

November 2, 2004

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

SUBJECT OYSTER CREEK NUCLEAR GENERATING STATION - ISSUANCE OF
AMENDMENT RE: MAIN STEAM ISOLATION VALVE LEAKAGE TESTING
(TAC NO. MC1654)

Dear Mr. Crane:

The Commission has issued the enclosed Amendment No. 250 to Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station, in response to your application dated December 23, 2003, as supplemented by letter dated June 16, 2004. Under separate cover and on this same date, the Commission issued an associated exemption from Appendix J of 10 CFR Part 50, Option B, Section III.B, "Type B and C Tests."

The amendment revised Section 4.5.D of the Technical Specifications to specify testing the main steam isolation valves at a pressure lower than P_a , the calculated peak containment internal pressure related to the design-basis loss-of-coolant accident.

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. 250 to DPR-16
2. Safety Evaluation

cc w/encls: See next page

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PUBLIC	OGC	CHolden	PD1-1 R/F
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Accession Number: **ML042740028**

OFFICE	PD1-1/PM	PD1-1/LA	SPSB/SC	OGC	PDI-1/SC
NAME	PTam	SLittle	RDennig*	JHull	RLaufer
DATE	10/13/04	10/4/04	9/16/04	10/21/04	10/27/04

*SE transmitted by memo of 9/16/04.

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AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 250

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), December 23, 2003, as supplemented by letter dated June 16, 2004, 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. 250, 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 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: November 2, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 250

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

4.5-2
4.5-11

Insert

4.5-2
4.5-11

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 250

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 via two separate letters both dated December 23, 2003 (Accession Nos. ML040020325 and ML040020328), AmerGen Energy Company, LLC (the licensee), requested a permanent exemption from Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix J, Option B, Section III.B, and a conforming amendment to the Technical Specifications (TSs) regarding Type C test (local leakage rate test) pressure for the main steam isolation valves (MSIVs) at the Oyster Creek Nuclear Generating Station (OCNGS). Specifically, the licensee proposed to test the MSIVs at a pressure lower than P_a , the calculated peak containment internal pressure related to the design-basis loss-of-coolant accident (LOCA). The exemption is issued under separate cover on the same date as this amendment.

The application for amendment was supplemented by a letter dated June 16, 2004 (Accession No. ML041740355). This supplement 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 original proposed no significant hazards consideration determination as published in the *Federal Register* on February 17, 2004 (69 FR 7518).

2.0 REGULATORY EVALUATION

Currently, OCNGS TS 4.5.D. states, in part:

D. Primary Containment Leakage Rates shall be limited to:

1. The maximum allowable Primary Containment leakage rate is $1.0 L_a$. The maximum allowable Primary Containment leakage rate to allow for plant startup following a Type A test is $0.75 L_a$. The leakage rate acceptance criteria for the Primary Containment Leakage Rate Testing Program for Type B and Type C tests is $\#0.60 L_a$ at P_a .

2. The leakage rate acceptance criteria for an MSIV shall be $0.05(0.75) L_a$ at P_a .

L_a is the maximum allowable leakage rate at pressure P_a as specified in the TSs. A Type A test is an overall (integrated) leakage rate test of the containment structure. A Type B test is a local leakage rate test of containment penetrations, such as electrical penetrations, expansion bellows, air locks, and those penetrations with resilient seals or gaskets. A Type C test is a local leakage rate test of a containment isolation valve.

The licensee proposed to change TS 4.5.D.2. to state:

2. Verify leakage rate through each MSIV is #11.9 scfh when tested at \$20 psig.

For consistency, the licensee also proposed to add the words "except as stated in Specification 4.5.D.2." to the end of TS 4.5.D.1., to clarify that the MSIVs will not be tested at P_a as currently required by 4.5.D.1. This would not, however, except the MSIV leakage rates from being included in the sum of all Type B and Type C test leakage rates, which must be less than $0.60 L_a$. To do so would require an additional exemption from Appendix J, which the licensee has not requested.

Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR Part 50), Appendix J, Option B, Section III.B., "Type B and C Tests," states, in part:

The tests must demonstrate that the sum of the leakage rates at accident pressure of Type B tests, and pathway leakage rates from Type C tests, is less than the performance criterion (L_a) with margin, as specified in the Technical Specification.

In this context, "accident pressure," P_a , was previously analyzed to be 35 psig at OCNCS. Thus, the licensee's proposal to perform Type C testing on the MSIVs with a test pressure of \$20 psig requires an exemption, which is addressed by separate correspondence.

3.0 TECHNICAL EVALUATION

OCNCS has two main steam lines, each having two MSIVs. The valves are 24-inch angled globe valves of "Y" configuration. The cup-shaped poppet moves on a centerline that is 45 degrees upward from the horizontal centerline of the piping run. Each MSIV is oriented to provide effective sealing in the direction of post-accident containment atmosphere leakage, i.e., the forward direction, as compared to the between-the-valve Type C test which tends to unseat the inboard valve. The design of the steam lines is such that the preferred method of Type C testing is through the use of a between-the-valves test tap. Periodic Type C testing verifies that the leakage assumed in the radiological analysis is not exceeded.

