

December 22, 2005

Mr. Christopher M. Crane  
President and Chief Executive Officer  
AmerGen Energy Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 (TMI-1) - RESPONSE TO  
GENERIC LETTER 2004-01, "REQUIREMENTS FOR STEAM GENERATOR  
TUBE INSPECTIONS" (TAC NO. MC4859)

Dear Mr. Crane:

On August 30, 2004, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2004-01, "Requirements for Steam Generator Tube Inspections." The purpose of GL 2004-01 was to obtain information that would enable the NRC staff to determine whether licensees' steam generator (SG) tube inspection programs comply with the existing tube inspection requirements (the plant technical specifications in conjunction with Appendix B to Part 50 of Title 10 of the *Code of Federal Regulations*).

By letter dated October 29, 2004 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML043060328), AmerGen Energy Company, LLC (the licensee), submitted its response to GL 2004-01 for TMI-1. This response was supplemented by letter dated June 17, 2005 (ADAMS Accession No. ML051710386). As discussed in the enclosed evaluation, the NRC staff concluded that the licensee's overall response to GL 2004-01 is acceptable. This completes the NRC staff's efforts under TAC No. MC4859.

If you have any questions regarding this matter, please contact me at (301) 415-1447.

Sincerely,

*/RA/*

Farideh E. Saba, Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosure: As stated

cc w/encl: See next page

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ADAMS Accession No.: ML053550029

\* Memo provided; no substantive changes made.

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EVALUATION OF RESPONSE TO GENERIC LETTER 2004-01

AMERGEN ENERGY COMPANY, LLC

THREE MILE ISLAND NUCLEAR STATION, UNIT 1

DOCKET NO. 50-289

On August 30, 2004, the Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 2004-01, "Requirements for Steam Generator Tube Inspections." The purpose of GL 2004-01 was to obtain information that would enable the NRC staff to determine whether licensees' steam generator tube inspection programs comply with the existing tube inspection requirements (the plant Technical Specifications) in conjunction with Appendix B to Title 10 of the *Code of Federal Regulations* Part 50.

By letter dated October 29, 2004 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML043060328), AmerGen Energy Company, LLC (the licensee), submitted its response to GL 2004-01 for Three Mile Island Nuclear Station, Unit 1 (TMI-1). This response was supplemented by letter dated June 17, 2005 (ADAMS Accession No. ML05170386). The NRC staff has concluded that TMI-1 steam generator tube inspection practices are in compliance with the existing tube inspection requirements; however, the NRC staff has the following observations regarding the tube inspection practices in the lower tubesheet (LTS) region.

A portion of the LTS is referred to as the sludge pile or kidney region. Although the NRC staff could not identify a uniform, quantitative definition of this region in terms of the radial extent (minimum sludge height and/or dent voltage) or axial extent above and below the top of the LTS, it is generally defined by the four Babcock and Wilcox (B&W) units with Alloy 600 tubing as the area bounded by dents and sludge at the LTS secondary face. The definition does not include the tube ends, the roll expanded region, or the roll transition which are addressed by separate inspections.

Based on industry operating experience (from the four currently operating B&W units with Alloy 600 tubing), the sludge pile or kidney region is susceptible to intergranular attack (IGA) and stress corrosion cracking (SCC). IGA and axially-oriented SCC have been detected both above and below the top of the LTS at non-dented locations. In addition, IGA and circumferentially-oriented SCC have been detected at dented locations in the sludge pile or kidney region.

With respect to dented locations in the LTS region, the NRC staff notes that TMI-1 performs separate inspections of these locations on a sampling basis with a rotating probe (i.e., separate inspections are specified for the dented locations within the LTS region). The NRC staff concludes that the examination of the dented locations in the LTS region is in compliance with the existing tube inspection requirements.

Enclosure

The NRC staff recognizes that the licensee concluded (based on a site-specific validation) that the bobbin techniques may be used for detecting SCC and IGA in the sludge pile or kidney region. Based on the information provided in the submittals regarding the site-specific validation, the NRC staff could not conclude for non-dented locations that the bobbin coil technique is effective at finding the forms of degradation that could occur within the kidney or sludge pile region. The NRC staff understands that the licensee recognizes the bobbin coil data qualification set does not meet all of the industry requirements for qualification. As a result, the licensee performs additional +Point™ probe examination in this region to evaluate bobbin coil probe detection sensitivity. Historically, these rotating probe examinations have indicated that the bobbin coil has not missed any degradation at the non-dented locations in this region of the tube bundle. Based on the rotating probe inspections and the results of these inspections, the NRC staff concludes that TMI-1 inspection practices at the non-dented locations within the LTS region are in compliance with the existing tube inspection requirements.

CONTACT: Paul Klein