

August 21, 2000

Mr. Ronald DeGregorio  
Vice President Oyster Creek  
AmerGen Energy Company, LLC  
P.O. Box 388  
Forked River, NJ 08731

SUBJECT: OYSTER CREEK NUCLEAR GENERATING STATION - ISSUANCE OF  
AMENDMENT RE: RELIEF VALVE POSITION INDICATION SYSTEM  
(TAC NO. MA9548)

Dear Mr. DeGregorio:

The Commission has issued the enclosed Amendment No. 214 to Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station, in response to your application dated July 21, 2000.

The amendment revises the Technical Specifications to remove a shutdown requirement with regard to the relief valve position indication system in Section 3.13 of the Technical Specifications.

On the date of July 21, 2000, application, GPU Nuclear, Inc. (GPUN) was the licensed operator for Oyster Creek. On August 8, 2000, GPUN's ownership interest in Oyster Creek was transferred to AmerGen Energy Company, LLC (AmerGen). By letter dated August 10, 2000, AmerGen requested that the Nuclear Regulatory Commission continue to review and act upon all requests before the Commission, which had been submitted by GPUN. Accordingly, the staff has completed its review of the requested amendment.

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/*

Helen N. Pastis, 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. 214 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. 214  
License No. DPR-16

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by GPU Nuclear, Inc. et al., dated July 21, 2000, as adopted by AmerGen Energy Company, LLC, (the licensee) pursuant to a letter dated August 10, 2000, 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. 214, 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/*

Marsha Gamberoni, 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 21, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 214

FACILITY OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

Replace the following pages of the 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

3.13-1

3.13-5

Insert

3.13-1

3.13-5

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 214

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 July 21, 2000, GPU Nuclear, Inc. submitted a request for changes to the Oyster Creek Nuclear Generating Station Technical Specifications (TSs).

The requested changes would revise the TSs to remove a shutdown requirement with regard to the relief valve position indication system in Section 3.13 of the TSs. Specifically, the current TSs 3.13.A.2 and 3 state that:

2. With the number of OPERABLE accident monitoring instrumentation channels less than the Total Number of Channels shown in Table 3.13.1, either restore the inoperable channels to OPERABLE status within 7 days, or place the reactor in the SHUTDOWN CONDITION within the next 24 hours.
3. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels Operable requirements of Table 3.13.1, either restore the inoperable channel(s) to the OPERABLE status within 48 hours, or place the reactor in the SHUTDOWN CONDITION within the next 24 hours.

The licensee proposes to revise 3.13.A.2 to state that:

2. With no accident monitoring instrumentation operable for a relief valve as specified in Table 3.13.1, either restore any inoperable channel to operable status within 7 days, or place the reactor in the SHUTDOWN condition within the next 24 hours. If only the primary\* detector or the backup\*\* indicator on a relief valve becomes inoperable, no action is required. The provisions of 3.0.A do not apply.

The licensee proposes to delete 3.13.A.3 and to delete the minimum number of channels operable for the relief valve position indicator from Table 3.13.1 on TS page 3.13-5. The licensee asked that the proposed amendment be considered under exigent conditions because Oyster Creek is currently operating under a Notice of Enforcement Discretion (NOED) and needs the amendment to prevent shutdown of Oyster Creek.

On the date of the July 21, 2000, application, GPU Nuclear, Inc. (GPUN) was the licensed operator for Oyster Creek. On August 8, 2000, GPUN's ownership interest in Oyster Creek was transferred to AmerGen Energy Company, LLC (AmerGen). By letter dated August 10, 2000, AmerGen requested that the Nuclear Regulatory Commission continue to review and act upon all requests before the Commission which had been submitted by GPUN. Accordingly, the staff has completed its review of the requested amendment.

On July 19, 2000, the NRC staff exercised discretion not to enforce compliance with the actions required in the TSs as it applies to the "A" electromagnetic relief valve (EMRV) acoustic monitors. The TSs require that a certain number of channels of the acoustic monitors be operable or shut down the reactor. Specifically, 1 out of the 5 EMRVs had both the primary and installed spare inoperable. The acoustic monitors help to indicate a stuck-open relief valve. Oyster Creek has thermocouples, as well as other methods, as a backup indication. Oyster Creek was operating at 100 percent power. Repair of the inoperable acoustic monitors would require shutdown and de-inerting the containment to allow containment entry to repair the acoustic monitor failed components. Oyster Creek offered for compensatory measures to provide specific training on the acoustic monitors and applicable procedures, and to conduct pre-shift briefings to alert operations personnel of the circumstances relating to the EMRV acoustic monitors and NOED provisions.

On July 21, 2000, the staff issued its letter on the NOED and stated that in evaluating the licensee's request it determined that the risks are small when compared with the risks associated with an unnecessary plant transient (shutdown and subsequent restart) which would be necessary to comply with the TS requirements. The staff determined that an adequate safety basis exists for approval of the requested NOED and that adequate compensatory measures have been proposed by the licensee.

## 2.0 EVALUATION

Technical Specification Section 3.13, Table 3.13.1 (relief valve position indication primary detectors) applies to the EMRV acoustic monitors. TS 3.13.A.3 requires that with the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels Operable requirements of Table 3.13.1, either restore the inoperable channel(s) to the OPERABLE status within 48 hours, or place the reactor in the SHUTDOWN CONDITION within the next 24 hours. Additionally, TS 3.13.A.2 requires that with the number of OPERABLE accident monitoring instrumentation channels less than the Total Number of Channels shown in Table 3.13.1, either restore the inoperable channel(s) to the OPERABLE status within 7 days, or place the reactor in the SHUTDOWN CONDITION within the next 24 hours.

The proposed revisions to TS 3.13.A.2 and 3 and Table 3.13.1 would remove a 48-hour shutdown requirement associated with the acoustic monitors on the EMRVs. The acoustic monitors provide an indication that an EMRV has closed after opening. This is an indication

only, and provides no safety function. The requirement to have and maintain the EMRV Relief Valve Position Indicators will still be a part of the Plant TSs and the Updated Final Safety Analysis Reports. Additionally, Section 3.13.C of the TSs will still require that any inoperable EMRV position indicator be repaired prior to startup following the next cold shutdown after its failure. The EMRV primary and backup indication systems will continue to meet the basis of the TSs after the Limiting Condition for Operation (LCO) requirements for the Acoustical Monitoring System have been changed.

The exigent need for the TS Change Request was a result of failed plant equipment. Realizing that the acoustic monitors could require a plant shutdown on short notice, Oyster Creek had previously installed spare monitors on all five EMRVs. It was believed that the redundancy of the components in the drywell would increase the reliability of the instrumentation. This is the first time in Oyster Creek history that both acoustic monitors on one EMRV were inoperable and unable to be repaired.

On March 29, 2000, the primary "A" EMRV acoustic monitor failed its surveillance test and was declared inoperable. The backup acoustic monitor was placed in service. On July 17, 2000, the "A" EMRV backup acoustic monitor failed its surveillance test and was declared inoperable by Oyster Creek control room personnel at 7:15 p.m. TS 3.13.A.3 allows 48 hours to return the "A" EMRV acoustic monitor to OPERABLE status or the reactor shall be placed in the SHUTDOWN CONDITION within the next 24 hours. The licensee's investigation of the cause of the acoustic monitor failure determined the problem to be with acoustic monitor system components inside containment which would require a plant shutdown and containment entry to repair. The problem appears to be due to a loss of accelerometer resonant frequency. Troubleshooting confirmed that this was not a problem with the control room electronics and is similar to the cause of the March 29, 2000, failure. Vendor support helped determine the cause of the primary acoustic monitor failure to be either the accelerometer, the intervening cable or the connection of the intervening cable, and the cause of the backup acoustic monitor failure to be a bad connection of the cable or slow degradation of the line driver. These components are all located in the drywell. The licensee requested enforcement discretion from the requirements of TSs 3.13.A.2 and 3 and Table 3.13.1 Item 1 (primary detectors) as they apply to the "A" EMRV to allow continued operation of the plant in this degraded condition. Repair of the inoperable acoustic monitors would require shutdown to COLD SHUTDOWN and de-inerting the containment to allow containment entry to repair the acoustic monitor failed component(s). Because the failed components are located in the drywell, the definitive root cause cannot be determined until a drywell entry can be made.

On July 17, 2000, the "A" EMRV acoustic monitor failed its surveillance test and was declared inoperable, and a 48-hour, TS Limiting Condition of Operation clock started. That is, TS 3.13.A.3 for relief valve position indication (primary detectors) for the "A" EMRV required restoration of the inoperable channels to OPERABLE status within 48 hours (1:15 p.m. on July 19, 2000), or place the reactor in a SHUTDOWN CONDITION within the next 24 hours. On July 19, 2000, the NRC staff exercised discretion not to enforce compliance with the actions required in the TSs as it applies to the "A" EMRV acoustic monitors.

The requirement for the EMRV position indication system originated in NUREG-0737, Item II.D.3, "Direct Indication of Relief and Safety Valve Position." By letter dated May 8, 1980, the NRC accepted the design of the systems at Oyster Creek. The requirement to have and

maintain a monitoring system to determine relief valve position is being maintained in the TSs. The change being made only involves the LCOs associated with the EMRV position indication system (acoustic monitors and thermocouple indicators).

In NUREG-0783, "Suppression Pool Temperature Limits for BWR Containments," a postulated stuck open relief valve (SORV) transient was analyzed to verify that the maximum pool temperature remains below the quencher instability temperature. The SORV analysis assumes that the operator will take actions to trip the reactor, initiate suppression pool cooling and initiate reactor depressurization in accordance with the TSs. The suppression pool temperature monitoring system provides the operator with safety grade, redundant pool temperature information from which to take actions in accordance with the Emergency Operating Procedures (EOP) and TSs. The EMRV Position Indication System does not affect the ability of the operator to obtain pool temperature information and no credit was taken for the position indicators when the Oyster Creek analysis for an SORV was performed. The suppression pool bulk temperature provides the necessary information to take actions that are consistent with NUREG-0783 pool temperature analysis. The Oyster Creek analysis indicates that the maximum pool temperature complies with the NUREG-0783 guidance. Therefore, operation with one or more failed EMRV position indications has no adverse impact on the containment SORV analysis.

The acoustic monitors associated with the EMRVs have no effect on the operation of the EMRVs, and have no impact on the probability of EMRV malfunction. They are the primary means of detecting EMRV position but not the only means. Alternate indications of an open EMRV exist including;

- Position of the DC actuation solenoid for each EMRV is available in the control room,
- EMRV tailpipe temperatures, and common discharge header temperatures,
- Suppression pool temperature and level,
- Reactor vessel level and pressure,
- Decrease in generator loads for the same reactor thermal output, and
- Steam flow/feed flow mismatch

At Oyster Creek, the operator is provided with an indication independent from the acoustic monitor to display when the demand for valve opening/closing is present. The procedures also direct the operators what action to take. All of these indications would provide adequate indication for prompt operator action should an EMRV fail to reseal after cycling open or spuriously opening below its nominal set pressure. Operator training at Oyster Creek includes monitoring and evaluation of the additional indications that an EMRV is open.

In the event that the primary or backup indicator for one or more EMRV is inoperable, procedures controlling Plant operation would not be affected. Determination that an EMRV has failed open is controlled by an Abnormal Event Operating Procedure that uses many diverse indications to determine if an EMRV is open.

In the event it is determined that an EMRV is open and cannot be closed, a reactor Scram would be initiated and the Plant EOPs would be entered, if required.

In the EOPs, the position of the EMRVs is important for two different reasons:

1. A stuck open EMRV is a primary coolant boundary degradation

This determination is important with regards to controlling the heat addition to the Primary Containment since an SORV is a loss-of-coolant accident. Thus, it is important that the operator be able to determine if any EMRV is stuck open. As discussed above, several means exist for determining if an EMRV is open, of which the acoustical monitor is only one. Temperature indications of the combined EMRV downcomers are available to the operators, who are trained to use these indications as a backup to the acoustical monitors.

2. Verification that an EMRV is open

It is also important to be able to determine how many EMRVs are open when it is required to use them for Reactor Pressure Vessel (RPV) pressure control. Several conditions require the EMRVs to be used as the primary means of controlling and reducing RPV pressure and actions in the EOPs are predicated on how many EMRVs can be opened. Again the operators can use alternate methods for determining how many and which EMRVs are open. The EOPs do not dictate a specific means for this determination and the operators are trained to use all available means for making this and other determinations required by the EOPs.

In the event that an EMRV cannot be verified to be open when required, the EOPs will assume that the valve is closed and direct actions that are conservative with regards to pressure control in the RPV.

Based on the fact that the relief valve position monitors are for indication only and do not provide a safety function, the availability of alternate indication of an open EMRV, and the ability of the operators to take prompt operator action following an EMRV failure, the staff concludes that the proposed revisions to the TSs are acceptable.

### 3.0 EXIGENT CIRCUMSTANCES

The licensee states that exigent circumstances pursuant to 10 CFR 50.91 exist with respect to the need for consideration of the proposed amendment. The exigent need for the proposed amendment was a result of failed plant equipment on July 17, 2000. On July 19, 2000, as supplemented on July 20, 2000, the licensee requested that the NRC issue a NOED. Realizing that the acoustic monitors could require a plant shutdown on short notice, Oyster Creek had previously installed spare monitors on all five EMRVs. The licensee believed that the redundancy of the components in the drywell would increase the reliability of the instrumentation to reasonable levels. This is the first time in Oyster Creek history that both sensors on one EMRV were inoperable and unable to be repaired. On July 21, 2000, the NRC staff issued a NOED. NRC Inspection Manual, Part 9900, Notice of Enforcement Discretion, Section C.4 states that for a NOED lasting longer than 2 weeks, an exigent amendment should be issued within 4 weeks of the NOED. Based on the above, the NRC staff has determined that the licensee has used best

efforts to make a timely application and that exigent circumstances are present which warrant processing the requested amendment pursuant to 10 CFR 50.91(a)(6).

#### 4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any previously evaluated; or (3) involve a significant reduction in a margin of safety.

The following evaluation, by the licensee and with which we agree, demonstrates that the proposed amendment does not involve a significant hazards consideration.

The proposed change has been evaluated against the standards in 10 CFR 50.92 and has been determined to not involve a significant hazards consideration, in that operation of the facility in accordance with the proposed amendments does not:

1. Involve a significant increase in the probability [or consequences] of an accident previously evaluated; (or)

This proposal will not increase the probability of occurrence or consequences of an accident previously evaluated in the SAR [Safety Analysis Report]. The EMRV Position Indication System does not affect the operation of the EMRVs. No failure of the Position Indication System can affect the ability of these valves to perform their design functions or result in any condition where operation of one or more EMRVs is required. Failure of the Position Indication System to actuate in the event of an actual valve actuation does not affect the consequences of that event.

During an event when an EMRV malfunctions (SORV [stuck open relief valve]) there are alternate indications available to the operator to indicate the malfunction of the valve in the event that the Position Indication System fails. EMRV tail pipe temperature rise above normal levels is a reliable indication of EMRV actuation and a reliable indication of closure. The probability of a stuck open EMRV (SORV) Event is not affected by the lack of position indication for the EMRV. The ability to detect the stuck open EMRV condition is adequately covered by backup indication or secondary (e.g. RPV [reactor pressure vessel] level, RPV pressure, and suppression pool temperature) indicators, and will not result in an increase in the probability or consequences of an accident previously evaluated. Operators will be able to determine that a SORV has occurred and procedures are in place to mitigate this condition that do not depend on the EMRV acoustical monitoring system for indication.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated; (or)

This proposal does not create the possibility for an accident or malfunction of a different type than any previously identified in the SAR. The EMRV Position Indication System performs no

control or protective function. It only provides an indirect indication of valve position. Failure of this device will not cause an unanalyzed failure of an engineered safety feature. Because of the diverse and redundant indications available, failure of the position indication system will not cause a new accident, nor will it cause the operator to commit errors to create the possibility of a new or different type of accident. This proposal does not affect the method of operation or maintenance or surveillance requirements of the EMRV position indication system, only the LCOs associated with the EMRV position indication system.

3. Involve a significant reduction in a margin of safety

This change does not reduce the margin of safety of any Technical Specification. Operating without one of the two position indicators for an EMRV does not reduce the design or operating basis margin to safety. In the unlikely event of an SORV, sufficient backup indication is available to identify and mitigate the occurrence. The SORV analysis assumes that operator action is taken on bulk suppression pool temperature (including a time delay) and does not credit any operator actions initiated as a result of operation of the position indicator system.

Existing plant procedures provide sufficient guidance for detecting this condition and taking appropriate actions to mitigate an effect on continued safe operation. Thus, the proposed change does not involve a reduction in a margin of safety.

## 5.0 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.

## 6.0 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 made a final finding that the amendment involves no significant hazards consideration 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.

## 7.0 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: H. N. Pastis

Date: August 21, 2000

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AmerGen Energy Company, LLC

cc:

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