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December 4, 2007

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

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

Subject: Pressurizer Weld Overlay Examination Results and Closeout of Confirmatory Action Letter Requirements (TAC NO. MD4191)

- References:
- (1) Letter From Russell G. West (AmerGen Energy Company, LLC) to U. S. Nuclear Regulatory Commission (USNRC), "Relief Request No. 2007-TMI-01 – Structural Weld Overlays (SWOLs) of the Pressurizer Surge, Pressurizer Spray, and Hot Leg Decay Heat Drop Line Nozzle Dissimilar Metal Welds including the SWOL of Adjacent Welds", dated May 1, 2007
  - (2) Letter From Russell G. West (AmerGen Energy Company, LLC) to USNRC, "Response to Request for Additional Information Relief Request No. 2007-TMI-01 – Structural Weld Overlays (SWOLs) of the Pressurizer Surge, Pressurizer Spray, and Hot Leg Decay Heat Drop Line Nozzle Dissimilar Metal Welds including the SWOL of Adjacent Welds", dated August 13, 2007
  - (3) Letter from Harold K. Chernoff (USNRC) to Christopher M. Crane (AmerGen Energy Company, LLC), "Three Mile Island Nuclear Station, Unit 1 (TMI-1), Relief Request 2007-TMI-01, Regarding Structural Weld Overlays on Pressurizer Surge, Pressurizer Spray, and Hot Leg Decay Heat Drop Line Nozzles, (TAC NO. MD5427)", dated October 17, 2007
  - (4) Letter from Thomas S. O'Neill (AmerGen Energy Company, LLC) to USNRC, "Supplemental Response Regarding Inspection and Mitigation of Alloy 600/82/182 Pressurizer Butt Welds", dated February 21, 2007
  - (5) Letter from J. E. Dyer (USNRC) to Christopher M. Crane (AmerGen Energy Company, LLC), "Confirmatory Action Letter, Three Mile Island Nuclear Station, Unit No. 1 (TAC NO. MD4191)", March 22, 2007

The Reference 1 submittal proposed an alternative (i.e., Relief Request No. 2007-TMI-01) in accordance with 10 CFR 50.55a(a)(3)(i) to the repair/replacement requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, 1995 Edition, through 1996 Addenda, for the structural weld overlays on the pressurizer surge, pressurizer spray, and hot leg decay heat drop line nozzle dissimilar metal welds. This relief also included the structural weld overlay of the adjacent welds. As discussed in the relief request, the pressurizer spray nozzle welds were included in the event that a repair was necessary. Examination of the pressurizer spray nozzle welds determined

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that a weld overlay was not necessary because no degradation was detected during the Bare Metal Visual (BMV) or Performance Demonstration Initiative (PDI) qualified ultrasonic examinations performed during T1R17 (Fall 2007 outage).

Additional information regarding the proposed weld overlays was supplied in the Reference 2 letter, and U. S. Nuclear Regulatory Commission (USNRC) approval was provided in the Reference 3 letter.

The Reference 3 Safety Evaluation Report documents a commitment made in Reference 1 to provide the details of the ultrasonic examination (UT) results of the structural weld overlays on the pressurizer surge and hot leg decay heat drop line nozzle dissimilar metal welds to the USNRC within 30 days of the completion of the final ultrasonic examination.

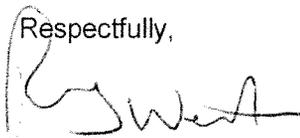
In accordance with the Reference 3 commitment, Three Mile Island (TMI), Unit 1 completed structural weld overlay repairs of the pressurizer surge nozzle and hot leg decay heat nozzle (including adjacent similar metal weld DH-498) during Outage T1R17 and there were no recordable UT indications detected during the post repair examinations required by Relief Request 2007-TMI-01.

In addition to the above discussion concerning the weld overlays, this letter is providing a closeout of the Confirmatory Action Letter requirements discussed in the Reference 5 letter. The commitments involved: schedule for mitigation actions, enhanced Reactor Coolant System leakage monitoring, inspection reporting requirements, and ongoing re-examination of the pressurizer spray nozzle welds until mitigated. After restart from Outage T1R17, TMI, Unit 1 reverted back to the Technical Specification required RCS leakage monitoring requirements. All commitments were related to Three Mile Island, Unit 1 Alloy 82/182 pressurizer connection activities. The details of the commitments and a summation of the closeout activities are provided in Attachments 1 and 2 to this letter.

This submittal does not contain any new regulatory commitments.

Should you have any questions concerning this letter, please contact Tom Loomis at (610) 765-5510.

Respectfully,



Russell G. West  
Vice President TMI, Unit 1

Attachments: 1) Commitment Closeout  
2) TMI-1 T1R17 Pressurizer Alloy 600/82/182 Examination Results and  
Actions

cc: S. J. Collins, Regional Administrator, Region I, USNRC  
D. M. Kern, USNRC Senior Resident Inspector, TMI  
P. Bamford, Project Manager, USNRC  
File No. 05056

