Entergy

Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

Michael A. Krupa
Director, Extended Power Uprate
Grand Gulf Nuclear Station
Tel. (601) 437-6684

GNRO-2011/00033

September 9, 2011

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

SUBJECT: Supplemental Information
Extended Power Uprate
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

REFERENCES: 1. License Amendment Request, Extended Power Uprate, dated September 8, 2010 (GNRO-2010/00056, NRC ADAMS Accession No. ML102660403)

Dear Sir or Madam:

By letter (Reference 1), Entergy Operations, Inc. (Entergy) submitted a license amendment request (LAR) for Grand Gulf Nuclear Station, Unit 1 (GGNS) for an Extended Power Uprate (EPU). This letter proposes additional license changes to address NRC requests and to edit previously proposed changes. The proposed changes include:

- A new license condition imposing spent fuel pool storage controls
- Withdrawal of proposed changes to TS 4.3.1
- Addition of the value of calculated peak containment pressure to TS 5.5.12
- Clarification to a previously proposed license condition related to containment pressure

Attachment 1 provides a description and justification of the proposed changes. Attachment 2 provides the marked pages of the additional license changes. Attachment 3 provides the markup of edits to the currently proposed changes. In addition, all commitments related to the GGNS EPU have been compiled in Attachment 4.

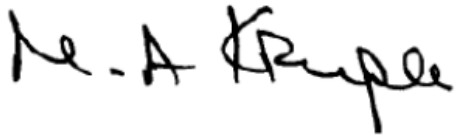
No change is needed to the no significant hazards consideration included in the initial LAR (Reference 1) as a result of the additional information provided as it relates to the EPU LAR.

There are no new commitments included in this letter.

If you have any questions or require additional information, please contact Jerry Burford at 601-368-5755.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 9, 2011.

Sincerely,



MAK/FGB/dm

Attachments:

1. Supplemental Information
2. New EPU Proposed Operating License and Technical Specification Changes (Mark-up)
3. Revised Markup of EPU Technical Specification Changes
4. Revised List of EPU Regulatory Commitments

cc: Mr. Elmo E. Collins, Jr.
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
612 East Lamar Blvd., Suite 400
Arlington, TX 76011-4125

U. S. Nuclear Regulatory Commission
ATTN: Mr. A. B. Wang, NRR/DORL (w/2)
ATTN: ADDRESSEE ONLY
ATTN: Courier Delivery Only
Mail Stop OWFN/8 B1
11555 Rockville Pike
Rockville, MD 20852-2378

State Health Officer
Mississippi Department of Health
P. O. Box 1700
Jackson, MS 39215-1700

NRC Senior Resident Inspector
Grand Gulf Nuclear Station
Port Gibson, MS 39150

Attachment 1

GNRO-2011/00033

Grand Gulf Nuclear Station Extended Power Uprate

Supplemental Information

1.0 DESCRIPTION

By letter dated September 8, 2010, Entergy Operations, Inc. (Entergy) submitted a license amendment request (LAR) for an Extended Power Uprate (EPU) for Grand Gulf Nuclear Station, Unit 1 (GGNS) (NRC ADAMS Accession No. ML102660403). Based on various requests for information and teleconferences to discuss the responses, Entergy is submitting additional changes to the GGNS Operating License (OL) and Technical Specifications (TS) to support the U.S. Nuclear Regulatory Commission (NRC) review of the EPU LAR. Therefore, Entergy requests the following changes:

- The addition of an OL condition specifying the loading criteria in the spent fuel pool (SFP);
- A revision to an OL condition related to containment pressure that was requested as part of the EPU LAR;
- The addition of the value of containment peak pressure to TS; and
- The withdrawal of proposed changes to TS 4.3.1, *Criticality*.

This letter also includes editorial corrections to TS pages that were submitted in the initial EPU LAR.

In addition to the above changes, all the commitments made for the EPU have been compiled in Attachment 4.

2.0 PROPOSED CHANGE

The proposed changes are described below. Markups of the affected pages for the new changes are provided in Attachment 2. Markups of the administrative changes to the previously submitted TS changes are provided in Attachment 3.

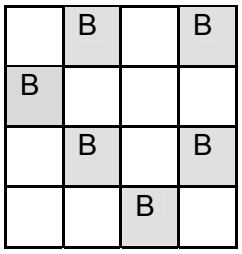
2.1 Operating License Condition – Spent Fuel Pool Loading Criteria

The following SFP loading criteria are proposed as an OL condition:

> Through Cycle 19 or until the revised criticality safety analysis has been approved, whichever comes first, the storage cells in the GGNS SFP racks shall be categorized as either Unrestricted or Restricted.
>
> (a) Unrestricted cells (Region I) are cells with a minimum panel B10 areal density greater than 0.0179 gm/cm^2 and that have received an exposure less than 2.3E10 rads. Unrestricted cells may contain fuel assemblies up to the maximum k-infinity of 1.26 (cold core configuration).

(b) Restricted cells (Region II) are cells with either a minimum panel B10 areal density less than 0.0179 gm/cm^2 or that have received an exposure in excess of 2.3E10 rads. Storage in Restricted cells shall not credit any Boraflex. Storage shall be controlled in a 10 of 16 configuration (see below). In addition, only fuel assemblies with a k-infinity of less than 1.21 (cold core configuration) may be stored in a Region II cell.

Region II 4X4 Storage Configuration



Fuel Assembly Storage Location

B Location Physically Blocked to Prevent Storage

2.2 Operating License Condition – Leak Rate Testing (Revised) and Technical Specification 5.5.12, "10 CFR 50, Appendix J, Testing Program"

In addition to the above OL change, a revision to a previously submitted OL condition related to leak rate testing is proposed. The originally submitted condition (item 44) stated:

> "Leak rate tests associated with Surveillance Requirements (SR) 3.6.1.1.1, 3.6.1.3.5, and 3.6.1.3.9, as required by TS 5.5.12 and in accordance with 10 CFR 50, Appendix J, Option B, and SRs 3.6.5.1.1and 3.6.5.1.2 are not required to be performed until their next scheduled performance dates. The tests will be performed at the EPU calculated long-term peak containment pressure or within EPU drywell bypass leakage limits, as appropriate."

