



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

August 31, 2012

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

SUBJECT: RIVER BEND STATION, UNIT 1 - RBS-ISI-016 and RBS-ISI-017 PROPOSED ALTERNATIVE TO 10 CFR 50.55A EXAMINATION REQUIREMENTS FOR REACTOR PRESSURE VESSEL WELD INSPECTIONS (TAC NOS. ME6845 AND ME6844)

Dear Sir or Madam:

By letter dated August 23, 2011, as supplemented by letters dated April 16, and August 2, 2012, Entergy Operations, Inc. (Entergy, the licensee) submitted Relief Requests (RR) RBS-ISI-016 and RBS-ISI-17 for the second 10-Year Inservice Inspection (ISI) Interval Program at the River Bend Station, Unit 1 (RBS). Specifically, the licensee has requested relief from certain American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPV), Section XI, Sub Article IWB-2500 Inservice Inspection (ISI) requirements for Examination Category B-O, Pressure Retaining Welds in Control Rod Housings (RBS-ISI-016) and Examination Category C-G, Pressure Retaining Welds in Pumps and Valves (RBS-ISI-17), in accordance with 10 CFR 50.55a(g)(6)(i).

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the RRs RBS-ISI-016 and RBS-ISI-017 and concluded that compliance with the examination coverage requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.55a(g)(5)(iii) for the ASME Class 1 Category B-O, Pressure Retaining Welds in Control Rod Housings and the ASME Class 2 pressure retaining welds in certain pumps and valves is impractical, thus fulfilling the technical requirements of 10 CFR 50.55a(g)(6)(i). The licensee proposed to continue performing visual examinations (VT-2) in conjunction with system leakage tests. The NRC staff concludes that there is reasonable assurance that the structural and leak-tight integrity of the welds under consideration may be obtained through the use of the licensee's proposed alternative (i.e., VT-2 examinations).

However, RR RBS-ISI-016 and RBS-ISI-017 are applicable to RBS's second 10-year ISI interval, which began on December 1, 1997, and ended on May 31, 2008. These requests were submitted on August 23, 2011. Since the requests for relief were 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.

With regards to RBS-ISI-016, in its letter dated August 2, 2012, the licensee has committed to "investigate and evaluate for suitability alternative inspection methods, such as the remote camera suggested by the NRC, for the third and subsequent ISI intervals as long as the

impracticality remains." The licensee also acknowledged that it will have to submit an alternative, if they find it possible to perform a visual examination by remote camera in lieu of the ASME Code requirements.

All other ASME Code, Section XI, requirements for which relief has not been specifically requested, remain applicable, including a 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 at AlanWang@NRC.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael T. Markley". The signature is written in a cursive style with a large, looped "M" and "y".

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
RELIEF REQUESTS RBS-ISI-016 AND RBS-ISI-017 FROM ASME CODE, SECTION XI,
INSERVICE INSPECTION REQUIREMENTS FOR PRESSURE
RETAINING WELDS IN CONTROL ROD HOUSINGS AND PUMPS AND VALVES
ENTERGY INC.
RIVER BEND STATION, UNIT 1
DOCKET NUMBER 50-458

1.0 INTRODUCTION

By letter dated August 3, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11221A164), as supplemented by letters dated April 16, 2012, and August 2, 2012 (ADAMS Accession Nos. ML12110A409 and ML12234A399, respectively), Entergy Inc., (the licensee) requested relief from certain requirements of the American Society of Mechanical Engineers (ASME), Boiler and Pressure Vessel Code (ASME Code), 1992 Edition through the 1993 Addenda, under the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g)(4), for the Second 10-year Inservice Inspection (ISI) Program for River Bend Station, Unit 1 (RBS).

Specifically, pursuant to 10 CFR 50.55a(g)(6)(i), the licensee has requested relief and to use alternative requirements (if necessary), for ISI of ASME Code Class 2 pressure retaining welds in certain pumps and valves on the basis that the code requirement is impractical. The licensee's submittal requested relief for its second 10-year ISI interval, however, the request was submitted more than 12 months following the end of that interval.

2.0 REGULATORY EVALUATION

Pursuant to Section 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 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.

Enclosure

The regulations in 10 CFR 50.55a(g)(5)(iii), state, in part, that licensees may determine that conformance with certain code requirements is impractical and that 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 code requirements during the ISI interval for which the request is being submitted. Requests for relief made in accordance with this section must be submitted to the US Nuclear Regulatory Commission (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, in part, 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 has requested relief from ASME Code requirements pursuant to 10 CFR 50.55a(g)(6)(i). The ASME Code of record for the RBS Unit 1 second 10-year ISI interval program is the 1992 Edition through the 1993 Addenda of Section XI of the ASME Code. The RBS Second 10-Year ISI Interval started on December 1, 1997, and ended on May 31, 2008.

