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

September 24, 2013

Vice President, Operations
Entergy Operations, Inc.
River Bend Station
5485 U.S. Highway 61N
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - REQUEST FOR RELIEF FROM ASME CODE, SECTION XI, REQUIREMENTS FOR REACTOR PRESSURE VESSEL SUPPORT SKIRT FOR THE SECOND 10-YEAR INSERVICE INSPECTION INTERVAL (TAC NO. ME9654)

Dear Sir or Madam:

By letter dated September 25, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12277A387), as supplemented by letter dated June 25, 2013 (ADAMS Accession No. ML13183A067), Entergy Operations, Inc. (the licensee), submitted relief request (RR) RBS-ISI-018 for the second 10-year inservice inspection (ISI) interval program at River Bend Station, Unit 1 (RBS). The licensee has requested relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), 1992 Edition with 1993 Addenda, Section XI, Subarticle IWF-2500 ISI requirements for Examination Category F-A Supports. Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(g)(6)(i), the licensee requested relief and to use alternative requirements for ISI items on the basis that the Code requirement is impractical.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed RR RBS-ISI-018 and concludes, as set forth in the enclosed safety evaluation, that compliance with the visual examination (VT-3) coverage requirements of 10 CFR 50.55a(g)(5)(iii) for the reactor pressure vessel (RPV) support skirt, bolting ring and base plate is impractical, thus fulfilling the technical requirements of 10 CFR 50.55a(g)(6)(i). The licensee proposed to continue performing VT-3 examinations of the exterior of the vessel skirt and as much of the interior as can be accessed through the access openings without removal of the insulation package. The NRC staff concludes that there is reasonable assurance that the structural integrity of the vessel support skirt, bolting ring, and the base plate may be obtained through the use of the licensee's proposed alternative (i.e., VT-3 examinations of the accessible portions).

However, the RR was submitted beyond the 12-month timeframe following the second 10-year ISI interval, which began on December 1, 1997, and ended on May 31, 2008, at RBS. Therefore, the NRC staff concludes that the licensee has not adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(g)(5)(iv). The NRC staff also concludes that the licensee is not in compliance with the subject ASME Code, Section XI, examination requirement for the RPV support skirt. Because the RR was not submitted in a timely manner, the NRC staff does not have the regulatory authority to grant the requested relief. Based on the review, the staff concludes that there are no safety-significant issues caused by the licensee not meeting the above requirements.

The NRC's Region IV staff has been informed of the apparent noncompliance with NRC regulations and may take additional NRC actions. All other ASME Code, Section XI requirements, for which relief was not specifically requested and approved, remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

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

Sincerely,

CFlynn for

Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SECOND 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

RELIEF REQUEST RBS-ISI-018

RIVER BEND STATION, UNIT 1

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

1.0 INTRODUCTION

By letter dated September 25, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12277A387), as supplemented by letter dated June 25, 2013 (ADAMS Accession No. ML13183A067), Entergy Operations, Inc. (the licensee), request U.S. Nuclear Regulatory Commission (NRC) approval of relief request (RR) RBS-ISI-018 for the second 10-year inservice inspection (ISI) interval program at River Bend Station, Unit 1 (RBS). RR RBS-ISI-018 requested relief from the examination requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, for the reactor pressure vessel (RPV) support skirt at RBS.

2.0 REGULATORY EVALUATION

Pursuant to paragraph 50.55a(g)(4) of Title 10 of the *Code of Federal Regulations* (10 CFR), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code, which was 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 regulations in 10 CFR 50.55a(g)(5)(iii) state that if licensees determine that conformance with certain ASME Code requirements is impractical, the licensee shall notify the Commission and submit information in support of the determination. Determination of impracticality in accordance with this section must be based on the demonstrated limitations experienced when attempting to comply with the ASME Code requirements during the ISI interval for which the

request is being submitted. Pursuant to 10 CFR 50.55a(g)(5)(iv), requests for relief made in accordance with this section must be submitted to the NRC no later than 12 months after the expiration of the initial 120-month inspection interval or subsequent 120-month inspection interval for which relief is sought.

