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GNRO-2012/00074

July 12, 2012

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

SUBJECT: Response to Request for Additional Information (RAI) Set 20 dated June 15, 2012
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

REFERENCE: NRC Letter, "Requests for Additional Information for the Review of the Grand Gulf Nuclear Station, License Renewal Application," dated June 15, 2012 (GNRI-2012/00134) (ML12151A265)

Dear Sir or Madam:

Entergy Operations, Inc. is providing, in Attachment 1, the response to the referenced Request for Additional Information (RAI). Attachment 2 includes an updated listing of regulatory commitments for license renewal that includes revised commitment 30 required in response to RAIs in this letter.

This letter contains no new commitments. If you have any questions or require additional information, please contact Christina L. Perino at 601-437-6299.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 12th day of July, 2012.

Sincerely,

A handwritten signature in black ink, appearing to read "MP" followed by a stylized flourish.

MP/jas

A148
LPR

Attachment(s): 1. Response to Request for Additional Information (RAI)
 2. List of Regulatory Commitments

cc: with Attachment(s)

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Attachment 1 to

GNRO-2012/00074

Response to Request for Additional Information (RAI)

The format for the RAI responses below is as follows. The Request for Additional Information (RAI) is listed in its entirety as received from the Nuclear Regulatory Commission (NRC) with a background, issue and request subparts. This is followed by the Grand Gulf Nuclear Station (GGNS) RAI response to the individual question.

RAI 2.1-1

Background. 10 CFR 54.4, "Scope," states, in part:

(a) Plant systems, structures and components [SSCs] within the scope of this part are –

(1) Safety-related SSCs which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49 (b)(1)) to ensure the following functions –

- (i) The integrity of the reactor coolant pressure boundary;
- (ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or
- (iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.

LRA Section 2.1.1.1, "Application of Safety-Related Scoping Criteria," states, in part, relative to the scoping criteria of 10 CFR 54.4(a)(1)(iii), "[t]he capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the applicable guideline exposures set forth in 10 CFR 50.34(a)(1), 10 CFR 50.67, or 10 CFR 100.11, as applicable."

Issue. During the on-site scoping and screening methodology audit, the staff reviewed the definitions of the term safety-related contained in fleet procedures, the Updated Final Safety Analysis Report (UFSAR) and the license renewal application (LRA), used to identify SSCs within the scope of license renewal. The staff determined that the applicability of 10 CFR 50.67 to Grand Gulf Nuclear Station (GGNS) was not specifically addressed in the definitions of the term safety-related in the fleet procedures, the UFSAR or the LRA.

Request. Confirm the definition of the term safety-related used in the development of the LRA and address the applicability of 10 CFR 50.67 to GGNS, as it relates to identifying SSCs within the scope of license renewal in accordance with 10 CFR 54.4(a)(1)(iii). Perform a review of this issue and indicate if the review concludes that use of the scoping methodology precluded the identification of SSCs that should have included within the scope of license renewal in accordance with 10 CFR 54.4(a). Describe any additional scoping evaluations performed to address the 10 CFR 54.4(a) criteria. List any additional SSCs included within the scope of license renewal as a result of the review, structures and components for which aging management reviews (AMR) were performed, and the results of the AMR. For each structure and component for which AMRs were performed, identify the aging management programs, as applicable, to be credited for managing the identified aging effects.

RAI 2.1-1 RESPONSE

As stated in LRA Section 2.1.1.1, Entergy corporate procedures define safety-related to include those structures, systems and components (SSCs) that are relied upon to remain functional during and following design basis events to assure:

- The integrity of the reactor coolant pressure boundary; or
- The capability to shut down the reactor and maintain it in a safe shutdown condition; or
- The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the applicable guideline exposures set forth in 10 CFR 50.34(a)(1), 10 CFR 50.67, or 10 CFR 100.11, as applicable.

The guideline exposures of 10 CFR 50.67 apply to GGNS based on license amendment 145. Components are classified as safety-related if they are relied upon to remain functional during and following design basis events to assure the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the applicable guideline exposures set forth in 10 CFR 50.67. Consequently, these components are included in the scope of license renewal. Use of the scoping method did not preclude the identification of SSCs that should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). No additional scoping evaluations or AMR were required as part of this response.

RAI 2.1-2

Background. 10 CFR 54.4, "Scope," states, in part:

(a) Plant systems, structures and components [SSCs] within the scope of this part are –

(1) Safety-related SSCs which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49 (b)(1)) to ensure the following functions –

- (i) The integrity of the reactor coolant pressure boundary;
- (ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or
- (iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.

Issue. During the on-site scoping and screening methodology audit, the staff determined that certain SSCs identified as safety-related in the plant equipment database were not included within the scope of license renewal in accordance with 10 CFR 54.4(a)(1).

Request. Provide the bases for not including any SSCs, identified as safety-related in the plant equipment database, within the scope of license renewal in accordance with 10 CFR 54.4(a)(1). Perform a review of this issue and indicate if the review concludes that use of the scoping methodology precluded the identification of SSCs that should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). Describe any additional scoping evaluations performed to address the 10 CFR 54.4(a) criteria. List any additional SSCs

included within the scope of license renewal as a result of the review, structures and components for which AMR were performed, and the results of the AMR. For each structure and component for which AMRs were performed, identify the aging management programs, as applicable, to be credited for managing the identified aging effects.

RAI 2.1-2 RESPONSE

As described in LRA Sections 2.1.1 and 2.1.2, mechanical components identified as safety-related in the plant equipment database are included in the scope of license renewal in accordance with 10 CFR 54.4(a)(1) and are subject to aging management review if they are not subject to replacement based on a qualified life or specified time period and perform an intended function, as described in § 54.4, without moving parts or without a change in configuration or properties. Although some structural components and many electrical components are identified in the plant equipment database, neither structural nor electrical scoping and screening use the plant equipment database. See LRA Sections 2.1.1, 2.1.2.2 and 2.1.2.3 for descriptions of structural and electrical scoping and screening.