The proposed change will delete "long-term" from the phrase "EPU calculated long-term peak containment pressure."

The following sentence will be added to TS 5.5.12:

> "The calculated peak containment internal pressure for the design basis loss of coolant accident, Pa, is 14.8 psig."

2.3 Review of Criticality Safety Analysis for EPU and Withdrawal of Proposed Changes to TS 4.3.1, *Criticality*

The CSA was submitted as supplemental information during the acceptance review of the GGNS EPU LAR (NRC ADAMS Accession Nos. ML103330092 and ML103330093). Subsequently, Entergy provided responses to requests for additional information related to the CSA from the Steam Generator Tube Integrity and Chemical Engineering Branch (NRC ADAMS Accession Nos. ML110680507 and ML111240288) and from the Reactor Systems Branch (NRC ADAMS Accession No. ML111120329). In response to questions from the Reactor Systems Branch (NRC ADAMS Accession No. ML111120329), changes were proposed to TS 4.3.1 which were consistent with the proposed CSA.

The imposition of the OL condition proposed in Section 2.1 above assures that spent fuel pool criticality is satisfied for EPU. The proposed OL condition supports the separation of the review of the CSA into a separate licensing action (see Entergy letter GNRO-2011/00076, dated September 9, 2011).

On that basis, Entergy is requesting the withdrawal of the proposed changes to the criticality requirements reflected in TS 4.3.1 from the EPU LAR. These are being re-submitted in a new submittal (see Entergy letter GNRO-2011/00076) requesting review of the CSA separate from the EPU. Separating the NRC technical review of the CSA portion of the EPU LAR from the remainder of the original EPU LAR submittal does not alter other content or rationale of the EPU LAR.

2.4 Administrative Changes to Previously Proposed Technical Specification

Minor administrative changes to the TSs proposed in the initial EPU LAR are requested as outlined below. A markup of these changes is provided in Attachment 3. Note the attachment page numbers are consistent with the page numbers in EPU LAR Attachment 2.

1. TS 3.1.7, Standby Liquid Control (SLC) System

   The proposed markup of Required Action C.1 currently states: “Restore temperature ≥45°F or ≤150°F.” To ensure temperature is restored to a value that is within the temperature band, the markup should state: “Restore temperature **to** ≥45°F **and** ≤150°F.”

   The proposed markup of Surveillance Requirement (SR) 3.1.7.2 currently states: “Verify the temperature of the sodium pentaborate solution is ≥45°F or ≤150°F.” To ensure the temperature is maintained within the temperature band, the SR should state: “Verify the temperature of the sodium pentaborate solution is ≥45°F **and** ≤150°F.”

2. TS Table 3.3.1.1-1, Reactor Protection System Instrumentation

   Note (f) associated with the Oscillation Power Range Monitor (OPRM) Upscale function was included in the TS markup based on the proposed TS markup provided in the Power Range Neutron Monitoring System (PRNMS) LAR (November 3, 2009, NRC ADAMS Accession No. ML093140463). The note states: "The Allowable Value for the OPRM Upscale Period-Based Detection algorithm is specified in the COLR."

   In responses to requests for additional information associated with the PRNMS LAR, Note (f) was modified as follows: "The **setpoint** for the OPRM Upscale Period-Based Detection algorithm is specified in the COLR." (See Entergy letter dated May 31, 2011, NRC ADAMS Accession No. ML111520123)

   This is an administrative change.

3. TS 3.4.11, RCS Pressure and Temperature (P/T) Limits

   The spelling of "Surveillance" is corrected on the heading on page 3.4-30.

   This is an administrative change.

4. TS Page 5.0-21

   The markup of TS page 5.0-21 is being revised to reflect a change that was proposed in the PRNMS LAR but was inadvertently omitted in the EPU LAR TS markup.

   The EPU change was the addition of TS 5.6.6, Reactor Coolant System (RCS) Pressure Temperature Limits Report (PTLR). The markup of TS page 5.0-21 should have included the following licensing topical reports (LTRs) listed as analytical methods in TS 5.6.5, *Core Operating Limits Report*, which were proposed as part of the PRNMS LAR.

   - NEDO-31960-A, *BWR Owners' Group Long-Term Stability Solutions Licensing Methodology*
   - NEDO-32465-A, *Reactor Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications*

   The PRNMS LAR TS markup reflected the addition of these two LTRs on TS page 5.0-21 as items 25 and 26, respectively. The EPU TS markup was based on the PRNMS TS markup. This is an administrative change.

2.5 Commitments

The commitment summary provided as Attachment 14 in the original EPU LAR is superseded by the commitment listing included herein as Attachment 4 and amended as described below.

1. Item 3 of EPU LAR Attachment 14 stated: "EPU startup testing would be performed as described in Attachment 9, "Extended Power Uprate Startup Test Plan."" Based on additional reviews of EPU Startup Test 10, Intermediate Range Monitor (IRM) Performance, (Section 4.4 of EPU LAR Attachment 10), it has been determined that the overlap of the IRM with the Average Power Range Monitor (APRM) test does not need to be performed during the first controlled shutdown as described. Overlap is verified by entry into Mode 1. If inadequate IRM / APRM overlap existed during power accession, a rod block would prohibit entry into Mode 1. In addition, plant integrated operating instruction 03-1-01-3 verifies sufficient IRM/APRM overlap in accordance with the bases of TS 3.3.1.1.1 when shutting down from Mode 1 to Mode 2. Therefore, the commitment (item 3) will be modified to state:

   "EPU startup testing would be performed as described in Attachment 9, "Extended Power Uprate Startup Test Plan," with the exception of EPU Test 10 - IRM performance (See GNRO-2011/00033)."

