October 7, 2008

Mr. Michael P. Gallagher
Vice President License Renewal Projects
AmerGen Energy Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR APPENDIX B, AGING MANAGEMENT PROGRAMS, OF THE THREE MILE ISLAND NUCLEAR STATION, UNIT 1, LICENSE RENEWAL APPLICATION (TAC NO. MD7701)

Dear Mr. Gallagher:

By letter dated January 8, 2008, AmerGen Energy Company, LLC (AmerGen) submitted an application pursuant to 10 *Code of Federal Regulation* Part 54 (10 CFR Part 54) to renew the operating license for Three Mile Island Nuclear Station, Unit 1 for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff conducted an audit of Aging Management Programs from July 21, 2008, through July 23, 2008, and from July 28, 2008, through August 1, 2008, and is continuing to review the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Chris Wilson, of your staff, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-2878 or e-mail Jay.Robinson@nrc.gov.

Sincerely,

/**RA**/

Jay Robinson, Sr. Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosure:
As stated

cc w/encl: See next page

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NAME	SFigueroa	RAuluck (BRogers for)	JRobinson	DPelton
DATE	9/15/08	9/24/08	10/6/08	10/7/08

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Letter to AmerGen Energy Company, LLC from J. Robinson dated October 7, 2008

DISTRIBUTION:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR APPENDIX B, AGING MANAGEMENT PROGRAMS, OF THE THREE MILE ISLAND NUCLEAR STATION, UNIT 1, LICENSE RENEWAL APPLICATION (TAC NO. MD7701)

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REQUEST FOR ADDITIONAL INFORMATION

APPENDIX B, AGING MANAGEMENT PROGRAMS

THREE MILE ISLAND NUCLEAR STATION, UNIT – 1

LICENSE RENEWAL APPLICATION

RAI#: B.2.1-1

LRA Sections: B.2.1.X All Sections with Exceptions and/or Enhancements
B.3.1.X All Sections with Exceptions and/or Enhancements

Background:

Applications submitted to the Nuclear Regulatory Commission (NRC) for a renewed operating license include descriptions of various Aging Management Programs (AMPS) that may include "enhancements" and "exceptions" to one or more of the 10 program elements described in the Generic Aging Lessons Learned (GALL) Report (NUREG-1801, Rev. 1). When describing an "enhancement" or "exception", the applicant normally links the "enhancement" or "exception" to a specific GALL Report program element.

Issue:

In the TMI-1 LRA the following AMPs described in Appendix B include "enhancements" and/or "exceptions", but a link between the "enhancement" or "exception" and the specific GALL Program element is not provided. A link is provided, but it is provided in the applicants Program Basis Document (PBD) which is not part of the application and not submitted on the docket.

B.2.1.1	ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD	Exceptions
B.2.1.2	Water Chemistry	Enhancements
B.2.1.3	Reactor Head Closure Studs	Exceptions
B.2.1.6	Flow Accelerated Corrosion	Exceptions
B.2.1.9	Open-Cycle Cooling Water System	Exceptions & Enhancements
B.2.1.10	Closed-Cycle Cooling Water System	Exceptions & Enhancements
B.2.1.11	Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems	Enhancements
B.2.1.12	Compressed Air Monitoring	Enhancements
B.2.1.13	Fire Protection	Exceptions & Enhancements
B.2.1.14	Fire Water System	Enhancements
B.2.1.15	Aboveground Steel Tanks	Exceptions & Enhancements

ENCLOSURE

B.2.1.16	Fuel Oil Chemistry	Exceptions & Enhancements
B.2.1.17	Reactor Vessel Surveillance	Enhancements
B.2.1.20	Buried Piping and Tanks Inspection	Exceptions & Enhancements
B.2.1.21	External Surfaces Monitoring	Exceptions
B.2.1.22	Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components	Exceptions
B.2.1.23	Lubricating Oil Analysis	Exceptions
B.2.1.24	ASME Section XI, Subsection IWE	Exceptions
B.2.1.26	ASME Section XI, Subsection IWF	Exceptions
B.2.1.28	Structures Monitoring Program	Enhancements
B.2.1.31	Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits	Enhancements
B.2.1.33	Metal Enclosed Bus	Enhancements
B.2.1.34	Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements	Exceptions
B.3.1.1	Metal Fatigue of Reactor Coolant Pressure Boundary	Enhancements
B.3.1.2	Concrete Containment Tendon Prestress	Exceptions