Mechanical components classified as safety-related in the plant equipment database, but not subject to an aging management review, were reevaluated to assure they are either short-lived (subject to replacement based on a qualified life or specified time period) or are passive components (perform their intended function without moving parts or without a change in configuration or properties) or are conservatively classified as safety-related based on management decision even though they don't perform a safety function. With the exception of two components, the review confirmed that mechanical components classified as safety-related in the equipment database that are not subject to aging management review are either short-lived or active components, or are conservatively classified as safety-related based on management decision.

Two isokinetic probes in the standby gas treatment system discharge stack are classified as safety-related based on their support of the stack pressure boundary. These probes have been determined to be subject to aging management review as part of the standby gas treatment system. The probes were evaluated as stainless steel tubing exposed internally and externally to indoor air. Since the aging management review results presented in LRA Table 3.2.2-6 already include the evaluation of stainless steel tubing exposed to indoor air, no changes to this table or any other are required for this RAI response.

RAI 2.1-3

Background. 10 CFR 54.4, "Scope," states, in part:

(a) Plant systems, structures and components [SSCs] within the scope of this part are –

(1) Safety-related SSCs which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49 (b)(1)) to ensure the following functions –

(i) The integrity of the reactor coolant pressure boundary;

- (ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or
 - (iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.
- (2) All nonsafety-related SSCs whose failure could prevent satisfactory accomplishment of any of the functions identified in (a)(1)(i), (ii), or (iii) of this section.

Issue. During the on-site scoping and screening methodology audit the staff reviewed the license renewal application, the 10 CFR 54.4(a)(2) implementing documents and license renewal drawings, and also performed plant walkdowns. The staff determined through the audit activities and discussion with the applicant that equipment that was no longer required had been abandoned in place.

Request. Provide details on the activities performed to confirm that all abandoned equipment, that at any time contained fluids and is in the proximity of safety-related SSCs, has been verified to be drained or included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2). If abandoned equipment has not been verified to be drained and is not included within the scope of license renewal, provide a technical basis for not including the abandoned equipment within the scope of license renewal in accordance with 10 CFR 54.4(a)(2). Perform a review of this issue and indicate if the review concludes that use of the scoping methodology precluded the identification of SSCs that should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). Describe any additional scoping evaluations performed to address the 10 CFR 54.4(a) criteria. List any additional SSCs included within the scope of license renewal as a result of the review, structures and components for which AMRs were performed, and the results of the AMRs. For each structure and component for which AMRs were performed, identify the aging management programs, as applicable, to be credited for managing the identified aging effects.

RAI 2.1-3 RESPONSE

The process for identification of structures and components subject to aging management review (AMR) is described in LRA Section 2. The only components for which credit for being abandoned was taken in the GGNS LRA were components in the auxiliary steam system. As stated in LRA Section 2.3.3.19, the auxiliary steam system contains components which have been abandoned, isolated, and drained. These details were determined through review of documents including piping and instrumentation diagrams, a design change package, a system operating instruction, and through discussions with site personnel.

Any abandoned equipment, located in a space with safety-related equipment, that was not verified to be drained was included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).

A review of this issue indicated that use of this scoping method did not preclude the identification of systems and components within the scope of license renewal in accordance with 10 CFR 54.4(a). For instance, UFSAR Section 9.4.1.1.1 states that humidifiers in the

control room HVAC system were abandoned in place. However, these humidifiers were subject to AMR, as identified in LRA Tables 2.3.3-17 and 3.3.2-17. Thus, no credit was taken in the GGNS LRA for these components being abandoned.

No additional systems or components were included within the scope of license renewal as a result of this review of abandoned equipment, thus no new aging management reviews were identified.

RAI 2.1-4

Background. 10 CFR 54.4, "Scope," states, in part:

- (a) Plant systems, structures and components [SSCs] within the scope of this part are –
 - (1) Safety-related SSCs which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49 (b)(1)) to ensure the following functions –
 - (i) The integrity of the reactor coolant pressure boundary;
 - (ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or
 - (iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.
 - (2) All nonsafety-related systems, structures and components whose failure could prevent satisfactory accomplishment of any of the functions identified in (a)(1)(i), (ii), or (iii) of this section.

Issue. During the on-site scoping and screening methodology audit the staff reviewed the license renewal application, license renewal implementing documents, current licensing basis documentation and performed walkdowns of the incomplete and abandoned Unit 2 turbine building and other adjacent structures.

The staff determined that the Unit 2 turbine building, which is adjacent to the GGNS turbine building and control building, both of which are within the scope of license renewal in accordance with 10 CFR 54.4(a)(1), is not included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2). In addition, the staff noted that the radioactive waste building, which is also adjacent to the GGNS turbine building (but not the control building), is included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) for an intended function that includes, "Maintain structural integrity of non-safety related components such that safety functions are not affected and no impact on in-scope structures."

During the audit the applicant indicated that the basis for not including the incomplete and abandoned Unit 2 turbine building within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) was an analysis that demonstrated that the Unit 2 turbine building would not move in a way that impacts adjacent buildings following flooding and earthquake events.

However, the applicant did not provide information that demonstrated that the Unit 2 turbine building would not be subject to the effects of aging similar to other buildings of the same construction that the applicant had included within the scope of license renewal and made subject to an aging management program.

Request. Provide a technical basis for not including the incomplete and abandoned Unit 2 turbine building, located adjacent to the GGNS turbine building and the control building, within the scope of license renewal in accordance with 10 CFR 54.4(a)(2). If an analysis is cited as the technical basis for not including the Unit 2 turbine building within the scope of license renewal, demonstrate how the analysis considers the effects of aging relative to other buildings of similar construction that are included within the scope of license renewal. Perform a review of this issue and indicate if the review concludes that use of the scoping methodology precluded the identification of SSCs that should have been included within the scope of license renewal in accordance with 10 CFR 54.4(a). Describe any additional scoping evaluations performed to address the 10 CFR 54.4(a) criteria. List any additional SSCs included within the scope of license renewal as a result of the review, structures and components for which aging management reviews were performed, and the results of the AMR. For each structure and component for which aging management reviews were performed, identify the aging management programs, as applicable, to be credited for managing the identified aging effects.

