Entergy

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GNRO-2013/00021

April 2, 2013

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

SUBJECT: Comments on Safety Evaluation Report Related to the License Renewal of Grand Gulf Nuclear Station, dated January 31, 2013
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

REFERENCE: NRC Letter, "Safety Evaluation Report Related to the License Renewal of Grand Gulf Nuclear Station," dated January 31, 2013 (GNRI-2013/00040)

Dear Sir or Madam:

Entergy Operations, Inc. is providing, in Attachment 1, comments on the safety evaluation report (SER) as requested in the reference. Attachment 2 includes a revised listing of regulatory commitments for license renewal that includes a revised commitment 9 to address an error that was found during the SER review.

If you have any questions or require additional information, please contact Jeffery A. Seiter at 601-437-2344.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 2nd day of April, 2013.

Sincerely,

KJM/slw

Attachments: 1. Safety Evaluation Report Comments
2. List of Regulatory Commitments

cc: (see next page)

cc: with Attachments

U.S. Nuclear Regulatory Commission
ATTN: Mr. Nathaniel Ferrer, NRR/DLR
Mail Stop OWFN/ 11 F1
Washington, DC 20555-0001

cc: without Attachments

U.S. Nuclear Regulatory Commission
ATTN: Mr. Elmo E. Collins, Jr.
Regional Administrator, Region IV
1600 East Lamar Boulevard
Arlington, TX 76011-4511

U.S. Nuclear Regulatory Commission
ATTN: Mr. A. Wang, NRR/DORL
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NRC Senior Resident Inspector
Grand Gulf Nuclear Station
Port Gibson, MS 39150

Attachment 1 to

GNRO-2013/00021

Safety Evaluation Report Comments

Comment No.	Section/Pg.#	Comment
1.	2.1.2/2-1	2nd bullet, delete extra " before *The*
2.	2.1.3.2.1/2-3	4th paragraph, 4th line, sentence begins, "Section 54.3(a) of 10 CFR 54.3(a) defines...." Change to "Section 54.3(a) of 10 CFR 54 defines...."
3.	2.1.3.1.2/2-4	1st full paragraph, 5th line, delete comma after *controls.*
4.	2.1.3.4/2-5	Beginning sentence, "Based on its review of LRA Section 2.1, Section review of the applicant's scoping and screening...," delete 2nd *Section.*
5.	2.1.4.2.2/2-10	Last paragraph on page, missing parenthesis after *HELB.*
6.	2.1.4.2.2/2-11	Top of page, 1st line, semicolon should be comma.
7.	2.1.4.2.2/2-11	3rd full paragraph, 1st sentence, delete commas before and after *directly connected to SSCs* since this is a restrictive clause.
8.	2.1.4.2.2/2-12	1st sentence under Nonsafety-Related SSCs with the Potential for Spatial Interaction with Safety-Related SSCs , delete commas before and after *with the potential for spatial interaction with safety-related SSCs* since this is a restrictive clause.
9.	2.1.4.2.2/2-12	2nd paragraph under Nonsafety-Related SSCs with the Potential for Spatial Interaction with Safety-Related SSCs , delete commas before and after *containing liquid or steam* since this is a restrictive clause.
10.	2.1.4.2.2/2-12	3rd paragraph under Nonsafety-Related SSCs with the Potential for Spatial Interaction with Safety-Related SSCs , delete commas before and after *with the potential for spatial interaction with safety-related SSCs* since this is a restrictive clause.
11.	2.1.4.2.3/2-13	Delete commas before and after *whose failure could prevent satisfactory accomplishment of the intended functions of safety-related SSCs* since this is a restrictive clause.
12.	2.1.4.3.1/2-13	2nd sentence, delete *which* to make this a complete sentence.

Comment No.	Section/Pg.#	Comment
13.	2.1.4.3.2/2-14	1st paragraph under 2.1.4.3.2 states, "As part of this review, during the scoping and screening methodology audit, the staff had discussions with the applicant, reviewed implementing procedures and the technical basis documents, license renewal drawings, and scoping results reports." It is not clear what is meant by "technical basis documents" or "scoping results reports." For the GGNS LRA, no separate "technical basis documents" were written, and there is only one scoping results report, GGNS-EP-08-LRD01, "System and Structure Scoping Results." This could possibly be interpreted where a technical basis document, singular, could be LRD01 and the results reports could be the individual sections of the scoping report, but this is not a good way to describe the GGNS license renewal scoping process. The entire discussion of regulated events seems written for a site that produces technical basis documents for license renewal topics and multiple scoping reports, which is not how the GGNS scoping was documented. See comments below.
14.	2.1.4.3.2/2-14	Under Fire Protection, paragraph has, "...the staff reviewed a selected sample of scoping reports for the systems and structures identified in the Fire Protection technical basis document." As noted above, this is not a good description of the process for scoping for 10 CFR 50.48. LRA Section 2.1.1.3.1 discusses scoping for fire protection, and Section 2.1.2.3 discusses screening. See also Section 2.3.1 of GGNS-EP-08-LRD01, "System and Structure Scoping Results," for fire protection scoping.
15.	2.1.4.3.2/2-14 & 2-15	Under Environmental Qualification, staff's discussion of EQ scoping does not include the bounding method we use for electrical scoping nor does it refer to the GGNS EQ Administrative Procedure. Staff's discussion of EQ refers to EQ technical basis document or documents. What is meant by EQ technical basis document? No special technical basis documents were prepared for GGNS license renewal. Discussion of EQ refers to "a selected sample of scoping reports for the systems and structures identified...." There is only one scoping report for GGNS license renewal. LRA Section 2.1.1 has a paragraph on scoping for electrical and I&C systems, Section 2.1.1.3.2 discusses scoping for EQ, and Section 2.1.2.3 discusses screening. See also Section 2.3.2 of GGNS-EP-08-LRD01, "System and Structure Scoping Results," for EQ scoping.

Comment No.	Section/Pg.#	Comment
16.	2.1.4.3.2/2-15	Under Anticipated Transient Without Scram, the ATWS discussion has the same issues as the EQ discussion. There's no mention of the bounding approach to scoping electrical and I&C. It refers to a technical basis document and "a selected sample of scoping reports," neither of which seem to apply to GGNS. LRA Section 2.1.1 has a paragraph on scoping for electrical and I&C systems, Section 2.1.1.3.4 discusses scoping for ATWS, and Section 2.1.2.3 discusses screening. See also Section 2.3.4 of GGNS-EP-08-LRD01, "System and Structure Scoping Results," for ATWS scoping.
17.	2.1.4.3.2/2-15	Under Station Blackout, same issues as in EQ and ATWS. For example, discussion states, "In addition, the staff reviewed a selected sample of scoping reports for the systems and structures identified in the SBO technical basis document." This is not a good description of the GGNS scoping and screening process. LRA Section 2.1.1 has a paragraph on scoping for electrical and I&C systems, Section 2.1.1.3.5 discusses scoping for SBO, and Section 2.1.2.3 discusses screening. See also Section 2.3.5 of GGNS-EP-08-LRD01, "System and Structure Scoping Results," for ATWS scoping.
18.	2.1.4.3.3/2-15	Delete commas before and after *relied upon to remain functional during regulated events* since this is a restrictive clause.
19.	2.1.4.4.2/2-16	The SER discusses scoping results *reports*, plural. For GGNS, there is only one scoping report, GGNS-EP-08-LRD01. It would be more appropriate to discuss reviews of sections of the report, rather than reviews of the reports.
20.	2.1.4.5.2/2-17	1st paragraph, 1st line, *Sections* should be *Section*
21.	2.1.4.5.2/2-17	2nd paragraph, 7th line, the SER reads, "The staff confirmed that the applicant had identified and highlighted license renewal drawings to identify the license renewal boundaries in accordance with the implementing procedure guidance." For GGNS, highlighting on the LRA drawings depicts components that are subject to aging management review, and this does not always align with the boundary of a system as scoped. Suggest revising to "...to identify components subject to aging management review in accordance with...."
22.	2.1.4.6.2/2-19	Top of page, discussion refers to *scoping reports* again. For GGNS, it is more appropriate to refer to the "discussion of structures in the scoping report."
23.	2.1.4.6.2/2-19	2nd line on page should have *structure intended functions* instead of *system intended functions.*
24.	3.0.1.2/3-3	Bullet beginning "NUREG-1801 Item," last sentence reads, "If there are no corresponding items in the GALL Report, the applicant leaves the column blank in order to identify the AMR results in the LRA tables corresponding to the items in the GALL Report tables." This sentence should end after the word *blank* with the rest deleted.