Request:

For the AMPs in Appendix B of the LRA that have “enhancements” and/or “exceptions” (as listed in the table above), provide the applicable GALL Report AMP element the “enhancement” or “exception” is related to.

RAI #: B.2.1.3-1

LRA Section: B.2.1.3. Reactor Head Closure Studs

Background:

On page B-19 of the LRA, it is stated that the program is consistent with the GALL Report with no exceptions in regards to detection of coolant leakage.

Issue:

Upon review of the PBD TM-PBD-AMP-B.2.1.3, Revision 1, “Reactor Head Closure Studs”, the staff determined that “detection of coolant leakage from reactor vessel closure stud bolting” was not explicitly identified in the PBD for the GALL Report program elements, “Scope of Program” and “Detection of Aging Effects.”

Request:

Clarify the above discrepancy and provide the technical basis if this is intended to be an exception.

RAI#: B.2.1.3-2

LRA Section: B.2.1.3 Reactor Head Closure Studs

Background:

On page B-19 of the LRA, exceptions regarding the use of the American Society of Mechanical Engineers, (ASME) Section XI, Boiler and Pressure Vessel (B&PV) code are identified. The GALL Report specifies the use of the 2001 ASME Section XI B&PV Code, including the 2002 and 2003 addenda; however, the Three Mile Island (TMI-1) current Inservice Inspection (ISI) interval is effective from April 20, 2001, through April 19, 2011, and is based on the 1995 ASME Section XI B&PV Code, including the 1996 addenda.

Issue:

Since the code edition was previously approved under 10 CFR 50.55a for this ten-year interval, the staff concluded that the stated exceptions should not be identified as such. Similarly, the staff finds that an exception is not needed for requirements found in the 2001 edition, but not in the 1995 edition of the code.

Request:

Indicate agreement or provide justification if disagreement.

RAI#: B.2.1.3-3

LRA Section: B.2.1.3 Reactor Head Closure Studs

Background:

On page B-19 of the LRA, it is stated that the Aging Management Program (AMP) is consistent with the GALL Report with no exceptions to the “preventive actions” program element. The GALL Report recommends the usage of stable lubricants which helps to reduce the possibility of stress corrosion cracking (SCC) or intergranular stress corrosion cracking (IGSCC), thus making the program effective.

Issue:

Upon inspection of the TMI-1 basis documents, it was found that Dow Corning GN Metal Assembly Spray is used as a lubricant. The specification sheet for this lubricant identifies its composition as including 14% Molybdenum Disulfide. Molybdenum Disulfide is evaluated in Electric Power Research Institute (EPRI)-NP-5769 “Degradation and Failure of Bolting in Nuclear Power Plants”, as a compound that is discouraged from use. Use of this lubricant appears to be an exception to the GALL program recommendations.

Request:

Clarify this discrepancy and provide the technical basis if this is actually intended to be an exception.

RAI#: B.2.1.7-1

LRA Section: B.2.1.7, Bolting Integrity

Background:

The "monitoring and trending" element as discussed on page XI M-65 of the Gall Report AMP for Bolting Integrity (XI.M18) recommends bolting connections for pressure retaining components (not covered by ASME Section XI) to be "inspected daily if leaking. If the leak rate does not increase, the inspection frequency may be decreased to biweekly or weekly".

