September 23, 2003

Mr. John L. Skolds, Chairman
and Chief Executive Officer
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 (TMI-1), RE: DELETION OF REACTOR BUILDING PURGE AIR TREATMENT SYSTEM (TAC NO. MB7252)

Dear Mr. Skolds:

The Commission has issued the enclosed Amendment No. 245 to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit 1 (TMI-1), in response to your application dated January 14, 2003.

The amendment revises technical specification Sections 3.8.9, 3.15.2, 4.12.2, and associated Bases to delete the requirements for the reactor building purge air treatment system.

A copy of the related safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Donna M. Skay, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosures: 1. Amendment No. 245 to DPR-50
2. Safety Evaluation

cc w/encls: See next page

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OFFICIAL RECORD COPY

Three Mile Island Nuclear Station, Unit 1

cc:

Site Vice President - Three Mile Island Nuclear Station, Unit 1
AmerGen Energy Company, LLC
P. O. Box 480
Middletown, PA 17057

Senior Vice President Nuclear Services
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Vice President - Mid-Atlantic Operations Support
AmerGen Energy Company, LLC
200 Exelon Way, KSA 3-N
Kennett Square, PA 19348

Senior Vice President -
Mid Atlantic Regional Operating Group
AmerGen Energy Company, LLC
200 Exelon Way, KSA 3-N
Kennett Square, PA 19348

Vice President -
Licensing and Regulatory Affairs
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Regional Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Chairman
Board of County Commissioners
of Dauphin County
Dauphin County Courthouse
Harrisburg, PA 17120

Chairman
Board of Supervisors
of Londonderry Township
R.D. #1, Geyers Church Road
Middletown, PA 17057

Senior Resident Inspector (TMI-1)
U.S. Nuclear Regulatory Commission
P.O. Box 219
Middletown, PA 17057

Director - Licensing - MId-Atlantic Regional Operating Group
AmerGen Energy Company, LLC
Nuclear Group Headquarters
Correspondence Control
P.O. Box 160
Kennett Square, PA 19348

Rich Janati, Chief
Division of Nuclear Safety
Bureau of Radiation Protection
Department of Environmental Protection
Rachel Carson State Office Building
P.O. Box 8469
Harrisburg, PA 17105-8469

Three Mile Island Nuclear Station, Unit 1
Plant Manager
AmerGen Energy Company, LLC
P. O. Box 480
Middletown, PA 17057

Regulatory Assurance Manager - Three Mile Island Nuclear Station, Unit 1
AmerGen Energy Company, LLC
P.O. Box 480
Middletown, PA 17057

John F. Rogge, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Michael A. Schoppman
Framatome ANP
Suite 705
1911 North Ft. Myer Drive
Rosslyn, VA 22209

Three Mile Island Nuclear Station, Unit 1

cc:

Vice President, General Counsel and Secretary
AmerGen Energy Company, LLC
2301 Market Street, S23-1
Philadelphia, PA 19101

Dr. Judith Johnsrud
National Energy Committee
Sierra Club
433 Orlando Avenue
State College, PA 16803

Eric Epstein
TMI Alert
4100 Hillsdale Road
Harrisburg, PA 17112

Correspondence Control Desk
AmerGen Energy Company, LLC
200 Exelon Way, KSA 1-N
Kennett Square, PA 19348

Manager Licensing - Oyster Creek and Three Mile Island
AmerGen Energy Company, LLC
Nuclear Group Headquarters
Correspondence Control
P.O. Box 160
Kennett Square, PA 19348

AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-289

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 245
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission or NRC) has found that:

   A. The application for amendment by AmerGen Energy Company, LLC (the licensee), dated January 14, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 245, are hereby incorporated in the license. The AmerGen Energy Company, LLC, shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Richard J. Laufer, Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: September 23, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 245

FACILITY OPERATING LICENSE NO. DPR-50

DOCKET NO. 50-289

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
ii	ii
iv	iv
3-45	3-45
3-45a	3-45a
3-62a	3-62a
3-62b	3-62b
4-55b	4-55b
4-55c	4-55c

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 245 TO FACILITY OPERATING LICENSE NO. DPR-50

AMERGEN ENERGY COMPANY, LLC

THREE MILE ISLAND NUCLEAR STATION, UNIT 1

DOCKET NO. 50-289

1.0 INTRODUCTION

By letter dated January 14, 2003, AmerGen Energy Corporation, LLC (AmerGen, the licensee), submitted a request to change the Three Mile Island Nuclear Station, Unit 1 (TMI-1), Technical Specifications (TSs). The requested change would revise TS Sections 3.8.9, 3.15.2, 4.12.2, and the associated Bases, to delete the surveillance and operability requirements for the reactor building purge air treatment system. According to AmerGen, the reason for the change request is that the reactor building purge air treatment system is not required to mitigate the consequences of any design-basis accident (DBA). It is also not required to perform any safety-related function except for its containment isolation valves and associated radiation monitors. These valves and radiation monitors initiate purge isolation on detecting high levels of radiation in the purge exhaust. This latter function will be retained in the TSs.

