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Grand Gulf Nuclear Station

GNRO-2003/00021

April 3, 2003

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

Subject. Grand Gulf Nuclear Station - Unit 1
Docket No. 50-416
License Amendment Request,
"Change to the Reactor Vessel Material Surveillance Program"
(LDC 2002-103)

References:
1. Letter from W. H. Bateman (USNRC) to C. Terry (BWRVIP Chairman) titled, "Safety Evaluation Regarding EPRI Proprietary Report 'BWR Vessel and Internals Project, BWR Integrated Surveillance Program Plan (BWRVIP-78)' and 'BWRVIP-86: BWR Vessel and Internals Project, BWR Integrated Surveillance Program Implementation Plan,'" dated February 1, 2002.
2. Regulatory Issue Summary No. 2002-05, "NRC Approval of Boiling Water Reactor Pressure Vessel Integrated Surveillance Program," dated April 8, 2002.

Dear Sir or Madam:

Pursuant to 10CFR50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for Grand Gulf Nuclear Station (GGNS). Entergy proposes to revise section 5.3 of the Updated Final Safety Analysis Report (FSAR) to change the reactor vessel material surveillance program required by 10CFR50, Appendix H, Section IIIB.3. The proposed change incorporates the Boiling Water Reactor Vessel & Internals Project (BWRVIP) Integrated Surveillance Program (ISP) into the GGNS licensing basis in accordance with Reference 2.

The issue of whether this change from the existing surveillance program to the ISP needs to be addressed as a license amendment is not clear. This is related to the applicability of Commission Memorandum and Order CLI 96-13 (commonly

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referred to as the Perry decision) and the need for license amendments, which is being addressed generically between the Nuclear Energy Institute (NEI) and the Nuclear Regulatory Commission (NRC). However, consistent with the process established between the NRC and the BWRVIP, this change is being processed as a license amendment to facilitate NRC review and approval.

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in the attached submittal.

The proposed change includes new commitments as summarized in Attachment 3.

Entergy requests approval of the proposed amendment within one year. Once approved, the amendment shall be implemented within 60 days. Although this request is neither exigent nor emergency, your prompt review is requested.

If you have any questions regarding this request or require additional information, please contact Mr. Ron Byrd at (601) 368-5792.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 3, 2003.

William A Eaton

WAE/RWB
attachments:

1. Analysis of Proposed Updated FSAR Changes
2. Proposed Updated FSAR Changes (mark-up)
3. List of Regulatory Commitments

cc: (See Next Page)

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Mr. D. E. Levanway (Wise Carter)
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April 3, 2003

bcc:

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Dr. E. F. Thompson (w/a)
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Attachment 1

GNRO-2003/00021

Analysis of Proposed Updated FSAR Changes

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-29 for the Grand Gulf Nuclear Station (GGNS).

The proposed changes will revise the Updated Final Safety Analysis Report (FSAR) to change the Reactor Vessel Material Surveillance Program. The change will reflect participation in the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Integrated Surveillance Program (ISP), which the Nuclear Regulatory Commission (NRC) approved as an acceptable alternative to plant specific programs in its Safety Evaluation (SE) dated February 1, 2002 (Reference 1).

2.0 PROPOSED CHANGE

This proposed change includes a revision to the Reactor Vessel Material Surveillance Program requirements in Section 5.3 of the Updated FSAR to reflect participation in the BWRVIP ISP. The proposed revision to the GGNS Updated FSAR reflecting this change is provided in Attachment 2.

Under the BWRVIP ISP, the test specimens currently in the GGNS reactor capsules need not be removed or tested because other BWRVIP ISP participants will remove and test specimens that represent the GGNS vessel materials. The GGNS capsule withdrawal schedule described in the Updated FSAR will refer to the withdrawal time as "deferred" since they will be retained in the reactor for contingency purposes.

3.0 BACKGROUND

Appendix H to 10 CFR 50, "Reactor Vessel Material Surveillance Program Requirements," requires that reactor pressure vessels have their beltline regions monitored by a surveillance program that complies with American Society for Testing & Materials (ASTM) E-185, except as modified by Appendix H. ASTM E-185 provides guidelines for designing a surveillance program, selecting materials, and evaluating test results for light-water cooled nuclear power reactor vessels. It also provides recommendations for minimum number of surveillance capsules and their withdrawal schedules. 10CFR50, Appendix H, requires that the proposed withdrawal schedule be submitted with a technical justification and approved prior to implementation.

