

Mr. John B. Cotton
 Vice President, TMI Unit 1
 AmerGen Energy Company, LLC
 P.O. Box 480
 Middletown, PA 17057

February 28, 2000

Template - NER-058

SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 (TMI-1) - DECAY HEAT
 REMOVAL CAPABILITY REQUIREMENTS (TAC NO. MA5699)

Dear Mr. Cotton:

The Commission has issued the enclosed Amendment No. 220 to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit 1 (TMI-1), in response to your application dated June 4, 1999, as supplemented by letter dated December 13, 1999.

The amendment modifies the limiting conditions for operation in the Technical Specifications (TSs) under which a reduction in the number of means of decay heat removal (DHR) capability may occur. TS 3.4.2.3 currently allows the number of means of DHR capability required by TS 3.4.2.1 to be reduced provided one of three conditions is satisfied. The proposed changes delete two of these conditions and clarify the third. The proposed changes also provide changes to the Bases for the TSs which clarify the definition of how the redundancy requirements of TS 3.4.2.1 may be met. Other Bases changes are made to reflect the TS changes identified above. The December 13, 1999, letter withdrew a clarifying change to the TS Bases which was determined not to be necessary.

A copy of the related safety evaluation and Notice of Withdrawal, which is being forwarded to the Office of the Federal Register, are also enclosed. Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

/RA/

Timothy G. Colburn, Sr. 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.220 to DPR-50
 2. Safety Evaluation
 3. Notice of Withdrawal

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

February 28, 2000

Mr. John B. Cotton
Vice President, TMI Unit 1
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Middletown, PA 17057

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Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-289

Enclosures: 1. Amendment No. 220 to DPR-50
2. Safety Evaluation
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cc w/encls: See next page

Three Mile Island Nuclear Station, Unit No. 1

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-289

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 220
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission or NRC) has found that:
 - A. The application for amendment by GPU Nuclear Inc., which has subsequently been transferred to AmerGen Energy Company, LLC, (the licensee), dated June 4, 1999, as supplemented December 13, 1999, 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.

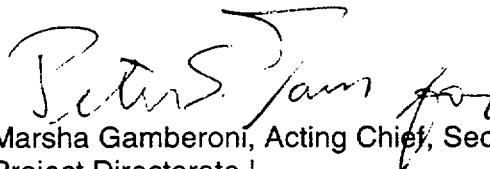
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 220 , are hereby incorporated in the license. 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



Marsha Gamberoni, Acting 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: February 28, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 220

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

3-26a
3-26c

Insert

3-26a
3-26c

- 3.4.2.2 Operation of the means for decay heat removal may be suspended provided the core outlet temperature is maintained below saturation temperature
- 3.4.2.3 The number of means for decay heat removal required to be operable per 3.4.2.1 may be reduced to one provided that the Reactor is in a Refueling Shutdown condition with the Fuel Transfer Canal water level greater than or equal to 23 feet above the reactor vessel flange
- 3.4.2.4 Specification 3.4.2.1 does not apply when either of the following conditions exist:
 - a. Decay heat generation is less than 188 KW with the RCS full.
 - b. Decay heat generation is less than 100 KW with the RCS drained down for maintenance.
- 3.4.2.5 With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible.

When the RCS is below 250°F, a single DHR string, or single OTSG and its associated emergency feedwater flowpath capable of supporting natural circulation is sufficient to provide removal of decay heat at all times following the cooldown to 250°F. The Decay Heat Removal String redundancy required by TS 3.4.2.1 is achieved with independent active components capable of maintaining the RCS subcooled. A single DHR flow path with redundant active components is sufficient to meet the requirements of TS 3.4.2.1.a and 3.4.2.1.b. The requirement to maintain two OPERABLE means of decay heat removal ensures that a single active failure does not result in a complete loss of decay heat removal capability. The requirement to keep a system in operation as necessary to maintain the system subcooled at the core outlet provides the guidance to ensure that steam conditions which could inhibit core cooling do not occur.

With the reactor vessel head removed and 23 feet of water above the reactor vessel flange, a large heat sink is available for core cooling. In this condition, only one DHR loop is required to be Operable because the volume of water above the reactor vessel flange provides a large heat sink which would allow sufficient time to recover active decay heat removal means.

Following extensive outages or major core off loading, the decay heat generation being removed from the Reactor Vessel is so low that ambient losses are sufficient to maintain core cooling and no other means of heat removal is required. The system is passive and requires no redundant or diverse backup system. Decay heat generation is calculated in accordance with ANSI 5.1-1979 to determine when this situation exists.

An unlimited emergency feedwater supply is available from the river via either of the two motor-driven reactor building emergency cooling water pumps for an indefinite period of time.

The requirements of Technical Specification 3.4.1.1 assure that before the reactor is heated to above 250°F, adequate auxiliary feedwater capability is available. One turbine driven pump full capacity (920 gpm) and the two half-capacity motor-driven pumps (460 gpm each) are specified. However, only one half-capacity motor-driven pump is necessary to supply auxiliary feedwater flow to the steam generators in the onset of a small break loss-of-coolant accident.

