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1CAN070805

July 10, 2008

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

SUBJECT: Supplemental Information Related to
Request to Use Code Case N-716
For Relief from ASME Section XI Requirements
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

REFERENCE: Entergy letter dated May 30, 2008, "Request to Use Code Case N-716 for Relief from ASME Section XI Requirements" (1CAN050806)

Dear Sir or Madam:

In the referenced submittal, Entergy Operations, Inc. (Entergy) requested approval of proposed alternatives to the requirements of the 1992 Edition and the 2001 Edition with the 2003 Addenda of ASME Section XI for Arkansas Nuclear One, Unit 1 (ANO-1), specifically associated with the requirements of Examination Category B-F, B-J, C-F-1, and C-F-2 of Tables IWB-2500-1 and IWC-2500-1. The request was based upon previously submitted and approved relief requests for other sites, including Waterford 3 and Grand Gulf.

On June 25, 2008, a conference call between members of the Entergy and NRC staffs was held to discuss questions that were developed during the NRC's acceptance review of the reference submittal. During that conversation, the staff requested a written response to their questions. The purpose of this submittal is to provide the Entergy response.

This submittal contains one new commitment. It also revises some of the previously transmitted commitments. For completeness, all commitments, including the additional and revised commitments are summarized in Attachment 2.

Entergy requested approval of the proposed alternative by October 1, 2008, to support the fall 2008 refueling outage. The requested due date has not changed. ANO-1 will withdraw the Request for Alternative CEP-ISI-007 pertaining to the application of Code Case N-663 for use at ANO-1 upon NRC approval of this risk-informed ISI program submittal. Although this request is neither exigent nor an emergency, your prompt review is requested.

If you have any questions or require additional information, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas", is written over a light gray grid background.

DEJ/rwc

Attachments:

1. Supplemental Information Related to Request for Relief ANO1-ISI-012
2. List of Regulatory Commitments

cc: Mr. Elmo E. Collins
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Attachment 1

1CAN070805

**Supplemental Information Related to
Request for Relief**

ANO1-ISI-012

SUPPLEMENTAL INFORMATION RELATED TO REQUEST FOR RELIEF ANO1-ISI-012

BACKGROUND

By Reference 1, Entergy Operations, Inc., (Entergy) requested NRC approval of a proposed alternative to requirements of the 1992 Edition and the 2001 Edition with the 2003 Addenda of ASME Section XI for Arkansas Nuclear One, Unit 1 (ANO-1), specifically associated with the requirements of Examination Category B-F, B-J, C-F-1, and C-F-2 of Tables IWB-2500-1 and IWC-2500-1. Entergy proposed to use a risk-informed / safety-based inservice inspection (RIS_B) program as the alternative to these requirements. The submittal stated that the proposed RIS_B program is described in ASME Code Case N-716 with four (4) additional requirements.

During their acceptance review of the Reference 1 submittal, the Staff determined that additional information was required. The issues were transmitted to ANO-1 prior to the conference call on June 25, 2008. The two issues are listed below.

- Entergy must perform the evaluation and develop its proposed program and provide the summarizing description and results of that analysis in sufficient detail for the staff to review to support its conclusion that the proposed program provides an acceptable level of quality and safety.
- Entergy's relief request must be modified to provide a discussion confirming that either Regulatory Guide (RG) 1.200 guidelines regarding technical adequacy have been evaluated and satisfied or, provide and justify an acceptable alternative approach.

As a result of the conference call, it was determined that Entergy would either provide additional information or withdraw the request within 15 calendar days of the conference call. This attachment provides supplemental information related to the proposed alternative.

SUPPLEMENTAL INFORMATION

Following the conference call, Entergy reviewed the Reference 1 submittal and determined that further clarification was necessary. For example, Entergy understands the NRC has not endorsed ASME Code Case N-716 for generic use. Therefore, the Reference 1 relief request could have been clear in requesting approval of the methodology described in Code Case N-716 with proposed modifications instead of requesting approval of the code case itself. As documented in previous requests associated with Code Case N-716, the code case should have been referred to as a description of the proposed methods. ANO-1 is not requesting the NRC to endorse the use of Code Case N-716.

The methodology proposed in Reference 1 is the same methodology used in development of the Waterford and Grand Gulf RIS_B programs and approved by the NRC. The following is from Reference 2:

Code Case N-716, modified as described by the licensee in its submittals, describes a methodology similar to the EPRI methodology but with several differences as described above in this SE. The NRC staff has evaluated each of the differences and determined that the licensee's proposed methodology, when applied as described, meets the intent of all the steps endorsed in the EPRI TR, is consistent with the guidance provided in RG 1.178, and therefore, satisfies the guidelines established in RG1.174.

In the Reference 1 submittal, ANO-1 committed to perform four (4) additional requirements prior to implementation of the program. These additional requirements came from lessons learned from the NRC's approval of similar RIS_B programs. ANO-1 considered these to be implementation issues that augment the methodology described in the code case.