Comment No.	Section/Pg.#	Comment
25.	3.0.1.2/3-3	Bullet beginning "Table 1 Item" includes the sentence, "If the applicant identifies in each LRA Table 2 AMR results consistent with the GALL Report, the Table 1 line item summary number should be listed in LRA Table 2." The phrase *in each LRA* could be deleted.
26.	3.0.1.2/3-3	Bullet beginning "Notes" includes the sentence, "The notes, identified by letters, were developed by an NEI work group." Revise to "The notes identified by letters are based on NEI 95-10, Table 4.2-2."
27.	2.3.2.3	Section 2.3.2.3.1 second paragraph does not include the intended function to "Supply makeup water to the reactor vessel in the event of loss of main feedwater and/or reactor isolation and failure of the RCIC system."
28.	2.3.2.4	Section 2.3.2.4.2 states "The staff reviewed LRA Sections 2.3.2.4.2..." which should be corrected to "LRA section 2.3.2.4"
29.	2.3.2.5	Revise for clarity: "LRA Section 2.3.2.5 describes the nuclear pressure relief, automatic depressurization and the quencher confirmatory test program systems." to "LRA Section 2.3.2.5 describes the nuclear pressure relief and automatic depressurization components and the quencher confirmatory test program systems."
30.	2.3.2.6	Section 2.3.2.6.2 states "The staff reviewed LRA Section 2.3.6.2 and UFSAR Sections 6.5.1.1 and 6.5.1.2, and LRA Table 2.3.2-6" which should be revised to "The staff reviewed LRA Section 2.3.2.6 and UFSAR Sections 6.5.1.1 and 6.5.3.2". (Should not review of Table 3.2.2-6 be added to this sentence for consistency with other sections reviewed?)
31.	2.3.2.7	Section 2.3.2.7.1 (first paragraph) states "This section provides a grouping of containment isolation valves from the primary and secondary containment, drywell monitoring, and containment and drywell and I&C systems into a consolidated review." Revise latter part of sentence to "containment and drywell ~~and~~ instrumentation and control ~~I&C~~ systems into a consolidated review." Section 2.3.2.7.1 (second paragraph, last sentence) states "The containment and drywell and I&C system has the intended functions to support safety-related pressure instrumentation in the drywell and containment and to support the containment pressure boundary." Revise first part of sentence to "The containment and drywell ~~and~~ I&C system".
32.	3.2.2.3.8/2-285 & 2-286	Since there is no LRA Table 3.2.2-8 as such, but there is LRA Table 3.2.2-8-1, -2, -3, and -4 in the LRA need to clarify how each table was reviewed and to what extent. Existing statements of review are true, but it appears that Tables 3.2.2-8-1 and 3.2.2-8-4 were omitted.
33.	3.0.2.2/3-5	Third sentence in section is "Item numbers in column seven of the LRA, "NUREG-1801 Volume 2 Item," correlate to an AMR combination as identified in the GALL Report." Delete "Volume 2" from this sentence since GALL rev 2 (no volume 2) was used and table columns did not include the words.

Comment No.	Section/Pg.#	Comment
34.	3.0.2.4/3-7	Last four paragraphs of section are repeat of final four paragraphs of section 3.0.2.2.
35.	3.1.2.2.5/3-253	Third paragraph, fourth line, SA-SOB should be SA-508
36.	2.3.3.15.2/2-64	In the first line the section referenced should be 2.3.3.15
37.	2.3.3.19.1/2-69	In the first line the section referenced should be 2.3.3.19 The first list of systems and sections should include -control room Heating, Ventilation, and Air Conditioning (LRA Section 2.3.3.18)
38.	Table 3.2-1 (3.3.1-82)/3-300	This was revised per letter GNRO-2012/00076 dtd 7/19/12 which made it consistent with GALL ; External Surfaces Monitoring Program
39.	Table 3.2-1 (3.3.1-83)/3-300	The program listed is wrong it should be - Internal Surfaces in Miscellaneous Piping and Ducting Components Program
40.	Table 3.2-1 (3.3.1-92)/3-301	The program was revised per letter GNRO-2012/00064 dtd 6-22-12 to - Compressed Air Monitoring Program
41.	Table 3.2-1 (3.3.1-96)/3-301	The program was revised per letter GNRO-2012/00076 dtd 7-19-12 - which made it consistent with GALL ; Internal Surfaces in Miscellaneous Piping and Ducting Components Program
42.	Table 3.2-1 (3.3.1-111)/3-304	The last column should state - Not applicable to GGNS
43.	3.3.2.1/3-307	First paragraph of page need to delete- "claimed to be"
44.	3.3.2.1.1/3-307	In the first and second paragraph replace "claimed" with "stated"
45.	3.3.2.1.1/3-307	This listing of sections that do not apply in the second paragraph is incorrect
46.	3.3.2.2/3-326	In the second paragraph replace "claimed" with "stated"
47.	3.0.3.1.36/3-166	The third paragraph under Staff Evaluation states, "*LRA Table 4.2-2 for the applicant's upper-shelf energy analysis includes an analysis for "Shell Plate 1"* material". Suggest changing sentence to, "*LRA Table 4.2-2 for the applicant's upper-shelf energy analysis includes ~~an~~ analysis results for "Shell Plate 1" material*".
48.	3.0.3.1.36/3-166	The third paragraph under Staff Evaluation states, "*The license renewal application (LRA) also indicates that the 1/4T fluence of this plate is $3.9x10^{17}$ n/cm^2 (E > 1 MeV) for 54 effective full power years (EFPY) in consideration of the planned EPU*". The actual number stated in LRA Table 4.2-2 is $3.94x10^{17}$. Suggest changing value to $3.94x10^{17}$.

