UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 30, 2014

Vice President, Operations
Entergy Operations, Inc.
Grand Gulf Nuclear Station
P.O. Box 756
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 - REQUEST FOR RELIEF GG-ISI-017, ALTERNATIVE TO USE BOILING WATER REACTOR VESSEL AND INTERNALS PROJECT GUIDELINES IN LIEU OF SPECIFIC ASME CODE REQUIREMENTS (TAC NO. MF2357)

Dear Sir or Madam:

By letter dated June 27, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13179A041), as supplemented by letters dated January 29, 2014 and April 14, 2014 (ADAMS Accession Nos. ML14029A592 and ML14105A456, respectively), Entergy Operations, Inc. (the licensee), submitted Relief Request GG-ISI-017 for its third 10-year interval inservice inspection (ISI) program plan for its reactor vessel internals components at Grand Gulf Nuclear Station, Unit 1 (GGNS). In this Relief Request, the licensee proposed to use Boiling Water Reactor Vessel and Internals Project (BWRVIP) guidelines as an alternative to certain requirements of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for ISI of reactor pressure vessel interior surfaces, attachments, and core support structures. This Relief Request is requested pursuant to paragraph 50.55(a)(3)(i) of Title 10 of the *Code of Federal Regulations* (10 CFR).

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the GG-ISI-017 and concludes, as set forth in the enclosed safety evaluation (SE), that the alternatives proposed by the licensee, as summarized in the Attachment to the SE, will ensure that the integrity of the reactor pressure vessel interior surfaces, attachments, and core support structures is maintained with an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the licensee's proposed alternative for GGNS is authorized by the NRC staff for the third 10-year ISI interval at GGNS, which ends on July 1, 2017.

All other requirements of the ASME Code, Section XI for which an alternative has not been specifically requested remain applicable, including third-party review by the Authorized Nuclear In-service Inspector. Any ASME Code, Section XI, RVI components that are not included in this request for alternative are to continue to be inspected in accordance with the ASME Code, Section XI requirements.

The NRC staff notes that if the licensee intends to take exceptions to, or deviations from, the NRC staff-approved BWRVIP inspection guidelines (specifically, those inspection requirements listed in the Attachment to the SE), this will require the licensee to revise and re-submit this request for alternative. The licensee shall obtain staff approval for such exceptions prior to

implementing the revised inspection guidelines for the GGNS unit's reactor pressure vessel interior surfaces, attachments, and core support structures.

The NRC staff's safety evaluation is enclosed. If you have any questions, please contact Mr. Alan Wang at 301-415-1445 or via e-mail at Alan.Wang@nrc.gov.

Sincerely,

Douglas A. Broaddus, Chief
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST GG-ISI-017 TO ALLOW USE OF BOILING WATER REACTOR VESSEL AND INTERNALS PROJECT GUIDELINES

ENTERGY OPERATIONS, INC.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated June 27, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13179A041), as supplemented by letters dated January 29, 2014 and April 14, 2014 (ADAMS Accession Nos. ML14029A592 and ML14105A456, respectively), Entergy Operations Inc., (the licensee) submitted Relief Request GG-ISI-017 for its third 10-year interval inservice inspection (ISI) program plan for its reactor vessel internals (RVI) components at Grand Gulf Nuclear Station, Unit 1 (GGNS). In this safety evaluation (SE), the term "RVI components" includes reactor pressure vessel interior surfaces, attachments, and core support structures. In the Relief Request, the licensee proposed to use Boiling Water Reactor Vessel and Internals Project (BWRVIP) guidelines as an alternative to certain requirements of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for ISI of reactor pressure vessel interior surfaces, attachments, and core support structures.

2.0 REGULATORY REQUIREMENTS

The ISI of ASME Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Code as required by 10 CFR 50.55a(g), except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The regulations in 10 CFR 50.55a(a)(3) state that alternatives to the requirements of 10 CFR 50.55a(g) may be used, when authorized by the U.S. Nuclear Regulatory Commission if: (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for ISI of Nuclear Power Plant Components," to the extent practical within the limitations of design,

geometry, and materials of construction of the components. The regulations require that ISI examination of components and system pressure tests conducted during each 10-year interval comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b), 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable ASME Code of record for the third 10-year ISI interval for GGNS is ASME Code, Section XI, 2001 Edition through the 2003 Addenda.