The licensee has submitted Relief Requests (RRs) RBS-ISI-016 and RBS-ISI-017 beyond the 12-month timeframe following the second 10-year ISI interval as required by 10 CFR 50.55a(g)(5)(iii) and this condition has been addressed in Entergy's Corrective Action Process under Condition Report CR-RBS-2011-04519 that was initiated on June 6, 2011. The NRC staff will only review the licensee's RRs to determine whether or not there are any safety significant issues because the lateness of the licensee's submittal. The NRC staff cannot authorize the RRs because the licensee did not meet the 10 CFR 50.55a(g)(5)(iii) requirements in submitting a relief determined to be impractical within 12 months following the end of the RBS second 10-year ISI interval and therefore, based on the above, the NRC staff finds that regulatory authority does not exist for the Commission to grant the reliefs requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 Request For Relief RBS-ISI-016 ASME Code, Section XI, Table IWB-2500-1, Examination Category B-O, Item 14.10 Welds In Control Rod Drive (CRD) Housings

3.1.1 ASME Code Components Affected

Table 3.1.1 below is reconstructed from Table 1 of the licensee's submittal dated August 3, 2011.

TABLE 3.1.1

RIVER BEND STATION - UNIT 1 SECOND 10 YEAR INTERVAL INSERVICE INSPECTION PROGRAM REQUEST FOR RELIEF RBS-ISI-016 AFFECTED COMPONENTS			
COMPONENT NO	ASME CODE CATEGORY	ASME CODE ITEM NUMBER	DESCRIPTION
B1 3-D008-04/1 7-WELD-1	B-O	614.10	Welds-in-CRD Housing
B1 3-D008-04/1 7-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-04/21-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-04/21-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-04/25-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-04/25-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-04/29-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-04/29-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-04/33-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-04/33-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-04/41-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-04/41-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-08/13-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-08/13-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-08/45-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-08/45-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-12/09-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-12/09-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-12/49-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-12/49-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-16/05-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-16/05-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-16/53-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-16/53-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-20/05-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-20/05-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-20/53-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-20/53-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-24/05-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-24/05-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-24/53-WELD-1	B-O	B14.10	Welds-in-CRD Housing

RIVER BEND STATION - UNIT 1 SECOND 10 YEAR INTERVAL INSERVICE INSPECTION PROGRAM REQUEST
FOR RELIEF RBS-ISI-016
AFFECTED COMPONENTS

COMPONENT NO	ASME CODE CATEGORY	ASME CODE ITEM NUMBER	DESCRIPTION
B13-D008-24/53-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-28/05-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-28/05-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-28/53-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-28/53-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-32/05-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-32/05-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-32/53-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-32/53-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-36/05-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-36/05-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-36/53-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-36/53-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-40/05-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-40/05-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-40/53-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-40/53-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-44/09-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-44/09-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-44/49-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-44/49-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-48/13-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-48/13-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-48/45-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-48/45-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/17-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/17-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/21-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/21-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/25-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/25-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/29-WELD-1	B-O	B14.10	Welds-in-CRD Housing

RIVER BEND STATION - UNIT 1 SECOND 10 YEAR INTERVAL INSERVICE INSPECTION PROGRAM REQUEST FOR RELIEF RBS-ISI-016 AFFECTED COMPONENTS			
COMPONENT NO	ASME CODE CATEGORY	ASME CODE ITEM NUMBER	DESCRIPTION
B13-D008-52/29-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/33-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-52/33-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B1 3-D008-52/37-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/37-WELD-2	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/41-WELD-1	B-O	B14.10	Welds-in-CRD Housing
B13-D008-52/41-WELD-2	B-O	B14.10	Welds-in-CRD Housing

3.1.2 Applicable Code Edition and Addenda

The code of record for the second 10-year ISI interval at River Bend, Unit 1, is the 1992 Edition through 1993 Addenda of the ASME Code, Section XI.

3.1.3 Applicable Code Requirement (as stated by the licensee)

ASME Code, Section XI, Addenda, Table IWB-2500-1, Examination Category B-O, Pressure Retaining Welds in Control Rod Housings, Item B14.10 requires volumetric or surface examination of 10 percent of peripheral CRD housing welds.

3.1.4 Basis for Impracticality of Compliance (as stated by the licensee)

The as-installed configuration of the 36 peripheral CRD housings makes performance of the eight required examinations impractical for the following reasons. The housings are laterally proximate to the reactor vessel support pedestal, which limits access to the upper and lower welds on the outer circumference of the housings. Next, the subject welds are below the lower reactor insulation support structure where the housings pass through a series of closely-spaced CRD housing support beams and associated hanger rods, which further limit access to the welds in the upper portion of the housings. Access to both the upper and lower welds from below is further limited by a series of CRD housing support bars, grid plates and grid clamps. Access to the lower welds from the housing ID requires removal of the CRD mechanisms and sleeves. See Diagrams 1 - 5 on pages 5-9 of this relief request.

In the licensee's response to the NRC staff's Request for Additional Information (RAI) dated April 16, 2012, the licensee provided the following information:

Radiological surveys were performed during January 2011 in the subpile room under the reactor vessel. Entry into this area is required to access the CRD Housing tube-to-flange Weld #1s. General area dose rates ranged from 30 to 220 mrem/hour. Contact dose rates in the overhead areas (where Weld #1s are located) ranged from 233 to 1500 mrem/hour.

A survey was performed on January 26, 2011, in the lower annulus area between the reactor vessel and the biological shield wall. Entry into this area is required to access the CRD housing tube-to-tube Weld #2s. General area dose rates ranged from 60 to 120 mrem/hour. No actual contact dose rates for the weld locations were obtained, but the rates should be comparable to the contact rates for the lower portion of the housings.

Relief was requested by RBS in Relief Request R004 and was approved by NRC as documented in SSER 3 [Safety Evaluation Report, Supplement 3], Appendix L, dated May 1984, and SER for Inservice Inspection (ISI) plan, Revision 2, dated October 20, 1987. Inservice VT-1 examinations of the CRD bolting were performed during the first and second ISI Intervals both in place and when bolts were removed for replacement of the associated CRD mechanisms. The examination during the first ISI interval yielded satisfactory results. However, the VT-1 examinations performed during the second ISI interval performed on CRD bolting removed for CRD mechanism replacement recorded minor pitting and corrosion.

During the first and second ISI Intervals, 22 of the 36 peripheral CRD's were removed for replacement. During the first ISI Interval, the alternate VT-1 examination of the minimum number of peripheral CRD housing welds was attempted, but the welds were determined to be inaccessible. Records of attempted inspection in the second ISI Interval could not be located.

The NRC staff asked the licensee to provide the root cause of the pitting and cracking in the CRD housing bolting. In its RAI response dated August 2, 2012, the licensee provided the following additional information:

The subject indications [in the CRD bolting were] documented on inspection reports and addressed under the Corrective Action Process. The level of classification of the conditions did not warrant the performance of root cause or apparent cause evaluations. The conditions were characterized by use of a supplemental examination method (eddy current, then evaluated against pre-established acceptance criteria and found acceptable. The conditions were corrected by replacement of the subject fasteners under the Work Management Process.

In addition, the licensee stated that if it had not considered using a remote camera to examine the CRD welds since there have been improvements in quality of the equipment. The NRC asked if the licensee would consider using a remote camera for the next interval (the third 10-year interval). In its RAI response dated August 2, 2012, the licensee made the following regulatory commitment:

Entergy will continue to investigate and evaluate for suitable alternative inspection methods, such as the remote camera suggested by the NRC, for the third and subsequent ISI intervals as long as the impracticality remains. It should be noted that Entergy fully understands that use of any examination method other than the volumetric or surface method specified in ASME Code, Section XI, Table IWB-2500-1 will require relief approved by the NRC.

Since the ISI scope for the upcoming refueling outage (RF-17) has been selected, implementation of alternative methods determined to be suitable would begin Spring 2015, which corresponds with refueling outage RF-18.

3.1.5 Proposed Alternative Examination (as stated by the licensee)

Relief is requested from performing the volumetric or surface examinations on 10% of the peripheral CRD housing welds. The subject welds will continue to receive VT-2 examination with the Reactor Coolant Pressure Boundary (RCPB) system leakage test conducted prior to startup from each refueling outage. Under-vessel Drywell leakage is also monitored during each operational cycle.

3.1.6 Duration of Relief

RR RBS-ISI-017 is applicable for the second 10-year ISI interval of River Bend, Unit 1, which commenced on December 1, 1997, and ended on May 31, 2008.