2. Based on the determination that the modification to increase circulating water flow is not needed to support EPU conditions, the particulate emissions will not change significantly. In addition, the emission impact due to the lube oil tanks associated with the new radial wells is minor. Therefore no change is required to the MDEQ Air Permit and the following commitment identified in EPU LAR Attachment 14 as item 5 is hereby deleted.

   "A change to MDEQ Air Permit 0420-00023 will be submitted to reflect the increase in particulate emissions for Emission Point 008 (Natural Draft Cooling Tower and Auxiliary Cooling Tower) and the VOC emissions associated with the two (2) 60-gallon radial well pump lube oil tanks prior to placing these components in service. (Attachment 4)"

3. The list of abnormal operating procedures provided in EPU LAR Attachment 5 (PUSAR), Section 2.11.1 was updated in the response to an RAI from the Health Physics and Human Performance Branch. Therefore, for tracking purposes, the following commitment, which was identified in EPU LAR Attachment 14 as item 18, is being updated to reference the RAI response letter, with "see also GNRO-2011/00016."

   "GGNS procedures, including system operating, abnormal, and emergency operating procedures, will be revised prior to implementing EPU. (PUSAR Section 2.11.1)"

4. The following commitment was inadvertently included twice as items 21 and 22 in EPU LAR Attachment 14:

   "During the refueling outage following the first complete cycle of operation with the replacement steam dryer, inspections of the dryer will be conducted as recommended in General Electric Service Information Letter (SIL) 644, "BWR Steam Dryer Integrity." (Attachment 11, Appendix F)"

   The redundant commitment is hereby deleted. The remaining commitment is being clarified to reflect the commitment made in the response to the Steam Dryer RAIs (GNRO-2011/00018, NRC ADAMS Accession Number ML110900275). A second commitment made in GNRO-2011/00018 is also reflected in Attachment 4 (See commitment 24).

5. The commitments made in response to the initial set of questions from the Steam Generator and Chemical Engineering Branch (NRC ADAMS Accession No. ML110680507) were superseded by the commitment made by Entergy letter to the NRC dated May 3, 2011 (NRC ADAMS Accession No. ML111240288). The latest commitment is included in the compilation in Attachment 4.

6. Based on further evaluations of Group III components reflected in EPU LAR Attachment 5, Table 2, *Group III, Non-Qualified Components*, it has been determined that six electrical splices are the only Group III components that require replacement. A commitment to replace the existing splices for these devices prior to startup from the EPU outage was made in a clarification discussion with the NRC and in GNRO-2011/00079. This commitment is added as item 28.

3.0 BACKGROUND

3.1 Operating License Condition – Spent Fuel Pool Loading Criteria

The GGNS spent fuel storage racks consist of individual cells arranged in a matrix with a 6.26 inch pitch. The storage racks contain a variable number of cells that are arranged in the spent fuel pool to maximize the fuel storage. The cell walls consist of a neutron absorber (Boraflex) sandwiched between sheets of stainless steel that are secured with welded end strips that enclose the Boraflex.

The GGNS spent fuel storage racks are designed to maintain a K-effective equivalent of less than or equal to 0.95 when flooded with unborated water. The maximum calculated reactivity includes a margin for uncertainty in the reactivity calculations and in the mechanical tolerances, statistically combined such that the true K-effective will be equal to or less than 0.95 with a 95% probability at a 95% confidence level. The evaluation of the GGNS historical Blackness Test Campaign data shows accelerated Boraflex degradation for those panels receiving the highest doses in the shortest time frame (the designated Blackness Test Area). In order to accommodate known and possible future Boraflex degradation and maintain the K-effective

criterion of less than or equal to 0.95, the GGNS fuel pool racks are allocated into Region I and Region II locations. The Region I rack locations are those that are below the Boraflex dose threshold for accelerated gapping and are above a Boraflex areal density threshold.

The Region II rack locations, where, conservatively, no credit is taken for Boraflex, are those locations that are above a Boraflex dose threshold for accelerated gapping or below a Boraflex areal density threshold. Currently, Region II storage locations are grouped in 4x4 arrays with selected storage locations physically and administratively blocked in a "6 of 16 blocked" configuration.

The Boraflex areal density is measured by performance of Boron-10 Areal Density Gage for Evaluating Racks (BADGER) test campaigns. Both the areal density and radiation exposure are considered by periodic RACKLIFE calculations.

3.2 Containment Pressure

Short-term and long-term containment analyses were performed for the EPU. The short-term analysis is directed primarily at determining the containment pressure response during the initial blowdown of the reactor vessel inventory to the containment following a larger break inside the drywell. The short-term containment response analysis was performed for the limiting design basis accident (DBA) loss-of-coolant accident (LOCA) that assumes a double-ended guillotine break of recirculation suction line or a main steam line (MS) to demonstrate that the EPU does not result in exceeding the containment design limits. The peak short-term pressure, which lasts less than 6 seconds in a localized area above the suppression pool and below the hydraulic control unit floor, was determined to be 14.8 psig.

The long-term analyses are directed primarily at the pool temperature response, considering the decay heat addition to the suppression pool. The DBA LOCA and alternate shutdown cooling event were both reanalyzed for EPU. The peak long-term pressure was determined to be 11.9 psig.

4.0 TECHNICAL ANALYSIS

4.1 Operating License Condition – Spent Fuel Pool Loading Criteria

The proposed OL condition provides criteria for unrestricted (Region II) and restricted (Region II) fuel storage. The criteria are based on the areal density of the Boraflex panel and the gamma radiation dose the Boraflex panel have received. This OL condition is intended to provide suitable criticality controls while the new GGNS CSA is reviewed.

