GEIS, Revision 2 findings and confirms that the NRC’s generic assessment for this issue remains valid for PNP. (Table E.3-1 of the 2024 GEIS, Revision 2 shows that Palisades population dose risk during the 2024 GEIS Revision 2 evaluation was reduced by a factor of 27 from the values used in the 1996 GEIS for which the determination for Palisades probability weighted consequences of a severe accident were small.) Further confirm the following in relation to the evaluation:
 - a. Confirm that PNP will not be significantly different from the pre-decommissioned plant except for age related replacements and completion of the modifications identified for the NFPA-805, risk informed fire protection program and that these improvements are aimed at operational reliability and fire safety, which supports a lower core damage frequency (CDF) than used in the License Renewal SAMA analysis.
 - b. Confirm, regarding internal event and internal flood risk, that the current updated model of record Core Damage Frequency (CDF) for PNP is 3.22E-5/yr, which is within the 2024 GEIS, Revision 2 Table E.3-2 range of 3.9E-6/yr to 5.6E-5/yr for Pressure Water Reactors (PWRs) and is a reduction over values used at the time of license renewal. Confirm, also, that the current internal fire CDF is 6.14E-05/yr, which is within the 2024 GEIS Revision 2 Table E.3-6 range of 1.0E-5/yr to 1.05E-4/yr for PWRs. Further confirm that these models are currently being updated and will reflect the as-built plant and state of the art Probability Risk Assessment (PRA) data and methods. Even if the CDF values are higher, the impact determination would not change because PNP population dose risk during the GEIS Revision 2 evaluation is a factor of 27 below the values used in the 1996 GEIS for which the determination for PNP probability weighted consequences of a severe accident were small.
 - c. Confirm, regarding seismic risk, that there is no current PRA model, but that the ongoing model updates include a seismic PRA release prior to July 2025 and have a lower seismic risk than the NRC safety goal. Confirm that PNP responded to the NRC request to reevaluate the seismic risk following the Fukushima accident (ML14090A069) and that this evaluation confirmed that the seismic CDF was below the NRC safety goal of 1E-4 which is lower than the highest reported seismic CDF in 2024 GEIS Revision 2 Table E.3-6 of 1.3E-4.

Mary C Richmond
Environmental Project Manager

U.S. Nuclear Regulatory Commission
Office of Nuclear Materials Safety and Safeguards (NMSS)
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From: Johann Britting

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H O L T E C
P A L I S A D E S

A U.S. Nuclear Regulatory Commission (NRC) request for confirmation of information (RCI) regarding an environmental regulatory audit, was received by Holtec Decommissioning International, LLC (HDI) via electronic mail (email) dated September 5th, 2024.

The environmental regulatory audit was initiated from the series of licensing and regulatory requests HDI docketed to reauthorize power operations at the Palisades Nuclear Plant (PNP) through March 24, 2031, the end of the first license renewal period. Collectively, these requests define the proposed U.S. Nuclear Regulatory Commission (NRC) Federal actions.

HDI's response to the RCI is provided below.

Acronym list

1. CDF - Core Damage Frequency
2. DBAs - Design Basis Accidents
3. GEIS - Generic Environmental Impact Statement
4. gpd – gallons per day
5. gpm – gallons per minute
6. HDI – Holtec Decommissioning International
7. mgd – million gallons per day
8. NFPA-805 – National Fire Protection Association Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants
9. NRC – Nuclear Regulatory Commission
10. NUREG 1301/1302 – Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized/Boiling Water Reactors
11. ODCM – Offsite Dose Calculation Manual
12. pCi/L – picocuries per Liter
13. PNP – Palisades Nuclear Plant
14. PRA - Probabilistic Risk Assessment
15. RCI – request for confirmation of information
16. RFOL – Renewed Facility Operating License
17. ROWS – right of ways
18. SAMAs - Severe Accident Mitigation Alternatives
19. SCDF - Seismic Core Damage Frequency
20. SPRA - Seismic Probabilistic Risk Assessment
21. /yr – per year

NRC REQUEST

1. RCI-SW-3

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following information related to establishing a water resources baseline condition:

- i) The intake structure is inspected annually by divers for integrity and other environmental conditions including zebra mussel build-up. No dredging of the intake*

structure, the barge slip, or other locations within Lake Michigan is anticipated for activities related to the preparation for return to power operations.

