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Christopher J. Wamser
Site Vice President

BVY 13-073

August 15, 2013

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

SUBJECT: Response to Request for Additional Information Regarding Relief Request ISI-02 – Application of Code Case N-716
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

REFERENCE: 1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Inservice Inspection Program for the Fifth Ten-Year Interval," BVY 13-018, dated March 27, 2013

Dear Sir or Madam:

In Reference 1, Entergy Nuclear Operations, Inc. submitted the Inservice Inspection (ISI) program and relief requests for the fifth ten-year interval for Vermont Yankee Nuclear Power Station (VY). This letter provides responses to a request for additional information received on July 5, 2013 and revised on July 9, 2013 regarding relief request ISI-02. ISI-02 requests approval of a Risk Informed ISI program for use during the VY fifth ten-year ISI interval.

This letter contains no new regulatory commitments.

Should you have any questions concerning this letter or require additional information, please contact Mr. Coley Chappell at 802-451-3374.

Sincerely,

CJW/JTM

A047
NRR

Attachments: 1. Response to Request for Additional Information
2. Revised Page 1 of Relief Request ISI-02

cc: Mr. William M. Dean
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Attachment 1

Vermont Yankee Nuclear Power Station

Response to Request for Additional Information

REQUEST FOR ADDITIONAL INFORMATION (RAI)
RELIEF REQUEST ISI-02
APPLICATION OF CODE CASE N-716
ENTERGY NUCLEAR OPERATIONS, INC.
VERMONT YAKEE NUCLEAR POWER STATION
DOCKET NUMBER 50-271
(TAC NO. MF1197)

By letter dated March 27, 2013 (Agencywide Document Access and Management System Accession No. ML13092A204), Entergy Nuclear Operations, Inc. (Entergy) submitted for NRC staff review and approval Relief Request ISI-02, which requests approval of a Risk Informed Inservice Inspection (RI-ISI) program for use during the Vermont Yankee Nuclear Power Station (VY) fifth ten-year ISI interval. The program is a risk-informed, safety-based (RIS_B) program based on American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV Code) Code Case N-716, "Alternative Piping Classification and Examination, Section XI, Division 1." The NRC staff is reviewing the information provided in that letter and has determined that additional information is needed to support its review. Below is the NRC staff's request for additional information (RAI).

RAI 1

Page 1 of the March 27, 2013 Relief Request ISI-02 states the Code of Record for the VYNPS fifth ten-year interval is the ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition, 2009 Addenda. Please clarify this, as other places in the submittal the 2007 Edition through the 2008 Addenda is referenced.

Response:

Page 1 of the March 27, 2013 Relief Request ISI-02 should state that the Code of Record for the VYNPS fifth ten-year interval is the ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition through 2008 Addenda. Attachment 2 of this submittal provides a revised page 1 for Relief Request ISI-02.

RAI 2

Both Section 3.1.4 of Enclosure 3, of the March 27, 2013, submittal and Code Case N-716 require piping within the break exclusion region greater than 4" NPS for high energy piping systems to be assigned a high safety-significance and state that this may include Class 3 or Non-class piping. Please confirm that VY has no Class 3 or Non-class piping that met this criteria.

Response:

Confirmed; VY does not have a Break Exclusion Program. Therefore, there is no Class 3 or Non-class piping that meets the criteria for high safety significance.

RAI 3

Both Section 3.1.4 of Enclosure 3, of the March 27, 2013 submittal and Code Case N-716 require any piping segment whose contribution to Core Damage Frequency is greater than 1E-06 [and in accordance with NRC feedback on previous applications 1E-07 for Large Early Release Frequency (LERF) based upon a plant specific PSA of pressure boundary failures] and state this may include Class 3 or Non-class piping. Please confirm that VY has no Class 3 or Non-class piping that met this criteria.

Response:

Confirmed; VY has no Class 3 or Non-Class piping segment whose contribution to Core Damage Frequency is greater than 1E-06 or greater than 1E-7 for LERF based upon plant-specific PSA of pressure boundary failures.

RAI 4

Of the welds not selected for future examinations in the RIS_B program have previous examinations of any of these welds identified service induced degradation? If so what was done to mitigate the degradation mechanism.

Response:

The service history review conducted as part of the RIS_B program identified no findings that had any bearing on the degradation mechanism evaluation that was performed for the high safety significance (HSS) piping in the RIS_B application scope, or on element selection. A number of water hammer events have occurred that impact piping systems within the scope of the program. The plant has implemented corrective measures and steps to preclude repeat or similar events. These corrective measures and steps include design changes, operator training and changes to operational and maintenance practices. Based on plant actions implemented in response to these events, the potential for water hammer has been eliminated or significantly reduced. As a result, the failure potential rank used in the risk impact analysis of each piping system within the scope of the program need not consider the effect of water hammer. No other significant findings of service induced degradation were noted.

RAI 5

The March 27, 2013 submittal states, the RIS_B Program is a living program monitored periodically for changes, where this monitoring includes numerous facets. Please confirm that vendor issued communications such as General Electric (GE)-Hitachi Safety Communications are included as part of the reviews done for the living program aspects of the program.

Response:

Confirmed. Vendor issued communications are included in the Entergy Operating Experience (OE) program. The program requires specific assessment of the vendor communication which is documented as a formal response. The RIS_B portion of the ISI Program is revised and updated, as appropriate, based on the results of these vendor communication evaluations. These updates may occur more frequently than the minimum specified living program reviews.

