



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

October 10, 2008

Mr. Charles G. Pardee  
Chief Nuclear Officer  
AmerGen Energy Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION – ISSUANCE OF  
AMENDMENT RE: REVISION TO MECHANICAL SNUBBER FUNCTIONAL  
TEST REQUIREMENTS (TAC NO. MD8566)

Dear Mr. Pardee:

The Commission has issued the enclosed Amendment No. 270 to Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station (Oyster Creek), in response to your application dated October 18, 2007, as supplemented by letter dated July 3, 2008.

The amendment changes the Oyster Creek Technical Specifications Section 4.5.M.1.e.1 regarding the mechanical snubber functional test acceptance criteria. Specifically, the change replaces the snubber breakaway test with the drag force test.

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,

A handwritten signature in black ink, appearing to read "G. Edward Miller".

G. Edward Miller, Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosures:

1. Amendment No. 270 to DPR-16
2. Safety Evaluation

cc w/encls: See next page

Oyster Creek Nuclear Generating Station

cc:

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

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

AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 270  
License No. DPR-16

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment filed by AmerGen Energy Company, LLC (the licensee), dated October 18, 2007, as supplemented by letter dated July 3, 2008, 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.270 , 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Harold K. Chernoff, Chief  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment: Changes to the License and  
Technical Specifications

Date of Issuance: October 10, 2008

ATTACHMENT TO LICENSE AMENDMENT NO. 270

FACILITY OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

Replace the following page of Facility Operating License No. DPR-16 with the attached revised page as indicated. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

Remove  
3

Insert  
3

Replace the following page of the Appendix A, Technical Specifications, with the attached revised page as indicated. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

Remove  
4.5-8

Insert  
4.5-8

- (3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, or special nuclear materials as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear materials without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (5) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate such byproduct, source, or special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter 1 and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

AmerGen Energy Company, LLC is authorized to operate the facility at steady-state power levels not in excess of 1930 megawatts (thermal) (100 percent rated power) in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 270\*, are hereby incorporated in the license. AmerGen Energy Company, LLC shall operate the facility in accordance with the Technical Specifications.

(3) Fire Protection

AmerGen Energy Company, LLC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility and as approved in the Safety Evaluation Report dated March 3, 1978, and supplements thereto, subject to the following provision:

\* Implemented

In addition to the regular sample, snubbers which failed a previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the failed (if it is repaired and installed in another position) and the replacement snubber shall be retested. The results from testing of these snubbers are not included for determining additional sampling requirements.

For any snubber that fails to lockup or fails to move, i.e., frozen in place, the cause will be evaluated. If caused by manufacturer or design deficiency, actions shall be taken to ensure that all snubbers of the same design are not subject to the same defect.

d. Hydraulic Snubbers Functional Test Acceptance Criteria

The hydraulic snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.
2. Snubber bleed, or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubbers to withstand load without displacement shall be verified.

e. Mechanical Snubbers Functional Test Acceptance Criteria

The mechanical snubber functional test shall verify that:

1. The drag force to maintain movement of the snubber rod in either tension or compression is less than the specified maximum drag force.
2. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.
3. Snubber release rate, where required, is within the specified range in compression or tension. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 270 TO FACILITY OPERATING LICENSE NO. DPR-16

AMERGEN ENERGY COMPANY, LLC

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

By letter dated October 18, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072920290), as supplemented by letter dated July 3, 2008, (ADAMS Accession No. ML081890247), AmerGen Energy Company, LLC (AmerGen or the licensee) submitted Technical Change Request No. 374, requesting changes to the Technical Specifications (TSs) for the Oyster Creek Nuclear Generating Station (Oyster Creek or OCGS).

The amendment would change the Oyster Creek TS Section 4.5.M.1.e.1 regarding the mechanical snubber functional test acceptance criteria. Specifically, the change replaces the snubber breakaway test with the drag force test. The applicable edition of Section XI of the American Society of Mechanical Engineers *Boiler and Pressure Vessel Code* (ASME Code) for the current OCGS fourth 10-year inservice inspection (ISI) interval is the 1995 Edition up to and including the 1996 Addenda. Article IWF-5000 of the ASME Code, Section XI, is related to the ISI and functional testing of snubbers. IWF-5000 references ASME/American Nuclear Standards Institute (ANSI) Code for Operation and Maintenance of Nuclear Power Plants (OM), Part 4 (OM-4), 1987 Edition with OMa-1988 Addenda.

