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10 CFR 50.55a

RBG-47948

May 9, 2019

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Response to Requests for Additional Information
Request for Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii)
Proposed Alternative to CFR 50.55a Examination Requirements for Third Interval Volumetric Exams (RBS-ISI-021)

River Bend Station, Unit 1
NRC Docket No. 50-458
Renewed Facility Operating License No. NPF-47

Reference:

1) Entergy Operations, Inc. (Entergy) letter to U. S. Nuclear Regulatory Commission (NRC), "Request for Alternative in Accordance with 10 CFR 50.55a(g)(5)(iii) Proposed Alternative to CFR 50.55a Examination Requirements for Third Interval Volumetric Exams (RBS-ISI-021)," (ADAMS Accession No. ML18334A259), dated November 30, 2018

2) NRC email: River Bend Station, Unit 1, Final Request for Additional Information (ADAMS Accession No. ML19102A072), dated April 11, 2019

In Reference 1, Entergy submitted a request for the review and approval of a relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI requirements pertaining to volumetric examinations at River Bend Station, Unit 1. In Reference 2, the NRC transmitted requests for additional information (RAIs) needed to complete the relief request review.

The Enclosure to this letter provides the responses to the NRC RAIs transmitted in Reference 2.

This letter does not contain any new commitments.

If you require additional information, please contact Mr. Tim Schenk at (225) 381-4177 or tschenk@entergy.com.

In accordance with 10 CFR 50.91(b)(1), Entergy is notifying the State of Louisiana and the State of Texas by transmitting a copy of this letter to the designated State Official.

I declare under penalty of perjury, the foregoing is true and correct. Executed on May 9, 2019.

Respectfully,

Ron Gaston

RWG/baj

Enclosure: Final Request for Additional Information Response

cc: NRC Regional Administrator - Region IV
NRC Project Manager - River Bend Station
NRC Senior Resident Inspector - River Bend Station
Louisiana Department of Environmental Quality
Public Utility Commission of Texas

Enclosure

RBG-47948

Final Request for Additional Information Response

Final Request for Additional Information (ML19102A072)

By letter dated November 30, 2018 (ADAMS Accession No. ML18334A259), Entergy Operations, Inc. requested relief in accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.55a(g)(5)(iii) from the requirement of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI. Relief Request RBS-ISI-021 pertains to examination coverage of the Class 1 piping and vessel welds in the third 10-year in-service inspection (ISI) interval at RBS. The NRC staff requires additional information to complete its review of this request as detailed below.

Question 1

The Class 1 piping and vessel welds did not meet the ASME Code-required examination coverage in Table IWB-2500-1, Footnote 3 for B-J category piping. To determine the extent of condition, were there any piping welds (composed of the same material and exposed to a similar environment) examined at the ASME Code-required coverage with acceptable results in the third 10-year ISI interval? Please discuss.

Response to Question 1

Reactor Water Cleanup (WCS)

Pipe	SA-312, Gr. TP316L, Class 1
Valves	SA-182, Gr. F316L
Fittings	SA-403, WP316L

Welds WCS-003A-XI-FW003, WCS-003A-XI-FW004, WCS-006B2-XI-FW011, WCS-006B2-XI-FW013, 006B2-XI-SW001, 006B2-XI-SW004 are located in the WCS system. In addition to these welds, Entergy Operations, Inc. (Entergy) examined welds WCS-005A-FW007, WCS-001A1-XI-SW001, and WCS-001A1-XI-SW002. Welds WCS-005A-FW007, WCS-001A1-XI-SW001, and WCS-001A1-XI-SW002 obtained greater than 90% coverage and yielded no recordable indications. These welds are of the R-A category, Item number R1.20 and operating under the same conditions.

Standby Liquid Control (SLS)

Pipe	SA-312, Gr. TP304L, Class 1
Fittings	SA-403, Gr. WP304L

Welds SLS-042B-FW015 and SLS-042B-FW001 are located in the SLS system. In addition to these welds, Entergy examined welds SLS-037D-FW001, SLS-037D-FW002, SLS-037D-FW003A, SLS-037D-FW004, and SLS-042B-FW008. Welds SLS-037D-FW001, SLS-037D-FW002, SLS-037D-FW003A, SLS-037D-FW004, and SLS-042B-FW008 obtained greater than 90% coverage and yielded no recordable indications. These welds are of the R-A category, Item number R1.20 and operating under the same conditions.

Question 2

Given the limited coverage achieved for the subject piping welds, provide a summary of evaluation for accepting the proposed limited coverages, required by Note 3 of ASME Code Case N-716, "Alternative Piping Classification and Examination Requirements Section XI, Division 1."

Response to Question 2

ASME Section XI has incorporated Code Case N-460 now identifying the minimum examination coverage (greater than 90%) for Code compliance. However, for locations not meeting the minimum requirements, ASME Section XI is silent. It is the requirements of 10 CFR 50.55a that requires examinations determined by the licensee to be impractical (i.e., examinations that do not obtain greater than 90% coverage of the Code volume, limited examinations) to be identified to the NRC for their approval. As such, the regulation requires the limited examinations to be documented and provided to the NRC no later than 12 months after the end of the each ISI interval. This schedule defined by 10 CFR 50.55a(g)(5)(iv) recognizes that all examinations determined to be impractical may not be identified until the interval is complete.