The licensee stated that the purpose of this proposed amendment and associated exemption is to reduce the probability of lifting the inboard MSIVs during testing. Testing of the inboard and outboard MSIVs simultaneously at P_a by pressurizing between the valves tends to lift the disc of the inboard valve. This results in test results which may not accurately reflect the isolation capabilities of the valves. The licensee has reviewed the test database back to Refueling

Outage 12 in 1988, and has identified three instances of inconsistent test results, indicating that the inboard valve was unseating due to the reverse test pressure, with the most recent occurrence in the last outage (Refueling Outage 19 in the year 2002). These results led to the necessity of retests using more challenging test methods (e.g., via steam line plugs) to determine that the valves were in satisfactory condition. After such retest, the valves were found acceptable.

The licensee proposed testing at 20 psig between the 2 MSIVs. This pressure is greater than one-half of P_a , and would avoid lifting the disc of the inboard MSIV. Meanwhile, the licensee proposed to revise the measured leakage rate for any one main steam line through each MSIV be limited to a proposed pathway leakage value of 11.9 scfh. This is the value used in the radiological analysis for control room habitability, as discussed in Section 6.4 of the OCNCS Updated Final Safety Analysis Report (UFSAR). The licensee supplied a summary of the control room habitability analysis to the NRC (Letter from R. F. Wilson of GPU Nuclear Corporation to NRC, "Control Room Habitability (NUREG-0737 Item III.D.3.4) Results of Whole Body and Beta Skin Dose Analysis," dated June 17, 1985; Accession No. 8506210228), and it was approved in an NRC safety evaluation supporting Amendment No. 105, "Control Room Habitability (TAC 46466, 57905)," dated July 15, 1986; Accession No. 8607230486). As discussed in the licensee's 1985 submittal, although the MSIVs are designed to provide a leak-tight barrier, some leakage through the valves will occur. The leakage limit discussed in the 1985 submittal (11.9 standard cubic feet per hour (scfh)) is the value proposed for this TS change. At this leakage rate, offsite (exclusion area boundary and low population zone) doses are well below the 10 CFR Part 100 limits and are unaffected by this proposed amendment.

The licensee stated that the proposed 11.9 scfh acceptance criterion will be effective and reliable in determining the status of the MSIVs, and in verifying that substantial degradation of these valves has not occurred since the last Type A test. The licensee further stated that the 11.9 scfh leakage limit is more conservative than the value calculated by adjusting the existing 35 psig leakage limit to 20 psig per the American Society of Mechanical Engineers Code. Additionally, the leakage path through the MSIVs is included during Type A tests, and therefore the effect of this leakage on containment integrity is taken into account. Testing of the inboard MSIVs in the forward direction when the reactor vessel head is removed requires the installation of plugs at the inside steam line nozzle penetrations. Experience has shown that these plugs will hold pressure when subjected to the 35 psig test pressure; however, the large test volume created includes the main steam safety valves, electromatic relief valves, and main steam line drain piping, i.e., increased number of potential leak paths, thereby complicating the methodology and implementation of the test. As a result, this method of testing is difficult to implement, and provides conservative leakage results which may not accurately reflect the leak-tightness of the MSIVs.

A second alternative to the proposed test would be to install a 24-inch block valve and a 1-inch test tap in each of the two main steam lines in order to Type C test the inboard MSIV in the forward direction. This modification would require significant monetary expenditures to implement, but without a commensurate increase in safety level. This alternative would also require the Type C test to be conducted inside the drywell as opposed to the outboard MSIV room (trunnion room), thus subjecting those performing the test to higher radiation doses. Therefore, this alternative would incur significant costs and increased radiation exposure to plant personnel without a commensurate increase in safety level. Additionally, application of this alternative would not be necessary to serve the underlying purpose of the rule, which is to

ensure that the primary containment serves as an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment.

The licensee proposed to test the MSIVs by pressurizing the space between the MSIVs at about one-half of the peak post-accident pressure to avoid lifting the disc of the inboard valve. This approach ensures a satisfactory test of the outboard MSIV in the same direction as under LOCA conditions to confirm that the leakage rate is within the leakage limit. Also, as shown in Figure 6.2-3 of the Oyster Creek UFSAR, the primary containment pressure following a LOCA reaches its peak within 2 to 3 seconds, and rapidly drops below 20 psig. Therefore, the NRC staff finds the licensee's proposed test pressure to be acceptable.

The NRC staff has previously approved testing of MSIVs at reduced pressure at many other boiling-water reactor plants (see examples cited in the licensee's application). Industry experience in testing these valves at a pressure in the range of 20 psig and with an acceptance criterion of approximately 11.9 scfh has been shown to be effective in determining the condition of these valves. Also, the measured MSIV leakage rates will continue to be added to the summation of all Type B and Type C leakage rates, which must be less than 0.60 L_a, and the MSIVs will continue to be tested as part of the Type A tests.

Based on the above evaluation, the NRC staff finds the proposed amendment to be acceptable.

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 7518). 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 Contributor: J. Pulsipher

Date: November 2, 2004

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