3.1.7 NRC Staff Evaluation

ASME Code, Section XI, Addenda, Table IWB-2500-1, Examination Category B-O, Pressure Retaining Welds in Control Rod Housings, Item B14.10 requires volumetric or surface examination of 10 percent of peripheral CRD housing welds. The licensee was unable to perform the ASME Code-required examination due to the as-installed configuration of the 36 peripheral CRD housings. The subject CRD housings are laterally proximate to the reactor vessel support pedestal, which limits access to the upper and lower welds on the outer circumference of the housings. In addition the subject CRD housings welds are below the lower reactor insulation support structure where the housings pass through a series of closely-spaced CRD housing support beams and associated hanger rods, which further limit access to the welds in the upper portion of the housings. Furthermore access to both the upper and tower welds from below is further limited by a series of CRD housing support bars, grid plates and grid clamps. Access to the lower welds from the housing ID requires removal of the CRD mechanisms and sleeves. In its RAI, the NRC staff inquired if the licensee had considered examining the subject CRD housing welds by remote camera since there has been an improvement in resolution of lenses for cameras for remote visual examinations over the past few years. In its RAI response dated April 16, 2012, the licensee stated it had not attempted to use remote cameras to perform the alternative VT-1 examinations. However, in its letter dated August 12, 2012, the licensee noted that it will look into the possibility of examining the subject CRD housing welds by remote camera in the RBS third 10-year ISI interval.

The licensee performed radiological surveys in the subpile room under the reactor pressure vessel. Entry into this area is required to access the CRD Housing Tube-to-Flange Welds. In this area dose rates ranged from 30 to 220 mrem/hour and the contact dose rates in the overhead areas where CRD Housing Weld #1 is located ranged from 233 to 1500 rem/hour.

Based on the above and the diagrams provided by the licensee, the NRC staff concluded that the licensee's RR was submitted as required by 10 CFR.50.55a(g)(5)(iii) the ASME Code-required examination of the CRD housing tube-to-flange welds constitutes a burden as the subject welds would have had to be redesigned in order to perform the ASME Code-required examinations. In addition, based on the designs of the CRD housing tube-to-flange welds and obstructions under the reactor pressure vessel (RPV) and near the subject welds, the ASME Code required examinations would have been found to be impractical to perform by the licensee.

In order for the NRC staff to make a determination that there were no safety significant issues because the licensee missed the due date in submitting the subject relief request, the NRC staff asked if other inspections on different components were performed in same area of the CRD housing tube-to-flange welds. The licensee performed VT-1 visual examinations of the CRD bolting during the first and second 10-year RBS ISI intervals, both with the bolts in place and when bolts were removed for replacement of the associated CRD mechanisms. During these examinations the licensee did find that some of the bolts had some degradation and were replaced as noted above. The licensee noted in its letter dated August 2, 2012, that the CRD housing bolting (the bolting material was of 4140 Carbon Steel) degradation found during the VT-1 in the second 10-year ISI interval that the root cause of the pitting and cracking of the bolting had not been determined and as a corrective measure they had replaced the defected bolting. During this activity the licensee did not observe any significant service-induced degradation occurring under the RPV or signs of leakage near the area of the CRD housing tube-to-flange welds. Based on the licensee's action and condition of the area near CRD housings the NRC staff determined the bolting degradation was not an apparent indication of degradation of the CRD housing welds since the CRD housing components are fabricated from corrosion resistant stainless steel or alloy steel and have a different function and load condition than that of the bolting. The NRC staff concluded that the subject welds were not affected by the condition of the bolting.

In addition, the licensee performs ASME Code VT-2 visual examinations each refueling outage and during operation of the plant the licensee constantly monitors the leakage rate on the bottom of reactor vessel from the control room. Based on the above, the NRC staff determined that there are no safety significant issues caused by the licensee not meeting the 10 CFR 50.55a(g)(5)(iii) timeframe requirements in submitting RR RBS-ISI-016. However, the NRC staff concludes that the licensee has not adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(5)(iii), and is not in compliance with the ASME Code's requirements, because the licensee submitted RR RBS-ISI-016 beyond 12 months of the end of the second 10-year RBS ISI interval and the subject RR is not granted by the staff.