The GGNS plant-specific Reactor Pressure Vessel Material Surveillance Program was designed in accordance with 10CFR50, Appendix H and the 1973 edition of ASTM E-185. The original Final Safety Analysis Report (FSAR) surveillance capsule withdrawal schedule was established in accordance with ASTM E-185-73 and later revised by Amendment 127 to be in accordance with the ASTM E-185-82. Each in-reactor surveillance capsule contains 36 Charpy V-notch specimens in accordance with 10 CFR 50, Appendix H and ASTM E 185-73 which was in effect at the time the surveillance capsules were loaded. The capsule loading consists of 12 specimens each of base metal, weld metal, and heat-affected zone material.

The schedule for capsule withdrawals is provided in Section 5.3.1.6.1 of the GGNS Updated FSAR. The first capsule was withdrawn from the reactor vessel during Refueling Outage 7 (RF07) but returned to the vessel during RF08 without being tested. This change was approved by Amendment 127, Reference 3. Amendment 127 revised the original schedule so that the first capsule to be withdrawn and tested is at 24 effective full power years (EFPY).

Over the last several years, the BWRVIP developed an ISP to replace the individual plant programs and submitted it for NRC approval. Per Reference 1, the staff completed its review of the final proposed BWRVIP ISP Plan and found it acceptable for Boiling Water Reactor (BWR) licensee implementation provided that all licensees use one or more neutron fluence methodologies acceptable to the NRC staff to determine surveillance capsule and Reactor Pressure Vessel (RPV) neutron fluences. The staff also required licensees who elect to participate in the ISP to submit a license amendment to the NRC confirming their incorporation of the ISP into the licensing basis for each BWR facility.

The ISP was developed in response to an issue raised by the NRC staff regarding the potential lack of adequate unirradiated baseline Charpy V-notch data for one or more materials in plant-specific RPV surveillance programs at several BWRs. The lack of baseline properties would inhibit a licensee's ability to effectively monitor changes in the fracture toughness properties of RPV materials in accordance with Appendix H to 10 CFR 50. The ISP, as approved by the NRC, resolves this issue.

Under the BWRVIP ISP, the Perry surveillance capsules and certain BWR Supplemental Surveillance Program (SSP) capsules were selected to represent the GGNS weld and plate materials. The first Perry capsule has already been removed; the second capsule is scheduled to be removed in 2012. SSP capsules representing GGNS were inserted in two host BWR reactors, Cooper and Oyster Creek. The Oyster Creek capsules have been withdrawn and tested. The Cooper capsules are scheduled to be withdrawn and tested in 2003. Under the ISP, the GGNS capsules will not be required to be removed and tested. However, the representative data from ISP surveillance testing will be available sooner than under the current GGNS surveillance program.

4.0 TECHNICAL ANALYSIS

Implementation of the ISP will provide several benefits. When the original surveillance materials were selected for plant-specific surveillance programs, the state of knowledge concerning RPV material response to irradiation and post-irradiation fracture toughness was not the same as it is today. As a result, many facilities did not include what would be identified today as the plant's limiting RPV materials in their surveillance programs. Hence, the effort to identify and evaluate materials from other BWRs, which may better represent a facility's limiting materials, should improve the overall evaluation of BWR RPV embrittlement. The BWRVIP's ISP surveillance material selection process adequately ensures that materials in the program effectively provide meaningful information to monitor changes in fracture toughness for GGNS RPV materials. In addition, the ISP program requires participants to acquire and evaluate relevant ISP test data from the program which may affect RPV integrity evaluations in a timely manner.

The inclusion of data from the testing of BWR Owners' Group (BWROG) SSP capsules will also improve overall quality of the data being used to evaluate BWR RPV embrittlement. Finally, implementation of the ISP is expected to reduce the cost of surveillance testing and analysis since surveillance materials that are of little or no value will no longer be tested.

Reference 1 concludes that the proposed ISP, if implemented in accordance with the conditions in the SE, is an acceptable alternative to existing BWR plant-specific RPV surveillance programs for the purpose of maintaining compliance with the requirements of Appendix H to 10 CFR Part 50 through the end of current facility 40 year operating licenses. Reference 1 requires that each licensee (1) provide information regarding what specific neutron fluence methodology will be implemented as part of participation in the ISP and (2) address the neutron fluence methodology compatibility issue as it applies to the comparison of neutron fluences calculated for its RPV versus the neutron fluences calculated for surveillance capsules in the ISP which are designated to represent its RPV.