RAI 2.1-4 RESPONSE

The Grand Gulf Nuclear Station (GGNS) Unit 2 turbine building is a non-Category I structure located adjacent to the GGNS Unit 1 turbine building and the control building. The Unit 2 turbine building is constructed of reinforced concrete and structural steel with metal roof decking and metal siding. The interior walls are constructed of reinforced concrete or concrete masonry block. The structure consists of steel superstructure with an exterior metal siding above the operating floor at El. 166'-0" and reinforced concrete below El. 166'-0". The Unit 2 turbine building is designed to comply with seismic Category I requirements and tornado effects (except the siding and its supporting members) and thus will have no effect on the adjacent Category I structures. As indicated in the LRA Table 2.2-4, construction of the Unit 2 turbine building has been abandoned; however the partially completed building still remains. An analysis was performed of the partially completed Unit 2 turbine building configuration to evaluate any potential effect on surrounding structures. The analysis demonstrated that the Unit 2 turbine building will not move in a way that would impact adjacent buildings following flooding and earthquake events. The analysis was the technical basis for not including the abandoned and partially completed Unit 2 turbine building within the scope of license renewal. However, to ensure that the effects of aging do not affect its structural integrity as analyzed (i.e., it was analyzed to withstand design basis events to preclude adverse impact on adjacent category I structures), the Unit 2 turbine building is being included within the scope of license renewal for 10 CFR 54.4(a)(2) and subject to an AMR. Since the Unit 2 turbine building does not provide structural support or house any system, structure, or component (SSC) performing a license renewal intended function, only the Unit 2 turbine building steel superstructure framing and main concrete structural elements are subject to an AMR. The affected LRA sections and tables are revised as shown below.

A review was performed of the GGNS scoping method as described in LRA Section 2.1.1. During the review, Entergy determined that the Unit 2 auxiliary building was in a condition similar to that of the Unit 2 turbine building. To ensure that the effects of aging do not affect its structural integrity, during the period of extended operation (PEO), the partially completed Unit 2

auxiliary building is also being included within the scope of license renewal for 10 CFR 54.4(a)(2) and subject to an AMR. The GGNS Structures Monitoring Program will be enhanced to include managing the effects of aging on the GGNS Unit 2 turbine building and the GGNS Unit 2 auxiliary building during the PEO.

The LRA sections and tables are revised as shown below. Additions are underlined and deletions are shown with strikethrough.

LRA TABLE 2.2-3 CHANGES

Table 2.2-3 Structures within the Scope of License Renewal	
Structure Name	LRA Section
Auxiliary Building	Section 2.4.3, Turbine Building, Process Facilities and Yard Structures
<u>Auxiliary Building (GGN2)</u>	<u>Section 2.4.3, Turbine Building, Process Facilities and Yard Structures</u>
Condensate Storage Tank Foundation	Section 2.4.3, Turbine Building, Process Facilities and Yard Structures
Transformer and Switchyard Support Structures and Foundations	Section 2.4.3, Turbine Building, Process Facilities and Yard Structures
Turbine Building	Section 2.4.3, Turbine Building, Process Facilities and Yard Structures
<u>Turbine Building (GGN2)</u>	<u>Section 2.4.3, Turbine Building, Process Facilities and Yard Structures</u>

LRA TABLE 2.2-4 CHANGES

Table 2.2-4 Structures Not within the Scope of License Renewal	
Structure Name	Structure Function or UFSAR Reference
Administration and Shop Building	Provides space for administrative and support personnel.
Auxiliary Building (GGN2)	Construction of the auxiliary building (GGN2) has been abandoned; however, the partially completed building still remains. The structure has no safety function and failure will not compromise any safety-related system or component and will not prevent safe reactor shutdown.

Table 2.2-4 Structures Not within the Scope of License Renewal	
Structure Name	Structure Function or UFSAR Reference
Switchyard Office/Construction Building	Provides a work area and office space for the main switchyard.
Turbine Building (GGN2)	Construction of the Unit 2 turbine building has been abandoned; however, the partially completed building still remains. Evaluations verified no impact on Unit 1 buildings.
Unit 2 Warehouse	Provides work space and bulk storage facilities for site materials.

SECTION 2.4.3 CHANGES

2.4.3 Turbine Building, Process Facilities and Yard Structures

Description

The following structures are included in this review.

- Turbine Building
- Turbine Building (GGN2)
- Process Facilities
- Auxiliary Building
- Control Building
- Diesel Generator Building
- Radioactive Waste Building
- Yard Structures
- Auxiliary Building (GGN2)
- Condensate Storage Tank Foundation
- Condensate Storage and Refueling Water Storage Tank Retaining Basin
- Containment Building (GGN2)
- Control House—Switchyard
- Diesel Generator Fuel Oil Storage Tanks Access Tunnel
- Fire Water Pumphouse and Storage Tanks Foundation
- Manholes and Duct Banks
- Radioactive Waste Building Pipe Tunnels
- Refueling Water Storage Tank Foundation
- Transformer and Switchyard Support Structures and Foundations

Auxiliary Building (GGN2)

The auxiliary building (GGN2) is located adjacent to but separate from the control building and north of the Unit 1 auxiliary building. The partially completed auxiliary building is a multi-level structure constructed of reinforced concrete and structural steel supported on a reinforced concrete base mat founded on structural fill. Even though construction of the auxiliary building (GGN2) has been abandoned, the partially completed building still remains. This structure was evaluated in its unfinished state to determine the impact of the design ground water level change from El. 109'-0" to El. 114'-6". The structure was evaluated for overturning, buoyancy, and sliding. For buoyancy, sliding and overturning the structure was determined to have a safety factor greater than 1; consequently, there is no impact to Unit 1 structures. The structure contains numerous fire walls to comply with fire protection, and fire water yard piping enters the structure through the north and south walls. However, these components are not relied upon in safety analyses or plant evaluations to perform a function that demonstrates compliance with 10 CFR 50.48. The Unit 2 auxiliary building has no safety function, however to ensure that its structural integrity is maintained and that it will not impact 10 CFR 54.4(a)(1) structures or components, the auxiliary building reinforced concrete, structural steel and reinforced concrete base mat elements have been included in the scope of license renewal for 10 CFR 54.4(a)(2).

This structure has no intended functions for 10 CFR 54.4(a)(1) or (a)(3).