- ii) Sediment is removed from the mixing basin and storm drain outfalls. These activities do not involve dredging. Removed sediment will be tested for contamination before being shipped offsite or returned to its original location in accordance with environmental permits.*

HDI Response:

Concur with information

2. RCI-SW-5, 6, and 7

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following information related to establishing a water resources baseline condition:

- i) In its current in-decommissioning status, PNP withdraws approximately 6,000 gpm (8.64 mgd) water from Lake Michigan to support spent fuel pool cooling. All of this water is returned to Lake Michigan.*
- ii) In its current in-decommissioning status, PNP uses approximately 16,000 cubic ft of potable water per month (2.77 gpm or 3,986 gpd) from South Haven Municipal Water Authority.*
- iii) There are no retention or detention ponds on the PNP site. Sanitary wastewater is treated and disposed of by infiltration at septic drain fields and solids are removed by a contractor.*
- iv) For restart, plant service water from Lake Michigan is the source for the reverse osmosis system that provides makeup water to the plant water storage tanks.*
- v) Upon restart, typical discharge to Lake Michigan during PNP power operations would be 115.2 mgd (80,000 gpm). The “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) Section 3.2.2.1 stated that during normal Palisades operations, 98,000 gpm is withdrawn from Lake Michigan and 86,000 gpm is returned to the Lake, with the rest 12,000 gpm lost to evaporation from the cooling towers. Please confirm which of the two discharge rates (80,000 or 86,000 gpm) is accurate.*

HDI Response:

Item 2. i) – Concur with information

Item 2. ii) – Concur with information

Item 2. iii) – Concur with information

Item 2. iv) – Concur with information

Item 2. v) – 80,000 gpm discharge rate is more typical, but Palisades is capable of discharging 86,000 gpm during normal operations. The difference is dependent on whether two or three service water pumps are operating. The circulating water flow diagram was submitted to the State of Michigan (Environment Great Lakes and Energy, EGLE) as part of the National Pollutant Discharge Elimination System (NPDES) renewal application submitted on 6/18/2018. The flow diagram shows 40,000 gpm discharge for each dilution water pump (total of two, typically both operating), and 6,000 gpm discharge for each service water pump (capable of three operating but typically two are operating) and an evaporative loss of 12,000 gpm from the cooling towers.

Typical: $40,000 \text{ gpm} * 2 + 6,000 \text{ gpm} * 2 - 12,000 \text{ gpm} = 80,000 \text{ gpm}$

Capable: $40,000 \text{ gpm} * 2 + 6,000 \text{ gpm} * 3 - 12,000 \text{ gpm} = 86,000 \text{ gpm}$

3. RCI-SW-10

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following information related to establishing a water resources baseline condition:

- i) *After plant shutdown, the cooling tower basins were drained. Currently, only rainwater is expected to accumulate in the basins. The basins drain by gravity. As part of the restart, water from Lake Michigan would be needed to fill the basins.*
- ii) *There are two stormwater outfalls on the south side of the **discharge structure (just north of the old barge slip area)** ~~old barge slip area~~ and three on the north side **of the discharge structure**. As part of restart, these stormwater outfalls will be repaired by removing riprap, performing repairs, and replacing the riprap. The repair activities would occur on the shore adjacent to the access path near the old barge slip. No repair activities would be performed in Lake Michigan waters.*
- iii) *Some herbicide application would occur in the cooling tower area. The topography of the terrain between the two cooling tower banks appears to support surface runoff from Cooling Tower B area to drain south to grassy and wooded areas. There are no catch basins, and no stormwater drains near and on the south side of Cooling Tower B.*

HDI Response:

Item 3. i) – Concur with information

Item 3. ii) – Changes to the RCI are noted above in red. Changes are minor and do not change the overall conclusion of the statements.