The regulations in 10 CFR 50.55a(g)(6)(i) state that:

> The Commission will evaluate determinations under paragraph (g)(5) of this section that code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

The licensee requested relief from the ASME Code, Section XI requirements pursuant to 10 CFR 50.55a(g)(5)(iii). The licensee's request for relief is applicable to the second 10-year interval ISI program at RBS. The applicable Code of record for the second 10-year interval ISI program at RBS is the 1992 Edition of the ASME Code, Section XI, with 1993 Addenda. The second 10-year interval ISI program at RBS began on December 1, 1997, and ended on May 31, 2008.

The licensee submitted RR RBS-ISI-018 later than 12 months after the expiration of the second 10-year interval ISI program at RBS. Therefore, the licensee has not satisfied the requirement of 10 CFR 50.55a(g)(5)(iv) that requests for relief made in accordance with 10 CFR 50.55a(g)(5)(iii) be submitted no later than 12 months after the expiration of the ISI interval for which relief is sought. The licensee stated in its letter dated September 25, 2012, that this condition has been addressed in its Corrective Action Program. The NRC staff's review of RR RBS-ISI-018 is based on the technical considerations and safety implications of not meeting the applicable ASME Code, Section XI examination requirements. However, the staff cannot grant relief because the licensee did not meet the requirements of 10 CFR 50.55a(g)(5)(iv) and, accordingly, regulatory authority does not exist for the Commission to grant the relief requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Component Identification and Code Requirements

RR RBS-ISI-018 requests relief for the RPV support skirt for the second 10-year interval ISI program at RBS. The RPV support skirt is an ASME Code Class 1 support that is subject to the examination requirements of Examination Category F-A in Table IWF-2500-1 of the 1992 Edition of the ASME Code, Section XI, with 1993 Addenda.

ASME Code Class	ASME Code Examination Category	ASME Code Item Number	Component Description	Licensee's Component Number
Class 1 Support	F-A	F1.40	RPV Support Skirt	B13-D001-SUP

The ASME Code, Section XI, Table IWF-2500-1, Examination Category F-A requires a VT-3 visual examination of 100 percent of the RPV support skirt (Item No. F1.40) once each 10-year inspection interval.

3.2 Licensee's Basis for Relief

In its letter dated September 25, 2012, the licensee stated, in part, that

> Performing the VT-3 visual examination of essentially 100% of the reactor vessel support skirt as required by the ASME Code requires access to the inside of the skirt under the vessel. Access is accomplished through four openings in the skirt wall. An insulation package is located inside the skirt which covers the lower skirt, the interior ring of bolting and the base plate.
>
> The area inside the support experiences high radiological dose rates. The reactor vessel internal component configuration prevents flushing of the bottom head region to potentially reduce the dose rates. The configuration of the Control Rod Drive stub tubes under the bottom head make the use of lead shielding impractical.
>
> Performing the full Code examination requires removal of the insulation package which is labor intensive due to the configuration and the confined aspect of the area. The actual time required to remove the insulation package is indeterminate as it has not been previously removed in its entirety. Therefore, an accurate dose estimate for the task cannot be developed at this time.
>
> Based on the dose rates and the difficulty entailed in removing the insulation, Entergy has determined that performing the examination as required by the ASME Code is impractical.

As an alternative to performing the 100 percent VT-3 examination of the support skirt, in its letter dated September 25, 2012, the licensee indicated that

> The skirt will continue to receive a VT-3 examination of the entire exterior portion, and as much of the interior as can be assessed through the access opening, without removal of the insulation package.

