

12/17/75

Docket No. 50-219

Jersey Central Power & Light Company  
ATTN: Mr. I. R. Finfrock, Jr.  
Vice President - Generation  
Madison Avenue at Punch Bowl Road  
Morristown, New Jersey 07960

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Gentlemen:

The Commission has requested the Federal Register to publish the enclosed Notice of Proposed Issuance of Amendment to Provisional Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station. The proposed amendment includes a change to the Technical Specifications based on our letter to you dated September 25, 1975 and your response dated October 17, 1975.

These amendments would revise the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod drive mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

A copy of our Safety Evaluation relating to this proposed action was forwarded to you with our letter dated September 25, 1975.

Sincerely,

George Lear, Chief  
Operating Reactors Branch #3  
Division of Reactor Licensing

Enclosures:

1. Federal Register Notice
2. Proposed Amendment w/Proposed Technical Specification changes

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

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

JERSEY CENTRAL POWER & LIGHT COMPANY

DOCKET NO. 50-219

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No.  
License No. DPR-16

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. 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; and
  - B. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B. of Provisional License No. DPR-16 is hereby amended to read as follows:

"(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised, are hereby incorporated in the license. The license shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. "

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Karl R. Goller, Assistant Director  
for Operating Reactors  
Division of Reactor Licensing

Attachment:  
Change No.  
Technical Specifications

Date of Issuance:

ATTACHMENT TO PROPOSED LICENSE AMENDMENT

PROPOSED CHANGE TO THE TECHNICAL SPECIFICATIONS

PROVISIONAL OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

Delete existing pages 3.2-2, 3.2-6 and 4.2-1 of the Technical Specifications and insert the attached revised pages. The changed areas on the revised pages are shown by marginal lines.

Any four rod group may contain a control rod which is valved out of service provided the above requirements and Specification 3.2.A are met. Time zero shall be taken as the de-energization of the pilot scram valve solenoids.

4. Control rods which cannot be moved with control rod drive pressure shall be considered inoperable. If a partially or fully withdrawn control rod drive cannot be moved with drive or scram pressure the reactor shall be brought to a shutdown condition within 48 hours unless investigation demonstrates that the cause of the failure is not due to a failed control rod drive mechanism collet housing. Inoperable control rods shall be valved out of service, in such positions that Specification 3.2.A is met. In no case shall the number of rods valved out of service be greater than six during power operation. If this specification is not met, the reactor shall be placed in the shutdown condition.
5. Control rods shall not be withdrawn for approach to criticality unless at least three source range channels have an observed count rate equal to or greater than 3 counts per second.
6. The control rod density shall be greater than 3.5 percent during all modes of reactor operation.

#### C. Standby Liquid Control System

1. The standby liquid control system shall be operable at all times when the reactor is not shutdown by the control rods such that Specification 3.2.A is met and except as provided in Specification 3.2.C.3.
2. The standby liquid control solution shall be maintained within the volume - concentration requirement area in Figure 3.2-1 and at a temperature not less than the temperature presented in Figure 3.2-2 at all times when the standby liquid control system is required to be operable.
3. If one standby liquid control system pumping circuit becomes inoperable during the run mode and Specification 3.2.A is met the reactor may remain in operation for a period not to exceed 7 days, provided the pump in the other circuit is demonstrated daily to be operable.

#### D. Reactivity Anomalies

The difference between an observed and predicted control rod inventory shall not exceed the equivalent of one percent in reactivity. If this limit is exceeded and the discrepancy cannot be explained, the reactor shall be brought to the cold, shutdown condition by normal orderly shutdown procedure. Operation shall not be permitted until the cause has been evaluated and appropriate corrective action has been completed. The NRC shall be notified within 24 hours of this situation in accordance with Specification 6.6.B.