Comment No.	Section/Pg.#	Comment
49.	3.0.3.1.36/3-172	The first sentence of the first full paragraph states, "*In its response dated July 26, 2012, the applicant stated that <u>one dosimetry capsule</u> was pulled at the end of the first operating cycle, and the results from that <u>capsule</u> had been used in the fluence evaluations performed through operating cycle 13*". This statement concerns the response to RAI B.1.38-3 which does not state that one dosimetry capsule was pulled. The RAI response refers to it as "flux wire dosimetry". According to Bob Carter at EPRI, flux wire is usually installed in a different location than the capsules containing the target specimens. Suggest re-wording to state, "*In its response dated July 26, 2012, the applicant stated that ~~one dosimetry capsule~~ <u>flux wire</u> was pulled at the end of the first operating cycle, and the results from ~~that capsule~~ <u>the flux wire</u> had been used in the fluence evaluations performed through operating cycle 13".*
50.	4.2.3.2/4-36	The first paragraph of Section 4.2.3.2 contains the following statements, "*In its review, the staff confirmed that the chemistry and initial USE values provided in LRA Section 4.2.2 are consistent with those provided in the recent license amendment request for a power uprate (approved by the staff on July 18, 2012); therefore, the technical information in LRA Section 4.2.2 is consistent with the applicant's current licensing basis*". It appears reference to LRA Section 4.2.2, Pressure-Temperature Limits, is incorrect. Suggest changing reference to LRA Section 4.2.2 (two places) to LRA Table 4.2.2.
51.	4.2.4.1/4-39	The last paragraph in section 4.2.4.1 contains the following statement, "*In addition, the applicant stated that the procedures and training to minimize the potential for reactor vessel cold over-pressurization have been implemented as part of the applicant's original relief request for the circumferential welds for the current license period*". The statement in the LRA is, "*The operations specific training and procedures to minimize the potential for RPV cold over-pressurization events have been implemented*". This statement does not address that the actions are "part of the original relief request". Although the actions may have been part of the original relief request, it is not stated in the LRA. Suggest deleting the last part of the sentence as follows, "*In addition, the applicant stated that the operations specific procedures and training to minimize the potential for reactor vessel cold over-pressurization have been implemented ~~as part of the applicant's original relief request for the circumferential welds for the current license period~~*".

Comment No.	Section/Pg.#	Comment
52.	4.2.4.1/4-39	The last paragraph contains the following statement, "*The applicant stated that it will request relief from the requirement to perform volumetric examinations of the reactor vessel circumferential welds, in accordance with 10 CFR 50.55a, prior to the period of extended operation.*" The LRA does not address when the relief will be submitted, as shown in the LRA statement, "*A request for extension of this relief for the extended operating period will be submitted to the NRC in accordance with 10 CFR 50.55(a)*". Relief submittal will be prior to the PEO, however the LRA does not "state" that it will. Suggest changing the statement as follows, "*The applicant stated that it will request relief from the requirement to perform volumetric examinations of the reactor vessel circumferential welds, in accordance with 10 CFR 50.55a, ~~prior to the period of extended operation~~*".
53.	4.2.4.2/4-40	The last paragraph of Section 4.2.4.2, in part, states, "*The staff finds the applicant's conclusion for this TLAA acceptable because.... (b) the applicant committed that it will request relief from the requirement to perform volumetric examinations of the RPV circumferential welds, in accordance with 10 CFR 50.55a, prior to entering the period of extended operation*". There is no commitment to submit relief from RPV circumferential weld inspections prior to the PEO in the LRA SER with Open Items dtd 0113, nor in the response to RAI 4.2.4-1. The only explicit commitment is that the relief will be submitted in accordance with 10 CFR 50.55(a). Suggest re-wording to state, "*The staff finds the applicant's conclusion for this TLAA acceptable because.... (b) the applicant committed that it will request relief from the requirement to perform volumetric examinations of the RPV circumferential welds, in accordance with 10 CFR 50.55a.~~, prior to entering the period of extended operation.~~*
54.	4.7.2.1/4-83	The first sentence of the first paragraph states in part, "*LRA Section 4.7.11 describes the TLAA associated with the determination of intermediate HELB Locations*". There is no LRA Section 4.7.11. The TLAA associated with the determination of intermediate HELB Locations is discussed in Section 4.7.2. Replace "4.7.11" with "4.7.2".
55.	4.7.2.1/4-83	The second sentence of the first paragraph states in part, "*The LRA states that the determination of HELB locations in UFSAR Section 3.6.A2...*" Change UFSAR Section reference to 3.6A.2

