August 19, 2004

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

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION - ISSUANCE OF AMENDMENT RE: CORE SPRAY SYSTEM REQUIREMENTS (TAC NO. MC1651)

Dear Mr. Crane:

The Commission has issued the enclosed Amendment No. 247 to Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station, in response to your application dated December 23, 2004.

The amendment clarifies the requirements for inoperable core spray (CS) system components, renders inoperable CS component verification requirements consistent with each other, and modifies the location requirement of stored water during periods of CS system inoperability.

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/

Peter S. Tam, Senior Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosures: 1. Amendment No. 247 to DPR-16
2. Safety Evaluation

cc w/encls: See next page

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AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 247
License No. DPR-16

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

   A. The application for amendment by AmerGen Energy Company, LLC, et al., (the licensee), dated December 23, 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-16 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 247, 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 the date of issuance and shall be implemented within 60 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: August 19, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 247

FACILITY OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

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

Remove	Insert
3.4-1	3.4-1
3.4-2	3.4-2
3.4-3	3.4-3
3.4-4	3.4-4
3.4-5	3.4-5
3.4-6	3.4-6
3.4-7	3.4-7
3.4-8	3.4-8
3.4-9	3.4-9
3.5-2	3.5-2

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 247

TO FACILITY OPERATING LICENSE NO. DPR-16

AMERGEN ENERGY COMPANY, LCC

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

By application dated December 23, 2003, AmerGen Energy Company, LLC (the licensee) requested an amendment to revise the Technical Specifications (TSs) for the Oyster Creek Nuclear Generating Station (OCNGS). The proposed amendment would clarify the requirements for inoperable core spray (CS) system components, render inoperable CS component verification requirements consistent with each other, and modify the location requirement of stored water during periods of CS system inoperability.

2.0 REGULATORY EVALUATION

Section 50.46 of Title 10 of the *Code of Federal Regulations* (10 CFR) states that each boiling or pressurized light-water reactor must have an emergency core cooling system (ECCS) to provide cooling following a loss-of-coolant accident (LOCA). The CS system is part of the OCNGS ECCS. The purpose of the CS system is to provide the removal of decay heat from the core following a LOCA to preserve the integrity of the fuel cladding.

10 CFR Part 50, Appendix A, General Design Criterion 35, Emergency Core Cooling, states that "A system to provide abundant emergency core cooling shall be provided. The system safety function shall be to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented and (2) clad metal-water reaction is limited to negligible amounts." The proposed changes will not adversely affect the ability of the CS system to meet this criterion.

3.0 TECHNICAL EVALUATION

The OCNGS CS system is a low pressure ECCS consisting of two independent loops each containing two main pumps, two booster pumps, two sets of parallel isolation valves outside the drywell, two parallel check valves inside the drywell, a spray sparger, and associated piping, instrumentation and controls. Each CS subsystem transfers water from the suppression pool, or alternately, the condensate storage tank (CST) and fire protection system, to the core spray sparger. The CS system may be initiated either automatically or manually. Automatic initiation signals are Level 1 reactor vessel low water level or high drywell pressure.

The water supply for the OCNGS CS system is held in the torus and is drawn through three strainers into a common header. The torus is a steel shell, located below and around the base of the drywell. The torus contains a suppression pool and an air space for the reduction of pressure (by condensation) and containment of reactor coolant system. There is a connection from the CST to the suction of each CS system main pump through locked closed manual valves. The CST, and parts of the condensate transfer system, serve as the alternate supply of water for the CS system. The condensate transfer supply line for the CS system pumps is routed above grade from the CST, into a trench toward the Turbine Building. In addition, one diesel fire pump is capable of providing water to the CS system. The fire protection system is connected to each of the two CS system loops. The purpose of this connection is to provide a backup supply of cooling water to the spargers during torus cleaning operations.

The licensee proposed changes to OCNGS Section 3.4.A, Section 3.4.A Bases, and Section 3.5.A.2. Section 3.4.A contains operability requirements for the CS System. Section 3.4.A Bases provides an explanation of the requirements in Section 3.4.A. Section 3.5.A.2 describes conditions that must be satisfied during maintenance and repair to the primary containment, including draining of the torus. The licensee proposed to make these changes in order to clarify requirements for inoperable components, to render inoperable CS component verification requirements consistent with each other, and to modify the location requirement of stored water during periods of CS system inoperability. Various editorial changes are included to accommodate the proposed changes.