This structure has the following intended function for 10 CFR 54.4(a)(2).

- Maintain integrity of nonsafety-related structural components such that safety functions are not affected.

UFSAR References: Section 2.4.13.5

Turbine Building (GGN2)

The Unit 2 turbine building (GGN2) is a non-Category I structure located adjacent to seismic Category I structures. The Unit 2 turbine building is constructed of reinforced concrete and structural steel with metal roof decking and metal siding. The interior walls are constructed of reinforced concrete or concrete masonry block. The structure consists of steel superstructure with an exterior metal siding above the operating floor at El. 166'-0" and reinforced concrete below El. 166'-0". Though construction of the Unit 2 turbine building had been abandoned, the partially completed building still remains. The Unit 1 turbine building and the Unit 2 turbine building are separated by a security wall and interconnected at El. 93'-0". The structure was evaluated in its partially completed configuration to determine the impact of the design ground water level change from El. 109'-0" to El. 114'-6". The structure was evaluated for overturning, buoyancy, and sliding, and was determined to be acceptable. To determine if there would be any impact on Unit 1 as a result of its partially completed configuration, the maximum seismic displacement was determined. For the Unit 2 turbine building, the maximum seismic displacement was determined to be less than the 2 inch gap between the building and control building and between the Unit 2 and Unit 1 turbine buildings. This evaluation determined there is no impact to Unit 1 structures. The northeast corner of the

yard fire water loop is above-ground piping that is routed through the Unit 2 turbine building. However, this portion of piping is not relied upon in safety analyses or plant evaluations to perform a function that demonstrates compliance with 10 CFR 50.48. The Unit 2 turbine building has no safety function, however to ensure that its structural integrity is maintained and that it will not impact 10 CFR 54.4(a)(1) structures or components, the turbine building steel superstructure framing and main concrete structural elements have been included in the scope of license renewal for 10 CFR 54.4(a)(2).

This structure has no intended functions for 10 CFR 54.4(a)(1) or (a)(3).

This structure has the following intended function for 10 CFR 54.4(a)(2).

- Maintain integrity of nonsafety-related structural components such that safety functions are not affected.

UFSAR References: Sections 9.4.4.5 and 9.5.1.2

UFSAR References

Turbine Building

Section 1.2.2.2 Figures 1.2-2 through 1.2-8

Section 3.8.4.1.2

Turbine Building (GGN2)

Section 9.4.4.5

Section 9.5.1.2

Auxiliary Building

Section 1.2.2.2 Figures 3.8-77 through 3.8-85

Section 3.8.4.1.1

Auxiliary Building (GGN2)

Section 2.4.13.5

LRA APPENDIX A CHANGES

A.1.42 Structures Monitoring Program

The Structures Monitoring Program manages the effects of aging on structures and structural components, including structural bolting, within the scope of license renewal. The program was developed based on guidance in Regulatory Guide 1.160 Revision 2, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and NUMARC 93-01 Revision 2, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," to satisfy the requirement of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."

The Structures Monitoring Program will be enhanced as follows.

- Clarify that the scope includes the following in-scope structures and structural components.
 - Containment Building (GGN 2)
 - Control House - Switchyard
 - Culvert No. 1 and drainage channel
 - Manholes and duct banks
 - Radioactive waste building pipe tunnel
 - Auxiliary Building (GGN2)
 - Turbine Building (GGN2)

LRA APPENDIX B CHANGES

B.1.42 STRUCTURES MONITORING

Enhancements

The following enhancements will be implemented prior to the period of extended operation.

Elements Affected	Enhancements
1. Scope of Program	<p>The Structures Monitoring Program will be enhanced to clarify that the scope will</p> <p>(a) Include the following in-scope structures and structural components.</p> <ul style="list-style-type: none">• Containment building (GGN2)• Control house switchyard• Culvert No. 1 and drainage channel• Manholes and duct banks• Radioactive waste building pipe tunnel• <u>Auxiliary Building (GGN2)</u>• <u>Turbine Building (GGN2)</u>

Attachment 2 to
GNRO-2012/00074
List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Additions are shown with underline and deletions with strikethrough.

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
1	Implement the 115 kilovolt (KV) Inaccessible Transmission Cable Program for Grand Gulf Nuclear Station (GGNS) as described in License Renewal Application (LRA) Section B.1.1	Prior to November 1, 2024	GNRO-2011/00093	B.1.1
2	Implement the Aboveground Metallic Tanks Program for GGNS as described in LRA Section B.1.2	Prior to November 1, 2024	GNRO-2011/00093	B.1.2
3	<p>Enhance the Bolting Integrity Program for GGNS to clarify the prohibition on use of lubricants containing MoS₂ for bolting, and to specify that proper gasket compression will be visually verified following assembly.</p> <p>Enhance the Bolting Integrity Program to include consideration of the guidance applicable for pressure boundary bolting in Regulatory Guide (NUREG) 1339, Electric Power Research Institute (EPRI) NP-5769, and EPRI TR-104213.</p> <p>Enhance the Bolting Integrity Program to include volumetric examination per American Society of Mechanical Engineers (ASME) Code Section IX, Table IWB-2500-1, Examination Category B-G-1, for high-strength closure bolting regardless of code classification.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.3

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
4	<p>Enhance the Boraflex Monitoring Program for GGNS to perform periodic surveillances of the boraflex neutron absorbing material on at least a five year frequency using Boron-10 Areal Density Gage for Evaluating Racks (BADGER) testing.</p> <p>RACKLIFE analysis will continue to be performed each cycle. This analysis will include a comparison of the RACKLIFE predicted silica to the plant measured silica. This comparison will determine if adjustments to the RACKLIFE loss coefficient are merited. The analysis will include projections to the next planned RACKLIFE analysis date to ensure current Region I storage locations will not need to be reclassified as Region II storage locations in the analysis interval.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.4
5	Implement the Buried Piping and Tanks Inspection Program for GGNS as described in LRA Section B.1.5.	Prior to November 1, 2024	GNRO-2011/00093	B.1.5