#### Bases:

Limiting conditions of operation on core reactivity and the reactivity control systems are required to assure that the excess reactivity of the reactor core is controlled at all times. The conditions specified herein assure the capability to provide reactor shutdown from steady state and transient conditions and

be many more than the six allowed by the specification, particularly late in the operating cycle; however, the occurrence of more than six could be indicative of a generic problem and the reactor will be shutdown. Also if damage within the control rod drive mechanism and in particular, cracks in drive internal housings, cannot be ruled out, then a generic problem affecting a number of drives cannot be ruled out. Circumferential cracks resulting from stress assisted intergranular corrosion have occurred in the collet housing of drives at several BWRs. This type of cracking could occur in a number of drives and if the cracks propagated until severance of the collet housing occurred, scram could be prevented in the affected rods. Limiting the period of operation with a potentially severed collet housing and requiring increased surveillance after detecting one stuck rod will assure that the reactor will not be operated with a large number of rods with failed collet housings. Placing the reactor in the shutdown condition inserts the control rods and accomplishes the objective of the specifications on control rod operability. This operation is normally expected to be accomplished within eight hours.

The source range monitor (SRM) system<sup>(9)</sup> performs no automatic safety function. It does provide the operator with a visual indication of neutron level which is needed for knowledgeable and efficient reactor startup at low neutron levels. The results of the reactivity accidents are functions of the initial neutron flux. The requirement of at least 3 cps assures that any transient begins at or above the initial value of  $10^{-8}$  of rated power used in the analyses of transients from cold conditions. One operable SRM channel would be adequate to monitor the approach to critical using homogeneous patterns of scattered control rods. A minimum of three operable SRM's is required as an added conservatism.

The standby liquid control system is designed to bring the reactor to a cold shutdown condition from the full power steady state operating condition at any time in core life independent of the control rod system capabilities<sup>(10)</sup>. If the reactor is shutdown by the control rod system and would be subcritical in its most reactive condition as required in Specification 3.2.A, there is no requirement for operability of this system. To bring the reactor from full power to cold shutdown sufficient liquid control must be inserted to give a negative reactivity worth equal to the combined effects of rated coolant voids, fuel Doppler, xenon, samarium, and temperature change plus shutdown margin. This requires a boron concentration of 600 ppm in the reactor. An additional 25% boron, which results in an average boron concentration in the reactor of 750 ppm, is inserted to provide margin for mixing uncertainties in the reactor. The system is required to insert the solution in a time interval between 60-120 minutes to provide for good mixing in the reactor and to override the rate of reactivity insertion due to cooldown of the reactor following the xenon peak.

The liquid control tank volume-concentration requirements of Figure 3.2-1 assure that the above requirements for liquid control insertion are met with one 30 gpm liquid control pump. The point (1937 gal, 19.6%)<sup>(11)</sup> results in the required amount of solution being inserted into the reactor is not less than 60 minutes, and therefore, defines the maximum concentration-minimum volume requirement. The point (37.57 gal, 10.3%)<sup>(11)</sup>, results in the required amount of solution being injected into the reactor is

## 4.2 REACTIVITY CONTROL

Applicability: Applies to the surveillance requirements for reactivity control.

Objective: To verify the capability for controlling reactivity.

- Specification:
- A. Sufficient control rods shall be withdrawn following a refueling outage when core alterations were performed to demonstrate with a margin of 0.25%  $\Delta k$  that the core can be made subcritical at any time in the subsequent fuel cycle with the strongest operable control rod fully withdrawn and all other operable rods fully inserted.
  - B. The control rod drive housing support system shall be inspected after reassembly.
  - C.
    1. After each major refueling outage and prior to resuming power operation, all operable control rods shall be scram time tested from the fully withdrawn position with reactor pressure above 800 psig.
    2. Following each reactor scram from rated pressure, the mean 90% insertion time shall be determined for eight selected rods. If the mean 90% insertion time of the selected control rod drives does not fall within the range of 2.4 to 3.1 seconds or the measured scram time of any one drive for 90% insertion does not fall within the range of 1.9 to 3.6 seconds, an evaluation shall be made to provide reasonable assurance that proper control rod drive performance is maintained.
    3. Following any outage not initiated by a reactor scram; eight rods shall be scram tested with reactor pressure above 800 psig provided these have not been measured in six months. The same criteria of 4.2.C.(2) shall apply.
  - D. Each partially or fully withdrawn control rod shall be exercised at least once each week. This test shall be performed at least once per 24 hours in the event power operation is continuing with two or more inoperable control rods or in the event power operation is continuing with one fully or partially withdrawn rod which cannot be moved and for which control rod drive mechanism damage has not been ruled out. The surveillance need not be completed within 24 hours if the number of inoperable rods has been reduced to less than two and if it has been demonstrated that control rod drive mechanism collet housing failure is not the cause of an immovable control rod.
  - E. Surveillance of the standby liquid control system shall be as follows:
    1. Pump operability Once/month
    2. Boron concentration determination Once/month
    3. Functional test Each refueling outage
    4. Solution volume and temperature check Once/day