Issue:

TMI-1 credits the corrective action program for meeting this inspection frequency, however, it was not readily apparent how this is achieved. If this recommendation is not specifically addressed in written procedures and guidance, then an exception is needed. The information on pages B-30 to B-32 of the LRA does not provide sufficient information to determine how the program satisfies the GALL Report AMP XI.M18 element "monitoring and trending".

Request:

Provide detailed plans for inspection frequency which satisfy this GALL Report element or the basis for taking an exception.

RAI#: B.2.1.18-1

LRA Section: B.2.1.18, One-Time Inspection

Background:

On page B-69, the LRA states that the One-Time Inspection aging management program is consistent with the elements of the Gall Report XI.M32, "One-Time Inspection," with the exception related to the use of a specific ASME Section XI edition.

Issue:

Since the code edition was previously approved under 10 CFR 50.55a for this ten-year interval, the staff concluded that the stated exceptions should not be identified as such. Similarly, the staff finds that an exception is not needed for requirements found in the 2001 edition, but not in the 1995 edition of the code.

Request:

Indicate agreement or provide justification if disagreement

RAI#: B.2.1.24-1

LRA Section: B.2.1.24, ASME Section XI, Subsection IWE

Background:

On page B-85, the LRA states that the ASME Section XI, Subsection IWE AMP is consistent with the elements of the Gall Report AMP XI.S1, "ASME Section XI, Subsection IWE", with the exception related to the use of a specific ASME Section XI edition.

Issue:

Since the code edition was previously approved under 10 CFR 50.55a for this ten-year interval, the staff concluded that the stated exceptions should not be identified as such. Similarly, the staff finds that an exception is not needed for requirements found in the 2001 edition, but not in the 1995 edition of the code.

Request:

Indicate agreement or provide justification if disagreement.

RAI#: B.2.1.24-2

LRA Section: B.2.1.24, ASME Section XI, Subsection IWE

Background:

During the on-site audit, it was stated that the reactor building liner plate will be restored (weld repair) to its nominal plate thickness at all locations identified as below 90% before entering the extended operation period.

Request:

Confirm the information above regarding restoration of the liner and provide the proposed schedule for completion.

RAI#: B.2.1.26-1

LRA Section: B.2.1.26, ASME Section XI, Subsection IWF

Background:

On page B-94 of the LRA, it is stated that the TMI-1 ASME Section XI, Subsection IWF AMP is consistent with the GALL Report AMP XI.S3, "ASME Section XI, Subsection IWF," with the exception related to the use of a specific edition of ASME Section XI.

Issue:

Since the code edition was previously approved under 10 CFR 50.55a for this ten-year interval, the staff concluded that the stated exceptions should not be identified as such. Similarly, the

staff finds that an exception is not needed for requirements found in the 2001 edition, but not in the 1995 edition of the code.

Request:

Indicate agreement or provide justification if disagreement.

RAI#: B.2.1.27-1

LRA Section: B.2.1.27, 10 CFR Part 50, Appendix J

Background:

In accordance with 10 CFR 50, Appendix J, the maximum allowable reactor building leakage rate at pressure Pa, specified in the Technical Specifications as La (percent/24 hours), should be used as a measurement for leak rate test.

Issue:

On page B-98 of the LRA, in the Operating Experience program element, Standard Cubic Centimeters per minute (SCCM) was used to report leakage test data instead of La.

Request:

Explain and provide the leak rate test results in terms of La.

RAI#: B.2.1.28-1

LRA Section: B.2.1.28, Structures Monitoring Program

Background:

On pages B-99 through B-102 of the LRA, it is not clear how the Structures Monitoring Program satisfies the GALL Report program element “Parameters Monitored/Inspected.”

Issue:

The enhancements on page B-100 of the LRA do not include the frequency of periodically sampling of groundwater for pH, chloride, and sulfate concentrations.

Request:

Please, provide the time frame of the “periodic” sampling and the results for the last two samplings of groundwater.

RAI#: B.2.1.28-2

LRA Section: B.2.1.28, Structures Monitoring Program

Background:

On pages B-99 through B-102 of the LRA, it is not clear as to how the Structures Monitoring Program satisfies the GALL Report program element "Operating Experience."