According to the TMI-1 Updated Final Safety Analysis Report, the reactor building purge system consists of:

a) the purge supply system
b) the purge exhaust system (i.e., the reactor building purge air treatment system)
c) the post-accident hydrogen purge system

Both the purge air treatment system and the hydrogen purge system utilize the same filtering and exhaust path to vent the purge air to the atmosphere.

The original purpose of the reactor building purge air treatment system was to serve the following functions:

a) To remove the purge air from the reactor building during normal plant operation, shutdown and refueling operations.
b) To assist in mitigating the radiological consequences of post-accident conditions by filtering the purge air through roughing filters, high efficiency particulate air (HEPA) filters, and charcoal adsorbers, then discharging to the atmosphere through the unit vent.
c) To isolate the containment by closing the purge and vent valves upon detecting high levels of radiation in the exhaust air.

However, the current licensing basis does not require this system (excluding the containment purge isolation valves and associated radiation monitors) to mitigate the radiological consequences of any design basis accident.

2.0 REGULATORY EVALUATION

AmerGen stated in its application that the original licensing basis of the reactor building purge air treatment system required the system to be operable to mitigate the effects of: 1. a fuel handling accident radiological release inside the containment, 2. post-loss-of-coolant accident (LOCA) containment purge flow radiological releases, and 3. post-LOCA hydrogen gas concentrations inside the containment.

On September 19, 2001, and October 2, 2001, the NRC staff approved License Amendment Nos. 235 and 236. In the radiological consequence analyses supporting these license amendments, the staff performed confirmatory radiological consequence calculations implementing the alternative source term of Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.67, "Accident source term," and Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." Both the licensee and the NRC staff, in their respective dose calculations, assumed (in both these license amendments) that the reactor building purge activity is released directly to the environment without filtration by the reactor building purge air treatment system. The staff's analyses confirmed the licensee's conclusions that the radiological consequences were within the dose criteria specified in 10 CFR 50.67. Further, in License Amendment No. 240, dated February 8, 2002, the staff agreed with the licensee's proposal to eliminate the design-basis requirements for hydrogen recombiners and the backup hydrogen purge capability for TMI-1.

Pursuant to the staff's approval of the above license amendments, the current licensing basis has been changed to no longer require the reactor building purge air treatment system to mitigate the consequences of any DBA, or to reduce the hydrogen concentration inside the containment during a LOCA.

The regulatory requirements and guidance that are currently applicable to the reactor building purge air treatment system and its components are: 10 CFR Part 50, Appendix I, 10 CFR 50.67, Regulatory Guide (RG) 1.183, and 10 CFR 50.34(f)(2)(xiv)(E).

Appendix I of 10 CFR Part 50 provides numerical guides on design objectives and limiting conditions for operation to meet the criterion, "As Low As is Reasonably Achievable," for radioactive material in light-water-cooled nuclear power reactor effluents (gaseous and liquid). It is important for the licensee to ensure that the radioactive gaseous effluents released by this system into the environment, during its operation, be monitored and maintained below the limits of 10 CFR Part 50, Appendix I.

Section 50.67 and RG 1.183 delineate the requirements and guidance, respectively, for the accident source term (AST) in design-basis radiological analyses; it also provides allowable dose limits at the exclusion area boundary, low population zone, and in the control room under a DBA scenario. The NRC staff concluded in License Amendment Nos. 235 and 236 that the analyses the licensee performed, using AST for the LOCA and Fuel Handling Accident, were in compliance with this regulation.

Section 50.34(f)(2)(xiv)(E) provides requirements on the containment vent and purge isolation function on high radiation. This requirement applies to the containment purge isolation valves.

Section 50.36(c)(2) lists the criteria which must be met for inclusion of a limiting condition for operation in the TSs. According to Criterion 3 of this regulation, a limiting condition for operation must be established for:

> A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The licensee states, referring to the above criterion, that "the design basis of the reactor building purge air treatment system does not meet this criterion or any other found in 10 CFR 50.36."