Comment No.	Section/Pg.#	Comment
56.	4.7.2.2/4-83	The first paragraph contains the phrase, "*...the design criteria requirement criteria in 10 CFR Part 50...*" Suggest re-wording to state, "...the design criteria ~~requirement criteria~~ in 10 CFR Part 50..."
57.	4.7.2.3/4-85	The first sentence in Section 4.7.2.3 refers to "....*LRA Section A2.5.2*...." Change LRA Section reference to A.2.5.2.
58.	3.0.5.2/3-216	This statement: "By letter dated July 18, 2012, the staff issued RAI 3.0.5-1" should be corrected to: By letter dated July **27**, 2012, the staff issued RAI 3.0.5-1
59.	3.0.5 /3-217	NRC states that they are still reviewing the Entergy response to RAI 3.0.5-1a (dated 11-29-2012). This is Open Item 3.0.5-1.
60.	3.0.3.1.4/3-22	The SER states in the 2nd paragraph up from the bottom, 1st sentence, "The 'preventive actions" program element in GALL Report AMP XI.M41 recommends that coatings are in accordance with Section 3.4 of NACE RP0285-2002..." GALL AMP XI.M41 recommends that coatings are in accordance with Table 1 of NACE SP0169-2007 or Section 3.4 of NACE RP0285-2002.
61.	3.0.3.1.4/3-23	The SER states in the 2nd paragraph up from the bottom, 1st sentence, item (b), "back fill meets a sieve size range of 0.1 to 5 mm." When RAI B1.5-4 response in GNRO-2012-00041 actually states "a sieve size range from 200 to 4 or a grain size of 0.1 to 5 millimeters."
62.	3.0.3.1.17/3-85	Enhancement 2 description states "...the applicant stated that it will clearly identify underground components, which are in the scope of **license renewal**...". This should be reworded to state "...which are in the scope of **the program**...".
63.	3.0.3.1.31/3-148	3rd paragraph – "...will be adequate to manage the aging **effect** for which..." should read "...will be adequate to manage the aging **effects** for which...".
64.	3.0.3.1.8/3-38 & 3-39	In the BWR Penetrations Program, the SER makes several references to AAI #5 for BWRVIP-27. LRA Appendix C states the appropriate applicant action item is (4) to BWRVIP-27-A. Verified that AAI 4 is found in BWRVIP-27-A (pdf pg 83 of 90). The SER appears to identify an incorrect AAI.
65.	2.3.4	Misspelled word, page 2-80, 4th paragraph, "adequetaly"
66.	3.0.3.1.18/3-90	Minor typo- "CuFen" should have the U in uppercase (two places)
67.	AAI on BWRVIP-26A/4-21	Minor typo- reference to section 3.0.3.1.11 in last sentence should be 3.0.3.1.1**0**

Comment No.	Section/Pg.#	Comment
68.	4.4.2, 3rd paragraph/4-74	Minor typo "ins" should be "is"
69.	4.5.3/4-76	Minor typo- "containment buildings" should be singular.
70.	2.4.1.1/2-82	Please revise the first sentence to read: In LRA Section 2.4.1, the applicant described the Mark III containment structure as both a biological shield and a pressure container during a loss-of-coolant accident or steam line break accident.
71.	2.4.1.1/2-84	Please revise the first sentence of 3rd bullet item under Refueling and Reactor Servicing Areas to read: The reactor level servicing platform provides a reactor flange level working surface for in-vessel inspection and reactor internals servicing and permits servicing access for the full vessel diameter.
72.	2.4.1.1/2-84	Please revise the 4th bullet item under Refueling and Reactor Servicing Areas to read: provide shelter, support, and protection for safety-related equipment and nonsafety-related equipment within the scope of license renewal. The containment building houses equipment ~~covered~~ credited in Appendix R, ~~"Fire Protection for Nuclear Power Facilities Operating Prior to January 1, 1979," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." Criteria for SBO can be found in 10 CFR 50.48, "Fire Protection," and for anticipated transients without scram in 10 CFR 50.62, "Requirements for Reduction of Risk from Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants"~~ safe shutdown analysis and for fire protection (10 CFR 50.48) for SBO (10 CFR 50.63) and for anticipated transients without scram (10 CFR 50.62).
73.	2.4.1.1/2-84	Please revise the 6th bullet item under Refueling and Reactor Servicing Areas to read: provide structural support to limit the release of radioactive materials so that offsite doses from a postulated DBA ~~fall~~ are below the guideline values of 10 CFR 100, "Reactor Site Criteria"
74.	2.4.2.1/2-86	First paragraph ends with a semi-colon. Please change the semi-colon to a period.

Comment No.	Section/Pg.#	Comment
75.	2.4.2.1/2-86	Please revise the first paragraph under Culvert No. 1 and Drainage Channel to read: The applicant stated that Culvert No. 1 is located at the downstream end of the channel draining area designated as Basin B. The applicant also stated that Culvert No. 1 is a corrugated metal pipe culvert with a reinforced concrete headwall at the point of entry. The drainage channel consists of a reinforced concrete slab with soil and riprap slopes ~~to support the~~. The applicant stated that Culvert No. 1 and the drainage channel have the following intended function for 10 CFR 54.4(a)(2). • maintain integrity of nonsafety-related structural components so they do not affect safety functions
76.	2.4.3.1/2-87	Please revise the first paragraph to read: In LRA Section ~~2.4.2~~ 2.4.3, the applicant stated that the turbine building, process facilities, and yard structures consisted of the following:
77.	2.4.3.1/2-87 & 88	Some of the bullet items are not formatted and aligned with other bullet items. Please reformat and shift the misaligned bullet items to align with the other bullet items.
78.	2.4.3/2-88	There is no discussion or mention of Unit 2 turbine building and auxiliary building. Please include discussions of GGNS unit 2 turbine building and auxiliary building that were added by applicant in letter dated 7/12/12 in response to RAI 2.1-4 dated 6/15/2012.
79.	2.4.3.1/2-90	Please revise the second paragraph to read: The applicant further stated that the radioactive waste building has ~~no~~ the following intended function under 10 CFR 54.4 (a)(2). Maintain structural integrity of nonsafety-related components such that safety functions are not affected and no impact on in-scope structures.
80.	2.4.3.1/2-91	Please revise the 2nd paragraph under Containment Building to read: The applicant further stated that GGN2 is made of reinforced concrete and is open to the atmosphere above El ~~74 meters (~~243 feet, 6 inches~~)~~.