Item 4. iii) – Concur with information

4. RCI-GW-4

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm the following statements regarding the 2024 radiological releases to groundwater are correct:

- i) In groundwater samples collected in January 2024 through June 28, 2024, tritium was detected in one groundwater monitoring well (MW-2) at 686 pCi/L. Gamma radionuclides were not detected in any groundwater sample above minimum detectable activity.*
- ii) The minimum detectable activity for gamma radionuclides in site groundwater samples are derived from standard ODCM guidance for environmental water samples as found in Table 4.12-1 in NUREG-1301/1302.*

HDI Response:

Concur with information

5. RCI-TE-2

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that ongoing site surveys have not detected Pitcher's thistle on the PNP site and that there have been no sightings of Pitcher's thistle on the PNP site since 2005 at either previously known location.

HDI Response:

During a July 2024 survey, as many as 64 individual Pitcher's thistle plants were identified in a dune blowout area (2.60 acres) located approximately 1,000 feet east of the south cooling tower. This Pitcher's thistle microsite is approximately 150 feet higher in elevation than the adjacent cooling towers. There have been no observations of Pitcher's thistle on any other areas of the PNP site.

6. RCI-TE-5

*Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that although milkweed is known to occur on the PNP site in maintained areas, transmission Right-of-Ways (ROWS), roadsides, and some dune areas, resumption of PNP operations would not **significantly** impact milkweed habitat, because activities related to PNP restart operations would be limited to previously disturbed areas.*

HDI Response:

Changes to the RCI are noted above in red. Changes are minor and do not change the overall conclusion of the statements.

7. RCI-TE-7

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that there will be no changes to current management practices, plans, and procedures for the resumption of PNP power operations, and, therefore, the procedures for evaluating environmental changes and impacts during activities related to the resumption of power operation or operations remain the same.

HDI Response:

Concur with information

8. RCI-HCR-2

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that an archaeological survey conducted by HDI, or its contractors, occurred in March 2024 for the potential Small Modular Reactor project (see ML24086A582) and included the entire approximate 432-acre PNP site. Further confirm that:

- i) The Archaeological survey involved both shovel testing and surface survey, and that no shovel testing was performed on the sand dunes which are protected.*
- ii) The Archaeological survey identified three archaeological sites, two pre-contact and one historic, and that all were recommended as ineligible for listing on the National Register of Historic Places.*
- iii) An outreach letter seeking input on culturally important resources at Palisades property ~~The draft Archaeological survey report~~ was transmitted to Federally recognized Indian Tribes for a 30-day review and comment period and that, to-date, no comments have been received and the Archaeological survey report is being reviewed by the Michigan State Historic Preservation Office.*

HDI Response:

Changes to the RCI are noted above in red. Changes are minor and do not change the overall conclusion of the statements.

9. RCI-HCR-3

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, confirm that a historic architectural survey was conducted by HDI, or its contractors, in June 2024 for the potential Small Modular Reactor project (see ML24086A582). Further confirm that:

- i) The historic architectural survey identified only one potentially eligible historic structure, the reactor containment building. No other structures, facilities or aspects of the built environment were identified as eligible or potentially eligible for listing on the National Register of Historic Places at PNP.
- ii) While planned interior and exterior renovations may occur at the Feedwater Purity Building at the Palisades Nuclear Plant, the structure itself was not identified as eligible or potentially eligible for the National Register of Historic Places based on the June 2024 architectural survey and report. The architectural survey report ~~was submitted~~ *is being finalized for submission* to the Michigan State Historic Preservation Office *on September 6th, 2024*.

HDI Response:

Changes to the RCI are noted above in red. Changes are minor and do not change the overall conclusion of the statements.