The NRC staff reviewed the licensee's submittal and concludes that, based on the above and the diagrams provided by the licensee, if the licensee's relief request had been submitted as required by 10 CFR 50.55a, the ASME Code-required examination of the CRD housing tube-to-flange welds would have been found to be a burden and impractical to perform for the licensee. The NRC staff further concludes that during the associated CRD mechanisms bolting replacement activity, the

licensee would have observed evidence of any significant service-induced degradation affecting the subject CRD housing tube-to-flange welds. In addition, the NRC staff concludes that the VT-2 visual examinations and the continuous monitoring of leakage during operation of the plant provide reasonable assurance of leak tightness of the subject CRD housing welds. Therefore, the NRC staff concludes that there are no safety significant issues caused by the licensee not meeting the 10 CFR 50.55a(g)(5)(iii) timeframe requirements in submitting RR RBS-ISI-016. In its letter dated August 2, 2012, the licensee made a regulatory commitment that it "will continue to investigate and evaluate for suitability alternative inspection methods, such as the remote camera suggested by the NRC, for the third and subsequent ISI intervals as long as the impracticality remains." The licensee also acknowledged that it will have to submit an alternative, if they find it possible to perform a visual examination by remote camera in lieu of the ASME Code requirements.

3.2 Request For Relief RBS-ISI-017 ASME Code, Section XI, Table IWB-2500-1, Examination Category C-G, Item C6.10 Welds In Pump Casting Welds

3.2.1 ASME Code Components Affected

ASME Code Class:	Class 2
Examination Category:	C-G, Pressure Retaining Welds in Pumps and Valves, Table IWC-2500-1
Item No.:	C6.10
Component:	Pump Casting Welds
System:	Residual Heat Removal System; Low Pressure Core Spray System; High Pressure Core Spray System

The components (i.e., pump casing DH-1 welds identified in Diagrams 1 through 6 of Attachment 2 to RR RBS-ISI-017) for which a relief is requested are listed below.

Table 1. Materials specification for weld and pump

Pump	System	Material
E12-PC002A	Residual Heat Removal System	DH-1 Weld Tack/Root – E7018 Final – F72 – EM12K Head Shell – SA 516 Gr. 70 Head Flange – SA 105
E21-PC001	Low Pressure Core Spray System	DH-1 Weld Tack/Root – E7018 Final – F72-EM12K Head Shell – SA 516 Gr. 70 Head Flange – SA 105
E22-PC001	High Pressure Core Spray System	DH-1 Weld Tack/Root – E7018 Final – F72 – EM12K Head Shell – SA 516 Gr. 70 Head Flange – SA 105

3.2.2 Applicable Code Edition and Addenda

The code of record for the second 10-year ISI interval at RBS is the 1992 Edition through 1993 Addenda of the ASME Code, Section XI.

3.2.3 Applicable Code Requirement (as stated by the licensee)

The ASME Code, Section XI, IWC-2500, Table IWC-2500-1, Examination Category C-G, Item No. C6.10, "Pump Casing Welds," requires surface examination of 100% of welds in all components in each piping run examined under Examination Category C-F each inspection interval. For extent of examination, Note 1 of Table IWC 2500-1 of Examination Category C-G applies. This states that, "in the case of multiple pumps and valves of similar design, size, function and service in a system, the examination of only one pump and one valve among each group of multiple pumps and valves is required."

3.2.4 Basis for Impracticality of Compliance

The licensee stated that the ASME Code, Section XI, required surface examinations were deemed impractical due to the configuration of the component and/or interference from the adjacent component. In its letter dated August 3, 2011, the licensee stated:

Insufficient access exists to perform the required examinations of welds due to the close proximity of twenty-four adjacent nuts/washers that fasten each upper pump casing to the lower (embedded) casing.

3.2.5 Proposed Alternative

The licensee acknowledged that the code required examinations could be performed if the pumps were disassembled. The licensee proposed that disassembling the pumps constituted a burden. The licensee proposed to continue performing visual examinations (VT-2) in conjunction with system leakage tests.

3.2.6 Duration of Relief

RR RBS-ISI-017 is applicable for the second 10-year ISI interval of River Bend, Unit 1, which commenced on December 1, 1997, and ended on May 31, 2008.

3.2.7 NRC Staff Evaluation

The NRC staff evaluated this request against the criteria contained in 10 CFR 50.55a(g)(6)(i) (i.e., the NRC 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 NRC staff considers activities such as those involving: significant modifications to equipment; personnel hazards; or radiation exposure to constitute burdens. The NRC staff considers alternatives that provide reasonable assurance of structural and/or leaktight integrity of the subject components to meet the regulatory requirement of "will not endanger life or property."

RR RBS-ISI-017 was submitted to the NRC by letter dated August 3, 2011. The licensee's second 10-year ISI interval, for which relief is sought, ended on May 31, 2008. The time period between the end of the second ISI interval and the submission of the RR exceeds 12 months.

