

November 12, 1991

Exemption to DPR-16

Docket No. 50-219

DISTRIBUTION

Mr. John J. Barton  
Vice President and Director  
GPU Nuclear Corporation  
Oyster Creek Nuclear Generating Station  
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Dear Mr. Barton:

SUBJECT: EXEMPTION FROM CERTAIN TECHNICAL REQUIREMENTS CONTAINED IN SECTION III.G OF APPENDIX R TO 10 CFR PART 50 (TAC NO. M80548)

The Commission has issued an exemption from certain technical requirements contained in Section III.G of Appendix R to 10 CFR Part 50 in response to your letter of May 17, 1991.

By letter dated May 17, 1991, GPU Nuclear Corporation (GPUN/the licensee) requested an exemption to Section III.G of Appendix R to 10 CFR Part 50. Specifically, GPUN requested an exemption to Section III.G.2.c. GPUN requested not to provide a one hour rated fire barrier for the power cable associated with the IC-B condensate return valve V-14-37 located in the fire area RB-FZ-ID on elevation 51-'3" in the reactor building.

Based upon our review of the supporting technical information in your May 17, 1991 letter, the staff finds the licensee's exemption request to be acceptable and an exemption from the requirements of Section III.G. of Appendix R to 10 CFR Part 50 is granted. Our Safety Evaluation regarding this matter is enclosed.

The Exemption is being forwarded to the Office of Federal Register for publication.

Sincerely

/s/

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

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Enclosures

- 1. Exemption
- 2. Safety Evaluation

cc w/enclosures:  
See next page

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Mr. John J. Barton  
Oyster Creek Nuclear Generating Station

Oyster Creek Nuclear  
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cc:

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## UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of

GPU NUCLEAR CORPORATION AND  
JERSEY CENTRAL POWER & LIGHT  
COMPANY(Oyster Creek Nuclear Generating  
Station)

Docket No. 50-219

EXEMPTION

## I.

The GPU Nuclear Corporation and Jersey Central Power & Light Company (GPUN/the licensee) are the holders of Facility Operating License No. DPR-16, which authorizes operation of the Oyster Creek Nuclear Generating Station, (the facility) at steady state reactor core power levels not in excess of 1930 megawatts thermal. The license provides, among other things, that it is subject to all rules, regulations, and Orders of the Commission now or hereafter in effect.

The facility is a boiling water reactor located at the licensee's site in Ocean County, New Jersey.

## II.

On November 19, 1980, the NRC published a revised Code of Federal Regulations, Section 10 CFR 50.48 and a new Appendix R to 10 CFR Part 50 regarding fire protection features of nuclear power plants. The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains fifteen (15) subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of these 15

subsections, III.G and specifically Section III.G.2.c, is the subject of this exemption. Section III.G relates to fire protection of safe shutdown capability and the specific purpose of Section III.G.2.c is that it requires enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

### III.

By letter dated May 18, 1991, the licensee requested an exemption from the requirements of Section III.G of Appendix R to 10 CFR Part 50. Specifically the licensee requested an exemption to Section III.G.2.c to not provide a one hour rated fire barrier for the power cable associated with IC-B condensate return valve V-14-37 located in the fire area RB-FZ-ID on elevation 51'-3" in the reactor building. The basis for the requested exemption is that a fire affecting the power cable would not affect the plant's ability to achieve safe shutdown since the valve is normally open and the failure mechanism of the power cable fails open.

The staff has reviewed the licensee's request and the supporting technical information contained in the licensee's May 17, 1991 letter. Based upon our review of this information the staff finds that a single fire in fire zone RB-FZ-ID is not likely to cause valve V-14-37 to close and cause loss of ability to reopen the valve because of: (1) low combustible fuel loading in the zone, (2) automatic and manual fire suppression and automatic fire detection capability in the fire zone, (3) necessity to damage the Isolation Condenser B(IC-B) high flow logic circuit first and then power cable 12GP0816 in that sequence, and (4) location of the IC-B high flow logic circuit and power cable

12GP0816 in diagonal corners of fire zone RB-FZ-ID, separated from each other by approximately 92 feet and by the dry well structure and various non-fire rated compartment walls. On this basis, we conclude that the combination of specific damage and sequence of events is so remote that a fire would not have any affect on the plant's ability to achieve safe shutdown.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, this exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The Commission has further determined that special circumstances, as set forth in 10 CFR 50.12(a)(2)(ii), are present justifying the exemption, namely that the application of the regulation in the particular circumstances is not necessary to achieve the underlying purpose of the rule since the level of protection by the conditions discussed above meets the intent to that which could be provided by strict compliance with the provisions of Section III.G.2.C of Appendix R to 10 CFR Part 50. Accordingly, the Commission hereby grants an exemption as described in Section III above from the requirements of Section III.G of Appendix R to 10 CFR Part 50.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the human environment (56 FR 57534).