3.3 NRC Staff Evaluation

The ASME Code, Section XI, Table IWF-2500-1, Examination Category F-A, requires a VT-3 visual examination of 100 percent of the RPV support skirt. The VT-3 visual examination is conducted to observe the general mechanical and structural condition of the support skirt to ensure that it can continue to perform its intended function of providing load-bearing support to the RPV and internal components. The VT-3 examination provides a means of detecting gross structural deformation, misalignments, and missing parts for the support items; it is not intended for detecting localized flaws or other small-scale degradation such as stress-corrosion cracking. The ASME Code specifies a VT-3 because the support skirt is not susceptible to the types of

localized aging affects that would require, at a minimum, a high resolution visual examination (such as a VT-1 visual) of all accessible surfaces.

The licensee noted in RR RBS-ISI-018 that, as an alternative to the above ASME Code, Section XI, examination requirements, a VT-3 visual examination of 100 percent of the exterior portion of the support skirt and a limited portion of the interior of the skirt can be examined through the access opening, without removal of the insulation package. In order to thoroughly access the technical adequacy of the licensee's relief request and proposed alternative examination, the NRC staff issued requests for additional information (RAI) dated May 29 and June 10, 2013 (ADAMS Accession Nos. ML13149A376 and ML13161A161, respectively).

In part (a) of the RAI (RAI-a), the NRC staff requested that the licensee provide the VT-3 examination coverage that was achieved for the inside of the RPV support skirt. In its letter dated June 25, 2013, in response to RAI-a, the licensee stated that the estimated VT-3 visual examination coverage percentage for the inside of the RPV support skirt for the second ISI interval was zero percent. The staff determined that the licensee's response adequately resolved RAI-a because the licensee clarified that the limited scope alternative examination only covered the exterior portion of the RPV support skirt.

In RAI-b, the NRC staff requested that the licensee discuss whether any relevant indications, such as age-related degradation and/or fabrication flaws, were found as a result of the examination of the exterior surface of the support skirt. If any relevant indications were found, the staff requested that the licensee discuss how the indications were screened and evaluated, in accordance with the acceptance standards of IWF-3400 of the ASME Code, Section XI. In its letter dated June 25, 2013, in response to RAI-b, the licensee stated that no relevant indications were found based on its examination of the exterior of the support skirt. The staff determined that this response adequately resolved RAI-b because the licensee confirmed that no relevant indications were found during the examination of the exterior of the support skirt.

In RAI-c, the NRC staff requested that the licensee discuss the difficulties involved with the removal of the insulation package for performing the VT-3 visual examination of the interior of the RPV support skirt. In its letter dated June 25, 2013, in response to RAI-c, the licensee stated that the interior surface of the RPV support skirt is covered by an insulation package. This insulation package extends from the attachment weld at the RPV bottom head downward to below the RPV support skirt flange that rests on the RPV pedestal. The licensee noted that the insulation package is comprised of a few removable panels mechanically connected to many non-removable panels. The licensee indicated that the majority of the panels of the interior insulation package are permanently installed, and were not designed to be removed. Based on its review of the design specifications and drawings for the interior insulation package, the licensee determined that removal of the few removable insulation panels would only allow for a small percentage of examination coverage of the interior of the RPV support skirt. In order to perform a VT-3 visual examination of essentially 100 percent of the interior portion of the RPV support skirt, the licensee indicated that the removable and all the non-removable insulation panels would have to be removed.

Based on its review of the licensee's response to RAI-c, the NRC staff determined that the licensee adequately demonstrated the access limitations associated with performing a VT-3 visual examination of the interior of the support skirt. Specifically, removal of the permanently-

installed insulation panels for performing the VT-3 visual examination of the interior of the support skirt is impractical because the insulation package was not designed for disassembly in this manner. Therefore, the staff concludes that RAI-c is resolved.

Given that the RPV support skirt is loaded in compression, a VT-3 visual examination of the entire exterior surface of the support skirt provides adequate assurance of structural integrity because any significant degradation, such as seismic-induced deformation, buckling, or misalignments, would be readily observed by performing a VT-3 examination of the exterior. Since the VT-3 visual examination of the exterior did not result in any of these indications, the NRC staff concludes that this limited scope alternative examination provides adequate assurance of the structural integrity of the RPV support skirt.