3.0 LICENSEE'S EVALUATION

The Components for Which an Alternative is Requested

The ASME Code, Section XI, Class 1, Examination Categories B-N-1 and B-N-2, Code Item Numbers B13.10, Vessel Interior; B13.20, Interior Attachments within Beltline Region; B13.30, Interior Attachments Beyond Beltline Region; and B13.40, Core Support Structure.

Examination Requirements from Which an Alternative is Requested

The ASME Code, Section XI requires a visual examination (VT) of certain RVI components. These examinations are included in Table IWB-2500-1, Categories B-N-1 and B-N-2, and identified with the following item numbers:

- B13.10 - Examine accessible areas of the reactor vessel (RV) interior during each period using a technique which meets the requirements for a VT-3 examination, as defined in paragraph IWA-2213 of Section XI of the ASME Code.
- B13.20 - Examine interior attachment welds within the RV beltline region during each interval using a technique which meets the requirements for a VT-1 examination, as defined in paragraph IWA-2211 of Section XI of the ASME Code.
- B13.30 - Examine interior attachment welds outside of the beltline region during each interval using a technique which meets the requirements for a VT-3 examination, as defined in paragraph IWA-2213 of Section XI of the ASME Code.
- B13.40 - Examine surfaces of core support structures during each interval using a technique which meets the requirements for a VT-3 examination, as defined in paragraph IWA-2213 of Section XI of the ASME Code.

These examinations are performed to periodically assess the structural integrity of the reactor pressure vessel interior surfaces, attachments, and core support structures.

Licensee's Basis for Requesting an Alternative and Justification for Granting Relief

In its letter dated June 27, 2013, the licensee, in lieu of ASME Section XI, Code requirements, submitted an alternative inspection program per the BWRVIP guidelines for Category B-N-1 and B-N-2 reactor pressure vessel interior surfaces, attachments, and core support structures at GGNS. The licensee stated that implementation of the alternative inspection program will maintain an adequate level of quality and safety of the affected welds and components and will

not adversely impact the health and safety of the public. As part of its justification for the relief, the licensee stated that boiling-water reactors (BWRs) now examine the reactor pressure vessel interior surfaces, attachments, and core support structures in accordance with BWRVIP inspection and evaluation (I&E) guidelines in lieu of ASME Code, Section XI criteria. The BWRVIP I&E guidelines are more stringent and comprehensive than the requirements set forth in Section XI of the ASME Code. The proposed alternative includes examination methods, examination volume, frequency, training and successive and additional examinations, flaw evaluations, and reporting. The BWRVIP guidelines were written to address the examination of safety significant RVI components using appropriate methods and reexamination frequencies. Furthermore, the licensee stated that relief from the examinations specified in Table IWB-2500-1 of the ASME Code, Section XI are requested pursuant to 10 CFR 50.55a(a)(3)(i).

Alternative Examination

In lieu of the requirements specified in Section XI of the ASME Code, the licensee proposed to examine the GGNS RVI components in accordance with BWRVIP I&E guideline requirements. In its submittal, the licensee included only those RVI components that are categorized under the jurisdiction of Section XI of the ASME Code. The following BWRVIP reports contain the relevant I&E guidelines for RVI surfaces, attachments, and core support structures. Furthermore, the licensee clarified that not all RVI components listed in the following BWRVIP reports are ASME Code, Section XI components.