The Boraflex panel Boron-10 (B^{10}) areal density threshold criterion, which is based on RACKLIFE projections of the minimum areal density in Region I, was determined to be 0.0179 g/cm^2. This value bounds the analytical value considering the RACKLIFE / BADGER uncertainties and provides conservatism above the current threshold criteria of 0.0165 gm/cm^2

for classifying panels as Region II. The Boraflex panel B^{10} areal density threshold criterion is more conservative than the value assumed in the current analysis of record and the value assumed in the CSA under review.

The gamma radiation dose criterion (2.3E10 rads) is based on the dose threshold corresponding to the formation of large Boraflex gaps that were identified in Blackness testing. This dose criterion is based on GGNS observations in relationship to industry tests and experiments and imposes an additional requirement to be met by Region I storage cells.

The proposed GGNS Region II CSA result, assuming the use of design basis fuel bundles, reports a 95/95 k-effective of 0.90850. While this result does not include the effects of a fuel assembly misload event, it does provide substantial margin to partially mitigate the consequences of such an event. GNF has performed a scoping calculation of the worst case misload and estimates a reactivity increase of approximately 0.055 delta-k.

A review of the actual bundles currently stored in Region II shows a significant reactivity margin to the design basis bundle assumed in the CSA. The design basis bundle contained 4.9 w/o enrichment in the enriched zone with a fuel burnup determined to achieve the maximum reactivity at all axial locations. Actual fuel loaded in Region II is significantly less reactive than the design basis fuel due to the use of lower fuel enrichments and the higher burnup actually achieved for the discharged fuel in this region.

Upon implementation of the license condition, Entergy will restrict fuel in Region II locations to those assemblies with a maximum reactivity in any 6” fuel segment that is at least 0.050 delta-k below that of the design basis assembly. Since the design basis bundle is limited by an in-core k-infinity of 1.26, a 1.21 in-core k-infinity limit will be applied to the Region II fuel assemblies.

Table 1 below provides the BADGER campaign results and the corresponding RACKLIFE results. The RACKLIFE results are based on a model with a slightly increased escape coefficient which eliminated the small bias noted in the Region I coupon comparison. This increase is appropriate since it results in conservative RACKLIFE pool chemistry predictions and does not have a material impact on the uncertainty distribution used in the BADGER/RACKLIFE correlation. The use of Region I panels alone to determine the RACKLIFE/BADER correlation uncertainty is appropriate since Boraflex is not credited in the Region II criticality analysis and the Region I and Region II panels have a distinctively different operating history and Boraflex performance.

Table 1 – RACKLIFE / BADGER Measurement Correlation

Coupon	Orientation	BADGER Measured Areal Density	Dose	%B4C Loss	Racklife Areal Density (Based on Nominal Density 0.0204 g/cm^2)
ZQ14	South	0.01950	0	3.6071	0.01966
ZQ16	North	0.01910	0	3.6071	0.01966
ZR15	East	0.02040	0	3.6071	0.01966
ZP15	West	0.02010	1.3E+09	3.8332	0.01962
FF28	South	0.01840	2.71E+09	6.2089	0.01913
DD28	South	0.02160	4.67E+09	6.3249	0.01911
GG29	East	0.01940	6.97E+09	6.6053	0.01905
FF30	North	0.01850	7.46E+09	6.7832	0.01902
EE29	West	0.01920	7.59E+09	6.5634	0.01906
CC29	West	0.01960	8.27E+09	7.4666	0.01888
DD30	North	0.01820	8.46E+09	5.8657	0.01920
EE29	East	0.01920	9.13E+09	6.0438	0.01917
P7	South	0.01830	1.46E+10	5.7714	0.01922
DD28	North	0.01730	1.55E+10	7.6602	0.01884
T13	South	0.01900	1.57E+10	5.765	0.01922
T13	North	0.01970	1.62E+10	5.7688	0.01922
AA12	South	0.01960	1.79E+10	5.7666	0.01922
CC27	South	0.01820	2.25E+10	7.9176	0.01878
			> 2.3E10		
EE27	East	0.02020	2.89E+10	7.7029	0.01883
HH24	North	0.01980	2.97E+10	7.6678	0.01884
DD26	South	0.01880	2.97E+10	7.6166	0.01885
HH24	South	0.01780	2.98E+10	7.6336	0.01884
HH24	East	0.01900	2.99E+10	7.6	0.01885
HH22	North	0.02130	3.02E+10	7.6363	0.01884
HH22	South	0.01730	3.02E+10	7.7082	0.01883
HH22	East	0.01840	3.07E+10	7.7252	0.01882
AA27	North	0.02060	3.08E+10	7.9183	0.01878
CC27	West	0.01830	3.33E+10	7.8817	0.01879
AA27	West	0.02200	3.53E+10	7.9191	0.01878
AA27	East	0.01890	3.54E+10	7.9203	0.01878
CC27	North	0.01840	3.72E+10	7.9296	0.01878
CC27	East	0.01660	3.83E+10	7.9256	0.01878

4.2 Operating License Condition – Leak Rate Testing (Revised) and Technical Specification 5.5.12, "10 CFR 50, Appendix J, Testing Program"

The term "long-term" will be removed from the previously proposed license condition. The definition of Pa in Option B, "Performance-Based Requirements," 10 CFR 50 Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," states: "Pa (p.s.i.g) means the calculated peak containment internal pressure related to the design basis loss-of-coolant accident as specified in the Technical Specifications." The initial assumption for the originally proposed license condition was that the long-term pressure (11.9 psig) should be considered the Pa value rather than the short-term pressure (14.8 psig), which occurs in a localized area and is of short duration (approximately 6 seconds). Additional explanation of the initial assumption was provided by letter dated June 23, 2011 (NRC ADAMS Accession No. ML111750244). However, based on discussions with the NRC, the higher, more conservative short-term pressure will be used as the peak containment internal pressure.