On the basis of issuance of License Amendment Nos. 235, 236 and 240, the NRC staff agrees with the licensee that the reactor building purge air treatment system and its components, except for the purge isolation valves (AH-V-1A/B/C/D) and associated radiation monitors, do not meet the regulatory criteria to be included in the TSs. Therefore, except for the purge and vent valves and the associated radiation monitors, the primary function of the reactor building purge air treatment system is to purge the contaminated air from the reactor building and exhaust to the atmosphere under normal operating or shutdown conditions to meet the requirements of 10 CFR Part 50, Appendix I.

3.0 TECHNICAL EVALUATION

3.1 Technical Specification Section 3.8.9

The current TS Section 3.8.9 states:

> The reactor building purge system, including the radiation monitors which initiate purge isolation, shall be tested and verified to be operable no more than one week prior to refueling operation.

The proposed revision to TS Section 3.8.9 limits the surveillance testing requirements to only the reactor building purge isolation system, which consists of the four isolation valves (AH-V-1A/B/C/D) and the associated radiation monitors. The test is to be performed no more than 7 days prior to the start of fuel movement in the reactor building. The licensee submits that the proposed revision to this specification will eliminate the unnecessary burden of testing the fans and filters and avoids possible entry delays into the reactor building prior to an outage.

In addition, the licensee's January 14, 2003, letter states that there are no changes to the method of operation or the controls of the system that would prevent it from purging the containment to meet the operational design basis of the system. Sampling and monitoring of the reactor building atmosphere prior to and during purging will continue to be performed in accordance with plant administrative controls. The controls and methods established in the

Offsite Dose Calculation Manual (ODCM) are not revised or impacted by this change. The requirements of 10 CFR Part 50, Appendix I, must continue to be met.

The licensee also states that this system is also provided with controls to stop fans and to alarm in the control room on high temperature indication or detection of combustible vapors in the supply system. The system also alarms in the control room upon loss of air flow. The licensee states that these control features will not be impacted by this TS change.

This TS revision is acceptable to the NRC staff on the basis that the reactor building purge air treatment system and its components, except for the purge isolation valves and associated radiation monitors, do not meet the criteria in 10 CFR 50.36 for inclusion in the TSs. The staff notes that the purge function remains part of the licensing basis and will maintain compliance with 10 CFR Part 50 Appendix I.

3.2 Technical Specification Sections 3.15.2 and 4.12.2 :

TS Sections 3.15.2 and 4.12.2 delineate various testing requirements for the reactor building purge air treatment system and associated filters and fans to demonstrate operability. These tests include in-place DOP (dioctylphthalate) and halogenated hydrocarbon tests, laboratory carbon sample analyses, pressure drop testing across the entire filter bed and air distribution testing.

Current TS Section 3.15.2 requires demonstrating operability of the filters to assure readiness for service if required to mitigate an FHA in the reactor building and to assure that 10 CFR Part 50, Appendix I, limits are met. Reactor building purging must be terminated if the filter bed is not operable.

Current TS Section 4.12.2 requires verification that the reactor building purge air treatment system and its associated components will be available to perform their design functions. It requires demonstrating at least once-per-refueling interval that the pressure drop across the combined HEPA filters and the charcoal adsorber banks is less than 6 inches of water at system design flow rate. This ensures that the filters and adsorbers are not clogged.

In its amendment request, AmerGen proposed to delete TS Sections 3.15.2 and 4.12.2 in their entirety. However, the licensee states that:

> The HEPA filter and charcoal adsorber banks will remain in the reactor building purge air treatment system, and shall be tested in accordance with the preventive maintenance program. Verification of fan operability, when removed from the TS surveillance test program, will continue to be tested in accordance with the preventive maintenance program. Performance monitoring will be included in accordance with the TMI Unit 1 preventive maintenance program.

The NRC staff finds the licensee's proposal to delete TS Sections 3.15.2 and 4.12.2 acceptable based on (1) the radiological consequences of DBAs do not credit the purge air treatment system (NRC-approved License Amendment Nos. 235 and 236) and; (2) the various testing requirements will be controlled by the licensee's preventive maintenance program. The

NRC staff notes that the effluent continues to be monitored during purge activities in order to comply with 10 CFR Part 50, Appendix I.

Based on the discussion above, the NRC staff concludes that the TMI-1 TS Sections 3.8.9, 3.15.2 and 4.12.2 may be revised and deleted as proposed by the licensee.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (68 FR 10278). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: D. Reddy
J. Lee

Date: September 23, 2003