The Nuclear Regulatory Commission (NRC) staff's evaluation of the proposed changes follows.

3.1 Proposed TS Changes

3.1.1 New Section 3.4.A.1

The licensee proposed to combine the requirements of the current Sections 3.4.A.1 and 3.4.A.2 into a new Section 3.4.A.1. The current Section 3.4.A.1 requires the CS system to be operable at all times with irradiated fuel in the reactor vessel, except for specified conditions. The current Section 3.4.A.2 maintains that the torus water volume must be at least 82000 ft^3 in order for the CS system to be considered operable. The proposed change is editorial and does not affect the requirements for the CS system. Therefore, the NRC staff found the proposed change acceptable.

3.1.2 New Section 3.4.A.2

The licensee proposed to relocate the requirements of the current Section 3.4.A.6 to Section 3.4.A.2. The current Section 3.4.A.6 describes the actions required when the current Sections 3.4.A.3, 3.4.A.4, and 3.4.A.5 are not met. The reactor will be placed in cold shutdown and no work will be allowed to be performed on the reactor that could lower reactor water level to less than 4' 8" above the top of the active fuel. These changes are editorial in nature. The requirements remain unchanged. Therefore, the NRC staff found the proposed changes acceptable.

3.1.3 New Section 3.4.A.3

The licensee proposed to relocate the requirements of the current Section 3.4.A.3.b to Section 3.4.A.3. The current Section 3.4.A.3.b requires the average planar linear heat generation rate (APLHGR) to be reduced within the specified limits for the described CS active loop component conditions of inoperability. The requirements of the current Section 3.4.A.3.b remain unchanged and the relocation is editorial. Therefore, the proposed change is acceptable.

3.1.4 New Table 3.4.1

The licensee proposed to relocate the requirements of the current Sections 3.4.A.3 (except for 3.4.A.3.b), 3.4.A.4 (except for 3.4.A.4.b), 3.4.A.5, 3.4.A.7, 3.4.A.8, and 3.4.A.9 to a proposed new Table 3.4.1. The licensee stated that organizing these requirements into a table will facilitate the better usage of the TSs. Table 3.4.1 is divided into two sections: one for Run or Startup Mode (except for low power physics testing), and a second for Shutdown or Refuel Mode. Table 3.4.1 lists conditions that may exist, requirements that limit operation, and additional conditions that must be satisfied. No changes would be made to requirements of the sections cited above. The relocations are editorial; details of the relocation can be found in the licensee's application.

The NRC staff reviewed the requirements to be relocated into this new table and agrees that the creation of the new table, and the relocation of existing requirements to the table, are editorial, and are, therefore, acceptable.

3.1.5 New Section 3.4.A.4

The licensee proposed to relocate the requirements of the current Section 3.4.A.10 to Section 3.4.A.4. The current Section 3.4.A.10 describes conditions when the CS system is not required to be operable. These relocations do not change the existing requirements, are editorial, and are, therefore, acceptable.

Other than purely editorial changes, the licensee proposed the following technical changes to various parts of Section 3.4.A.4:

The current Section 3.4.A.10.b.(2) (being relocated to Section 3.4.A.4.b.(2)) requires the fire protection system to be operable. To clarify the meaning of "Operable," the licensee proposed to add the phrase "to the extent that one diesel driven fire pump is capable of providing water to the core spray system." Addition of this phrase does not change existing requirements, while improving clarity of the current specification. The NRC staff finds this addition acceptable.

The licensee also proposed to add a new Section 3.4.A.4.b.(3) with the wording “These systems are verified to be OPERABLE on a weekly basis.” This addition requires verification of systems operability; such requirement did not exist in the current TSs. Therefore, the NRC staff found this change acceptable.