Comment No.	Section/Pg.#	Comment
81.	2.4.3.1/2-91	Please revise the first paragraph, 2nd sentence under Diesel Fuel Oil Storage Tanks Access Tunnel to read: Each tank is buried in structural backfill, and a separate shaft constructed from a ~~1.8-meter (~~6-foot~~)~~ diameter corrugated metal pipe provides access to each pump.
82.	2.4.3.1/2-93	Last paragraph under Transformer and Switchyard Support Structures and Foundations contains duplicate information of the previous paragraph. Please delete the last paragraph under Transformer and Switchyard Support Structures and Foundations. ~~LRA Table 2.4-3 identifies turbine building, process facilities, and yard structures component types that are within the scope of license renewal and subject to an AMR.~~
83.	2.4.4.1/2-95	The 3rd paragraph contains duplicate information of the previous paragraph. Please delete the 3rd paragraph. ~~LRA Table 2.4-4 identifies bulk commodities component types that are within the scope of license renewal and subject to an AMR.~~
84.	3.5.2.1.4/3-400	Please revise the 5th paragraph to read: In its response dated July 19, 2012, the applicant stated that "[t]he concrete joint sealant (Rodofoam II) has license renewal intended functions of "fire barrier" (FB) and "support for Criterion (a)(1) equipment" (SSR). The concrete joint sealant (Rodofoam II) is a long-lived passive component subject to ~~AMR~~ aging management review as indicated in LRA Table 3.5.2-4 by component "Seismic isolation joint." As shown in Table 3.5.2-4, the Fire Protection Program is credited to manage aging effects."
85.	3.5.2.1.10/3-406	Please revise the 2nd paragraph, last sentence to read (in part): "... (d) revised the AMR item associated with the spent fuel pool liner plate and gate to state that monitoring of leakage from the leak chase channels is an aging management activity for these structures."
86.	3.5.2.2/3-408	Please revise the last bullet item under item (2) to read: cumulative fatigue damage due to fatigue

Comment No.	Section/Pg.#	Comment
87.	3.5.2.2.1/3-409	Please revise the middle of the 2nd paragraph to read (in part): " ... Category I structures, except the diesel generator building which is founded on compacted structural backfill, are founded on the Catahoula Formation consisting of hard-to-very-hard silty-to-sandy clay, ..."
88.	3.5.2.2.2/3-426	Please remove the line break between the 1st and the 2nd paragraphs.
89.	3.5.2.3.4/3-441	Please revise the middle of the 3rd paragraph to read (in part): "... to credit the ASME Section XI, Subsection IWF, program to manage cracking and loss of material for ASME Class 1, 2, 3, and MC supports bolting, citing generic note G."
90.	3.5.2.3.4/3-441	Please revise the first sentence under Structural Bolting Exposed to Air-Outdoor to read (in part): "... stated that stainless steel base plates, components and piping supports, ..."
91.	3.5.2.3.4/3-443	Please revise the 2nd paragraph to read (in part): "... In LRA Table 3.5.2-4, the applicant stated that for concrete manways, hatches, manhole covers, hatch covers, and missile shields exposed to air-indoor uncontrolled ..."
92.	3.5.2.3.4/3-444	Please revise the 3rd paragraph to read (in part): "In its response dated July 25, 2012, the applicant stated that the rubber water stops are located in the ...."
93.	3.0.3.1.23/3-125	Please revise the 3rd paragraph, 1st sentence to read: In its response dated June 6, 2012, the applicant stated that it will enhance the ISI-IWF Program to identify the component supports that contain high-strength bolting (actual yield strength greater than or equal to 150 ksi) in sizes greater than 1-inch nominal diameter and that the frequency and extent of examination for support types that contain high-strength bolting will be as specified in ASME Code Section XI, Table IWF-2500-1.