By letter dated April 16, 2012, in response to the NRC staff RAI regarding the reasons for not submitting RR RBS-ISI-017 within the required 1-year timeframe, the licensee stated that the failure to file the RR RBS-ISI-017 within the one-year timeframe specified under 10 CFR 50.55a(g)(5)(iv) was documented in the RBS Corrective Action Process under Condition Report CR-RBS-2011-04519, which was initiated on June 6, 2011. The need to generate the subject requests for relief was overlooked inadvertently during the interval end-review process. Since the requests for relief were 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.

In its submittal, the licensee proposed that based on the close proximity of the welds to the nuts/washers, the weld was not accessible for inspection without removal of the nuts/washers. The licensee also proposed that removal of the nuts/washers (i.e., disassembling the pump), constituted a burden.

The NRC staff agrees with the licensee's assessment that the proximity of the nuts/washers to the weld precludes the performance of a surface examination without the removal of the

nuts/washers. The NRC staff also agrees with the licensee's assessment that the disassembly of the pump to remove the nuts/washers constitutes a burden.

In its submittal, the licensee proposed that the performance of visual examinations in conjunction with leak tests provided an adequate level of safety. In evaluating the licensee's proposed alternative, the NRC staff considered the following information from the licensee's RR:

1. The licensee stated that the DH-1 welds consist of carbon steel pump base materials with carbon steel weld filler material, and are therefore not considered to be susceptible to stress corrosion cracking, as discussed in NRC Information Notice 2011-04.
2. By letter dated April 16, 2012, in response to the NRC staff RAI, the licensee stated that the subject DH-1 welds were fabricated in 1977 and inspected using the radiographic testing and hydrostatic testing. Linear indications found during fabrication inspection were repaired. Relief from the pre-service inspection examinations were requested (RR R003) and approved by the NRC in NUREG-0989, "Safety Evaluation Report Related to the Operation of River Bend Station," Supplement 3, Appendix L, dated May 1984 (ML091380410).
3. The licensee stated that a relief (RR RR1-0003) was submitted to and approved by the NRC (as documented in the NRC SER dated March 9, 2000) from the ISI examinations during the first 10-year ISI Interval.
4. The NRC staff has determined that the licensee performed the visual (VT-2) examinations with the system leakage tests of the subject welds and components in accordance with the ASME Code, Section XI, Examination Category B-P.
5. The licensee stated that further assurance that the welds under consideration are satisfactory is provided by the satisfactory results of examinations performed on other welds in the same pumps made of the same materials and weld filler materials.

Based on the above information, the NRC staff concludes that there is reasonable assurance of the structural and leak tight integrity of the welds under consideration may be obtained through the use of the licensee's proposed alternative (i.e., VT-2 examinations).

Therefore, the NRC staff finds that the alternative proposed by the licensee meets the technical criteria contained in 10 CFR 50.55a(g)(6)(i), that is, "granting relief... 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." However, as discussed in the regulatory analysis, the NRC staff finds that the timeliness of submission requirements contained in 10 CFR 50.55a(g)(5)(iv) have not been met.

4.0 REGULATORY COMMITMENT

By letter dated August 2, 2012, Entergy made the following regulatory commitment:

Entergy will continue to investigate and evaluate for suitability alternative inspection methods, such as the remote camera suggested by the NRC, for the third and subsequent ISI intervals as long as the impracticality remains.

The NRC staff concludes that reasonable controls for the implementation and for subsequent evaluation of proposed changes pertaining to the above regulatory commitment are best provided by the licensee's administrative processes, including its commitment management program. The above regulatory commitment does not warrant the creation of regulatory requirements (items requiring prior NRC approval of subsequent changes).

5.0 CONCLUSION

As set forth above, the NRC staff determined that the proposed inspection provides reasonable assurance of structural integrity or leak tightness of the subject components. However, since RR RBS-ISI-016 and RBS-ISI-017 were 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 reliefs. The NRC's Region IV staff has been informed of the apparent noncompliance with NRC regulations and may take additional NRC actions.

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D. Alley

Date: August 31, 2012

impracticality remains." The licensee also acknowledged that it will have to submit an alternative, if they find it possible to perform a visual examination by remote camera in lieu of the ASME Code requirements.

All other ASME Code, Section XI, requirements for which relief has not been specifically requested, remain applicable, including a 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 at AlanWang@NRC.gov.

Sincerely,

/RA/

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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