The supplemental letter dated July 3, 2008, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the Nuclear Regulatory Commission (NRC) Staff's initial proposed no significant hazards determination noticed in the *Federal Register* on June 17, 2008 (73 FR 34339).

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50, Part 50.55a, "Code and Standards," requires that ISI of certain ASME Code Class 1, 2, and 3 components (including their supports) be performed in accordance with the ASME Code, Section XI, and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to 10 CFR 50.55a(a)(3)(i), (a)(3)(ii), or (g)(6)(i). The OCGS is in its fourth 10-year ISI interval. The fourth 10-year ISI interval was developed in accordance with the requirements of the 1995 Edition (with 1996 Addenda) of the ASME Code, Section XI.

The current 10 CFR 50.55a(b)(3)(v) permits the use of ASME OM Code, Subsection ISTD, in lieu of ASME Code, Section XI, for the inservice testing of snubbers. Subsection ISTD of the

ASME OM Code, "Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Nuclear Power Plants," provides the requirements for snubber testing.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Technical Specification Section 4.5.M.1.e.1

Technical Change Request No. 374 proposes to modify TS Section 4.5.M.1.e.1 related to mechanical snubber functional test acceptance criteria, specifically to replace the breakaway test with the drag force test for mechanical snubbers.

The revised TS Section 4.5.M.1.e.1 is as follows [proposed new text is underlined, and deleted text is struck out]:

##### e. Mechanical Snubbers Functional Test acceptance Criteria

The mechanical snubber functional test shall verify that:

1. ~~The force that initiated free~~ drag force to maintain movement of the snubber rod in either tension or compression is less than the specified maximum drag force.

#### 3.2 Licensee's Basis for the proposed TS Change (as stated)

OCGS TS Section 4.5, "Containment System," provides specific methodology for snubber inservice inspection and functional testing. A representative sample of snubbers is functionally tested at least once every 24 months in accordance with TS Section 4.5.M.1.c. TS Section 4.5.M, "Shock Suppressors (Snubbers)," contains various sections related to requirements of visual examination and functional testing of snubbers such as "Visual Inspections (4.5.M.1.a)," "Visual Inspection Acceptance Criteria (4.5.M.1.b)," "Functional Tests (4.5.M.1.c)," "Hydraulic Snubbers Functional Test Acceptance Criteria (4.5.M.1.d)," and "Mechanical Snubbers Functional Test Acceptance Criteria (4.5.M.1.e)." A test contained in the "Mechanical Snubbers Functional Test Acceptance Criteria" is referred to as the "breakaway test." Fundamentally, the breakaway test (i.e., force that initiated free movement) measures the force necessary to initiate snubber motion. The breakaway test was intended to prevent the introduction of higher stresses to the component.

TSs for snubber testing were added to the OCGS TS in Amendment No. 100, dated March 31, 1986. This amendment incorporated model TS surveillance requirements for snubbers as provided in a letter from the NRC dated March 23, 1981.

ASME OM Code, Subsection ISTD, requires a drag force test (not a breakaway test). The breakaway force test is a measurement of the force required to initiate free motion of the snubber and is generally measured at one location along its stroke. The drag force test is a measurement of the force that will sustain low-velocity motion of the snubber and is measured over the working range of the snubber stroke. The drag force test is a more encompassing representation of overall snubber resistance to thermal movement because it is performed over the entire working range of the snubber stroke. Therefore, a drag force test is the preferred test rather than the breakaway or "force that initiated free movement" as currently stated in the OCGS TS.

The likelihood that the breakaway force will be measured for a snubber in the exact hot or cold position setting from the field or that the breakaway force will be measured at the point of maximum resistance within a snubber's range of motion is remote. In addition to the above, the breakaway test is intended to be performed prior to any movement of the snubber. This is an impractical test situation, because the snubber has typically moved while the unit is cooling down and the piping experiences thermal cycles.

The Institute of Nuclear Power Operations (INPO) Engineering Program Guide for snubbers (EPG-07, July 2006) provides an integrated snubber inspection and testing program, including appropriate evaluation and assessment attributes. The INPO guide recommends drag force testing as part of the functional testing. The breakaway test is not included as part of the functional testing.

Specific snubber testing methodology is typically no longer contained in the plant technical specifications, but is instead relocated to a plant's Technical Requirements Manual (TRM), which is a licensee-controlled document. NUREG-1433, "Standard Technical Specifications for General Electric Plants, BWR4," Revision 3, does not contain specific snubber test methodology.