In the Entergy request to implement a risk-based ISI program for River Bend Station, Unit 1 (RBS) (i.e., RBS-ISI-013, ADAMS Accession No. ML091740306), including multiple supplements and responses to the NRC's requests for additional information, Entergy committed to use the process described in 10 CFR 50.55a(g)(5)(iv) to document and obtain NRC approval of limited examinations. Consistent with requests for relief for limited examinations of traditional programs, it is also necessary to complete the interval for a risk-based program so that all limited examinations can be identified. Once all limited examinations are identified, the cumulative effect of the limited examinations can be determined for each affected system and for the total delta risk.

Below is a summary of the cumulative effect of the limited examinations reported in relief request RBS-ISI-021. This summary demonstrates that the limited examinations do not invalidate the results of the initial change-in-risk evaluation, as required by Note 3 of Table 1 in ASME Code Case N-716.

Reactor Water Cleanup (WCS)

For the six WCS welds, when examined during the second interval as part of the traditional ISI program, they were examined as Examination Category BJ, Item No. B9.21, which required surface examinations. Of the six welds, three were examined during the second interval with a surface method, and three were not selected for examination. Examining these same six welds during the third interval with a volumetric method meeting Mandatory Appendix VIII, even with only 50% coverage, is an improvement. However, to conservatively quantify the effect on delta risk, the delta risk is adjusted by not crediting these examinations for the WCS system. Table 1 below provides the delta risk with the six welds credited and with the six welds not credited. The columns under heading "Examined" are the delta risk with the six welds included, the columns under heading "Not Examined" is the adjusted delta risk after removing the six welds. As can be seen, the change is negligible and well below the ASME Code Case N-716 acceptable limits of 1E-07 for CDF and 1E-08 for LERF. Therefore, a limited examination of the six WCS welds is acceptable.

Table 1: Reactor Water Cleanup Delta Risk

	CDF Impact		LERF Impact		Source of Delta Risk
	w/ POD	w/o POD*	w/ POD	w/o POD	
WCS	Examined				
	1.00E-12	1.00E-12	1.00E-13	1.00E-13	Initial program (Relief RBS-ISI-013)
	1.00E-12	1.00E-12	1.00E-13	1.00E-13	Latest 3rd interval periodic update required by N-716, Section 7
	Not Examined				
	6.10E-12	6.10E-12	1.15E-12	1.15E-12	Adjusted delta risk using the initial delta risk
	6.10E-12	6.10E-12	1.15E-12	1.15E-12	Adjusted delta risk using the periodic update delta risk

* POD: Probability of Detection

Standby Liquid Control (SLS)

In the traditional ISI program, there were no welds examined volumetrically in the SLS system, therefore any volumetric examination performed as part of the risk-based program is an improvement in risk. If all risk-based examinations are removed from the SLS system, the result is risk neutral. However, to conservatively quantify the effect on delta risk, the delta risk is adjusted by not crediting the two SLS welds with limited examination coverage. Table 2 below provides the delta risk with the two SLS welds credited and with the two SLS welds not credited. The columns under heading "Examined" are the delta risk with the two welds included, the columns under heading "Not Examined" is the adjusted delta risk after removing the two welds. As can be seen, the change is negligible and well below the ASME Code Case N-716 acceptable limits of 1E-07 for CDF and 1E-08 for LERF. Therefore, a limited examination of the two SLS welds is acceptable.

Table 2: Standby Liquid Control Delta Risk

	CDF Impact		LERF Impact		Source of Delta Risk
	w/ POD	w/o POD	w/ POD	w/o POD	
SLS	Examined				
	-4.90E-12	-4.90E-12	-8.50E-13	-8.50E-13	Initial program (Relief RBS-ISI-013)
	-4.90E-12	-4.90E-12	-1.37E-12	-1.37E-12	Latest 3rd interval periodic update required by N-716, Section 7
	Not Examined				
	-3.90E-12	-3.90E-12	-7.50E-13	-7.50E-13	Adjusted delta risk using the initial delta risk
	-3.90E-12	-3.90E-12	-9.23E-13	-9.23E-13	Adjusted delta risk using the periodic update delta risk

Cumulative Effect to Delta Risk for All Eight Welds

In the initial request for alternative to use a risk based program for the Third Interval (RBS-ISI-013, ML091740306), the delta risk was provided for each system and cumulatively for all systems. The impact of the limited examination on the delta risk for the individual system is addressed above. The cumulative effect on the total delta risk is provided in Table 3 below. The columns under heading "Examined" are the delta risk with the eight welds included, the columns under heading "Not Examined" is the adjusted delta risk after removing the eight welds. As can be seen, the change is negligible and well below the ASME Code Case N-716 acceptable limits of 1E-07 for CDF and 1E-08 for LERF. Therefore, a limited examination of the six WCS and two SLS welds is acceptable.

Table 3: Cumulative Effect to Delta Risk

	CDF Impact		LERF Impact		Source of Delta Risk
	w/ POD	w/o POD	w/ POD	w/o POD	
	Examined				
WCS SLS	3.97E-09	4.42E-09	2.05E-10	2.86E-10	Initial program (Relief RBS-ISI-013)
	3.97E-09	4.42E-09	2.08E-10	2.89E-10	Latest 3rd interval periodic update required by N-716, Section 7
	Not Examined				
	3.97E-09	4.42E-09	2.06E-10	2.88E-10	Adjusted delta risk using the initial delta risk
	3.98E-09	4.42E-09	2.09E-10	2.90E-10	Adjusted delta risk using the periodic update delta risk