Consistent with the definition of Pa provided in Option B of Appendix J of 10 CFR 50, the value of Pa is proposed to be added to the Technical Specifications. This change represents an increase in requirements. In addition to the GGNS Appendix J Program documents, the value of Pa will now also be located in TS 5.5.12.

4.3 Withdrawal of the Proposed TS 4.2.1, *Criticality*

The request to withdraw the proposed changes to TS 4.1.3 is made in recognition of the fact that these changes are based in part on the new CSA, which will be the subject of a separate licensing action. This proposed change is withdrawn from the EPU LAR, but is included in the new LAR for the CSA. The proposed License Condition discussed in Section 4.1 above provides reasonable assurance that the k-effective of the spent fuel storage racks loaded with fuel of the maximum fuel assembly reactivity will not exceed 0.95, at a 95 percent probability, 95 percent confidence level in the interim while the new licensing action is under review.

4.4 Administrative Changes to Previously Proposed Technical Specification

The changes to TS 3.1.7, SLC System clarify the text to ensure the solution temperature is maintained within the temperature band. This is an editorial change to better implement the intent of a specified temperature band.

The changes to TS Table 3.3.1.1-1, Reactor Protection System Instrumentation note (f) and page 5.0-21 assure the EPU TS markups are consistent with the TS submitted in the PRNMS LAR. This is an administrative change.

The change to TS 3.4.11, RCS Pressure and Temperature (P/T) Limits corrects a typographical error and is administrative.

5.0 REGULATORY ANALYSIS

The proposed changes to the Grand Gulf Nuclear Station Operating License and Technical Specifications support the implementation of an Extended Power Uprate (EPU) and a separate review of the spent fuel pool criticality safety analysis. The No Significant Hazards Consideration provided in the original EPU license amendment request is not impacted by the proposed changes

Attachment 2

GNRO-2011/00033

Grand Gulf Nuclear Station Extended Power Uprate

New EPU Proposed Operating License and Technical Specification Changes (Mark-up)

(b) The first performance of the periodic assessment of CRE habitability, Specification 5.5.13.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from March 2005, the date of the most recent successful tracer gas test, as stated in the June 30, 2005 letter response to Generic Letter 2003-01, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic assessment of the CRE boundary, Specification 5.5.13.d, shall be within the next 18 months, plus the 136 days allowed by SR 3.0.2, as measured from the date of issuance of this amendment.

D. The facility required exemptions from certain requirements of Appendices A and J to 10 CFR Part 50 and from certain requirements of 10 CFR Part 100. These include: (a) exemption from General Design Criterion 17 of Appendix A until startup following the first refueling outage, for (1) the emergency override of the test mode for the Division 3 diesel engine, (2) the second level undervoltage protection for the Division 3 diesel engine, and (3) the generator ground over current trip function for the Division 1 and 2 diesel generators (Section 8.3.1 of SSER #7) and (b) exemption from the requirements of Paragraph III.D.2(b)(ii) of Appendix J for the containment airlock testing following normal door opening when containment integrity is not required (Section 6.2.6 of SSER #7). These exemptions are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. In addition, by exemption dated December 20, 1986, the Commission exempted licensees from 10 CFR 100.11(a)(1), insofar as it incorporates the definition of exclusion area in 10 CFR 100.3(a), until April 30, 1987 regarding demonstration of authority to control all activities within the exclusion area (safety evaluation accompanying Amendment No. 27 to License (NPF-29). This exemption is authorized by law, and will not present an undue risk to the public health and safety, and is consistent with the common defense and security. In addition, special circumstances have been found justifying the exemption. Therefore, these exemptions are hereby granted pursuant to 10 CFR 50.12. with the granting of these exemptions, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act and the rules and regulations of the Commission.

E. The licensee shall fully implement and maintain in effect all provision of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Physical Security, Safeguards Contingency and Training and Qualification Plan," and were submitted to the NRC on May 18, 2006.

(44) Leak rate tests associated with Surveillance Requirements (SR) 3.6.1.1.1, 3.6.1.3.5, and 3.6.1.3.9, as required by TS 5.5.12 and in accordance with 10 CFR 50, Appendix J, Option B, and SRs 3.6.5.1.1and 3.6.5.1.2 are not required to be performed until their next scheduled performance dates. The tests will be performed at the EPU calculated peak containment pressure or within EPU drywell bypass leakage limits, as appropriate.
(45) EOI will not operate GGNS at a thermal power level above 3,898 MWt until the Power Range Neutron Monitoring System license amendment request is approved by the NRC.
(46) - see insert 1 -

(44) is revised; (46) is new.

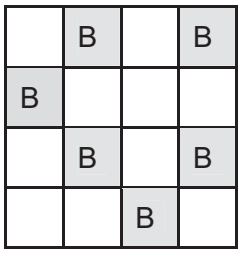
Insert 1

Through Cycle 19 or until the revised criticality safety analysis has been approved, whichever comes first, the storage cells in the GGNS SFP racks shall be categorized as either Unrestricted or Restricted.

(a) Unrestricted cells (Region I) are cells with a minimum panel B10 areal density greater than 0.0179 gm/cm^2 and that have received an exposure less than 2.3E10 rads. Unrestricted cells may contain fuel assemblies up to the maximum k-infinity of 1.26 (cold core configuration).

(b) Restricted cells (Region II) are cells with either a minimum panel B10 areal density less than 0.0179 gm/cm^2 or that have received an exposure in excess of 2.3E10 rads. Storage in Restricted cells shall not credit any Boraflex. Storage shall be controlled in a 10 of 16 configuration (see below). In addition, only fuel assemblies with a k-infinity of less than 1.21 (cold core configuration) may be stored in a Region II cell.