A neutron fluence calculation methodology which has been approved by the NRC staff and is consistent with the attributes identified in the United States (U.S.) Nuclear Regulatory Commission Regulatory Guide (RG) 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," will be used for the determination of RPV and surveillance capsule neutron fluence values to ensure quality of the method and compatibility between ISP results.

There are currently no licensing basis requirements or licensing initiatives that would trigger a need to revise the current reactor vessel fluence calculations for the current licensed period. The GGNS Technical Specifications provides pressure/temperature (P/T) limit curves based on periods up to 32 EFPY of operation. The current P/T limits were established based on adjusted reference temperatures developed in accordance with the procedures prescribed in RG 1.99, Rev 2. Calculation of adjusted reference temperature by these procedures includes a margin term to ensure conservative, upper-bound values are used for the calculation of the P/T limits.

Entergy is evaluating some initiatives for which new fluence calculations would be needed. Even if there is not a licensing action that will trigger new fluence calculations, Entergy will perform new fluence calculations by December 2006. Based on the results of this updated fluence analysis and the results/data available through the BWRVIP for the reactor vessel surveillance capsule testing, the current P/T Limit Curves will be reevaluated for validity and new ones will be developed, if needed.

REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met.

Entergy has determined that the proposed changes do not require any exemptions or relief from regulatory requirements, other than the proposed change to the Updated FSAR, and do not affect conformance with any General Design Criteria differently than described in the Updated FSAR.

The NRC has already determined by Reference 1 that the proposed ISP, if implemented in accordance with the conditions in the SE, is an acceptable alternative to existing BWR plant-specific RPV surveillance programs for the purpose of maintaining compliance with the requirements of Appendix H to 10 CFR Part 50 through the end of current facility 40 year operating licenses.

5.2 No Significant Hazards Consideration

The proposed amendment revises the current Reactor Pressure Vessel (RPV) Material Surveillance Program description in the Updated FSAR for Grand Gulf to reference the ISP that was developed by the BWRVIP. The proposed amendment is consistent with the NRC's Regulatory Issue Summary 2002-05, ``NRC Approval of Boiling Water Reactor Pressure Vessel Integrated Surveillance Program," dated April 8, 2002 (Agencywide Document Access and Management System (ADAMS) Accession No. ML020660522).

Entergy Operations, Inc. has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   Changes in the fracture toughness properties of reactor vessel beltline materials, resulting from the neutron irradiation and the thermal environment, are monitored by a surveillance program in compliance with the requirements of 10CFR50, Appendix H. The proposed change implements an integrated surveillance program that has been evaluated by the NRC staff as meeting the requirements of paragraph III.C of Appendix H to 10 CFR 50. The BWRVIP's ISP surveillance material selection process adequately ensures that materials in the program effectively provide meaningful information to monitor changes in fracture toughness for GGNS RPV materials. In addition, the ISP program requires participants to acquire and evaluate relevant ISP test data from the program which may affect RPV integrity evaluations in a timely manner. One advantage of participating in the BWRVIP ISP is that surveillance test

data applicable to the Grand Gulf RPV will be available sooner than under the current plant specific program.

The proposed change will not affect current RPV performance and will not cause the RPV or interfacing systems to be operated outside of their design or testing limits. The proposed change will not alter any assumptions previously made in evaluating the radiological consequences of accidents.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The change does not affect the design, function, reliability, or operation of any plant structure, system or component. The purpose of the reactor vessel material surveillance program is to monitor neutron embrittlement and thermal environment effects in order to predict the behavioral characteristics of materials of pressure retaining components of the reactor coolant pressure boundary and to ensure that reactor vessel fracture toughness and integrity requirements are not violated. The ISP is an approved alternate monitoring program that meets the regulatory requirements in Appendix H to 10 CFR 50. As an acceptable alternate monitoring program, the ISP cannot create a new failure mode involving the possibility of a new or different kind of accident.

   Therefore, the proposed changes do not create the possibility of a new or different kind of accident from that previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Response: No.

   The reactor material surveillance program required by 10 CFR 50 Appendix H is designed to ensure that adequate margins of safety are provided for the reactor coolant pressure boundary during any condition of normal operation, including anticipated operational occurrences and hydrostatic tests. Monitoring changes in the fracture toughness of reactor vessel materials ensures that material changes due to radiation embrittlement are adequately considered for safe reactor operations. Paragraph III.C of Appendix H to 10 CFR 50 delineates the regulatory requirements for an ISP. The BWRVIP ISP meets these requirements and has been approved by the NRC.