**ATTACHMENT 1**  
**Commitment Closeout**

COMMITMENT	COMPLETION DETAILS
<p>“AmerGen will complete inspection or mitigation activities on the pressurizer surge, spray, safety, and relief nozzle butt welds and safe end butt welds containing Alloy 82/182 material by December 31, 2007, for Three Mile Island Nuclear Station, Unit No. 1.”</p> <p>(See Reference 5 letter for the clarified commitment.)</p>	<p>TMI, Unit 1 replaced the pressurizer relief/safety nozzle butt welds with PWSCC resistant material and welds in November, 2007. TMI, Unit 1 installed a full structural weld overlay repair on the pressurizer surge nozzle in November, 2007. TMI, Unit 1 inspected the pressurizer spray nozzle-to-safe end and safe-end to elbow weld with PDI qualified UT examination techniques. The ultrasonic examinations obtained 100% coverage and no degradation was identified.</p>
<p>“In addition to the current practice of daily measurement of unidentified RCS leakage, Three Mile Island Nuclear Station Unit 1 will incorporate two new action levels for the following unidentified RCS leakage scenarios:</p> <ul style="list-style-type: none"> <li>• a <math>\geq 0.10</math> gpm change from one day to the next, sustained for 72 hours with at least 0.10 gpm not confirmed from sources other than pressurizer nozzle welds.</li> <li>• a <math>\geq 0.25</math> gpm above a baseline sustained for 72 hours with at least 0.25 gpm not confirmed from sources other than the pressurizer nozzle welds</li> </ul> <p>Once the 72 hour evaluation period, i.e. the 72 hour period of sustained increased leakage, is complete, and the leakrate is still elevated, Three Mile Island Nuclear Station Unit 1 will be placed in Hot Shutdown within 6 hours and in Cold Shutdown within 36 additional hours and a bare metal visual inspection of unmitigated Alloy 82/182 pressurizer nozzles will be performed.”</p> <p>(See the Reference 4 letter for the original commitment, and the Reference 5 letter for clarifications to this commitment.)</p>	<p>TMI, Unit 1 adopted the enhanced unidentified leakage monitoring requirements starting on February 28, 2007. From that time until TMI, Unit 1 shutdown for the T1R17 refueling outage on October 22, 2007, there were no instances of sustained elevated leakage that required a Unit shutdown.</p> <p>After restart from refueling outage T1R17, TMI, Unit 1 reverted back to the Technical Specification required RCS leakage monitoring requirements.</p>

COMMITMENT	COMPLETION DETAILS
<p>“Reports of any Alloy 82/182 pressurizer nozzle connections inspection results for Three Mile Island Nuclear Station Unit 1 will be submitted to the NRC within 60 days of the completion date of the inspection. This includes reports on any bare metal visual inspections as a result of increased RCS leakage, and reports of any corrective or mitigative actions taken on the pressurizer surge, spray, safety, or relief nozzle butt welds and safe end butt welds containing Alloy 82/182 material.”</p> <p>(See the Reference 4 letter for the original commitment, and the Reference 5 letter for clarifications to this commitment.)</p>	<p>Since the initiation of this commitment on February 28, 2007 until the shutdown of TMI, Unit 1 on October 22, 2007, there were no bare metal visual examinations performed as a result of RCS increased leakage.</p> <p>In accordance with the requirements of Bulletin 2004-01, “Inspection of Alloy 82/182/600 Materials Used in the Fabrication of Pressurizer Penetrations and Steam Space Piping Connections at Pressurized-Water Reactors”, TMI, Unit 1 performed bare metal visual examinations of the pressurizer steam space Alloy 600/82/182 connections. There were no indications of pressurizer pressure boundary leakage at any of the connections. Attachment 2 provides these examination techniques and results for these locations.</p>
<p>“The re-examination of the unmitigated welds identified in Attachment 1 of your February 21, 2007 letter, using ultrasonic techniques, shall be performed within every 4 years (as opposed to the MRP-139 requirements of within 5 years).”</p> <p>(See the Reference 5 letter for clarifications to this commitment.)</p>	<p>TMI, Unit 1 performed examination of the pressurizer spray nozzle butt welds during the 2007 Outage T1R17 and will examine these welds every 4 years or mitigate these welds within the schedule required.</p>

**Attachment 2**  
**TMI, Unit 1 T1R17 Pressurizer Alloy 600/82/182 Examination Results and Actions**

<b>Component</b>	<b>Exam and Results</b>	<b>Actions</b>
Pressurizer Relief/Safety Nozzles (3 Nozzles)	BMV – No leakage detected	Replaced Alloy 82/182 welds and safe ends with stainless steel welds and safe ends
Pressurizer Spray Nozzle to Safe End and Safe End to Elbow Weld	BMV and PDI UT – No leakage or UT flaws detected	None
Pressurizer Upper Level Nozzle Safe Ends (3 Nozzles)	BMV – No leakage detected	None
Pressurizer Thermowell Penetration	BMV – No leakage detected	None
Pressurizer Sample Tap Nozzle Safe End	BMV – No leakage detected	None
Pressurizer Lower Level Nozzle Safe Ends (3 Nozzles)	BMV – No leakage detected	None
Pressurizer Upper and Middle Heater Bundles (Lower Heater Bundle Replaced with Stainless Steel Bundle in 2003)	BMV – No leakage detected	None
Pressurizer Surge Nozzle Safe End	BMV and dye penetrant examination (see Note 1 below)	Repaired by full structural weld overlay

Note 1 – BMV examination of the pressurizer surge nozzle-to-safe end weld identified minor boric acid deposits that appeared to have traveled from a source above the nozzle. There was no appearance of current leakage and there was not enough boric acid residue to “time date” the residue. In 2003 TMI had a heater bundle leak that was most likely the source of this boric acid residue because the leakage path was traced back to near the lower heater bundle. The lower heater bundle was observed to not be currently leaking. Dye penetrant examination of the surge nozzle safe end weld prior to commencing weld overlay repair activities identified a 1/8” long axial indication in the Alloy 82/182 weld. The indication area was excavated to a depth of 0.106” and seal welded as allowed by the weld overlay repair process. Post seal weld dye penetrant examination identified no indications. A 7/32” round indication was identified in the nozzle-to-safe end weld near an applied barrier layer prior to commencing the structural weld overlay (SWOL). The 7/32” round indication was removed with minor grinding. Final UT examination of the applied SWOL identified no recordable indications.