Region II 4X4 Storage Configuration



Fuel Assembly Storage Location

B Location Physically Blocked to Prevent Storage

5.5.11 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. A change in the TS incorporated in the license; or

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.

d. Proposed changes that do not meet the criteria of either Specification 5.5.11.b.1 or Specification 5.5.11.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.12 10 CFR 50, Appendix J, Testing Program

This program establishes the leakage rate testing program of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be implemented in accordance with the Safety Evaluation issued by the Office of Nuclear Reactor Regulation dated April 26, 1995 (GNRI-95/00087) as modified by the Safety Evaluation issued for Amendment No. 135 to the Operating License, except that the next Type A test performed after the November 24, 1993 Type A test shall be performed no later than November 23, 2008. Consistent with standard scheduling practices for Technical Specifications required surveillances, intervals for the recommended surveillance frequency for Type A, B and C testing may be extended by up to 25 percent of the test interval, not to exceed 15 months.

The calculated peak containment internal pressure for the design basis loss of coolant accident, Pa, is 14.8 psig.

Attachment 3

GNRO-2011/00033

Grand Gulf Nuclear Station Extended Power Uprate

Revised Markup of EPU Proposed Technical Specification Changes

Note: The Attachment page numbers are consistent with the page numbers in Attachment 2 original EPU LAR submittal (NRC ADAMS Accession No. ML102660403)

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~Concentration of boron in solution in Limited Operation region.~~ (C)(E) < 420	A.1 ~~Restore concentration of boron in solution to Normal Operation region.~~ Restore (C)(E) ≥ 420	~~72 hours~~ 8 hours
	~~AND~~	
	~~A.2 Perform SR 3.1.7.2.~~	~~Once per 4 hours~~
D. ~~B.~~ One SLC subsystem inoperable.	~~B.1~~ D.1 Restore SLC subsystem to OPERABLE status.	7 days
E. ~~C.~~ Two SLC subsystems inoperable for reasons other than Conditions A, B or C.	~~C.1~~ E.1 Restore one SLC subsystem to OPERABLE status.	8 hours
F. ~~D.~~ Required Action and associated Completion Time not met.	~~D.1~~ F.1 Be in MODE 3.	12 hours

B. Sodium pentaborate solution volume < 4,200 gallons. B.1 Restore Volume to ≥ 4,200 gallons. 8 hours

C. Temperature < 45°F or > 150°F. C.1 Restore temperature to ≥45°F and ≤150°F. 8 hours

Revised

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is ~~within the limits of Figure 3.1.7-1.~~ ≥ 4,200 gallons.	24 hours
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is ~~within the limits of Figure 3.1.7-2.~~ ≥45°F and ≤150°F.	24 hours
SR 3.1.7.3	~~Verify temperature of pump suction piping is ≥ 75°F and ≤ 130°F.~~	~~24 hours~~ 31 days
SR 3.1.7.4	Verify continuity of explosive charge.	31 days
SR 3.1.7.5	~~Verify the concentration of boron in solution is within the limits of Figures 3.1.7-1 and 3.1.7-2.~~ Verify the percent weight of sodium pentaborate in solution is ≤9.5%.	31 days AND Once within 24 hours after water or boron is added to solution AND Once within 24 hours after solution temperature is restored to ≥ ~~75°F~~ 45°F

Revised

----------NOTE----------
Sodium Pentaborate Concentration (C), in weight percent is determined by the performance of SR 3.1.7.5. Boron-10 enrichment (E), in atom percent is determined by the performance of SR 3.1.7.9.

Verify SLC System satisfies the following equation:
(C)(E) ≥ 420

(continued)

Table 3.3.1.1-1 (page 1 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Intermediate Range Monitors					
a. Neutron Flux — High	2	3	H	SR 3.3.1.1.1 SR 3.3.1.1.3 SR 3.3.1.1.12 SR 3.3.1.1.13	≤122/125 divisions of full scale
	5(a)	3	I	SR 3.3.1.1.1 SR 3.3.1.1.4 SR 3.3.1.1.12 SR 3.3.1.1.13	≤ 122/125 divisions of full scale
b. Inop	2	3	H	SR 3.3.1.1.3 SR 3.3.1.1.13	NA
	5(a)	3	I	SR 3.3.1.1.4 SR 3.3.1.1.13	NA
2. Average Power Range Monitors					
a. Neutron Flux - High, Setdown	2	3(c)	H	SR 3.3.1.1.7 SR 3.3.1.1.10(d)(e) SR 3.3.1.1.19 SR 3.3.1.1.20	≤ 20% RTP 119.3%
b. Fixed Neutron Flux - High	1	3(c)	G	SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.10(d)(e) SR 3.3.1.1.19 SR 3.3.1.1.20	≤ ~~120%~~ RTP
c. Inop	1,2	3(c)	H	SR 3.3.1.1.20	NA
d. Flow Biased Simulated Thermal Power - High	1	3(c)	G	SR 3.3.1.1.2 SR 3.3.1.1.7 SR 3.3.1.1.10(d)(e) SR 3.3.1.1.17 SR 3.3.1.1.19 SR 3.3.1.1.20	(b)
e. 2-Out-Of-4 Voter	1, 2	2	H	SR 3.3.1.1.19 SR 3.1.1.1.20 SR 3.1.1.1.21 SR 3.1.1.1.22	NA
f. OPRM Upscale	~~≥24%~~ RTP 21%	3(c)	J	SR 3.3.1.1.7 SR 3.3.1.1.10(d)(e) SR 3.3.1.1.19 SR 3.3.1.1.20 SR 3.3.1.1.23	(f)

(continued)

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.
(b) Two-Loop Operation: ~~0.65W + 62.9% RTP~~ 0.58W +59.1% RTP and ≤ 113% RTP
Single-Loop Operation: ~~0.65W + 42.3% RTP~~ 0.58W +37.4% RTP
(c) Each channel provides inputs to both trip systems.
(d) If the as-found channel setpoint is outside its pre-defined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service.
(e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm channel performance. The NTSP and the methodologies used to determine the as-found and as-left tolerances are specified in the Technical Requirements Manual.
(f) The ~~Allowable Value~~ setpoint for the OPRM Upscale Period-Based Detection algorithm is specified in the COLR.