### 3.3 NRC Staff Evaluation

As required in 10 CFR 50.55a, ISI of certain ASME Code Class 1, 2, and 3 components (including their supports) shall be performed in accordance with the ASME Section XI and applicable addenda as modified by 10 CFR 50.55a(b)(3)(v), except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to 10 CFR 50.55a(a)(3)(i), (a)(3)(ii), or (g)(6)(i). OCGS is in its fourth 10-year ISI interval, and the fourth 10-year ISI program was developed in accordance with the requirements of the 1995 Edition (with 1996 Addenda) of the ASME Code, Section XI. During development of the fourth 10-year ISI program, NRC staff authorized OCGS to use TS requirements in lieu of the requirements of Article IWF-5000 of the ASME Code, Section XI, 1995 Edition including 1996 Addenda, for inservice examination and testing of snubbers.

OCGS TS Section 4.3.b states that ISI of ASME Code Class 1, 2, and 3 systems and components shall be performed in accordance with Section XI of the ASME Code. The existing TS Section 4.5.M, "Shock Suppressors (Snubbers)," is related to the inservice examination and testing of snubbers. The licensee proposed to revise TS Section 4.5.M requirements related to functional testing of mechanical snubbers.

The proposed change to TS Section 4.5.M.1.e.1 is to delete the requirement to measure the force that initiated free movement (breakaway force) and add the requirement to measure drag force to maintain snubber movement in either tension or compression.

The breakaway force test is a measurement of the force required to initiate free motion of the snubber and is generally measured at one location along its stroke. The drag force test is a measurement of the force that will sustain low-velocity motion of the snubber and is measured over the working range of the snubber stroke. The drag force test is a more encompassing representation of overall snubber resistance to thermal movement because it is performed over the entire working range of the snubber stroke.

The major difference between the two measurements is that the force required to initiate movement (breakaway force) includes the force required to overcome inertia and start a

snubber moving. This includes other forces that resist the start of motion – such as the tackiness of grease, roughness of surfaces, etc. All of these forces add together to offer resistance to movement being started. This resistance can also be defined as mechanical action sticking due to lubricant surface tension or friction. Generally this is more of an issue with brand new snubbers being tested for the first time, where such forces might be expected to be higher than running drag forces. The force to maintain motion is the "running" drag force, or the force required to keep the snubber moving once it starts.

OM-4 Section 3.2.1.1.a, states that operability testing of snubbers shall be performed to verify the force that will initiate motion (breakaway force), and the force that will maintain low velocity displacement (drag force), or both, is within specified limits, both in tension and compression.

The ASME OM Code, Subsection ISTD-5210(c) states that snubber operational readiness tests shall verify that mechanical snubber drag force is within specified limits, in tension and in compression.

As mentioned above, OM-4 includes breakaway force in the defined parameters, but ISTD does not address breakaway force as a separate measured parameter. This is mostly due to the fact that breakaway force is seen more as an initial design qualification test than an inservice test. Breakaway force test requirements are included in Qualification of Active Dynamic Restraint (QDR) qualification tests. The use of the OM Code, Subsection ISTD, in place of the requirements in the ASME Code, Section XI, paragraph IWF-5000 (i.e. OM-4) is incorporated by reference in 10 CFR 50.55a as modified by 10 CFR 50.55a(b)(3)(v).

Although OCGS is not implementing ISTD, the use of its requirements related to mechanical snubber functional testing will provide reasonable assurance of the operational readiness of snubbers. The proposed TS changes reflect the fact that the mechanical snubbers breakaway force requirements contained in IWF-5000 (i.e. OM-4), have been replaced by the drag force requirements in Subsection ISTD of the ASME OM Code, which is incorporated by reference in 10 CFR 50.55a.

Therefore, the staff finds this proposed TS change to be acceptable.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State officials were notified of the proposed issuance of the amendment. The State officials 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. 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 (73 FR 34339). The supplement dated July 3, 2008, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards determination. 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. Bedi

Date: October 10, 2008

October 10, 2008

Mr. Charles G. Pardee  
Chief Nuclear Officer  
AmerGen Energy Company, LLC  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION – ISSUANCE OF  
AMENDMENT RE: REVISION TO MECHANICAL SNUBBER FUNCTIONAL  
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Sincerely,  
*/ra/*  
G. Edward Miller, Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-219

Enclosures:

- 1. Amendment No. 270 to DPR-19
- 2. Safety Evaluation

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DATE	10/2/08	10/2/08	9/22/08	10/6/08	10/10/08

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