Comment No.	Section/Pg.#	Comment
94.	3.0.3.1.37/3-174	Please revise the 6th paragraph, Enhancement 3 to read: LRA Section B.1.39 states an enhancement to the "acceptance criteria" program element. In this enhancement, the applicant stated that quantitative acceptance criteria for evaluation and acceptance will be based on guidance provided in ACI 349.3R-~~96~~.
95.	3.0.3.1.40/3-184	Please revise the 4th paragraph to read (in part): "By letter dated July 27, 2012, the staff issued RAI B~~2.~~1.42-1a asking the applicant to clarify if all structures and structural components, ..."
96.	3.0.3.1.40/	Please revise the 5th paragraph, Enhancement 2 to read: LRA Section B.1.42 states an enhancement to the "parameters monitored or inspected," program element. In this enhancement, the applicant stated that: (1) inspections will be conducted for missing nuts <u>for the structural connections</u>; (2) sliding and bearing surfaces such as lubrite plates will be monitored for loss of material due to wear or corrosion, debris, or dirt; and (3) ~~elastic~~ <u>elastomeric</u> vibration isolators and structural sealants will be monitored for cracking, loss of material, and hardening. The staff reviewed this enhancement against the corresponding program element in GALL Report AMP XI.S6 and finds it acceptable because when it is implemented, the parameters monitored for these components will be consistent with those identified in the GALL Report AMP.
97.	1.3/1-5	In the paragraph at the top of the page it states that the annual update letter is still under review even though it was submitted in August 2012. Is this really true?
98.	1.4/1-6	Why is ISG-2011-03 on buried piping not listed in Table 1-1 if it is a table of current ISG?
99.	1.5/1-7	The service water integrity open item includes a reference to procedure MS-46. The procedure number is GGNS-MS-46
100.	3.6.2.1/3-452	The 115 KV INACCESSIBLE TRANSMISSION CABLE plant specific program is missing from the staff evaluation / discussion of LRA Section 3.6.2.1.
101.	3.6.2.2.2/3-456	In the last paragraph of this page, the SER references "EPRI 1003057 (License Renewal Handbook)", which is an old reference. EPRI 1013475 is the correct reference, which superseded EPRI 1003057 on February 2007.

Attachment 2 to

GNRO-2013/00021

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	Enhance the Bolting Integrity Program for GGNS to clarify the prohibition on use of lubricants containing MoS_2 for bolting, and to specify that proper gasket compression will be visually verified following assembly. 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. 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.	Prior to November 1, 2024	GNRO-2011/00093	B.1.3

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
4	Enhance the Boraflex Monitoring Program for GGNS to perform periodic surveillances of the boraflex neutron absorbing material in the spent fuel pool and upper containment pool at least once every 5 years using Boron-10 Areal Density Gage for Evaluating Racks (BADGER) testing. 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.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2012-00077	B.1.4 / RAI B.1.4-1
5	Implement the Buried Piping and Tanks Inspection Program for GGNS as described in LRA Section B.1.5. Soil testing will be performed at two locations near the stainless steel condensate storage system piping that is subject to aging management review. Measured parameters will include soil resistivity, bacteria, pH, moisture, chlorides and redox potential. If the soil is determined to be corrosive then the number of inspections will be increased from one to two prior to and during the period of extended operation.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2012/00089	B.1.5/ RAI B.1.5-4a

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
6	Enhance the Boiling Water Reactor (BWR) Vessel Internals Program for GGNS as follows. (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). This evaluation will include a plant-specific identification of the reactor vessel internals components made of these materials. (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 for the initial inspection of susceptible components will be 100% of the accessible component population, excluding components that may be in compression during normal operations.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2012/00137 GNRO-2012/00137	B.1.11, RAI B.1.11-2a

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
7	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. 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. • 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	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. 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.	Prior to November 1, 2024	GNRO-2011/00093	B.1.16
9	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. Enhance the External Surfaces Monitoring Program as follows. 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 5~~10~~-year period, beginning 10 years prior to entering the period of extended operation.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2013-00021	B.1.18

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
10	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). 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. 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. 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.	Two years prior to November 1, 2024	GNRO-2011/00093 GNRO-2012/00063	B.1.19/ RAI B.1.19-1, RAI 4.3-11

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
11	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. 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. 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. 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.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2012/00042	B.1.20/ RAI B.1.20-2

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
12	Enhance the Fire Water Program to include inspection of hose reels for degradation. Acceptance criteria will be enhanced to verify no unacceptable degradation. Enhance the Fire Water Program to include one of the following options. (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. <u>OR</u> (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 performed as needed to obtain this representative sample prior to the period of extended operation. The periodicity of inspections during the period of extended operation will be determined through an engineering evaluation of the operating experience gained from the results of previous inspections of fire water piping.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2012/00089	B.1.21/RAI B.1.21-5, B.1.21-3a

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
12 (cont.)	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. 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. 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.		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, 3.5.1.94-1,