Impact of EPU on changes proposed in PRNMS LAR are reflected on this page.

Revised

SURVEILLANCE

SURVIELLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.11.8	----------NOTE---------- Only required to be met in single loop operation during increases in THERMAL POWER or recirculation loop flow with the operating recirculation pump not on high speed and THERMAL POWER < 36% of RTP. ---------- Verify the difference between the bottom head coolant temperature and the RPV coolant temperature is ≤ 100°F. within the limits specified in the PTLR.	Once within 15 minutes prior to an increase in THERMAL POWER or an increase in loop flow
SR 3.4.11.9	----------NOTE---------- Only required to be met in single loop operation during increases in THERMAL POWER or recirculation loop flow with the operating recirculation pump not on high speed, and THERMAL POWER < 36% of RTP, and the idle recirculation loop not isolated from the RPV. ---------- Verify the difference between the reactor coolant temperature in the recirculation loop not in operation and the RPV coolant temperature is ≤ 50°F. within the limits specified in the PTLR.	Once within 15 minutes prior to an increase in THERMAL POWER or an increase in loop flow

Next page is 3.4-36.

5.6.5 Core Operating Limits Report (COLR) (continued)

21. NEDE-33383-P, "GEXL97 Correlation Applicable to ATRIUM-10 Fuel," Global Nuclear Fuel.

22. EMF-CC-074(P)(A), Volume 4, "BWR Stability Analysis Assessment of STAIF with Input from MICROBURN-B2", Siemens Power Corporation, Richland, WA.

23. EMF-2292(P)(A), "ATRIUM-1O Appendix K Spray Heat Transfer Coefficients", Siemens Power Corporation, Richland, WA.

24. NEDE-24011 -P-A, General Electric Standard Application for Reactor Fuel (GESTAR-II).

25. NEDO-39160-A, *BWR Owners' Group Long-Term Stability Solutions Licensing Methodology*

26. NEDO-32465-A, *Reactor Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications*

Items 25 & 26 are proposed in the PRNMS LAR.

Revised

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 Reactor Coolant System (RCS) Pressure and Temperature Limits Report (PTLR)

a. RCS pressure and temperature limits for heatup, cooldown, low temperature operation, criticality, and hydrostatic testing as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:
   i) Limiting Conditions for Operation Section 3.4.11, "RCS Pressure and Temperature (P/T) Limits"
   ii) Surveillance Requirements Section 3.4.11, "RCS Pressure and Temperature (P/T) Limits"

b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following document:
   i) NEDC-33178P-A, "GE Hitachi Nuclear Energy Methodology for Development of Reactor Pressure Vessel Pressure Temperature Curves" Revision 1, June 2009

c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

Attachment 4

GNRO-2011/00033

Grand Gulf Nuclear Station Extended Power Uprate

Revised List of EPU Regulatory Commitments

Revised List of EPU Regulatory Commitments

The following table identifies those actions committed to by Entergy in the following EPU LAR correspondence:

- NRC ADAMS Accession No. ML102660408, letter dated September 8, 2010
- NRC ADAMS Accession No. ML110680507, letter dated March 9, 2011 (these were superseded by letter dated May 3, 2011 (NRC ADAMS Accession No. ML111240288))
- NRC ADAMS Accession No. ML110900275, letter dated March 30, 2011
- NRC ADAMS Accession No. ML111240288, letter dated May 3, 2011 (supersedes those made in NRC ADAMS Accession No. ML110680507)
- NRC ADAMS Accession No. ML111880138, letter dated July 6, 2011

Any other statements in these submittals were provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
1. The Operating License (OL) and Technical Specifications (TSs) Markups submitted as part of the Extended Power Uprate (EPU) will be revised, if required, to be consistent with the NRC approved Power Range Neutron Monitoring System (PRNMS) TSs. (Attachment 1)	x		
2. The Linear Heat Generation Rate (LHGR) and Minimum Critical Power Ratio (MCPR) limits for two inoperable main turbine bypass valves will be specified in the COLR. (Attachment 1)		x	
3. EPU startup testing would be performed as described in Attachment 9, “Extended Power Uprate Startup Test Plan,” with the exception of EPU Test 10 - IRM performance (See GNRO-2011/00033).	x		
4. Vibration analysis and testing will be performed as described in Attachment 10, “Vibration Analysis and Testing Program.”	x		
5. Deleted			

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
6. Approximately 216 MVAR of additional reactive power capability will be distributed appropriately at designated load centers throughout the system to ensure system reliability. (Attachment 12)	x		
7. The GGNS Containment Leakage Rate Program will be updated to incorporate the EPU Pa value. (PUSAR Section 2.2.4.1)	x		
8. The 480 VAC motor control center (MCC) minimum voltages supplied from off-site power are only marginally affected by EPU (0.51 VAC maximum voltage drop). This 0.11% voltage drop has a negligible effect on valve torque and will be incorporated into the affected MOV calculations. (PUSAR Section 2.2.4.2)	x		
9. Relief valves required by the modification to increase the fuel pool cooling and cleanup system heat removal capability will be added to the inservice testing program scope. (PUSAR Section 2.2.4.2)	x		
10. EQ file updates will be completed as required by 10 CFR 50.49 prior to EPU implementation. Remaining life determinations will be made for all Group II items and any required modifications or replacement of equipment will also be completed prior to EPU implementation. (PUSAR Section 2.3.1)	x		
11. The changes to the GGNS EQ program brought about by the implementation of EPU will be documented and administered per Entergy Administrative Procedure, “Environmental Qualification (NUREG-0588 / 10 CFR 50.49)” 01-S-06-57, Revision 0. (PUSAR Section 2.3.1)	x		
12. The existing protective relay settings for the main generator will have to be recalculated due to the increased EPU power output. (PUSAR Section 2.3.2.2)	x		