Issue:

On page B-101 of the LRA it was stated that: "Silt accumulation was observed at the discharge of the 48-inch diameter Emergency River Water Dump line. The silt covered approximately half the diameter of the pipe outlet, a condition also observed in 1999, during the baseline inspections. Engineering evaluation concluded that the discharge line remains capable of performing its intended function."

Request:

Explain the conclusion discussed above.

RAI#: B.2.1.30-1

LRA Section: B.2.1.30, Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements

Background:

On page B-106 of the LRA, the program description states that AMP B.2.1.30 is a new program and is consistent with the GALL Report AMP XI.E1. The GALL Report AMP XI.E1 states that an adverse localized environment is a condition in a limited plant area that is significantly more severe than the specified service environment for the cable.

Issue:

The LRA did not provide the criteria used to indicate how an adverse localized environment is determined.

Request:

Explain how adverse localized environment is determined based on the most limiting service environment of cables (radiation, temperature, and moisture) for inclusion within the scope of AMP B.2.1.30.

RAI#: B.2.1.31-1

LRA Section: B.2.1.31, Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits

Background:

In PBD TM-PBD-AMP-B.2.1.31, Revision 0, "Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits," it is

stated that incore monitoring system circuits do not require an aging management program, and that only radiation monitoring and nuclear instrumentation are included in this program.

Issue:

The PBD did not provide sufficient discussion to explain that the incore monitoring system circuits do not require an aging management program.

Request:

Provide the technical basis for not including the incore monitoring system circuits in the scope of an AMP.

RAI#: B.2.1.32-1

LRA Section: B.2.1.32, Inaccessible Medium Voltage Cables not Subject to 10 CFR 50.49 Environmental Qualification Requirements

Background:

On page B-111 of the LRA, it is stated that preventive maintenance practices include semi-annual inspection of manholes. The applicant stated that the current manhole inspections will remain in effect as a preventive measure to preclude the degradation of cables.

Issue:

During the onsite audit, the staff reviewed the plant operating experience reports and noted that in PIMS completed Work Order R2116143, the applicant discovered that manholes 7A, 7B, 9A, E19, E12, E24, and T3 had submerged cables during the July 2008 inspection. Upon further review, it was discovered that over the last five years submergence of cables in water was a recurring issue. The staff conducted a walked down to confirm the effectiveness of the applicant's inspection program and found cables in manholes 7A and 7B submerged in water two weeks after the July 2008 inspection. Upon further discussion, the applicant indicated that these cables are qualified to be submerged.

Request:

1. Provide certification from the manufacturer on submergence capability of the cables, OR

2. Identify specific actions that will be taken to preclude the degradation of cables.

RAI#: B.2.1.34-1

LRA Section: B.2.1.34, Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements

Background:

On page B-115 of the LRA, it is stated that the Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements AMP is consistent with the GALL Report AMP XI.E6 with exceptions.

Issue:

The LRA does not list the program elements associated with each exception or provide technical justification for each exception.

Request:

Provide justification of each exception to the GALL Report AMP XI.E6.

RAI#: B.3.1.3-1

LRA Section: B.3.1.3-1, Environmental Qualification (EQ) of Electrical Components

Background:

In reviewing operating experience in PBD, TM-PBD-AMP-B.3.1.3, Revision 0, "Environmental Qualification (EQ) of Electrical Components", Issue Report (IR) 465770 (described on page 22) states that the feed water valve FW-V-16B/17B cabling was subject to 153.8 degrees F (68 degrees C) in the Intermediate Building.

Issue:

The EQ file ES-010T temperature for this zone is 110 degrees F which is lower than the temperature of 153.8 degrees F the cable was subjected to. The applicant concluded that there was no immediate danger of end of life.

Request:

Explain why there was no immediate danger to the end of life for this cable and how the increased temperature affected the EQ of this cable.