   One of the uses of the material surveillance data obtained through the proposed ISP is to ensure the reactor coolant system P/T limits established by the Technical Specifications are conservative. The material surveillance data obtained through the proposed Integrated Surveillance Program will provide new information that will be

evaluated to ensure that the P/T limits are conservative. In addition, a neutron fluence calculation methodology which has been approved by the NRC staff and is consistent with the attributes identified in U.S. Nuclear Regulatory Commission Regulatory Guide 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," will be used for the determination of reactor vessel and surveillance capsule neutron fluence values to ensure quality of the method and compatibility between ISP results.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

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

5.3 Environmental Considerations

Entergy reviewed this request against the criteria of 10CFR51.22 for environmental considerations. Since this request involves (i) no significant hazard consideration, (ii) no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and (iii) no significant increase in individual or cumulative occupational radiation exposure, we have concluded that the proposed change meets the criteria given in 10CFR51.22 (c)(9) for a categorical exclusion from the requirement for an environmental impact statement.

6.0 REFERENCES

1. Letter from William H. Bateman (NRC) to Carl Terry (BWRVIP Chairman), "Safety Evaluation Regarding EPRI Proprietary Reports "BWR Vessel and Internals Project, BWR Integrated Surveillance Program Plan (BWRVIP-78)" and "BWRVIP-86: BWR Vessel and Internals Project, BWR Integrated Surveillance Program Implementation Plan," dated February 1, 2002.

2. NRC Regulatory Issue Summary 2002-05: NRC Approval of Boiling Water Reactor Pressure Vessel Integrated Surveillance Program, April 8, 2002.

3. Letter from Jack N. Donohew (NRC) to C. Randy Hutchinson (Entergy), "Issuance of Amendment 127 to Facility Operating License No. NPF-29 – Grand Gulf Nuclear Station, Unit 1 (TAC No. M95316)", dated August 21, 1996.

4. Electric Power Research Institute (EPRI) Technical Report 1003346, entitled "BWRVIP-86-A: BWR Vessel and Internals Project Updated Integrated Surveillance Program (ISP) Implementation Plan," Final Report, dated October 2002.

ATTACHMENT 2

GNRO-2003/00021

Proposed Updated FSAR Changes (mark-ups)

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5.3.1.6 Material Surveillance

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5.3.1.6.1 Compliance with Reactor Vessel Material Surveillance Program Requirements

The materials surveillance program monitors changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region resulting from their exposure to neutron irradiation and thermal environment.

Reactor vessel materials surveillance specimens are provided in accordance with requirements of ASTM E 185-73 and 10 CFR 50, Appendix H, except for material selection and HAZ orientation as indicated in subsection 5.3.1.5.1.C. Materials for the program are selected to represent materials used in the reactor beltline region, as indicated in subsection 5.3.1.5.1.A. Specimens are manufactured from a plate actually used in the beltline region and a weld typical of those in the beltline region and thus represent base metal, weld material, and the weld heat-affected zone material. Surveillance specimen materials are identified with properties in Tables 5.3-1, 5.3-2, and 5.3-3. Table 5.3-6 provides the chemical composition for each reactor vessel beltline weld, and plate. Figures 5.3-9, and 5.3-13 through 5.3-15 define the beltline location and the location of plates and weld seams in the beltline. The plate and weld are heat treated in a manner which simulates the actual heat treatment performed on the core region shell plates of the completed vessel.

Each in-reactor surveillance capsule contains 36 Charpy V-notch specimens in accordance with 10 CFR 50, Appendix H and ASTM E 185-73 which was in effect at the time the surveillance capsules were loaded. The capsule loading consists of 12 specimens each of base metal, weld metal, and heat-affected zone material. A set of out-of-reactor baseline Charpy V-notch specimens and archive material is provided with the surveillance test specimens.

In accordance with ASTM E185-73, GGNS is defined as a Case "A" plant because the shift in the reference temperature (ΔRT_{NDT}) is less than 100°F and the beltline area of the RPV will be exposed to a neutron fluence of less than 5×10^{18} n/cm^2 over the design life. Three capsules are provided in accordance with 10 CFR 50 Appendix H with a withdrawal schedule that has been approved by the Nuclear Regulatory Commission (Reference Amendment No. 127 to Facility Operating License No. NPF-29).