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
6	<p>Enhance the Boiling Water Reactor (BWR) Vessel Internals Program for GGNS as follows.</p> <p>(a) Evaluate the susceptibility to neutron or thermal embrittlement for reactor vessel internal components composed of CASS, X-750 alloy, precipitation-hardened (PH) martensitic stainless steel(e.g., 15-5 and 17-4 PH steel), and martensitic stainless steel (e.g., 403, 410 and 431 steel).</p> <p>(b) Inspect portions of the susceptible components determined to be limiting from the standpoint of thermal aging susceptibility, neutron fluence, and cracking susceptibility (i.e., applied stress, operating temperature, and environmental conditions). The inspections will use an inspection technique capable of detecting the critical flaw size with adequate margin. The critical flaw size will be determined based on the service loading condition and service-degraded material properties. The initial inspection will be performed either prior to or within 5 years after entering the period of extended operation. If cracking is detected after the initial inspection, the frequency of re-inspection will be justified based on fracture toughness properties appropriate for the condition of the component. The sample size will be 100% of the accessible component population, excluding components that may be in compression during normal operations.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.11

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
7	<p>Enhance the Compressed Air Monitoring Program for GGNS to apply a consideration of the guidance of ASME OM-S/G-1998, Part 17; ANSI/ISA-S7.0.01-1996; EPRI NP-7079; and EPRI TR-108147 to the limits specified for air system contaminants.</p> <p>Enhance the Compressed Air Monitoring Program to include periodic and opportunistic inspections of accessible internal surfaces of piping, compressors, dryers, aftercoolers, and filters to apply consideration of the guidance of ASME OM-S/G-1998, Part 17 for inspection frequency and inspection methods of these components in the following compressed air systems.</p> <ul style="list-style-type: none"> • Automatic Depressurization System (ADS) air • Division 1 Diesel Generator Starting Air (D1DGSA) • Division 2 Diesel Generator Starting Air (D2DGSA) • Division 3 Diesel Generator Starting Air (D3DGSA), also known as the HPCS Diesel Generator • Instrument Air (IA) 	Prior to November 1, 2024	GNRO-2011/00093	B.1.12/RAI B.1.12-1

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
8	<p>Enhance the Diesel Fuel Monitoring Program to include a ten-year periodic cleaning and internal inspection of the fire water pump diesel fuel oil tanks, the diesel fuel oil day tanks for Divisions I, II, III, and the diesel fuel oil drip tanks for Divisions I, II. These cleanings and internal inspections will be performed at least once during the 10-year period prior to the period of extended operation and at succeeding 10-year intervals. If visual inspection is not possible, a volumetric inspection will be performed.</p> <p>Enhance the Diesel Fuel Monitoring Program to include a volumetric examination of affected areas of the diesel fuel tanks if evidence of degradation is observed during visual inspection. The scope of this enhancement includes the diesel fuel oil day tanks (Divisions I, II, III), the diesel fuel oil storage tanks (Divisions I, II, III), the diesel fuel oil drip tanks (Divisions I, II), and the diesel fire pump fuel oil storage tanks, and is applicable to the inspections performed during the 10-year period prior to the period of extended operation and at succeeding 10-year intervals.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.16
9	<p>Enhance the External Surfaces Monitoring Program to include instructions for monitoring of the aging effects for flexible polymeric components through manual or physical manipulation of the material, including a sample size for manipulation of at least 10 percent of available surface area.</p> <p>Enhance the External Surfaces Monitoring Program as follows.</p> <ol style="list-style-type: none"> 1. Underground components within the scope of this program will be clearly identified in program documents. 2. Instructions will be provided for inspecting all underground components within the scope of this program during each 10-year period, beginning 10 years prior to entering the period of extended operation. 	Prior to November 1, 2024	GNRO-2011/00093	B.1.18

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
10	<p>Enhance the Fatigue Monitoring Program to monitor and track all critical thermal and pressure transients for all components that have been identified to have a fatigue Time Limited Aging Analysis (TLAA).</p> <p>Enhance the Fatigue Monitoring Program to perform a review of the GGNS high energy line break analyses and the corresponding tracking of associated cumulative usage factors to ensure the GGNS program adequately manages fatigue usage for these locations.</p> <p>Fatigue usage calculations that consider the effects of the reactor water environment will be developed for a set of sample reactor coolant system components. This sample set will include the locations identified in NUREG/CR-6260 and additional plant-specific component locations in the reactor coolant pressure boundary if they are found to be more limiting than those considered in NUREG/CR-6260. F_{en} factors will be determined using the formulae sets listed in Section 4.3.3. If necessary following this analysis, revised cycle limits will be incorporated into the Fatigue Monitoring Program documentation.</p> <p>Enhance the Fatigue Monitoring Program to provide updates of the fatigue usage calculations on an as-needed basis if an allowable cycle limit is approached, or in a case where a transient definition has been changed, unanticipated new thermal events are discovered, or the geometry of components have been modified. The program revision will include providing for the consideration of the recirculation pump fatigue analysis exemption validity if cycles that were input into the exemption evaluation exceed their limits.</p>	Two years prior to November 1, 2024	<p>GNRO-2011/00093</p> <p>GNRO-2012/00063</p>	B.1.19/ RAI B.1.19-1, RAI 4.3-11

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
11	<p>Enhance the Fire Protection Program to require visual inspections of the Halon/CO2 fire suppression system at least once every fuel cycle to examine for signs of corrosion.</p> <p>Enhance the Fire Protection Program to require visual inspections of fire damper framing at least once every fuel cycle to check for signs of degradation.</p> <p>Enhance the Fire Protection Program to require visual inspection of concrete curbs, manways, hatches, manhole covers, hatch covers, and roof slabs at least once every fuel cycle to confirm that aging effects are not occurring.</p> <p>Enhance the Fire Protection Program to require an external visual inspection of the CO2 tank at least once every fuel cycle to examine for signs of corrosion.</p>	Prior to November 1, 2024	<p>GNRO-2011/00093</p> <p>GNRO-2012/00042</p>	B.1.20/RAI B.1.20-2