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-219

JERSEY CENTRAL POWER AND LIGHT COMPANY

NOTICE OF PROPOSED ISSUANCE OF AMENDMENT

TO PROVISIONAL OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) is considering issuance of amendment to Provisional Operating License No. DPR-16 issued to Jersey Central Power & Light Company (the licensee) for operation of the Oyster Creek Nuclear Generating Station Unit 1 (the facility) located in Ocean County, New Jersey.

The amendment would revise the Technical Specifications to (1) add requirements that would limit the period of time operation can be continued with immovable control rods that could have control rod mechanism collet housing failures and (2) require increased control rod surveillance when the possibility of a control rod drive mechanism collet housing failure exists.

Prior to issuance of the proposed license amendment, the Commission will have made the findings required by the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations.

By \_\_\_\_\_, the licensee may file a request for a hearing and any person whose interest may be affected by this proceeding may file a request for a hearing in the form of a petition for leave to intervene with respect to the issuance of these amendments to the subject facility operating licenses. Petitions for leave to intervene must be filed under

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oath or affirmation in accordance with the provisions of Section 2.714 of 10 CFR Part 2 of the Commission's regulations. A petition for leave to intervene must set forth the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, and the petitioner's contentions with respect to the proposed licensing action. Such petitions must be filed in accordance with the provisions of this FEDERAL REGISTER notice and Section 2.714, and must be filed with the Secretary of the Commission, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, and to G. F. Trowbridge, Esquire, Shaw, Pittman, Potts and Trowbridge, Barr Building, 910 17th Street, N. W., Washington, D. C. 20006, the attorney for the licensee.

A petition for leave to intervene must be accompanied by a supporting affidavit which identifies the specific aspect or aspects of the proceeding as to which intervention is desired and specifies with particularity the facts on which the petitioner relies as to both his interest and his contentions with regard to each aspect on which intervention is requested. Petitions stating contentions relating only to matters outside the Commission's jurisdiction will be denied.

All petitions will be acted upon by the Commission or licensing board, designated by the Commission or by the Chairman of the Atomic Safety and Licensing Board Panel. Timely petitions will be considered to determine whether a hearing should be noticed or another appropriate order issued regarding the disposition of the petitions.

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In the event that a hearing is held and a person is permitted to intervene, he becomes a party to the proceeding and has a right to participate fully in the conduct of the hearing. For example, he may present evidence and examine and cross-examine witnesses.

For further details with respect to this action, see the Commission's letter to Jersey Central Power & Light Company dated September 25, 1975 and the attached proposed Technical Specifications and the Safety Evaluation by the Commission's staff dated September 25, 1975 and Jersey Central Power & Light Company's letter dated October 17, 1975, which are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Ocean County Library, 15 Hooper Avenue, Toms River, New Jersey 08753. ~~The~~ license amendment and the Safety Evaluation may be inspected at the above locations, and a copy may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland, this 17 day of Dec 75

FOR THE NUCLEAR REGULATORY COMMISSION

George Lear, Chief  
Operating Reactors Branch #3  
Division of Reactor Licensing

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DATE ➤	12/ 10 /75	12/ 10 /75	12/11 /75	12/ 19 /75	12/ /75