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
14 (cont.)	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. 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. When a component support is found with minor age-related degradation, but still is evaluated as "acceptable for continued service" as defined in IWF-3400, the program owner may choose to repair the degraded component and substitute a randomly selected component that is more representative of the general population for it in subsequent inspections. Enhance the Inservice Inspection - IWF Program to clarify that detection of aging effects will include: a) Monitoring structural bolting (American Society for Testing Materials (ASTM) A-325, ASTM F1852, and ASTM A490 bolts) and anchor bolts for loss of material, loose or missing nuts, loss of pre-load and cracking of concrete around the anchor bolts. b) Volumetric examination comparable to that of ASME Code Section XI, Table IWB-2500-1, Examination Category B-G-1 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.		GNRO-2012/00105 GNRO-2012/00114	B.1.24-1a, B.1.24-3a, B.1.24-5a

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
14 (cont.)	c) Identification of all 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. Enhance the Inservice Inspection - IWF Program acceptance criteria to include the following as unacceptable conditions. a) Loss of material due to corrosion or wear, which reduces the load bearing capacity of the component support; 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 c) Cracked or sheared bolts, including high strength bolts, and anchors. Enhance the Inservice Inspection - IWF Program preventive action to include the following. Incorporate into plant procedures recommendations delineated in NUREG-1339, and Electric Power Research Institute (EPRI) NP-5769 and TR-104213 for high-strength structural bolting. These recommendations should address proper selection of bolting material, proper installation torque or tension, and the use of appropriate lubricants and sealants.		GNRO-2012/00055 GNRO-2012/00114 GNRO-2011/00093 GNRO-2012/00114	

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
15	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. 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.	Prior to November 1, 2024	GNRO-2011/00093	B.1.25
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/ RAI 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

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
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
22	Enhance the Oil Analysis Program to provide a formalized analysis technique for particulate counting. Enhance the Oil Analysis Program to include piping and components within the main generator system (N41) with an internal environment of lube oil.	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

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
26	Enhance the Protective Coating Program to include parameters monitored or inspected by the program per the guidance provided in ASTM D5163-08. 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. Enhance the Protective Coating Program to include acceptance criteria per ASTM D 5163-08.	Prior to November 1, 2024	GNRO-2011/00093	B.1.36
27	Ensure that the additional requirements of the ISP(E) specified in BWRVIP-86, Revision 1, including the conditions of the final NRC safety evaluation for BWRVIP-116 incorporated in BWRVIP-86, Revision 1 will be addressed before the period of extended operation. Ensure that new fluence projections through the period of extended operation and the latest vessel beltline ART Tables are provided to the BWRVIP prior to the period of extended operation.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2012/00081 GNRO-2012/00081	B.1.38 / RAI B.1.38-1, B.1.38-4
28	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. 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. 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.	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	Enhance the Structures Monitoring Program to clarify that the scope includes the following:	Prior to November 1,	GNRO-2011/00093	B.1.42/ RAI B.1.42-3,

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
30 (cont)	a) In-scope structures and structural components. • Containment Building (GGN 2) • Control House – Switchyard • Culvert No. 1 and drainage channel • Manholes and Ductbanks • Radioactive Waste Building Pipe Tunnel • Auxiliary Building (GGN2) • Turbine Building (GGN2) b) In-scope structural components • 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 • 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 electrical penetration sleeves • Drywell equipment hatch • Drywell floor slab (concrete) • Drywell head • Drywell head access manway • Drywell liner plate • Drywell mechanical penetration sleeves • Drywell personnel access lock • 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)	2024	GNRO-2012/00074 GNRO-2012-00095	B.1.42-5, 2.1-4, 3.5.1.33-2, B.1.13-4a, B.1.42-1a

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
30 (cont)	• 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) • 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 • Weir wall liner plate 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.			

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
30 (cont.)	c) Clarify the term "significant degradation" to include "that could lead to loss of structural integrity". 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. Enhance the Structures Monitoring Program to clarify that parameters monitored or inspected include: a) inspection for missing nuts for structural connections. 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. 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. Enhance the Structures Monitoring Program to clarify that detection of aging effects will: 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. 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.		GNRO-2012/00054 GNRO-2011/00093 GNRO-2012/00098 GNRO-2012/00054	

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
	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.		GNRO-2012/00054	
	e) Include instructions to augment the visual examinations of roof membranes, and seals and gaskets (doors, manways, and hatches) with physical manipulation of at least 10 percent of available surface area.		GNRO-2012/00076	
	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.		GNRO-2011/00093	

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
31	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. 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. 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. 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.	Prior to November 1, 2024	GNRO-2011/00093 GNRO-2012/00049	B.1.44/ RAI B.1.44-1, B.1.44-2

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
31 (cont.)	Enhance the Water Chemistry Control – Closed Treated Water Program to conduct inspections whenever a boundary is opened for the following systems. • 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) 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.			

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
31 (cont.)	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. • 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) 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.			
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

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
34	A search of the GGNS condition reporting system for all potential instances of cracking in ASME Code Class 1 small-bore piping for the period beginning at the start of licensed operation (November 1, 1984) will be performed prior to the period of extended operation.	Prior to November 1, 2024	GNRO-2012/00145	B.1.34/ RAI B.1.34-2b