The current Section 3.4.A.10.d (being relocated to the new Section 3.4.A.4.d) requires at least one CS pump and components of the CS system necessary to deliver rated flow to the reactor vessel to be operable when the CS system is not required to be operable. The licensee proposed to maintain these requirements in the new Section 3.4.A.4.d and to add “Verify the pump and components are OPERABLE, as described, on a weekly basis.” This statement adds a previously non-existent requirement to verify component operability. The NRC staff found this addition acceptable.

The current Section 3.4.A.10.e.(1) (being relocated to Section 3.4.A.4.e.(1)) requires that no work shall be performed on the reactor or its connected systems that could lower reactor water level to less than 4' 8" above the top of active fuel. The level in the CST must be greater than 360,000 gallons of water. The required level in the CST is based on establishing a sufficient water source for the CS pumps in the event of a leak from the reactor vessel while insufficient water is available in the torus. Draining of the torus for cleaning is one example of when the torus could have insufficient water. The licensee proposed to modify this water volume requirement to ensure “there is a minimum of 360,000 gallons of water available between the torus and condensate storage water tank inventories.” The licensee stated that maintaining 360,000 gallons solely in the CST complicates outage scheduling and water transfer operations. If the torus is fully drained or partially drained, the pump suction for the CS pumps can be transferred to the CST through a motor-operated valve. The level in the CST assures that enough water will be transferred to the torus to provide adequate net positive suction head (NPSH) for the CS pumps to deliver water to the reactor vessel. If the torus is partially filled, the water already in the torus can be used to reduce the amount needed from the CST. This inventory distribution, totaling at least 360,000 gallons between the CST and the torus, will continue to assure that sufficient NPSH for the CS pumps is available. To support this argument, the licensee performed a control rod drive (CRD) drop accident analysis. Leakage from the vessel was evaluated based on dropping a CRD from the bottom of the vessel with no credit for seating of the control rod blade. The calculation assumed that the torus was completely drained and a CRD was dropped during maintenance. During the postulated CRD drop accident scenario, reactor water will leak from the reactor vessel bottom to the drywell and then to the torus through downcomer pipes. The licensee’s calculation evaluated the water level requirement and the time to reach 4' 8" above top of fuel from specified levels. The calculation showed that 360,000 gallons of water distributed between the CST and torus will provide adequate NPSH for the CS pumps to carry out their design function. It also showed that sufficient time is available for an operator to manually open the suction valve to the CST in the event of a drain down event. The NRC staff reviewed the licensee’s reasoning and found the proposed change acceptable.

The current Section 3.4.A.10.e.(1) requires “at least two redundant systems including core spray pumps and system components must remain operable....” The licensee proposed to revise this to say “at least two redundant core spray systems including core spray pumps and system components must remain operable....” This revision adds more clarity. The licensee also proposed two additional requirements to this specification. The first new requirement reads “[a]t least one recirculation loop discharge valve and its associated suction valve shall be

in the full open position." The recirculation loop discharge and suction valves affect the communication of the reactor coolant between the reactor annular region and the reactor core region. If the suction and discharge valves of all five recirculation loops are closed, a water level reduction within the reactor annular region will not result in a corresponding water level reduction within the reactor core region. The instruments that detect low-low reactor water level are located within the reactor annular region. The proposed change to keep the recirculation system valves open in at least one loop ensures that an accurate reading for reactor water level is obtained. Therefore, the proposed change is acceptable.

The second requirement that the licensee proposed to add to the current Section 3.4.A.10.e.(1) reads "[v]erify the pumps and components are OPERABLE, as described, on a weekly basis." This proposed verification requirement is consistent with other verification requirements in Section 3.4.A for inoperable components, and is acceptable to the NRC staff.

The licensee proposed to relocate the requirements of the current Section 3.4.A.10.e.(2) to the proposed TS Section 3.4.A.4.e.(2). In addition, the licensee proposed to change the note in Section 3.4.A.10.e.(2) by modifying the water requirement when filling the reactor cavity and including the same requirement for draining the reactor cavity. The new wording reads "[w]hen filling or draining the reactor cavity, a sufficient water inventory (between the condensate storage tank and the reactor cavity) to complete the flooding operation shall be maintained. The 360,000 gallons of water minimum requirement in (1) above does not apply during the filling and draining operation provided there is a sufficient amount of water to complete the flooding operation." This proposed wording change is consistent with the current requirement in Section 3.4.A.10.e.(2) and reflects the allowed distribution of the 360,000 gallons as specified by the new Section 3.4.A.4.e.(1). The NRC staff found this change acceptable.