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REACTOR VESSEL MATERIAL SURVEILLANCE PROGRAM
WITHDRAWAL SCHEDULE

CAPSULE NUMBER	VESSEL LOCATION	LEAD FACTOR	WITHDRAWAL ~~TIME (EFPY)~~ SCHEDULE
131C8981G1 - NO1	3°	0.46	deferred* ~~standby*~~
131C8981G1 - NO2 or N03	177°	0.46	deferred* ~~24*~~
131C8981G1 - NO3 or N02	183°	0.46	~~to be determined*~~ deferred*

EFPY - Effective Full Power Years

~~Changes to the withdrawal schedule must be approved by the NRC prior to implementation in accordance with Section III.B.3 of Appendix H to 10 CFR 50.~~

Fracture toughness testing of irradiated capsule specimens will be in accordance with requirements of 10 CFR 50, Appendix H as revised in May 1983, and ASTM E 185-82.

*Capsule No. 1 was withdrawn during RFO7 and returned to the vessel during RFO8 with the specimens intact. This action was approved by the NRC in Amendment No. 127 to the Operating License.

All GGNS capsules were deferred from withdrawal and testing in accordance with References 3 and 4.

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5.3.1.6.2 Neutron Fluence

The peak end-of-life (EOL) surface fluence is 2.8 x 10^{18} n/cm^2 upon implementation of a 1.7% uprate. This fluence is determined by proportionally increasing the original fluence of 2.5 x 10^{18}n/cm^2 by the amount of the uprate and increasing the end of life from 32 EFPY to 35 EFPY. The peak EOL surface fluence ~~is~~ determined by a two-step process. First the flux wires removed at the end of Cycle 1 were analyzed to determine the flux and fluence at the dosimeter location (Reference 2). Then lead factors are calculated which relate the flux magnitude at the dosimeter location to that at the location of peak flux. Fluence at ¼T ~~is~~ determined in accordance with Regulatory Guide 1.99, Equation 3. The attenuation caused by the reactor pressure vessel stainless steel cladding ~~is~~ not considered and ¼T is a depth measured from the clad to base material interface.

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5.3.1.6.3 Predicted Irradiation Effects on Vessel Beltline Materials

Estimated maximum changes to RT_{NDT} (initial reference temperature as determined by NB-2300) as a function of fluence at the ¼T depth of the vessel beltline materials are listed in Tables 5.3-3a through 5.3-3f. Table 5.3-3a is based on an estimated peak fluence at 16 EFPY, Table 5.3-3b is based on an estimated peak fluence at 20 EFPY, Table 5.3-3c is based on an estimated peak fluence at 24 EFPY, Table 5.3-3d is based on an estimated peak fluence at 28 EFPY, Table 5.3-3e is based on an estimated peak fluence at 32 EFPY, and Table 5.3-3f is based on an estimated peak fluence at 35 EFPY. Each Table also provides the predicted changes to RT_{NDT} based on peak EOL fluence (35 EFPY). The shift in RT_{NDT} (ΔRT_{NDT}) and the adjusted RT_{NDT} (ART_{NDT}) are determined in accordance with Regulatory Guide 1.99, Revision 2.

5.3.1.6.4 Positioning of Surveillance Capsules and Methods of Attachment

Surveillance specimen capsules are located at three azimuths at a common elevation in the core beltline region. The sealed capsules are not attached to the vessel but are in seal welded, capsule holders. The capsule holders are mechanically retained by capsule holder brackets welded to the vessel cladding as shown in Figure 5.3-3. Since reactor vessel specifications require that all low alloy steel pressure vessel boundary material be produced to fine-grain practice, underclad cracking is of no concern. The capsule holder brackets allow the removal and reinsertion of capsule holders. These brackets are designed, fabricated, and analyzed to the requirements of ASME Code, Section III. A positive spring loaded locking device is provided to retain the capsules in position throughout any anticipated event during the lifetime of the vessel.

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severe postulated transients, since all such transients are evaluated in the design of the reactor vessel. The postulated transient for which the vessel has been designed is shown on Figure 5.2-5 and discussed in subsection 5.2.2.

5.3.3.7 In-service Surveillance

In-service inspection of the reactor pressure vessel will be in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, as discussed in subsection 5.2.4.

The materials surveillance program will monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region resulting from their exposure to neutron irradiation and thermal environment. ~~Specimens of actual reactor beltline material will be exposed in the reactor vessel and periodically withdrawn for impact testing.~~ Operating procedures will be modified in accordance with test results to ensure adequate brittle fracture control.