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
12	<p>Enhance the Fire Water Program to include inspection of hose reels for degradation. Acceptance criteria will be enhanced to verify no unacceptable degradation.</p> <p>Enhance the Fire Water Program to include one of the following options.</p> <p>(1) Wall thickness evaluations of fire protection piping using non-intrusive techniques (e.g., volumetric testing) to identify evidence of loss of material will be performed prior to the period of extended operation and at periodic intervals thereafter. Results of the initial evaluations will be used to determine the appropriate inspection interval to ensure aging effects are identified prior to loss of intended function.</p> <p><u>OR</u></p> <p>(2) A visual inspection of the internal surface of fire protection piping will be performed upon each entry to the system for routine or corrective maintenance. These inspections will be capable of evaluating (a) wall thickness to ensure against catastrophic failure and (b) the inner diameter of the piping as it applies to the design flow of the fire protection system. Maintenance history shall be used to demonstrate that such inspections have been performed on a representative number of locations prior to the period of extended operation. A representative number is 20% of the population (defined as locations having the same material, environment, and aging effect combination) with a maximum of 25 locations. Additional inspections will be performed as needed to obtain this representative sample prior to the period of extended operation.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.21/RAI B.1.251-5

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
12 (cont.)	<p>Enhance the Fire Water Program to include a visual inspection of a representative number of locations on the interior surface of below grade fire protection piping in at least one location at a frequency of at least once every 10 years during the period of extended operation. A representative number is 20% of the population (defined as locations having the same material, environment, and aging effect combination) with a maximum of 25 locations. Acceptance criteria will be revised to verify no unacceptable degradation.</p> <p>Enhance the Fire Water Program to test or replace sprinkler heads. If testing is chosen a representative sample of sprinkler heads will be tested before the end of the 50-year sprinkler head service life and at 10-year intervals thereafter during the period of extended operation. Acceptance criteria will be no unacceptable degradation. NFPA-25 defines a representative sample of sprinklers to consist of a minimum of not less than 4 sprinklers or 1 percent of the number of sprinklers per individual sprinkler sample, whichever is greater. If replacement of the sprinkler heads is chosen, all sprinklers that have been in service for 50 years will be replaced.</p> <p>Enhance the Fire Water Program to include visual inspection of spray and sprinkler system internals for evidence of degradation. Acceptance criteria will be enhanced to verify no unacceptable degradation.</p>		GNRO-2012-00064	
13	Enhance the Flow-Accelerated Corrosion Program to revise program documentation to specify that downstream components are monitored closely to mitigate any increased wear when susceptible upstream components are replaced with resistant materials, such as high Cr material.	Prior to November 1, 2024	GNRO-2011/00093	B.1.22
14	Enhance the Inservice Inspection - IWF Program to address inspections of accessible sliding surfaces.	Prior to November 1, 2024	GNRO-2011/00093	B.1.24/ RAI B.1.24-1

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
14 (cont.)	<p>Enhance the Inservice Inspection - IWF Program to; clarify that parameters monitored or inspected will include corrosion; deformation; misalignment of supports; missing, detached, or loosened support items; improper clearances of guides and stops; and improper hot or cold settings of spring supports and constant load supports. Accessible areas of sliding surfaces will be monitored for debris, dirt, or indications of excessive loss of material due to wear that could prevent or restrict sliding as intended in the design basis of the support. Elastomeric vibration isolation elements will be monitored for cracking, loss of material, and hardening. Structural bolts will be monitored for corrosion and loss of integrity of bolted connections due to self-loosening and material conditions that can affect structural integrity. High-strength structural bolting (actual measured yield strength greater than or equal to 150 ksi or 1,034 MPa in sizes greater than 1 inch nominal diameter) susceptible to stress corrosion cracking (SCC) will be monitored for SCC.</p> <p>Enhance the Inservice Inspection - IWF Program to clarify that detection of aging will include:</p> <p>a) Monitoring structural bolting (American Society for Testing Materials (ASTM) A-325, ASTM F1852, and ASTM A490 bolts) and anchor bolts will be monitored for loss of material, loose or missing nuts, loss of pre-load and cracking of concrete around the anchor bolts.</p> <p>b) Volumetric examination comparable to that of ASME Code Section XI, Table IWB-2500-1, Examination Category B-G-1 should be performed for high strength structural bolting to detect cracking in addition to the VT-3 examination. This volumetric examination may be waived with adequate plant-specific justification.</p>			

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
14 (cont.)	<p>c) Identification of component supports that contain high strength bolting (actual measured yield greater than or equal to 150 ksi) in sizes greater than 1 inch nominal diameter. The extent of examination for support types that contain high-strength bolting will be as specified in ASME Code Section XI, Table IWF-2500-1. GGNS will examine high-strength structural bolting on the frequency specified in ASME Code Section XI, Table IWF-2500-1.</p> <p>Enhance the Inservice Inspection - IWF Program acceptance criteria to include the following as unacceptable conditions.</p> <p>a) Loss of material due to corrosion or wear, which reduces the load bearing capacity of the component support;</p> <p>b) Debris, dirt, or excessive wear that could prevent or restrict sliding of the sliding surfaces as intended in the design basis of the support; and</p> <p>c) Cracked or sheared bolts, including high strength bolts, and anchors.</p>		<p>GNRO-2012/00055</p> <p>GNRO-2011/00093</p>	
15	<p>Enhance the Inspection of Overhead Heavy Load and Light Load Handling Systems Program to include monitoring of rails in the rail system for the aging effect "wear", and structural connections/bolting for loose or missing bolts, nuts, pins or rivets. Additionally, the program will be clarified to include visual inspection of structural components and structural bolts for loss of material due to various mechanisms and structural bolting for loss of preload due to self-loosening.</p> <p>Enhance the Inspection of Overhead Heavy Load and Light Load Handling Systems Program acceptance criteria to state that any significant loss of material for structural components and structural bolts, and significant wear of rails in the rail system, is evaluated according to ASME B30.2 or other applicable industry standard in the ASME B30 series.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.25