- BWRVIP-03, "BWRVIP Reactor Pressure Vessel and Internals Examination Guidelines"
- BWRVIP-18, Revision 1, "BWRVIP Core Spray Internals Inspection and Flaw Evaluation Guidelines"
- BWRVIP-25, "BWRVIP Core Plate Inspection and Flaw Evaluation Guidelines"
- BWRVIP-26-A, "BWRVIP Top Guide Inspection and Flaw Evaluation Guidelines"
- BWRVIP-27-A, "BWRVIP BWR Standby Liquid Control System/Core Plate Delta P Inspection and Flaw Evaluation Guidelines"
- BWRVIP-38, "BWRVIP Shroud Support Inspection and Flaw Evaluation Guidelines"
- BWRVIP-41, Revision 3, "BWR Jet Pump Assembly Inspection and Flaw Evaluation Guidelines"
- BWRVIP-42, Revision 1, "Low Pressure Coolant Injection (LPCI) Coupling Inspection and Flaw Evaluation Guidelines"
- BWRVIP-47-A, "BWR Lower Plenum Inspection and Flaw Evaluation Guidelines"
- BWRVIP-48-A, "Vessel ID [Inside Diameter] Attachment Weld Inspection and Flaw Evaluation Guidelines"

- BWRVIP-76, Revision 1, "BWR Core Shroud Inspection and Flaw Evaluation Guidelines"
- BWRVIP-94, Revision 2, BWRVIP Program Implementation Guide"
- BWRVIP-100-A, "Updated Assessment of the Fracture Toughness of Irradiated Stainless Steel for BWR Core Shroud"

The licensee stated that the inspection services from an Authorized Inspection Agency will be applied to the proposed alternative. The licensee further indicated that the BWRVIP has established reporting protocol for examination results and deviations that are consistent with the guidelines of BWRVIP-94. The licensee clarified that its use of any revision to a BWRVIP report would satisfy all of the relevant portions of the prior revision unless NRC staff approval is obtained prior to its implementation.

In Table 1 of Attachment 1 of its submittal dated June 27, 2013, the licensee provided a comparison of the ASME Code, Section XI, examination requirements for Category B-N-1 and B-N-2 categories for RVI surfaces, attachments, and core support structures with the previously identified BWRVIP I&E Guideline documents. In Attachment 2 of the submittal, the licensee provided additional information regarding the BWRVIP inspection requirements for welds of the RVI surfaces, attachments, and core support structures and their subcomponents. As an example, the following excerpt from the Attachment 2 of the licensee's submittal indicates the applicable ASME Code, Section XI category/item numbers that are applicable to some of the GGNS RVI components:

- Core Spray Piping – Item No. B13.10
- Jet Pump– Item No. B13.20
- Core Shroud– Item No. B13.30
- Core Shroud Support and Core Support Structure– Item No. B13.40

The licensee stated that the above examples demonstrate that the inspection techniques recommended by the BWRVIP I&E guidelines are superior to the inspection techniques mandated by the ASME Code, Section XI ISI program. Additionally, these examples supported the licensee's assertions that the BWRVIP I&E guidelines require more frequent inspections of some RVI components than the corresponding ASME Code, Section XI requirements. The licensee stated that by implementing the BWRVIP I&E guidelines, the aging degradation of the RVI surfaces, attachments, and core support structures can be identified in a timely manner so that proper corrective action can be taken to maintain the integrity of the applicable components. Therefore, the licensee concluded that implementation of the BWRVIP I&E guidelines for the GGNS RVI surfaces, attachments, and core support structures would provide an acceptable level of quality and safety. The licensee's proposed alternative for the RVI components and subcomponents covered under the scope of this alternative request is summarized in the Attachment 1 to this SE.

4.0 STAFF EVALUATION

The NRC staff reviewed the information provided by the licensee in its submittal dated June 27, 2013, as supplemented by letters dated January 29, 2014, and April 14, 2014, regarding its proposed alternative to the ASME Code, Section XI ISI requirements and the technical bases for the licensee's proposed alternatives. The staff reviewed the status of each of the referenced BWRVIP guidance documents to provide effective aging management and found application of all of the referenced BWRVIP reports to be acceptable, provided that the conditions associated with each BWRVIP report are implemented. The following paragraphs address the NRC staff's requests for additional information (RAIs) dated December 26, 2013 (ADAMS Accession No. ML13361A027), the licensee's responses, and the staff's evaluation of the licensee's responses to the RAIs.