Entergy requests that the Staff reconsider the two issues listed above. Entergy does not believe this information is necessary for NRC approval of the methodology to be used in this program. Entergy considers these to be implementation issues as are the four modifications to the methodology described in Code Case N-716. ANO-1 is revising the appropriate commitments made in Reference 1 to provide a specific date for each implementation related requirement instead of "Prior to implementation of the RIS_B program."

The basis for the above request is discussed below.

To support the NRC's review of Code Case N-716, two lead plants were chosen to implement the methodology provided in the code case. D.C. Cook, Units 1 and 2 represented the Pressurized Water Reactors (PWRs) and Grand Gulf represented the Boiling Water Reactors (BWRs). To assist the NRC in their review of these two initial applications as well as the follow-up application for the Waterford station, a summary of the results of the analyses were included in the relief requests. As stated above, it is clear that the NRC's review of the Waterford relief request was focused on the methodology itself. References 3 and 4 provide very similar words in this regard.

One observation made by Entergy in previous submittals that requested relief or alternatives to the ASME Code is that the NRC has approved methodology described in code cases that require analytical or evaluation output without the output being part of the request or NRC approval. In some cases, the outputs were not submitted, but were available for NRC review at their discretion. In other instances, the analytical results were provided to the NRC under separate cover as a follow-up to the NRC's approval of the methodology.

As an example, Reference 5 is the NRC's Safety Evaluation (SE) approving Entergy's request to use ASME Code Case N-663 prior to the NRC's approval of the code case for generic use. This code case provided an alternative to ASME Section XI, which eliminated surface examinations from Class 1 and 2 welds for non risk informed inservice inspection (RI-ISI) programs. The NRC's approval was based on the previous approval of the methodology described in Code Cases N-560, N-577 and N-578. The service history review required by Code Case N-663 was not required to be performed and submitted to the NRC as part of the NRC's review and approval process. The methodology was approved with an understanding that the service history review was an implementation responsibility of Entergy and was always subject to review by the NRC at any time.

Another example is related to the use of the methodology described in Code Case N-740. This code case has not been approved by the NRC for generic application, but the methodology with reference to the code case has been reviewed by the NRC for many site specific applications with case-by-case approval. Reference 6 is a recent SE approving the methodology as augmented in Entergy's 10 CFR 50.55a request for an alternative method. The Entergy request, with reference to Code Case N-740, described the methodology to be used for the design, analysis, installation and examination of pre-emptive full structural overlays on Class 1 piping. As indicated in the request, the analysis was an ongoing activity to be completed after NRC approval of the methodology. Within that request, Entergy committed to submit along with other information, a summary of the stress analysis and fracture mechanics analysis that resulted from the methodology approved by the NRC. This commitment was reiterated in the SE, but the analytical output from the methodology was not required for the NRC's approval.

Entergy believes that the request for the NRC's review and approval of the methodology described in Reference 1 for a RIS_B ISI program is consistent with other recent requests for alternative use of methodology previously approved by the NRC.

IMPLEMENTATION ISSUES

In preparations for the ANO-1 fall 2008 outage, which the proposed methodology will be initially implemented, Entergy developed a preliminary RIS_B program based on the methodology described in References 2, 3 and 4. The preliminary evaluation included a review of the existing flooding studies and peer reviews. Based on the present ANO-1 Probabilistic Safety Analysis (PSA) and internal flooding analyses, no piping segments meeting the proposed methodology's criterion for High Safety Significant (HSS) were identified.

Upon completion of the update to the internal flooding analysis, the results of the preliminary evaluation will be reviewed to determine if any pipe segments meet the requirements of the proposed methodology to be classified as HSS.

A gap analysis of the ANO-1 Internal Events risk model in relation to the RG 1.200 standard has been completed. The gaps are being dispositioned and those that are determined to have possible impact to the updated flooding study will be resolved as part of Entergy's implementation of the proposed methodology. This effort will meet the requirements of RG 1.200 and is currently scheduled to be completed by September 17, 2008.

Based on the progression of the updated flooding study and our knowledge of the gaps in the ANO-1 PSA Internal Events model, Entergy does not expect to identify any piping segments that would be classed as HSS.

CONCLUSIONS

Entergy agrees that the request for NRC review and approval of a proposed RIS_B program for ANO-1 required further clarification regarding the use of Code Case N-716. The request could have referred to the code case as a source of the methodology with the additional requirements contained in the request. This clarification is offered as a supplement to the initial request. In summary, Entergy is not requesting NRC approval of Code Case N-716, but the methodology described in the code case along with the additional requirements contained in the request.