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
13. Because the high pressure turbine will be modified to support achieving the EPU RTP level, new allowable values (AVs) (both upper bound and lower bound) in units of psig must be established. The AVs (in psig) will be revised prior to EPU implementation. (PUSAR Section 2.4.1.3.4)	x		
14. The RWL HPSP AL (in psig) will be revised prior to EPU implementation. The RCIS RWL setpoint (in psig) will be validated during power uprate plant ascension start-up testing to ensure the actual plant interlock is cleared consistent with the safety analysis.(PUSAR Section 2.4.1.3.5)	x		
15. Instrumentation and controls listed in PUSAR Table 2.4-2 will be recalibrated and rescaled as required to support EPU.	x		
16. High pressure turbine operating restrictions will be implemented by GGNS to assure operation at speeds other than at speeds within the natural frequency ranges. (PUSAR Section 2.5.1.2.2)		x	
17. Fuel rod thermal-mechanical performance will be evaluated as part of the reload analysis performed for the cycle-specific core. Documentation of acceptable fuel rod thermal-mechanical response will be included in the Supplemental Reload Licensing Report (SRLR) or Core Operating Limits Report (COLR) consistent with Limitation and Condition 9.10 of NEDC-33173P-A. (PUSAR Section 2.8.5.2.1)		x	
18. GGNS procedures, including system operating, abnormal, and emergency operating procedures, will be revised prior to implementing EPU. (PUSAR Section 2.11.1) See also GRNO-2011/00016.	x		

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
19. As determined by the training analysis process, appropriate classroom, simulator and in-plant training will be conducted prior to power escalation or as required to operate modified systems for plant start up. The simulator will be modified to maintain the required fidelity in accordance with site procedures and ANSI/ANS 3.5 - 1998 (Reference 89). The simulator changes include hardware changes for new and modified instrumentation and controls, software updates for modeling EPU changes and re-tuning of the core physics model for cycle-specific data. Simulator performance will be validated using design analysis data and startup and test data from the EPU project and implementation program. (PUSAR Section 2.11.1.5)	x		
20. When EPU conditions are obtained and data collected at EPU conditions, a final stress analysis will be performed and submitted to the NRC. (Attachment 11)	x		
21. During the subsequent refueling outages the replacement steam dryer will be inspected as recommended in General Electric Service Information Letter (SIL) 644, “BWR Steam Dryer Integrity,” dated August 30, 2006. (Attachment 11, Appendix F)		x	
22. Deleted			

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
23. GGNS will perform periodic surveillances of the Boraflex neutron absorbing material at least every five years using Boron-10 Areal Density Gage for Evaluating Racks (BADGER) testing. The first test campaign will be completed by December 31, 2012. The tests will consist of at least 30 panels. The Badger to Racklife uncertainty will be developed from the test results. This value will be considered acceptable if it is less than the existing Badger/Racklife uncertainty. Additionally, the minimum Badger areal density results will be confirmed to be greater than the CSA assumption. The gap size and location probability distributions will also be compared to those used in the CSA. The acceptability of these parameters will be based on verifying that all of the CSA distributions bound the corresponding Badger measured distributions. Alternatively, the measured gap distributions are acceptable if the CSA calculations are repeated using the measured gap distributions and the resulting 95/95 k-effective is bounded by the corresponding CSA Region 1 result (see Table 1 of NEDC-33621P, Grand Gulf Nuclear Station Fuel Storage Criticality Safety Analysis of Spent and New Fuel Storage Racks, Attachment 2 to the November 23, 2010 letter). 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.		x	

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
24. During power ascension to EPU conditions, the acoustic pressure within the main steam lines will be monitored, the trending updated, and the resulting pressure loads on the dryer will be compared to the power ascension limit curves, which were determined from the FIV analysis results.	x		
25. Four safety relief valve (SRV) locations on each of the four main steam lines will be used for piping and SRV monitoring. Each location will have three orthogonal accelerometers	x		
26. Upon final selection of the FIV data acquisition system (DAS) and instruments, instrument bias and uncertainty will be addressed by appropriate adjustment of the acceptance limits.	x		

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
27. In the event GGNS observes excessive vibration during the power ascension, the steam dryer and FIV monitoring limits will ensure that the EPU power ascension is stopped at a level where the valve and dryer loads are acceptable. If this occurs, GGNS will perform a detailed assessment of the FIV loads and piping and SRV responses and provide the NRC with an updated plan to mitigate the excessive vibration or the resulting stresses. At GGNS, the initial onset of second shear layer resonance was observed at 203 and 208 Hz. If excessive valve vibration should occur at EPU conditions, the following actions will be pursued: If the MSL strain gage data indicates that acoustic loads are of low to medium amplitude, the sensitive piping and valve modal response would be identified using the accelerometer data and piping/SRV models and piping/SRV support modifications would be identified to shift or eliminate the piping/SRV response mode. If the MSL strain gage data indicates that acoustic loads are of high amplitude, indicative of a second shear wave being the primary cause of the excessive vibration, the acoustic data will be used to define the acoustic mode shape in the RPV/piping/SRV system. Then GGNS would: • mitigate the acoustic loads by employing an acoustic load mitigation device upstream of the SRV branch connections with contributing acoustic sources or • modify the SRV-piping geometry to mitigate the acoustic response.	**x**		
28. Group III non-qualified electrical splices for the six components will be replaced with qualified splices prior to EPU implementation.	**x**		