REFERENCES

- (1) UFSAR, Table 6.1-4 - ECCS "Single Failure Analysis"
- (2) UFSAR, 9.5 - Decay Heat Removal System



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 220 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 June 4, 1999, as supplemented by letter dated December 13, 1999, GPU Nuclear, Inc. submitted a request for changes to the Three Mile Island Nuclear Station, Unit 1 (TMI-1), Technical Specifications (TSs). Subsequently, the TMI-1 Facility Operating License was transferred to AmerGen Energy Company, LLC. The requested changes would revise the Appendix A Technical Specifications (TSs) to modify the limiting conditions for operation in the TSs under which a reduction in the number of means of decay heat removal (DHR) capability may occur. TS 3.4.2.3 currently allows the number of means of DHR capability required by TS 3.4.2.1 to be reduced provided one of three conditions is satisfied. The proposed changes delete two of these conditions and clarify the third. The proposed changes also provide changes to the Bases for the TSs which clarify the definition of how the redundancy requirements of TS 3.4.2.1 may be met. Other Bases changes are made to reflect the TS changes identified above. The December 13, 1999, letter withdrew a clarifying change to the TS Bases which was determined not to be necessary. The December 13, 1999, letter did not change the initial proposed no significant hazards consideration determination or expand the amendment beyond the scope of the initial notice.

2.0 EVALUATION

TMI-1 TS 3.4.2.3.c currently allows the number of trains of DHR to be reduced to one for up to 7 days for maintenance, independent of the water level in the fuel transfer canal (FTC). Additionally, TS 3.4.2.3.b allows the number of trains of DHR to be reduced to one if the reactor coolant temperature is less than 140 degrees F with the borated water storage tank (BWST) level greater than 44 feet and an operable associated flow path through the reactor coolant system (RCS) such that core outlet temperature can be maintained subcooled for at least 7 days. The licensee is deleting TS 3.4.2.3.b because this back-up cooling method utilizing the BWST is only effective when the reactor has been cooled down for 60-70 days. The licensee stated that this cooling method has never been used and is not anticipated to be used as a TS-required back-up cooling method in the future. The licensee further recognized that during the course of a refueling outage the current TS could allow a condition with the number of DHR trains reduced to one and the FTC drained down and the loops not filled. Reactor vessel water level would be within the horizontal portion of the hot leg. Loss of the operating DHR pump during this condition could result in boiling in the reactor vessel. The second train, if operable could be used to recover from this event and prevent boiling. Therefore, the licensee is proposing to delete TS 3.4.2.3.c.

The licensee's request deletes those two conditions from the TSs leaving the only condition where the number of trains of DHR may be reduced to one, that of TS 3.4.2.3.a, which is with the reactor in a refueling shutdown condition with the FTC water level greater than or equal to 23 feet above the reactor vessel flange. The licensee modified TS 3.4.2.3.a to add the words "or equal to" to the existing 23 feet water level requirement and dropped the "a" designation as it was the only remaining condition.

The licensee also proposed changes to the related Bases for this TS. The licensee clarified that the single (once-through steam generator) and its associated emergency feedwater flowpath, which would be required in lieu of a DHR train when the RCS is below 250 degrees F, must be capable of supporting natural circulation when relied upon to meet this requirement. The Nuclear Regulatory Commission (NRC) staff confirmed with the licensee that this referred to single phase natural circulation as opposed to reflux boiling. The licensee also provided clarification that it intends to meet the DHR redundancy requirements of TS 3.4.2.1 with independent active components capable of maintaining the RCS subcooled, and states that a single DHR flowpath with redundant active components is sufficient to meet the requirements of TS 3.4.2.1a and 3.4.2.1.b.

The staff has reviewed the licensee's proposed wording in the TS and the Bases. The staff approves the deletion of TS conditions 3.4.2.3.b and c. The staff agrees that the this change will improve the overall availability of the DHR system during shutdown conditions. With respect to the clarifying Bases changes to change from "greater than" to "greater than or equal to" with respect to the requirement of TS 3.4.2.3.a for maintaining the FTC water level greater than or equal to 23 feet above the reactor vessel flange, the staff has determined that this change is equivalent to similar requirements of the Standard Technical Specifications for Babcock and Wilcox plants and is therefore, acceptable.

With respect to the change of the Bases wording for clarification (1) that the the DHR redundancy requirements of TS 3.4.2.1 are met with a single DHR flowpath with redundant active components; (2) the additional statement that a single DHR flowpath with redundant active components is sufficient to meet the requirements of TS 3.4.2.1.a and b; and (3) the inclusion of the word "active" in the statement "The requirement to maintain two OPERABLE means of decay heat removal ensures that a single **active** failure does not result in a complete loss of decay heat removal capability", the NRC staff was concerned that the licensee would not give consideration of long-term passive failures of components such as pump seal failure or valve packing failures with this clarification to the Bases. The NRC staff's Standard Review Plan, Section 6.3, requires consideration of these types of long-term limited passive component failures as part of its single failure review criterion. The licensee stated during a telephone conversation on January 20, 2000, that it's procedures require consideration of limited long-term failures as described above as part of its active component failure criterion and it only meant to eliminate consideration of passive failures such as pipe breaks. The staff has determined that the combined effect of the deletion of TS 3.4.2.3.b and c above and the Bases change described above will result in a net improvement in the availability of the DHR system. The staff has determined that so long as the licensee's procedures continue to consider the limited passive failures of active components described above in its single failure criteria, the requested Bases change is acceptable.