Material surveillance programs and in-service inspection programs are in accordance with applicable ASME Code requirements, and provide assurance that brittle fracture control and pressure vessel integrity will be maintained throughout the service lifetime of the reactor pressure vessel.

5.3.4 References

1. "An Analytical Study on Brittle Fracture of GE-BWR Vessel Subject to the Design Basis Accident" (NEDO-10029).

2. "Flux Wire Dosimeter Evaluation For Grand Gulf Nuclear Power Station, Unit 1" (EAS-35-0387, DRF A00-02764, April 1987).

Insert C

INSERT A for 5.3.1.6.1

The materials surveillance program monitors changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region resulting from their exposure to neutron irradiation and thermal environment. GGNS is defined as a Case "A" plant in accordance with ASTM E185-73, because the shift in the reference temperature is less than 100 °F and the beltline area of the RPV will be exposed to a neutron fluence of less than $5x10^{18}$ n/cm^2 over the design life.

The Grand Gulf material surveillance program is administered in accordance with the BWR Vessel and Internals Project Integrated Surveillance Program (BWRVIP ISP) as described in References 3 and 4. The ISP combines the U.S. BWR surveillance programs into a single integrated program. This program uses similar heats of materials in the surveillance programs of BWRs to represent the limiting materials in other vessels. It also adds data from the BWR Supplemental Surveillance Program (SSP). Per the BWRVIP ISP, no capsules are scheduled to be withdrawn from the Grand Gulf vessel. Other plants will remove and test specimens that represent the Grand Gulf vessel.

The three original surveillance capsules containing the reactor vessel material specimens under the previous individual Grand Gulf surveillance program are reserved in the reactor for contingency purposes. Each in-reactor capsule contains 36 Charpy V-notch specimens in accordance with 10 CFR 50, Appendix H and ASTM E 185-73 which was in effect at the time the surveillance capsules were loaded. The capsule loading consists of 12 specimens each of base metal, weld metal, and heat-affected zone material.

These specimens are no longer required to be removed or tested for the Grand Gulf material surveillance program. However, since they are retained for contingency purposes, a more detailed description of the specimens is provided in subsection 5.3.1.5.1. The specimens were manufactured from a plate actually used in the beltline region and a weld typical of those in the beltline region and thus represent base metal, weld material, and the weld heat-affected zone material. Specimen materials are identified with properties in Tables 5.3-1, 5.3-2, and 5.3-3. Table 5.3-6 provides the chemical composition for each reactor vessel beltline weld, and plate. Figures 5.3-9, and 5.3-13 through 5.3-15 define the beltline location and the location of plates and weld seams in the beltline. The plate and weld were heat treated in a manner which simulated the actual heat treatment performed on the core region shell plates of the completed vessel.

INSERT B for 5.3.1.6.2

Neutron fluence calculations performed after 2002 will be in accordance with a methodology which has been approved by the NRC staff and is consistent with the attributes identified in U.S. Nuclear Regulatory Commission Regulatory Guide 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence."

INSERT C for 5.3.4

3. Letter from W. H. Bateman (USNRC) to C. Terry (BWRVIP Chairman) titled, "Safety Evaluation Regarding EPRI Proprietary Reports 'BWR Vessel and Internals Project – BWR Integrated Surveillance Program Plan (BWRVIP-78)' and 'BWRVIP-86: BWR Vessel and Internals Project, BWR Integrated Surveillance Program Implementation Plan'" dated February 1, 2002

4. Electric Power Research Institute (EPRI) Technical Report 1003346, entitled "BWRVIP-86-A: BWR Vessel and Internals Project Updated Integrated Surveillance Program (ISP) Implementation Plan," Final Report, dated October 2002.

Attachment 3

GNRO-2003/00021

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are 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	
Entergy will perform new fluence calculations by December 2006. A neutron fluence calculation methodology which has been approved by the Nuclear Regulatory Commission staff and is consistent with the attributes identified in United States NRC Regulatory Guide 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," will be used for the determination of Reactor Pressure Vessel and surveillance capsule neutron fluence values. Based on the results of this updated fluence analysis and the results/data available through the Boiling Water Reactor Vessel Internals Program for the reactor vessel surveillance capsule testing, the current pressure/temperature Limit Curves will be reevaluated for validity and new ones will be developed, if needed.	X		12/2006