3.1.6 New Section 3.5.A.2

The current Section 3.5 applies to the operating status of primary and secondary containment systems. The suppression pool is part of the primary containment. The licensee proposed changes to the current Section 3.5.A.2, which allows maintenance and repair of the torus to be performed provided certain conditions are satisfied.

The current Section 3.5.A.2.b.(2) requires the fire protection system to be operable. The licensee proposed to add "to the extent that one diesel fire pump is capable of providing water to the core spray system..." This change maintains the requirements of the current specification and clarifies the definition of operability for the fire protection system. The NRC staff found this change acceptable.

The licensee proposed to add a new Section 3.5.A.2.b.(3) to read "[t]hese systems are verified to be OPERABLE on a weekly basis." This is a new verification requirement, which is consist with similar requirements in other sections of Section 3.4.A evaluated above. Therefore, the NRC staff found the proposed change acceptable.

The licensee proposed to modify Sections 3.5.A.2.d, 3.5.A.2.e(1), and 3.5.A.2.e(2) to identical wording for the new Sections 3.4.A.4.d, 3.4.A.4.e.(1), and 3.4.A.4.e.(2), which had been evaluated above. These changes make corresponding parts of the specifications consistent with each other, and are acceptable to the NRC staff.

3.2 Proposed TS Bases Changes

The licensee also proposed to change the Bases associated with Section 3.4.A. The NRC staff reviewed the proposed wording of these changes and agreed that these changes are necessary to accommodate the proposed TS changes evaluated above. According to 10 CFR 50.36(a), TS Bases are not part of the TSs; thus the NRC staff will rely on the licensee to issue revise TS Bases pages as depicted in the application.

On Page 3.4-8 of the proposed revision, third paragraph, the licensee stated that ".....temperature rise in the reactor fuel will not reach 2200°F." This is not consistent with the wording of 10 CFR 50.46(b)(1); the correct wording should be ".....temperature rise in the reactor fuel *cladding* [emphasis added] will not reach 2200°F." The licensee should make this correction when issuing the retyped TS Bases pages.

3.3 Summary of Evaluation

The licensee proposed TS changes to clarify the requirements for inoperable CS components, provide consistency for the verification of inoperable components, and modify the location of stored water during periods of CS system inoperability. The NRC staff reviewed the proposed changes and determined they are acceptable as delineated above.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey 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 use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. 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 (69 FR 2738). 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: G. Thomas
B. Grimmel

Date: August 19, 2004

Oyster Creek Nuclear Generating Station

cc:

Chief Operating Officer
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

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

Site Vice President - Oyster Creek
Generating Station
AmerGen Energy Company, LLC
P.O. Box 388
Forked River, NJ 08731

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

John E. Matthews, Esquire
Morgan, Lewis, & Bockius LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

Kent Tosch, Chief
New Jersey Department of
Environmental Protection
Bureau of Nuclear Engineering
CN 415
Trenton, NJ 08625

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

Vice President - Operations Support
AmerGen Energy Company, LLC
4300 Winfield Road
Warrenville, IL 60555

H. J. Miller
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Mayor of Lacey Township
818 West Lacey Road
Forked River, NJ 08731

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 445
Forked River, NJ 08731

Director - Licensing and Regulatory Affairs
AmerGen Energy Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

Manager Licensing - Oyster Creek
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-E
Kennett Square, PA 19348

Oyster Creek Generating Station Plant
Manager
AmerGen Energy Company, LLC
P.O. Box 388
Forked River, NJ 08731

Regulatory Assurance Manager
Oyster Creek
AmerGen Energy Company, LLC
P.O. Box 388
Forked River, NJ 08731

Oyster Creek Nuclear Generating Station

cc:

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

Pete Eselgroth, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Correspondence Control Desk
AmerGen Energy Company, LLC
P.O. Box 160
Kennett Square, PA 19348