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Director  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland  
this 12th day of November, 1991

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DATE	:	:



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR EXEMPTION TO APPENDIX R, SECTION III.G

GPU NUCLEAR CORPORATION AND  
JERSEY CENTRAL POWER & LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

By letter dated May 17, 1991, the licensee (GPU Nuclear Corporation) requested an exemption from certain technical requirements in 10 CFR Part 50, Appendix R, Section III.G.2.c. for the Oyster Creek Nuclear Generating Station. The licensee is requesting to not provide a one-hour rated fire barrier to a portion of power cable 12GP0816 associated with condensate return valve V-14-37, located in the reactor building.

2.0 EVALUATION

2.1 Fire Protection

Section III.G of Appendix R to 10 CFR Part 50 (fire protection of safe shutdown capability) describes several alternative methods for protecting safe shutdown capability from the effects of fire. One of the requirements of Section III.G is to assure that at least one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control stations is free of fire damage. The method of protection described in Section III.G.2.c is to enclose one train of safe shutdown cables and equipment in a fire barrier having a one hour fire resistance rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the area. The licensee has requested an exemption from the requirement of Section III.G.2.c to provide a one-hour rated fire barrier for a portion of power cable 12GP0816 which is located in fire zone RB-FZ-1D, in the reactor building at elevation 51'3". This portion of power cable is routed in conduit within this zone and supplies power to condensate return valve V-14-37 associated with the isolation condenser "B" (IC-B). This valve is required to be open during normal operation and safe shutdown. The IC-B high flow logic circuit, which can also control the position of the condensate return valve, is also located in this fire zone.

Valve V-14-37 can be opened and/or closed either (1) by the IC-B high flow logic circuit or (2) from the control room. The high flow logic circuit, if damaged, can cause the valve to close. Separate power and control circuits provide the capability to reopen the valve from the control room. All of those power and

control circuits from the control room are protected by a one-hour fire barrier except the portion of power cable 12GP0816 located in fire zone RB-FZ-1D. In the event the power cable is damaged the ability to control the valve is lost. The power cable failure mechanism is designed to have the valve remain in the same position it was in at the time of failure. Therefore, only if a fire first damaged the IC-B high flow logic circuit causing the valve to close and the fire subsequently damaged the power circuit to valve V-14-37 would this valve be closed and the ability to reopen it lost. However, if the power cable 12GP0816 is damaged first, valve V-14-37 will fail open and subsequent damage to the IC-B high flow logic circuit would have no effect on that valve.

Fire Zone RB-FZ-1D surrounds the primary containment. The IC-B high flow logic circuit is located in one quadrant of fire zone RB-FZ-1D while power cable 12GP0816 is located in the diagonal quadrant of the zone. They are separated from each other by a distance of approximately 92 feet and by the dry well structure and various non-fire rated compartment walls. Fire Zone RB-FZ-1D has a fire load of 12,500 Btu/square ft. for a corresponding severity of approximately 10 minutes. The major combustible materials in this zone are cables in a tray. An automatic deluge water spray system for 100% tray coverage is provided in this zone, as well as an automatic detection system which covers approximately 90% of the zone. Manual hose station capability and portable fire extinguishers are also provided.

Therefore, a single fire in fire zone RB-FZ-1D is not likely to cause valve V-14-37 to close and cause loss of ability to reopen the valve because of the combination of:

- o low combustible fuel loading in the zone;
- o automatic and manual fire suppression and automatic fire detection capability in the zone;
- o necessity of sequence to first damage the IC-B high flow logic circuit and then power cable 12GP0816 only in that order; and
- o location of the IC-B high logic circuit and power cable 12GP0816 in diagonal corners of fire zone RB-FZ-1D, separated from each other by approximately 92 feet and by the dry well structure and various non-fire rated compartment walls.

## 2.2 Safe Shutdown

Hot and cold shutdown paths in the event of a fire in fire zone RB-FZ-1D are described in Oyster Creek's "Fire Hazards Analysis Reports and Appendix R, Section III.G Safe Shutdown Evaluation." The hot shutdown path for a fire in this zone requires the IC-B to be utilized to remove decay heat. The licensee stated that a fire affecting the power cable would not affect the plant's ability to achieve safe shutdown since the valve is normally open and the

failure mechanism of the power cable fails open. For the reason discussed above, the likelihood of the valve failing in a closed position without reopen capability from the control room is small.

### 3.0 CONCLUSION

Based on our evaluation we conclude that the level of protection provided by conditions described above meets the intent to that which would be provided by strict compliance with the provisions of Section III.G.2.c of Appendix R to 10 CFR Part 50. Further, we conclude that the combination of specific damage and sequence of events is so remote that a fire would not have any effect on the plant's ability to achieve safe shutdown. Therefore, the licensee's requested exemption is acceptable and we recommend that it be approved.

Principal Contributor: S. Flanders

Date: November 12, 1991