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

Three Mile Island, Unit 1 (TMI Unit 1)
Facility Operating License No. DPR-50
NRC Docket No. 50-289

Subject: Third Ten-Year Interval Inservice Inspection (ISI) Program
Supplemental Information
Risk-Informed Inservice Inspection Program
Alternative to the ASME Boiler and Pressure Vessel Code
Section XI Requirements for Class 1 and 2 Piping Welds (TAC NO. MB6498)

Reference: 1. Letter from M. P. Gallagher (AmerGen Energy Company, LLC) to U. S. Nuclear Regulatory Commission (USNRC), dated October 1, 2002

In the Reference 1 letter, AmerGen Energy Company, LLC (AmerGen) submitted a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components", requirements for the selection and examination of Class 1 and 2 piping welds. In response to conference calls with NRC staff, attached is supplemental clarifying information.

If you have any questions, please contact us.

Very truly yours,

Michael P. Gallagher
Director, Licensing and Regulatory Affairs
AmerGen Energy Company, LLC

Attachment – Supplemental Information

cc: H. J. Miller, Administrator, Region I, USNRC
C. W. Smith, USNRC Senior Resident Inspector, TMI Unit 1
D. M. Skay, USNRC Senior Project Manager, TMI Unit1
File No. 02078

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SUPLEMENTAL INFORMATION
THREE MILE ISLAND, UNIT 1

References:
1. Letter from M. P. Gallagher (AmerGen Energy Company, LLC) to U. S. Nuclear Regulatory Commission (USNRC), dated October 1, 2002
2. Letter from M. P. Gallagher (AmerGen Energy Company, LLC) to U. S. Nuclear Regulatory Commission (USNRC), dated July 7, 2003

NRC Question 1:

In section 3.5 of your referenced submittal, you stated that Code Case N-578-1 will be used to clarify the examination method and examination frequency for selected socket welds. It should be noted that Code Case N-578-1 has not been approved by NRC for generic use. Please confirm that Note 12 to Table 1 of Code Case N-578-1 of Examination Categories will not apply to elements that are susceptible to external degradation.

Response:

Consistent with the previous AmerGen submittals (References 1 & 2), the TMI Unit 1 Risk-Informed Inservice Inspection (RI-ISI) Program relief request identifies sections/items of the Code Case that are deemed important and complimentary to the EPRI Topical Report TR-112657, Revision B-A, "Revised Risk Informed Inservice Inspection Evaluation Procedure," and provide needed steps in the methodology not fully addressed by the TR. As such, within the TMI Unit 1 submittal, Code Case N-578-1 is used for those areas of the TR needing enhancement. Because Code Case N-578-1 is not yet approved by the NRC, the usage of selected sections/items of Code Case N-578-1 is addressed in this Relief Request similar to the requirement for approval of code cases not approved by Regulatory Guide 1.147 (now supplemented by Regulatory Guide 1.193).

Specifically, sections/items of Code Case N-578-1 are used to provide "Examination Categorization" and "Additional Examination" requirements.

Examination Categorization

Relative to the "Examination Categorization", TMI Unit 1 will use the following guidance from Table 1 of the Code Case N-578-1:

1. Component "Item Numbers" and "Parts Examined" for the corresponding Degradation Mechanisms (DM) identified in Table 4-1 of the TR.

2. "Examination Method" - the provisions of Footnote 12 of Code Case N-578-1 will be used to provide supplemental guidance for the examination method applicable to socket welds since socket welds are not specifically addressed in the TR.

   Regardless of degradation mechanism, Code Case N-578-1 stipulates VT-2 examination of socket welds to be performed each refuel outage in lieu of the once per interval volumetric examinations listed in Table 1 of the Code Case. AmerGen believes that the increased

frequency of the VT-2 examination method provides a more meaningful examination and an increased chance in detection when considering the configuration and the nature of the flaw initiation and propagation applicable to TMI Unit 1. Additionally, the TMI Unit 1 RI-ISI evaluation did not identify any outside diameter (OD) surface initiated degradation mechanisms.

Examination methods for all other weld configurations will be in accordance with the EPRI TR.

3. Supplemental guidance from Code Case N-578-1 will be used for "Elements not Subject to a Damage Mechanism" with regard to Item Number (R1.20), Parts Examined, Examination Requirements, Examination Method, Acceptance Standard, Examination Extent and Frequency. The TR does not provide any guidance for examination of "Elements Not Subject to a Damage Mechanism" beyond the number of elements to be examined. For this reason, TMI will use the guidance of Item Number R1.20 stated above to clarify that the exam method and associated requirements to be used will be a volumetric examination with the volume increased ½" beyond each side of the base metal transition or counterbore as stated in Note 1 of the Code Case, Table 1. This method and volume represents a conservative approach having not identified any specific degradation mechanisms applicable to the subject locations. The approach is deemed conservative as the expanded volumetric technique represents the most conservative method and coverage from those currently identified within the TR that could be applied.

Additional Examination

Relative to the "Additional Examination", TMI Unit 1 will use the following criteria that combined guidance of Subarticle –2430 of Code Case N-578-1 with added TMI Unit 1 clarification for High-Safety-Significant (HSS) locations, and the applicable modifications identified in TMI Unit 1 response to question 1 of the "Request for Additional Information", submitted by AmerGen on July 7, 2003.

Examinations performed that reveal flaws or relevant conditions exceeding the applicable acceptance standards shall be extended to include additional examinations. The additional examinations shall include piping structural elements with the same postulated failure mode and the same or higher failure potential.

(1) The number of additional elements shall be the number of piping structural elements with the same postulated failure mode originally scheduled for that fuel cycle.

(2) The scope of the additional examinations may be limited to those High-Safety-Significant (HSS) piping structural elements (i.e., Risk Group Categories 1 through 5) within systems, whose material and service conditions are determined by an evaluation to have the same postulated failure mode as the piping structural element that contained the original flaw or relevant condition.

If the additional required examinations reveal flaws or relevant conditions exceeding the referenced acceptance standards, the examination shall be further extended to include additional examinations.

(1) These examinations shall include all remaining piping elements whose postulated failure modes are the same as the piping structural elements originally examined.

(2) The required additional examinations will be performed during the same outage that the relevant condition was detected.

No additional examinations will be performed if there are no additional elements identified as being susceptible to the same root/probable cause conditions.

For the inspection period following the period in which the original examination discovering the flaw or relevant condition was completed, the examinations shall be performed as originally scheduled.

NRC Question 2:

In response to question 6 provided in the Reference 2 letter, what is the risk category for the ten (10) locations susceptible to PWSCC?

Response:

The ten (10) locations susceptible to PWSCC are categorized as high-risk welds (Risk Category 2).

NRC Question 3:

In response to question 6 provided in the Reference 2 letter, is the weld composed of Alloy 182?

Response:

This weld is composed of Alloy 182/82.

NRC Question 4:

Is Table 1 of RR-00-13 (Reference 1) based on Code Case N-598?

Response:

Table 1 of RR-00-13 is based on Code Case N-598. The RI-ISI program will follow the alternative requirements provided in Relief Request RR-00-13, which has been authorized for the third 10-year ISI interval at TMI-1.