In RAI-1, the NRC staff requested that the licensee identify whether there are any furnace-sensitized stainless steel vessel attachment welds associated with RVI components at GGNS. Furnace-sensitized stainless steel welds tend to be more susceptible to intergranular stress-corrosion cracking (IGSCC). In its response dated April 14, 2014, the licensee stated that some internal attachment welds (e.g., the jet pump riser brace and the steam dryer hold-down bracket attachment welds), were furnace-sensitized at GGNS. The licensee stated that it will continue to comply with the BWRVIP-48-A I&E guidelines to monitor any IGSCC in these welds. Because inspection guidelines for furnace-sensitized stainless steels are addressed in the BWRVIP-48-A report, the NRC staff concludes that the licensee's response is acceptable and this issue is closed.

In RAI-2, the NRC staff requested that the licensee provide an explanation for not including the following specific BWRVIP reports, which are used to monitor active aging degradation in jet pumps, the steam dryer, and the top guide. None of the following components are addressed by ASME Code, Section XI requirements:

- BWRVIP-138, Revision 1, "BWRVIP Updated Jet Pump Beam Inspection and Flaw Evaluation Guidelines";
- BWRVIP-139, "BWR Vessel Internals Project, Steam Dryer Inspection and Flaw Evaluation Guidelines"; and
- BWRVIP-183, "BWRVIP, Top Guide Grid Beam Inspection and Flaw Evaluation."

In its January 29, 2014, response to RAI-2, the licensee stated that the aforementioned BWRVIP reports are used at GGNS as part of its inspection program for non-ASME Code, Section XI components as follows:

- For jet pump beams, which are, non-ASME Code, Section XI components at GGNS, the licensee stated that BWRVIP-138, Revision 1 is used to monitor aging degradation in jet pump beams.
- For steam dryer assemblies, which are non-ASME Code, Section XI components at GGNS, the licensee stated that BWRVIP-139 is used to monitor aging degradation in steam dryer assemblies.

- For the top guide (code and non-code) the licensee stated that it will perform inspections of the top guide consistent with the guidelines addressed in BWRVIP-183.

The NRC staff concludes that the licensee's response to RAI-2 is acceptable because implementation of I&E guidelines addressed in the aforementioned BWRVIP reports for the RVI components is effective in identifying aging effects in a timely manner and, therefore, this issue is closed.

In its December 26, 2013 response to RAI-3, the licensee confirmed that it used NUREG-0619, "BWR Feedwater Nozzle and Control Rod Drive Return Line Nozzle Cracking," November 1980 (ADAMS Accession No. ML031600712), as a basis for its ISI examinations of feedwater nozzles. Six feedwater nozzle inner radii are part of this examination at GGNS. The control rod drive line nozzle was cut and capped and, therefore, no examinations were performed on this nozzle. BWRVIP-48-A is used with enhanced visual testing (EVT-1) to examine the feedwater piping brackets and feedwater sparger tee welds. The NRC staff has concluded that this response is acceptable because the licensee is implementing NUREG-0619 and BWRVIP-48-A for the subject welds and this issue is closed.

Attachment 3 of the licensee's June 27, 2013, submittal stated that one indication with characteristics of IGSCC and irradiation-assisted stress-corrosion cracking (IASCC) was observed in core shroud circumferential weld H4. Based on the operating experience thus far, it was established that IGSCC and IASCC are two active aging mechanisms in core shroud welds. For the core shroud, the licensee follows the guidance in BWRVIP-76, Revision 1 at GGNS. Therefore, the licensee is monitoring the growth of this indication in accordance with this guideline. The NRC staff concludes that this response is acceptable because the licensee is following the BWRVIP-76 guidelines and this issue is closed.

Nickel alloy welds fabricated with Alloy 182 are more susceptible to IGSCC compared to stainless steel welds. In its January 29, 2014, response to RAI-4, the licensee identified Alloy 182 welds in the following RVI components at GGNS: (1) guide rod brackets; (2) core spray brackets; (3) steam dryer support brackets; (4) feedwater sparger brackets; (5) shroud support (weld H9); and (6) shroud support legs (weld H12). In its response to RAI-4, the licensee stated that it inspected these RVI components in accordance with BWRVIP-38 and BWRVIP-48-A. To date, no cracking has been identified in any of the associated Alloy 182 welds at GGNS. Based on the above, the NRC staff concludes that this response is acceptable and this issue is closed.

The NRC staff reviewed the previous inspection results for GGNS for the various RVI components that were included in Attachment 3 of the licensee's June 27, 2013, submittal. In addition, in RAI-5, the staff requested that the licensee address how the aging degradation is monitored in the most susceptible weld connections in the RVI components for the (1) top guide; (2) core spray line and spargers; (3) low pressure coolant injection (LPCI) coupling; (4) jet pumps; (5) in-core dry tubes; and, (6) control rod drive (CRD) housings.

In its January 29, 2014, response to RAI-5, the licensee stated that the top guide was inspected in accordance with BWRVIP-183 in 2012 and following that guidance, it will be inspected with EVT-1 every 6 years.

For the core spray line and spargers, the LPCI coupling, the jet pumps, the in-core dry tubes, and the CRD housings, the licensee stated that these components are outside of the scope of the subject relief request because they are not included in the ASME Code, Section XI ISI program. The licensee stated that the relevant BWRVIP I&E guideline reports (BWRVIP-18, -41, -42, and -47) for these items will be used to monitor relevant aging effects. With respect to the in-core dry tubes, the licensee stated that all four in-core dry tubes were replaced in 2012. The NRC staff concludes that the licensee's response to RAI-5 for these RVI components is acceptable because they were inspected in accordance with BWRVIP I&E guidelines, which were previously approved by the staff and, therefore, this issue is closed.

In its January 29, 2014, response to RAI-6, the licensee addressed its implementation of On-line Noble Chemical Addition (OLNC) at GGNS, which includes hydrogen water chemistry (HWC) and noble metal chemical addition (NMCA). To support its statement that implementation of OLNC is effective, the licensee provided measured values of electrochemical potential (ECP) for the OLNC-treated stainless steel coupon and the amount of platinum deposition for a test coupon. The NRC staff reviewed the ECP values and confirmed that implementation of HWC and NMCA is consistent with BWRVIP-62, Revision 0, "BWR Vessel and Internals Project, Technical Basis for Inspection Relief for BWR Internal Components with Hydrogen Injection." The staff is currently reviewing BWRVIP-62, Revision 1, which provides the technical basis for application of OLNC. Therefore, the staff has not completed its review of the licensee's information related to platinum loading. Even though the staff did not review the licensee's platinum loading value, the staff considers that OLNC implementation is effective because: (1) the ECP value is a primary essential variable to measure the effectiveness of HWC and NMCA and the licensee's low ECP value confirms that the implementation of OLNC is effective at GGNS; (2) the low ECP value also confirms adequate availability of hydrogen and platinum in RVI components; and (3) lower values of platinum loading are expected for OLNC compared to NMCA and the licensee's measured platinum deposition for a test coupon indicates that the ECP values are lower than the maximum allowed value addressed in BWRVIP-62, Revision 0. This indicates that ONLC will be effective in mitigating stress-corrosion cracking in some of the RVI components. Based on the above, the NRC staff concludes that the response to RAI-6 is acceptable and, therefore, this issue is closed.

The Attachment to this SE includes attributes related to inspection techniques and frequency of inspections for various RVI components at GGNS. A comparison of the required ASME Code, Section XI, Category B-N-1 and B-N-2 examination requirements with the current BWRVIP I&E Guideline requirements that are applicable to GGNS is also included in the Attachment.

Attachment 3 of the licensee's June 27, 2013, submittal addressed previous inspection results of RVI components. Based on the information provided, the NRC staff concludes that most RVI component inspections did not reveal the presence of any indications at GGNS. For those RVI components where indications were found, the licensee implemented corrective action program measures as recommended by the relevant BWRVIP reports to provide reasonable assurance that the aging degradation mechanisms will be adequately monitored during the third ISI interval at GGNS. The BWRVIP I&E guidelines require more frequent inspections than ASME Code, Section XI criteria for RVI components that are susceptible to aging degradation mechanisms. Therefore, subsequent inspections of the RVI components per the relevant BWRVIP I&E guidelines will provide reasonable assurance that any emerging aging effects will be identified in

a timely manner. In addition, frequent inspections in accordance with the BWRVIP I&E guidelines will enable the licensee to effectively monitor existing aging degradation in RVI surfaces, attachments, and core support structures. Therefore, the NRC staff concludes that known active aging degradation mechanisms in the GGNS RVI components are adequately monitored by the appropriate BWRVIP I&E guidelines at GGNS.

Consistent with the determination in the NRC staff's SEs that approved a majority of the previously-cited BWRVIP guideline documents, as supplemented by the NRC staff-approved inspection guidelines for the feedwater nozzle and sparger welds, the licensee's proposed alternative is expected to identify aging degradation of the RVI components in a timely manner. Therefore, the NRC staff concludes that the implementation of the inspection parameters specified in the licensee's proposed alternative will continue to ensure that the integrity of the RVI components is maintained with an acceptable level of quality and safety.

5.0 CONCLUSION

Based on the information provided in the licensee's submittals, the NRC staff concludes that the alternatives proposed by the licensee as summarized in the Attachment to this SE, will ensure that the integrity of the RVI surfaces, attachments, and core support structures is maintained with an acceptable level of quality and safety. The NRC staff reviewed the status of each of the referenced BWRVIP guidance documents to determine if they will provide effective aging management and concludes that the application of all of the referenced BWRVIP reports (included in the proposed alternative) to be acceptable for this purpose, provided that the conditions associated with each BWRVIP report are implemented. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the licensee's proposed alternative for GGNS is authorized for the third 10-year ISI interval, which ends on July 1, 2017.

All other requirements of the ASME Code, Section XI for which an alternative has not been specifically requested remain applicable, including third-party review by the Authorized Nuclear In-service Inspector. Any ASME Code, Section XI, RVI components that are not included in this request for alternative are to continue to be inspected in accordance with the ASME Code, Section XI requirements.

The NRC staff notes that if the licensee intends to take exceptions to, or deviations from, the NRC staff-approved BWRVIP inspection guidelines (specifically, those inspection requirements listed in Attachment to this SE), this will require the licensee to revise and re-submit this request for alternative. The licensee shall obtain staff approval for such exceptions prior to implementing the revised inspection guidelines for the GGNS unit's reactor pressure vessel interior surfaces, attachments, and core support structures.

Principal Contributor: G. Cheruvenki

Date:

Attachment:
Comparison of ASME Category B-N-1
and B-N-2 Requirements with BWRVIP
Guidance Requirements

ATTACHMENT
Comparison of ASME Category B-N-1 and B-N-2 Requirements
With BWRVIP Guidance Requirements [1]

ASME Item No. Table IWB-2500-1	Component	ASME Exam Scope	ASME Exam	ASME Frequency	Applicable BWRVIP Document	BWRVIP Exam Scope	BWRVIP Exam	BWRVIP Frequency
B13.10	Reactor Vessel Interior	Accessible Areas (Non-specific)	VT-3	Each period	BWRVIP-18-Revision 1, 25, 26-A, 27-A, 38, 41, Revision3, 42, Revision 1, 47-A, 48-A, 76 Revision 1	BWRVIP examinations satisfy ASME Code, Section XI, VT-3 inspection requirements.		
B13.20	Interior Attachments Within Beltline – Jet Pump Riser Braces	Accessible Welds	VT-1	Each 10-year interval	BWRVIP-48-A, Table 3-2	Riser Brace Attachment	EVT-1	100% in first 12 years; 25% during each subsequent 6 years
	Lower Surveillance Specimen Holder Brackets				BWRVIP-48-A, Table 3-2	Bracket Attachment	VT-1	Each 10-year Interval
B13.30	Guide Rod Brackets	Accessible Welds	VT-3	Each 10-year interval	BWRVIP-48-A Table 3-2	Bracket Attachment	VT-3	Each 10-year Interval
	Steam Dryer Support Brackets				BWRVIP-48-A Table 3-2	Bracket Attachment	EVT-1	Each 10-year Interval
	Steam Dryer hold-down Brackets				BWRVIP-48-A Table 3-2	Bracket Attachment	VT-3	Each 10-year Interval
	Feedwater Sparger Brackets				BWRVIP-48-A Table 3-2	Bracket Attachment	EVT-1	Each 10-year Interval
	Core Spray Piping primary and supplemental Brackets				BWRVIP-48-A Table 3-2	Bracket Attachment	EVT-1	Each 4 re-fueling cycles
	Upper Surveillance Specimen Holder Brackets				BWRVIP-48-A Table 3-2	Bracket Attachment	VT-3	Each 10-year Interval
	Shroud Support (Weld H9) including gussets where applicable	Rarely Accessible	VT-3	Each 10-year interval	BWRVIP-38, 3.1.3.2 Figures 3-2 and 3-5	Weld H9[2]	EVT-1 or UT	Maximum of 6 years for one sided EVT-1, Maximum of 10 years for UT
	Weld H12 Shroud Support Legs				BWRVIP-38 3.2.3	Weld H12	Per BWRVIP-38 NRC SER (7-24-200), inspect with appropriate method[3]	When accessible
	Upper Surveillance Specimen Holder Brackets				BWRVIP-48-A Table 3-2	Bracket Attachment	VT-3	Each 10-year Interval