Therefore, based on the NRC staff's evaluation of the limitations and impracticalities associated with the ASME Code-required VT-3 visual examination of essentially 100 percent of the RPV support skirt, as well as the licensee's alternative examination of the exterior portion of the RPV support skirt, the staff would have made a determination that relief would be granted in accordance to 10 CFR 50.55a(g)(6)(i), if RR RBS-ISI-018 was submitted by the licensee in accordance with the requirements of 10 CFR 50.55a(g)(5)(iii) and 10 CFR 50.55a(g)(5)(iv). However, since the licensee did not submit the RR within 12 months after the expiration of the second 10-year ISI interval, the staff concludes that the licensee did not adequately address the requirements of 10 CFR 50.55a(g)(5)(iv) for the timing of RR submittals. Therefore, the staff is not authorized to grant relief under 10 CFR 50.55a(g)(6)(i). Furthermore, the licensee is not in compliance with the ASME Code, Section XI requirements for the examination of the RPV support skirt because, given that the licensee submitted RR RBS-ISI-018 later than 12 months after the end of the second 10-year ISI interval, relief from performance of the subject ASME Code examination requirement cannot be granted by the staff.

The NRC staff assessed whether there are any safety-significant issues caused by the licensee not meeting the 10 CFR 50.55a(g)(5)(iv) schedule requirements for submittal of RR RBS-ISI-018. Taking into consideration the staff's finding that adequate assurance of support skirt integrity was provided by the licensee's alternative VT-3 visual examination of the exterior portion of the RPV support skirt, with no relevant indications, the staff concludes that non-compliance with the requirements of 10 CFR 50.55a(g)(5)(iv) and the ASME Code, Section XI examination requirement for the support skirt does not result in any safety-significant issues.

The NRC staff concludes that the licensee has not adequately addressed the regulatory requirements set forth in 10 CFR 50.55a(g)(5)(iv) because the licensee submitted RR RBS-ISI-018 later than 12 months after the end of the second 10-year ISI interval at RBS. The NRC staff also concludes that the licensee is not in compliance with the subject ASME Code, Section XI examination requirement for the RPV support skirt because the requested relief from the subject ASME Code, Section XI examination requirement cannot be granted by the staff.

The NRC staff has reviewed the licensee's submittal and has determined that, based on the access limitations and limited-scope alternative examination documented above, if the licensee's RR was submitted as required by 10 CFR 50.55a, the staff would have determined that relief would be granted from performing the full-scope examination of the RPV support skirt,

as required by the ASME Code, Section XI. Furthermore, the staff determined that adequate assurance of RPV support skirt integrity was provided by the licensee's alternative VT-3 visual examination of the exterior portion of the RPV support skirt, with no relevant indications. Therefore, the staff concludes that there are no safety-significant issues caused by the licensee not meeting the above requirements.

4.0 CONCLUSION

As set forth above, the NRC staff determines that the proposed inspection provides reasonable assurance of structural integrity or leak tightness of the subject components. However, since RR RBS-ISI-018 was not submitted in a timely manner in accordance with 10 CFR 50.55a(g)(5)(iv), the NRC staff does not have the regulatory authority to grant the requested relief. The NRC's Region IV staff has been informed of the apparent noncompliance with NRC regulations and may take additional NRC actions.

All other ASME Code, Section XI requirements, for which relief was not specifically requested and approved, remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: E. Davidson

Date: September 24, 2013

The NRC's Region IV staff has been informed of the apparent noncompliance with NRC regulations and may take additional NRC actions. All other ASME Code, Section XI requirements, for which relief was not specifically requested and approved, remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

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

Sincerely,

/ra/ (CFLyon for)

Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosure:
Safety Evaluation

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