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
16	Implement the Internal Surfaces in Miscellaneous Piping and Ducting Components Program as described in LRA Section B.1.26.	Prior to November 1, 2024	GNRO-2011/00093	B.1.26
17	Enhance the Masonry Wall Program to clarify that parameters monitored or inspected will include monitoring gaps between the supports and masonry walls that could potentially affect wall qualification. Enhance the Masonry Wall Program to clarify that detection of aging effects require masonry walls to be inspected every 5 years.	Prior to November 1, 2024	GNRO-2011/00093	B.1.27/ B.1.27-1
18	Implement the Non-EQ Cable Connections Program as described in LRA Section B.1.28	Prior to November 1, 2024	GNRO-2011/00093	B.1.28
19	Enhance the Non environmentally Qualified (Non-EQ) Inaccessible Power Cables (400V to 35kV) Program to include low-voltage (400V to 2kV) power cables. Enhance the Non-EQ Inaccessible Power Cables (400V to 35kV) Program to include condition-based inspections of manholes not automatically dewatered by a sump pump being performed following periods of heavy rain or potentially high water table conditions, as indicated by river level. Enhance the Non-EQ Inaccessible Power Cables (400V to 35kV) Program to clarify that the inspections will include direct observation that cables are not wetted or submerged, that cables/splices and cable support structures are intact, and that dewatering/drainage systems (i.e., sump pumps) and associated alarms if applicable operate properly.	Prior to November 1, 2024	GNRO-2011/00093	B.1.29
20	Implement the Non-EQ Instrumentation Circuits Test Review Program as described in LRA Section B.1.30.	Prior to November 1, 2024	GNRO-2011/00093	B.1.30
21	Implement the Non-EQ Insulated Cables and Connections Program as described in LRA Section B.1.31.	Prior to November 1, 2024	GNRO-2011/00093	B.1.31

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
22	<p>Enhance the Oil Analysis Program to provide a formalized analysis technique for particulate counting.</p> <p>Enhance the Oil Analysis Program to include piping and components within the main generator system (N41) with an internal environment of lube oil.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.32
23	Implement the One-Time Inspection Program as described in LRA Section B.1.33.	Within the 10 years prior to November 1, 2024	GNRO-2011/00093	B.1.33
24	Implement the One-Time Inspection – Small Bore Piping Program as described in LRA Section B.1.34.	Within the 6 years prior to November 1, 2024	GNRO-2011/00093	B.1.34
25	Enhance the Periodic Surveillance and Preventive Maintenance Program to include all activities described in the table provided in LRA Section B.1.35 program description.	Prior to November 1, 2024	GNRO-2011/00093	B.1.35
26	<p>Enhance the Protective Coating Program to include parameters monitored or inspected by the program per the guidance provided in ASTM D5163-08.</p> <p>Enhance the Protective Coating Monitoring and Maintenance Program to provide for inspection of coatings near sumps or screens associated with the Emergency Core Cooling System.</p> <p>Enhance the Protective Coating Program to include acceptance criteria per ASTM D 5163-08.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.36
27	Enhance the Reactor Vessel Surveillance Program to ensure that the additional requirements specified in the final NRC safety evaluation for BWRVIP-86 Revision 1 are addressed before the period of extended operation.	Prior to November 1, 2024	GNRO-2011/00093	B.1.38

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
28	<p>Enhance the Regulatory Guide (RG) 1.127, Inspection of Water-Control Structures Associated With Nuclear Power Plant Program to clarify that detection of aging effects will monitor accessible structures on a frequency not to exceed 5 years consistent with the frequency for implementing the requirements of RG 1.127.</p> <p>Enhance the RG 1.127, Inspection of Water-Control Structures Associated With Nuclear Power Plant Program to perform periodic sampling, testing, and analysis of ground water chemistry for pH, chlorides, and sulfates on a frequency of at least every 5 years.</p> <p>Enhance the RG 1.127, Inspection of Water-Control Structures Associated With Nuclear Power Plant Program acceptance criteria to include quantitative acceptance criteria for evaluation and acceptance based on the guidance provided in ACI 349.3R.</p>	Prior to November 1, 2024	GNRO-2011/00093	B.1.39
29	Implement the Selective Leaching Program as described in LRA Section B.1.40.	Prior to November 1, 2024	GNRO-2011/00093	B.1.40
30	<p>Enhance the Structures Monitoring Program to clarify that the scope includes the following:</p> <p>a) In-scope structures and structural components.</p> <ul style="list-style-type: none"> • Containment Building (GGN 2) • Control House – Switchyard • Culvert No. 1 and drainage channel • Manholes and Ductbanks • Radioactive Waste Building Pipe Tunnel • <u>Auxiliary Building (GGN2)</u> • <u>Turbine Building (GGN2)</u> <p>b) In-scope structural components</p> <ul style="list-style-type: none"> • Anchor bolts • Anchorage / embedments • Base plates • Basin debris screen and grating • Battery racks • Beams, columns, floor slabs and interior walls • Cable tray and cable tray supports • Component and piping supports • Conduit and conduit supports • Containment sump liner and penetrations 	Prior to November 1, 2024	<p>GNRO-2011/00093</p> <p><u>GNRO-2012/00015</u></p>	B.1.42/ RAI B.1.42-3, B.1.42-5, <u>2.1-4</u>

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
30 (cont)	<ul style="list-style-type: none"> • Containment sump structures • Control room ceiling support system • Cooling tower drift eliminators • Cooling tower fill • CST/RWST retaining basin (wall) • Diesel fuel tank access tunnel slab • Drainage channel • Drywell floor slab (concrete) • Drywell wall (concrete) • Ductbanks • Electrical and instrument panels and enclosures • Equipment pads/foundations • Exterior walls • Fan stack grating • Fire proofing • Flood curbs • Flood retention materials (spare parts) • Flood, pressure and specialty doors • Floor slab • Foundations • HVAC duct supports • Instrument line supports • Instrument racks, frames and tubing trays • Interior walls • Main steam pipe tunnel • Manholes • Manways, hatches, manhole covers, and hatch covers • Metal siding • Missile shields • Monorails • Penetration sealant (flood, radiation) • Penetration sleeves (mechanical/ electrical not penetrating primary containment boundary) • Pipe whip restraints • Pressure relief panels • Reactor pedestal • Reactor shield wall (steel portion) • Roof decking • Roof hatches • Roof membrane • Roof slabs • RPV pedestal sump liner and penetrations • Seals and gaskets (doors, manways and hatches) 			