RAI 6

The March 27, 2013 submittal references ASME Code Case N-770-1 in several locations. N-770-1, "Alternative Examinations Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds ....." This code case is applicable to the PWSCC degradation mechanism in PWR's please describe how it will be applied to VY's RI-ISI program.

Response:

The March 27, 2013 submittal is based on a template to simplify preparation and review. Code Case N-770-1 is identified in this submittal for that reason only. PWSCC is a damage mechanism applicable to PWRs, and is not applied to VY's RI-ISI program.

RAI 7

Section 3.3.4 of the March 27, 2013 submittal discusses Program Relief Requests and states VY will calculate coverage and use additional examinations or techniques in the same manner it has for traditional Section XI examinations. Have any of the welds selected for examination in the RIS_B been previously examined and resulted in limited examination coverage (i.e. less than 90 percent)? If so, please explain why other welds have not been selected to minimize the number of examinations with limited exam coverage.

Response:

The RIS_B methodology sometimes requires the selection for examination of welds with limited examination coverage (i.e. less than 90 percent). This can occur when there are a limited number of welds susceptible to a particular degradation mechanism (or combination of degradation mechanisms), or a limited number of welds located between the first isolation valve and the reactor pressure vessel. In these cases, the need for full examination coverage is balanced against these other considerations before making the final decision regarding weld selection. VY has initially selected eight welds for examination in the 5th interval RIS_B Program with previous limited coverage exams. The final selections will vary pending plant walkdowns in each refueling outage to choose exams providing maximum coverage and lowest dose.

RAI 8

Explain why the contribution to the core damage frequency (CDF) and large early release frequency (LERF) from adding or removing inspections to the reactor core isolation cooling (RCIC) system with the break location at "Class 2 Torus" was not included in the change in risk evaluation. The first table in Section 3.4.1 of Relief Request ISI-02 (see pages 14 – 15) states for the "Class 2 Torus" break location that it includes "class 2 piping connected to the Torus (ECCS pump suction) and designated as low safety significant (Lines CS-1A & 1B, RHR-2A & 2B, HPCI-4, and RCIC-3)." Table 3.4, "Risk Impact Analysis Results," of Relief Request ISI-02 includes the contribution to CDF and LERF from the core spray (CS), residual heat removal (RHR), and high pressure coolant injection (HPIC) systems using the "Class 2 Torus" (or "LSS Torus" as shown in Table 3.4) break location. However, the contribution to CDF and LERF from RCIC using the "Class 2 Torus" break location was not included in Table 3.4.

Response:
This was not shown because there were zero selections for Section XI and zero selections for the RIS_B program. The change in risk is therefore zero, regardless of other considerations.

Attachment 2

Vermont Yankee Nuclear Power Station

Revised Page 1 of Relief Request ISI-02

Vermont Yankee Nuclear Power Station
10 CFR 50.55a Request No. ISI-02
Proposed Alternative in Accordance with 10 CFR 50.55a(a)(3)(i)
Application of Code Case N-716

Plant Site - Unit:	Vermont Yankee Nuclear Power Plant (VY)
Interval - Dates:	Fifth Interval September 01, 2013 to August 31, 2023
Requested Date for Approval :	Approval is requested by September 01, 2013
ASME Code Components Affected:	All Class 1 and 2 piping welds – Examination Categories B-F, B-J, C-F-1, and C-F-2.
Applicable Code Edition and Addenda:	The applicable Code of Record for the fifth interval is the ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition, 2009~~8~~ Addenda.
Applicable Code Requirements:	For the current inservice inspection (ISI) program, IWB-2200 IWB-2420, IWB-2430, and IWB-2500 provide the examination requirements for Category B-F and Category B-J welds. Similarly, IWC-2200, IWC-2420, IWC-2430, and IWC-2500 provide the examination requirements for Category C-F-1 and C-F-2 welds.
Reason for Request:	The objective of this submittal is to request the use of a risk-informed/safety based (RIS_B) ISI process for the inservice inspection of Class 1 and 2 piping.
Proposed Alternative and Basis for Use:	In lieu of the ASME Code requirements, VY proposes to use a RIS_B process as an alternate to the ASME Section XI ISI program for Class 1 and 2 piping. The RIS_B process used in this submittal is based upon ASME Code Case N-716, *Alternative Piping Classification and Examination Requirements,* Section XI, Division 1. Code Case N-716 is founded, in large part, on the RI-ISI process described in Electric Power Research Institute (EPRI) Topical Report (TR) 112657 Rev. B-A, *Revised Risk-Informed Inservice Inspection Evaluation Procedure,* December 1999 (ADAMS Accession No. ML013470102) which was previously reviewed and approved by the U.S. Nuclear Regulatory Commission (NRC). In general, a risk-informed program replaces the number and locations of nondestructive examination (NDE) inspections based on ASME Code, Section XI requirements with the number and locations of these inspections based on the risk-informed guidelines. These processes result in a program consistent with the concept that, by focusing inspections on the most safety-significant welds, the number of inspections can be reduced while at the same time maintaining protection of public health and safety. NRC approved EPRI TR 112657, Rev. B-A includes steps which, when successfully applied, satisfy the guidance provided in Regulatory Guide (RG) 1.174, *An Approach for Using Probabilistic Risk Assessment In Risk-Informed Decisions On Plant-Specific Changes to the Licensing Basis* and RG 1.178, *An Approach For Plant-Specific Risk-Informed Decision Making for Inservice Inspection of Piping.* These steps are: