

November 30, 1994

Mr. John J. Barton  
Vice President and Director  
GPU Nuclear Corporation  
Oyster Creek Nuclear Generating Station  
Post Office Box 388  
Forked River, NJ 08731

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. M89845)

Dear Mr. Barton:

The Commission has issued the enclosed Amendment No. 174 to Facility Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station, in response to your application dated July 8, 1994, as supplemented October 10, 1994.

The amendment revises Technical Specification Section 2.3.P(2) safety limit to raise the degraded voltage setpoint from 3671 volts to 3840 volts, and to revise the allowable setpoint range from  $\pm 1\%$  to +20V, -40V.

A copy of the related Safety Evaluation is enclosed. Also enclosed is the Notice of Issuance which has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Original signed by:

Alexander W. Dromerick, Senior Project Manager  
Project Directorate I-4  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-219

- Enclosures:
1. Amendment No. 174 to DPR-16
  2. Safety Evaluation
  3. Notice of Issuance cc w/encls: See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

November 30, 1994

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Sincerely,

A handwritten signature in cursive script that reads "Alexander W. Dromerick".

Alexander W. Dromerick, Senior Project Manager  
Project Directorate I-4  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-219

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2. Safety Evaluation  
3. Notice of Issuance  
cc w/encls: See next page

Mr. John J. Barton  
Vice President and Director

Oyster Creek Nuclear  
Generating Station

cc:

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



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

GPU NUCLEAR CORPORATION

AND

JERSEY CENTRAL POWER & LIGHT COMPANY

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 174  
License No. DPR-16

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by GPU Nuclear Corporation, et al. (the licensee), dated July 8, 1994, as supplemented October 10, 1994, 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. 174, are hereby incorporated in the license. GPU Nuclear Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance, to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Phillip F. McKee, Director  
Project Directorate I-4  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: November 30, 1994

ATTACHMENT TO LICENSE AMENDMENT NO.174

FACILITY OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

Replace the following page of the Appendix A Technical Specifications with the enclosed page as indicated. The revised page is identified by amendment number and contains vertical lines indicating the areas of change.

Remove

2.3-3

Insert

2.3-3

<u>FUNCTION</u>	<u>LIMITING SAFETY SYSTEM SETTINGS</u>
K. Reactor Low-Low Water Level, Core Spray Initiation	$\geq 7'2''$ above the top of the active fuel
L. Reactor Low-Low Water Level, Isolation Condenser Initiation	$\geq 7'2''$ above the top of the active fuel with time delay $\leq 3$ seconds
M. Turbine Trip, Scram	10 percent turbine stop valve(s) closure from full open
N. Generator Load Rejection, Scram	Initiate upon loss of oil pressure from turbine acceleration relay
O. Recirculation Flow, Scram	$\leq 71.4$ Mlb/hr (117% of rated flow)
P. Loss of Power	
1) 4.16 KV Emergency Bus Undervoltage (Loss of Voltage)	0 volts with 3 seconds $\pm$ 0.5 seconds time delay
2) 4.16 KV Emergency Bus Undervoltage (Degraded Voltage)	3840 (+20V, -40V) volts 10 $\pm$ 10% (1.0) second time delay

Bases:

Safety limits have been established in Specifications 2.1 and 2.2 to protect the integrity of the fuel cladding and reactor coolant system barriers, respectively. Automatic protective devices have been provided in the plant design for corrective actions to prevent the safety limits from being exceeded in normal operation or operational transients caused by reasonably expected single operator error or equipment malfunction. This Specification establishes the trip settings for these automatic protection devices.

The Average Power Range Monitor, APRM<sup>(1)</sup>, trip setting has been established to assure never reaching the fuel cladding integrity safety limit. The APRM system responds to changes in neutron flux. However, near the rated thermal power, the APRM is calibrated using a plant heat balance, so that the neutron flux that is sensed is read out as percent of the rated thermal power. For slow maneuvers, such as those where core thermal power, surface heat flux, and the power transferred to the water follow the neutron flux, the APRM will read reactor thermal power. For fast transients, the neutron flux will lead the power transferred from the cladding to the water due to the effect of the fuel time constant. Therefore, when the neutron flux increases to the scram setting, the percent increase in heat flux and power transferred to the water will be less than the percent increase in neutron flux.

The APRM trip setting will be varied automatically with recirculation flow, with the trip setting at the rated flow of  $61.0 \times 10^6$  lb/hr of greater being 115.7% of rated neutron flux. Based on a complete evaluation of the reactor dynamic performance during normal operation as well as expected maneuvers and the various mechanical failures, it was concluded that sufficient protection



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 174

TO FACILITY OPERATING LICENSE NO. DPR-16

GPU NUCLEAR CORPORATION AND

JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

During the electrical distribution functional inspection (EDSFI), a Nuclear Regulatory Commission (NRC) inspection team found that undervoltage protection for degraded grid voltage was not adequate to ensure that accident mitigating equipment would get sufficient voltage to perform their safety function. By letter dated July 8, 1994, as supplemented October 10, 1994, GPU Nuclear Corporation (licensee) requested a revision to the Technical Specification to change the degraded voltage relay setpoints from 3671 volts (88.5% of 4160V) to 3840 volts (92.3% of 4160V), and to revise the allowable setpoint range from  $\pm 1\%$  to +20V, -40V. The revised setpoint tolerance values in volts represents a range of +0.5%, -1.0% compared to the existing setpoint tolerance range of  $\pm 1\%$ . The current Technical Specification degraded voltage time delay setting of  $10 \pm 10\%$  seconds is not changed.

The setpoint change is being proposed in conjunction with modifications to the 480V system, and some related field testing and verification at the 120V level is ongoing. The staff requested some additional information which was provided by a letter on October 10, 1994. The licensee has committed that any additional modifications identified will be completed by the end of the next refueling outage. Because of this ongoing work, the licensee has also proposed some administrative controls to be used in the interim until the final system modifications are completed.

2.0 EVALUATION

The licensee reanalyzed the electrical distribution system to determine the voltage available at the terminals of required Class 1E ac electrical equipment by using DAPPER computer program. The analysis included determining the running and starting voltages for the 4160V and 480V equipment, voltages for motor starter pickup and dropout, and available voltages at the terminals

of 120V equipment. The evaluation utilized updated power and control cable lengths for 480V and 120V Class 1E equipment, and reflected the current electrical configuration of the plant and consideration of the impact of planned modifications at the 480V level.

The licensee's proposed setpoint of 3840V (92.3% of 4160V) at the 4.16kV bus results in voltages higher than the motor starter pickup value (85%) at the 480V level. At the proposed setpoint, and with the 480V modifications, all equipment at the 4160V and 480V level will operate at voltages above the minimum required.

The licensee has verified the base model for DAPPER computer program against field measurements. The field testing is ongoing during the current outage to verify 120V system voltage drops and current values. Measured voltage and current values will be compared to analysis assumptions. Any modifications to these 120V circuits identified as a result of this reanalysis are to be completed by the end of next refueling outage.

The revised setpoint for the degraded voltage relay includes the relay drift, potential transformer inaccuracy, and calibration tolerances, plus an additional safety margin.

The staff has determined that the revised degraded voltage setpoint will improve the level of protection for the safety related electrical equipment from loss of capability in the event of a sustained degraded voltage condition. However, based on the conservative assumptions used in the analysis (with respect to degraded grid voltage and a LOCA), the increased setpoint would not protect some electrical equipment at the 480V and 120V levels. Therefore, the licensee is performing modifications, additional analysis and field measurements to establish appropriate final resolutions for this equipment. They have committed that any modifications resulting from the final resolutions will be completed by the end of the next refueling outage.

As added protection for this equipment, until the final implementation of all needed modifications, the licensee has established interim administrative controls to monitor the 4.16kV bus voltages and ensure that bus voltage is 4100V or greater and to take corrective actions as necessary to improve voltages and ensure that the 120V vital loads are powered from regulated sources.

These interim controls, combined with the low probability of the postulated worst case conditions, provide reasonable assurance that the 480V and 120V components will have adequate voltage to perform their safety function in the interim.

Based on the above evaluation, the staff concludes that the revised degraded voltage setpoint and administrative controls will provide adequate protection from the adverse effects of sustained degraded voltages in the interim and are, therefore, acceptable. In addition, the staff concludes that the revised degraded voltage setpoint and the implementation of the identified

modifications will ensure adequate voltage to all required safety related equipment under postulated worst case conditions for the longer term, and this is, therefore, acceptable for the final resolution.

### 3.0 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.

### 4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 51.32, and 51.35, an environmental assessment and finding of no significant impact have been prepared and published in the Federal Register on November 17, 1994 (59 FR 59443). Accordingly, based upon the environmental assessment, the staff has determined that the issuance of the amendment will not have a significant effect on the quality of the human environment.

### 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: N. K. Trehan

Date: November 30, 1994

UNITED STATES NUCLEAR REGULATORY COMMISSIONGPU NUCLEAR CORPORATIONDOCKET NO. 50-219NOTICE OF ISSUANCE OF AMENDMENT TOFACILITY OPERATING LICENSE

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. 174 to Facility Operating License No. DPR-16 issued to GPU Nuclear Corporation, which revised the Technical Specifications for operation of the Oyster Creek Nuclear Generating Station located in Ocean County, New Jersey. The amendment is effective as of the date of issuance.

The amendment revises the Technical Specification Section 2.3.P(2) safety limit to raise the degraded voltage setpoint from 3671 volts to 3840 volts, and to revise the allowable setpoint range from  $\pm 1\%$  to +20V, -40V.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on July 25, 1994 (59 FR 37787). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of the amendment will not have a significant effect on the quality of the human environment (59 FR 59443).

For further details with respect to the action see (1) the application for amendment dated July 8, 1994, and supplemented October 10, 1994, (2) Amendment No. 174 to License No. DPR-16, (3) the Commission's related Safety Evaluation, and (4) the Commission's Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street NW., Washington, DC, and at the local public document room located at the Ocean County Library, Reference Department, 101 Washington Street, Toms River, NJ 08753.

Dated at Rockville, Maryland, this 30th day of November 1994.

FOR THE NUCLEAR REGULATORY COMMISSION



Alexander W. Dromerick, Sr. Project Manager  
Project Directorate I-4  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation



# Nuclear

**GPU Nuclear Corporation**  
Post Office Box 388  
Route 9 South  
Forked River, New Jersey 08731-0388  
609 971-4000  
Writer's Direct Dial Number:

C321-94-2150  
October 10, 1994

U. S. Nuclear Regulatory Commission  
Att: Document Control Desk  
Washington, DC 20555

Gentlemen:

Subject: Oyster Creek Nuclear Generating Station  
Docket No. 50-219  
Facility Operating License No. DPR-16  
Response to Request for Additional Information - Technical  
Specification Change Request No. 219

This letter confirms our discussion via teleconference on September 14, 1994 regarding Technical Specification Change Request (TSCR) No. 219, submitted to NRC on July 8, 1994 (C321-94-2089).

The revised degraded voltage setpoint coupled with interim administrative controls will protect required engineered safety features equipment from the adverse affects of degraded grid voltages. As stated in TSCR No. 219, administrative controls exist to provide adequate protection for 480V and 120V circuits. These administrative controls will remain until appropriate modifications can be completed. Modifications to the 480V system components identified in TSCR No. 219 which require a plant shutdown will be completed by the end of the current 15R refueling outage. Other modifications will be completed in conjunction with the implementation of the requested change to the Technical Specifications.

Additional field testing is ongoing during the 15R outage to verify 120V System voltage drops and current values. Measured voltage and current values will be compared to analysis assumptions. Any modifications to these 120V circuits identified as a result of this reanalysis are planned to be completed no later than the end of the 16R outage consistent with the Long Range Planning Program. Upon completion of the above noted 480V System modifications and possible 120V System modifications, the revised degraded voltage setpoint will ensure adequate voltage to required engineered safety features equipment under worst case postulated conditions.

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The postulated worst case bus loading for a single onsite power distribution train was conservatively utilized as the basis for calculating the degraded voltage relay setpoint. This assumption is consistent with the design basis of the OCNCS onsite electrical distribution system as described in OC Final Safety Analysis Report (FSAR) Section 8.3.1, and satisfies the intent of 10 CFR 50, Appendix A, General Design Criteria regarding electrical power systems. The basis for the worst case loading on each train assumes that only one of the two power trains is available during the accident scenario. Therefore, the remaining train must carry all the loads necessary for safe shutdown. The electrical distribution system was mathematically modeled using the DAPPER computer program. Each train was analyzed separately to determine which was more heavily loaded. Considering the worst case loading condition on the 4160V bus, downstream voltages were computed by the DAPPER program to determine the acceptability of supplied voltages. This method provides a conservative approach to ensure that all equipment required for safe shutdown is protected at the selected UV relay setpoint.

If any additional information is required please contact us.

Sincerely,



For

J. J. Barton  
Vice President and Director  
Oyster Creek

DJD/plp

c: Administrator, Region I  
Oyster Creek NRC Project Manager  
Sr. Resident Inspector, OC  
T. J. Hutler - Mayor of Lacey Township  
K. Tosch - Director, NJ Bureau of Nuclear Engineering