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
30 (cont)	<ul style="list-style-type: none"> • Seismic isolation joint • Stairway, handrail, platform, grating, decking, and ladders • Structural bolting • Structural steel, beams columns, and plates • Sumps and Sump liners • Support members: welds; bolted connections; support anchorages to building structure • Support pedestals • Transmission towers (see Note 1) • Upper containment pool floor and walls • Vents and louvers <p>Note 1: The inspections of these structures may be performed by the transmission personnel. However, the results of the inspections will be provided to the GGNS Structures Monitoring Program owner for review.</p> <p>c) Clarify the term “significant degradation” to include “that could lead to loss of structural integrity”.</p> <p>d) Include guidance to perform periodic sampling, testing, and analysis of ground water chemistry for pH, chlorides, and sulfates on a frequency of at least every 5 years.</p> <p>Enhance the Structures Monitoring Program to clarify that parameters monitored or inspected include:</p> <p>a) inspection for missing nuts for structural connections.</p> <p>b) monitoring sliding/bearing surfaces such as Lubrite plates for loss of material due to wear or corrosion, debris, or dirt. The program will be enhanced to include monitoring elastomeric vibration isolators and structural sealants for cracking, loss of material, and hardening.</p> <p>c) Include periodically inspecting the leak chase system associated with the upper containment pool and spent fuel pool to ensure the tell-tales are free of significant blockage. The inspection will also inspect concrete surfaces for degradation where leakage has been observed, in accordance with this Program.</p>			

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
30 (cont.)	<p>Enhance the Structures Monitoring Program to clarify that detection of aging effects will:</p> <ul style="list-style-type: none"> a) include augmented inspections of vibration isolators by feel or touch to detect hardening if the vibration isolation function is suspect. b) Require inspections every 5 years for structures and structural components within the scope of license renewal unless technical justification is provided to extend the inspection to a period not to exceed 10 years. c) Require direct visual examinations when access is sufficient for the eye to be within 24-inches of the surface to be examined and at an angle of not less than 30° to the surface. Mirrors may be used to improve the angle of vision and accessibility in constricted areas. d) Specify that remote visual examination may be substituted for direct examination. For all remote visual examinations, optical aids such as telescopes, borescopes, fiber optics, cameras, or other suitable instruments may be used provided such systems have a resolution capability at least equivalent to that attainable by direct visual examination. <p>Enhance the Structures Monitoring Program acceptance criteria by prescribing acceptance criteria based on information provided in industry codes, standards, and guidelines including NEI 96-03, ACI 201.1R-92, ANSI/ASCE 11-99 and ACI 349.3R-96. Industry and plant-specific operating experience will also be considered in the development of the acceptance criteria.</p>		<p>GNRO-2012-00054</p> <p>GNRO-2011/00093</p> <p>GNRO-2012-00054</p> <p>GNRO-2012-00054</p> <p>GNRO-2011/00093</p>	

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
31	<p>Enhance the Water Chemistry Control – Closed Treated Water Program to provide a corrosion inhibitor for the engine jacket water on the engine-driven fire water pump diesel in accordance with industry guidelines and vendor recommendations.</p> <p>Enhance the Water Chemistry Control – Closed Treated Water Program to provide periodic flushing of the engine jacket water and cleaning of heat exchanger tubes for the engine-driven fire water pump diesel in accordance with industry guidelines and vendor recommendations.</p> <p>Enhance the Water Chemistry Control – Closed Treated Water Program to provide testing of the engine jacket water for the engine-driven fire water pump diesels at least annually.</p> <p>Enhance the Water Chemistry Control – Closed Treated Water Program to revise the water chemistry procedure for closed treated water systems to align the water chemistry control parameter limits with those of EPRI 1007820.</p>	Prior to November 1, 2024	<p>GNRO-2011/00093</p> <p>GNRO-2012/00049</p>	B.1.44/ RAI B.1.44-1, B.1.44-2

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
31 (cont.)	<p>Enhance the Water Chemistry Control – Closed Treated Water Program to conduct inspections whenever a boundary is opened for the following systems.</p> <ul style="list-style-type: none"> • Drywell chilled water (DCW – system P72) • Plant chilled water (PCW – system P71) • Diesel generator cooling water subsystem for Division I and II standby diesel generators • Diesel engine jacket water for engine-driven fire water pump • Diesel generator cooling water subsystem for Division III (HPCS) diesel generator • Turbine building cooling water (TBCW– system P43) • Component cooling water (CCW – system P42) <p>These inspections will be conducted in accordance with applicable ASME Code requirements, industry standards, and other plant-specific inspection and personnel qualification procedures that are capable of detecting corrosion or cracking.</p>			

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
31 (cont.)	<p>Enhance the Water Chemistry Control – Closed Treated Water Program to inspect a representative sample of piping and components at a frequency of once every ten years for the following systems.</p> <ul style="list-style-type: none"> • Drywell chilled water (DCW – P72) • Plant chilled water (PCW – P71) • Diesel generator cooling water subsystem for Division I and II standby diesel generators • Diesel engine jacket water for engine-driven fire water pump • Diesel generator cooling water subsystem for Division III (HPCS) diesel generator • Turbine building cooling water (TBCW – P43) • Component cooling water (CCW – P42) <p>Components inspected will be those with the highest likelihood of corrosion or cracking. A representative sample is 20% of the population (defined as components having the same material, environment, and aging effect combination) with a maximum of 25 components. The inspection methods will be in accordance with applicable ASME Code requirements, industry standards, or other plant specific inspection and personnel qualification procedures that ensure the capability of detecting corrosion or cracking.</p>			
32	Enhance the BWR CRD Return Line Nozzle Program to include inspection of the CRD return line nozzle inconel end cap to carbon steel safe end dissimilar metal weld once prior to the period of extended operation and every 10 years thereafter.	Prior to November 1, 2024	GNRO-2012/00029	B.1.6 / RAI B.1.6-1
33	Enhance the BWR Penetrations Program to include that site procedures which implement the guidelines of BWRVIP-47-A will be clarified to indicate that the guidelines of BWRVIP-47-A apply without exceptions.	Prior to November 1, 2024	GNRO-2012/00029	B.1.8 / RAI B.1.8-1