The licensee is also eliminating portions of the current Bases related to the TS provisions it is proposing to delete. Lastly, the licensee requested making an administrative change with respect to the historical reference to the ANSI 5.1-1979 standard for calculation of the decay heat generation in order to avoid requiring a change to this reference should the current standard no longer be an appropriate standard in the future. During discussions with the licensee during an October 5, 1999, telephone call, the NRC staff indicated that the change was not necessary. The licensee withdrew this proposed change by letter dated December 13, 1999.

The staff has reviewed the licensee's proposed changes. The staff has determined that the proposed changes are either administrative in nature and are, therefore, acceptable, or will allow the licensee to retain some maintenance flexibility for portions of the DHR system while overall providing a greater level of assurance that at least one train of DHR will be available than is currently provided by the TSs. On this basis, the staff approves the licensee's requested changes.

3.0 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.

4.0 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. 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 (64 FR 35207). 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.

5.0 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 Contributor: T. Colburn

Date: February 28, 2000

UNITED STATES NUCLEAR REGULATORY COMMISSION

AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-289

NOTICE OF PARTIAL WITHDRAWAL OF APPLICATION FOR

AMENDMENT TO FACILITY OPERATING LICENSE

The U.S. Nuclear Regulatory Commission (the Commission) has granted the request of AmerGen Energy Company, LLC (the licensee), to withdraw a portion of its June 4, 1999, application for proposed amendment to Facility Operating License No. DPR-50 for the Three Mile Island Nuclear Station, Unit 1, located in Dauphin County, Pennsylvania.

The portion of the proposed amendment being withdrawn would have revised the Technical Specification (TS) Bases on page 3-26c of the TSs to clarify that the decay heat generation "was" rather than "is" calculated in accordance with ANSI 5.1-1979. Also deleted was the phrase "to determine when this situation exists."

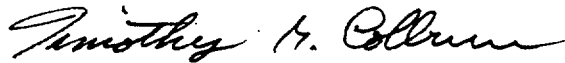
The Commission had previously issued a Notice of Consideration of Issuance of Amendment published in the FEDERAL REGISTER on June 30, 1999 (64 FR 35207). However, by letter dated December 13, 1999, the licensee withdrew the above described portion of the proposed change.

For further details with respect to this action, see the application for amendment dated June 4, 1999, and the licensee's letter dated December 13, 1999, which withdrew a portion of the application for license amendment. The above documents are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC, and accessible electronically through the ADAMS Public Electronic

Reading Room link at the NRC Web site (<http://www.nrc.gov>).

Dated at Rockville, Maryland, this 28th day of February 2000.

FOR THE NUCLEAR REGULATORY COMMISSION



Timothy G. Colburn, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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February 28, 2000

MEMORANDUM TO: Rules and Directives Branch
 Division of Administrative Services
 Office of Administration

FROM: Office of Nuclear Reactor Regulation

SUBJECT: THREE MILE ISLAND NUCLEAR STATION, UNIT 1 (MA 5699)

One signed original of the *Federal Register* Notice identified below is attached for your transmittal to the Office of the Federal Register for publication. Additional conformed copies (5) of the Notice are enclosed for your use.

- Notice of Receipt of Application for Construction Permit(s) and Operating License(s).
- Notice of Receipt of Partial Application for Construction Permit(s) and Facility License(s): Time for submission of Views on Antitrust matters.
- Notice of Consideration of Issuance of Amendment to Facility Operating License. (Call with 30-day insert date).
- Notice of Receipt of Application for Facility License(s); Notice of Availability of Applicant's Environmental Report; and Notice of Consideration of Issuance of Facility License(s) and Notice of Opportunity for Hearing.
- Notice of Availability of NRC Draft/Final Environmental Statement.
- Notice of Limited Work Authorization.
- Notice of Availability of Safety Evaluation Report.
- Notice of Issuance of Construction Permit(s).
- Notice of Issuance of Facility Operating License(s) or Amendment(s).
- Order.
- Exemption.
- Notice of Granting Exemption.
- Environmental Assessment.
- Notice of Preparation of Environmental Assessment.
- Receipt of Petition for Director's Decision Under 10 CFR 2.206.
- Issuance of Final Director's Decision Under 10 CFR 2.206.
- Other: NOTICE OF PARTIAL DENIAL OF APPLICATION FOR AMENDMENT TO FACILITY OPERATING LICENSE.

DOCKET NO. 50-289

Attachment(s): As stated

Contact: M. O'Brien

Telephone: 415-1414

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