Entergy understands that the NRC expects the applicable portions of the Internal Events model and the updated flooding study meet the guidance of RG 1.200. Entergy believes these actions are part of implementing the methodology described in the request of alternative and can be managed as a commitment. The results of these commitments, when completed, can be provided to the NRC under separate cover or made available at the NRC's discretion, but should not be necessary for the NRC to evaluate the proposed methodology for providing an acceptable level of quality and safety.

Entergy, in Reference 1, made several commitments related to the implementation of the proposed RIS_B program. These commitments are revised in that an implementation date has been provided rather than "prior to implementation of the RIS_B." This new proposed completion date is September 17, 2008. Additionally, another commitment is provided to ensure that those portions of the Internal Events model that would impact the updated flooding study also meet the guidance of RG 1.200.

Entergy believes the proposed alternative to the previously listed requirements provide an acceptable level of quality and safety is maintained.

REFERENCES

1. Entergy letter dated May 30, 2008, "Request to Use Code Case N-716 for Relief from ASME Section XI Requirements" (1CAN050806)
2. NRC letter dated April 28, 2008, "Waterford Steam Electric Station, Unit 3 – Request for Alternative W#-ISI-005, Request to Use ASME Code Case N-716" (TAC No. MD7061)
3. NRC letter dated September 28, 2007, "Donald C. Cook Nuclear Plant, Units 1 and 2 – Risk-Informed Safety-Based Inservice Inspection Program for Class 1 and 2 Piping Welds" (TAC NOS. MD3137 and MD3138)
4. NRC letter dated September 21, 2007, "Grand Gulf Nuclear Station Unit 1 – request for Alternative GG-ISI-002 – Implement Risk-Informed Inservice Inspection Program Based on American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Code Case N-716" (TAC NO. MD3044)
5. NRC letter dated August 26, 2003, "Arkansas Nuclear One, Unit 1 (ANO-1); Grand Gulf Nuclear Station (GGNS); River Bend Station (RBS); and Waterford Steam Electric Station, Unit 3 (W3) – Request to Use American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Case N-663" (TAC NOS. MB6880, MB6881, MB6879, MB6882)
6. NRC letter dated April 21, 2008, "Waterford Steam Electric Station, Unit 3 – Request for Alternative W3-R&R-006 – Proposed Alternative to ASME Code Requirements for Weld Overlay" (TAC NO. MD5388)

Attachment 2

1CAN070805

**List of
Regulatory Commitments**

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
A flooding analysis will be performed that considers both the direct and indirect effects of pressure boundary failure and the different failure modes of the piping. The flooding analysis is to be consistent with ASME Standard RA-Sb-2005, "Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications" and Regulatory Guide (RG) 1.200, Revision 1. Supporting Requirements (SR) IF-D5a must meet Capability Category III (i.e., spans Categories II and III), SR IF-C3, IF-C6, IF-C8, IF-D3a. SR IF-E3a must meet Capability Category II, SR IF-A1a, IF-C3b, and SR IF-D3 must meet Capability Category I. SR IF-D6 need not be met.	X		September 17, 2008
Any piping segment with a total estimated Core Damage Frequency (CDF) greater than 1 E-6 per year or a Large Early Release Frequency (LERF) greater than 1 E-7 per year will be assigned to the High Safety Significant (HSS) category. Any piping that has inspections added or removed in accordance with Code Case N-716 will be included in the change in risk assessment. An acceptable change in risk estimate is to be used to demonstrate compliance with the Regulatory Guide (RG) 1.174 acceptance criteria. The metrics on CDF and LERF are only to be used to add HSS segments and not to remove system parts generically assigned to the HSS in Sections 2(a)(1) through 2(a)(4) of ASME Code Case N-716.	X		September 17, 2008

List of Regulatory Commitments
 (continued)

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE (If Required)
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
In accordance with the EPRI Materials Reliability Project (MRP) Topical Report MRP-139, "Materials Reliability Program: Primary System Piping Butt Weld Inspection and Evaluation Guideline," July 14, 2005, Electric Power Research Institute, Palo Alto, CA, allows use of alternatives to reduce examination extent and schedules for categories of dissimilar metal welds susceptible to primary water stress corrosion cracking. Except for Category A welds, Code Case N-716 shall not be used as an alternative in accordance with MRP-139. Entergy will ensure that Code Case N-716 is not used as an alternative, except for Category A valves.	X		September 17, 2008
10% of the HSS welds will be selected for examination in accordance with Code Case N-716. All butt welds and socket welds categorized as HSS will be included in this examination population. Any socket welds selected for examination will be examined per footnote 8 of Code Case N-716.	X		September 17, 2008
ANO-1 will ensure that those portions of the Internal Events model that would impact the updated flooding study also meet the guidance of RG 1.200.	X		September 17, 2008
ANO-1 will withdraw the Request for Alternative CEP-ISI-007 pertaining to the application of Code Case N-663 for use at ANO-1.	X		Upon NRC approval of this risk-informed ISI program submittal.