10. RCI-A-1:

Based on review of the “Environmental New and Significant Review Proposed Resumption of Power Operations Palisades Nuclear Plant,” (Enclosure 2 of the September 28, 2023, exemption request, (ML23271A140)) and information reviewed during the audit, the staff discussed the applicability of the information contained within “NUREG-1437, Revision 2, Generic Environmental Impact Statement for License Renewal of Nuclear Plants”, Volume 3, Appendix E – Environmental Impact of Postulated Accidents (2024 GEIS, Revision 2) (ML24087A133) and within “NUREG-1437, Revision 2, Generic Environmental Impact Statement for License Renewal of Nuclear Plants” (1996 GEIS) (ML040690738).

Please confirm:

- i) Any information used to reach a conclusion that the NRC staff’s estimation of the PNP environmental impact of postulated accidents remains applicable.
- ii) For Design Basis Accidents (DBAs), as indicated during the audit, confirm that due to the requirements for PNP to maintain its licensing basis and implement aging management programs for the resumption of power operations and the remaining licensing renewal period, the environmental impacts following restart are not expected to differ significantly from the 2024 GEIS, Revision 2 DBA assessment, and confirm that the NRC’s generic assessment for this issue remains valid for PNP.
- iii) For, Severe Accident Impacts and Mitigation Alternatives, as indicated during the audit, confirm that new information was reviewed to determine if the 2024 GEIS,

Revision 2 Severe Accident impact determination continues to be valid for PNP upon resumption of power operations. That is, the evaluation for the potential resumption of power operations at PNP found no new and significant information regarding Severe Accidents and Severe Accident Mitigation Alternatives (SAMAs) for PNP which demonstrates that impacts due to Severe Accidents remains consistent with the 2024 GEIS, Revision 2 findings and confirms that the NRC's generic assessment for this issue remains valid for PNP. (Table E.3-1 of the 2024 GEIS, Revision 2 shows that Palisades population dose risk during the 2024 GEIS Revision 2 evaluation was reduced by a factor of 27 from the values used in the 1996 GEIS for which the determination for Palisades probability weighted consequences of a severe accident were small.) Further confirm the following in relation to the evaluation:

- (1) Confirm that PNP will not be significantly different from the pre-decommissioned plant except for age related replacements and completion of the modifications identified for the NFPA-805, risk informed fire protection program and that these improvements are aimed at operational reliability and fire safety, which supports a lower core damage frequency (CDF) than used in the License Renewal SAMA analysis.
- (2) Confirm, regarding internal event and internal flood risk, that the current updated model of record Core Damage Frequency (CDF) for PNP is $3.22\text{E-}5/\text{yr}$, which is within the 2024 GEIS, Revision 2 Table E.3-2 **SAMA CDF** range of $3.9\text{E-}6/\text{yr}$ to $5.6\text{E-}5/\text{yr}$ for Pressure Water Reactors (PWRs) and is a reduction over values used at the time of license renewal. Confirm, also, that the current internal fire CDF is $6.14\text{E-}05/\text{yr}$, which is within the 2024 GEIS Revision 2 Table E.3-6 **SAMA All Hazards CDF** range of $1.0\text{E-}5/\text{yr}$ to $1.05\text{E-}4/\text{yr}$ for PWRs. Further confirm that these models are currently being updated and will reflect the as-built plant and state of the art Probability Risk Assessment (PRA) data and methods. Even if the CDF values are higher, the impact determination would not change because PNP population dose risk during the GEIS Revision 2 evaluation is a factor of 27 below the values used in the 1996 GEIS for which the determination for PNP probability weighted consequences of a severe accident were small.
- (3) Confirm, regarding seismic risk, that there is no current PRA model, but that the ongoing model updates include a seismic PRA **planned for** release prior to July 2025 and have a lower seismic risk than the NRC safety goal. Confirm that PNP responded to the NRC request to reevaluate the seismic risk following the Fukushima accident (ML14090A069) and that this evaluation confirmed that the seismic CDF was below the NRC safety goal of $1\text{E-}4$ which is lower than the highest reported seismic CDF (**SPRA Mean SCDF**) in 2024 GEIS Revision 2 Table **E.3-11 E.3-6** of $1.3\text{E-}4$.

HDI Response:

Changes to the RCI are noted above in red. Changes are minor and do not change the overall conclusion of the statements.