ASME Item No. Table IWB-2500-1	Component	ASME Exam Scope	ASME Exam	ASME Frequency	Applicable BWRVIP Document	BWRVIP Exam Scope	BWRVIP Exam	BWRVIP Frequency
B13.40	Welded Core Support – Shroud Support	Accessible Surfaces	VT-3	Each 10-year interval	BWRVIP-38 3.1.3.2, Figures 3-2 and 3-5	Shroud Support H8/H9 leg welds including gussets as applicable	EVT-1 or UT	Based on as found conditions, to a Maximum 6 years for one-sided EVT-1, 10 years for UT where accessible
	Shrouded Vertical Welds				BWRVIP-76 R1, Section 2.3 Figure 3-3	Vertical and Ring Segment Welds as applicable	EVT-1 or UT	Maximum 6 years for one-sided EVT-1, 10 years for UT
	Shroud Horizontal Welds				BWRVIP-76 2.2, Figure 2.2 to 2.5	Welds H1-H7 as applicable	EVT-1 or UT	Based on as found conditions to a maximum 10 years for UT when inspected from both sides of the welds
	Shroud Repairs [4]				BWRVIP-76, R1 Section 3.5	Tie-Rod Repair	VT-3	Per Designer recommendations per BWRVIP-71 R1

NOTES:
(1) This Table provides only an overview of the requirements. For more details, refer to the ASME Code, Section XI, Table IWB-2500-1, and the appropriate BWRVIP document.
(2) In accordance with Appendix A of BWRVIP-38, a site-specific evaluation will determine the minimum required weld length to be examined.
(3) When inspection tooling and methodologies are available, they will be used to establish a baseline inspection of these welds.
(4) No repairs have been performed on the shroud.

implementing the revised inspection guidelines for the GGNS unit's reactor pressure vessel interior surfaces, attachments, and core support structures.

The NRC staff's safety evaluation is enclosed. If you have any questions, please contact Mr. Alan Wang at 301-415-1445 or via e-mail at Alan.Wang@nrc.gov.

Sincerely,

/RA/

Douglas A. Broaddus, Chief
Plant Licensing IV-2 and Decommissioning
Transition Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

DISTRIBUTION:
PUBLIC
LPL4-2 r/f
RidsAcrsAcnw_MailCTR Resource
RidsNrrDeEvib Resource
RidsNrrDorlDpr Resource
RidsNrrDorlLpl4-2 Resource
RidsNrrLAJBurkhardt Resource
RidsNrrPMGrandGulf Resource
RidsRgn4MailCenter Resource
GCheruvenki, DE/EVIB

ADAMS Accession No. ML14148A262 **NRR-028** *SE via email

OFFICE	NRR/DORL/LPL4-2/PM	NRR/DORL/LPL4-2/LA	NRR/DE/EVIB/BC	NRR/DORL/LPL4-2/BC
NAME	AWang	JBurkhardt	SRosenberg*	DBroaddus
DATE	6/3/14	6/3/14	5/23/14	6/30/14

OFFICIAL AGENCY RECORD