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

October 29, 1984

Posted
Amdt. 77
to DPR-16
See Correction
Letter of
11-26-84

Docket No. 50-219
LS05-84-10-034

Mr. P. B. Fiedler
Vice President and Director
Oyster Creek Nuclear Generating Station
Post Office Box 388
Forked River, New Jersey 08731

Dear Mr. Fiedler:

SUBJECT: WEIGHT LIMITATION OF THE SPENT FUEL SHIPPING CASK

Re: Oyster Creek Nuclear Generating Station

The Commission has issued the enclosed Amendment No. 77 to Provisional Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station. This amendment consists of changes to the Technical Specifications in response to your application dated August 28, 1984 and supplemented September 7, 1984.

The amendment authorizes changes to the Appendix A Technical Specifications, Section 5.3.1.E, which removes the weight limitation of the spent fuel shipping cask.

A Notice of Consideration of Issuance of Amendment to License and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing related to the requested action was published in the Federal Register on September 28, 1984 (49 FR 38400). No request for hearing and no comments were received.

A copy of our related Safety Evaluation is also enclosed. A notice of issuance pertaining to this action will appear in the Commission's next Monthly Notice publication in the Federal Register.

Sincerely,

John A. Zwolinski, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosures:
1. Amendment No. 77 to License No. DPR-16
2. Safety Evaluation

cc w/enclosures:
See next page

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

GPU NUCLEAR CORPORATION

AND

JERSEY CENTRAL POWER AND LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 77
License No. DPR-16

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by GPU Nuclear Corporation and Jersey Central Power and Light Company (the licensees) dated August 28, 1984 and supplemented September 7, 1984 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 Provisional 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. 77 , 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John A. Zwolinski, Chief
Operating Reactors Branch #5
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 29, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 77

PROVISIONAL OPERATING LICENSE NO. DPR-16

DOCKET NO. 50-219

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

Remove Page	Replace Page
5.3-1	5.3-1

5.3 AUXILIARY EQUIPMENT

5.3.1 Fuel Storage

A. Normal storage for unirradiated fuel assemblies is in critically safe new fuel storage racks in the reactor building storage vault; otherwise, fuel shall be stored in arrays which have a K_{eff} less than 0.95 under optimum conditions of moderation or in NRC-approved shipping containers.

B. The spent fuel shall be stored in the spent fuel storage facility which shall be designed to maintain fuel in a geometry providing a K_{oo} less than or equal to 0.95.

C. The fuel to be stored in spent fuel storage facility shall not exceed a maximum average planar enrichment of 3.01 w/o U-235.

D. Loads greater than the weight of one fuel assembly shall not be moved over stored irradiated fuel in the spent fuel storage facility.

E. **The spent fuel shipping cask shall not be lifted more than six inches above the top plate of the cask drop protection system. Vertical limit switches shall be operable to assure the six inch vertical limit is met when the cask is above the top plate of the cask drop protection system.**

F. The temperature of the water in the spent fuel stored pool, measured at or near the surface, shall not exceed 125°F.

G. The maximum amount of spent fuel assemblies stored in the spent fuel storage pool shall be 2600.

BASIS

The specification of K_{oo} less than or equal to 0.95 in the spent fuel storage facility assures an ample margin from criticality. Criticality analysis was performed on the poison racks to insure that a K_{oo} of 0.95 would not be exceeded. The basis for this analysis assumed an average planar lattice enrichment of 3.01 w/o U-235 and includes manufacturing tolerances.

The effects of a dropped fuel bundle onto stored fuel in the spent fuel storage facility have been analyzed. This analysis shows that the fuel bundle drop would not cause doses resulting from ruptured fuel pins that exceed 10 CFR 100 limits (1,2,3) and that dropped waste cans will not damage the pool liner.

5.3 AUXILIARY EQUIPMENT

5.3.1 Fuel Storage

A. Normal storage for unirradiated fuel assemblies is in critically-safe new fuel storage racks in the reactor building storage vault; otherwise, fuel shall be stored in arrays which have a K_{eff} less than 0.95 under optimum conditions of moderation or in NRC-approved shipping containers.

B. The spent fuel shall be stored in the spent fuel storage facility which shall be designed to maintain fuel in a geometry providing a K_{oo} less than or equal to 0.95.

C. The maximum U-235 loading in grams of U-235 per axial centimeter of fuel shall not exceed 15.6 gms U-235/cm.

D. Loads greater than the weight of one fuel assembly shall not be moved over stored irradiated fuel in the spent fuel storage facility.

E. The spent fuel shipping cask shall not be lifted more than six inches above the top plate of the cask drop protection system. Vertical limit switches shall be operable to assure the six inch vertical limit is met when the cask is above the top plate of the cask drop protection system.

F. The temperature of the water in the spent fuel storage pool, measured at or near the surface, shall not exceed 125°F.

BASIS

The specification of $K_{oo} \leq 0.95$ and the maximum U-235 loading of $\leq$ 15.6 gm U-235/cm per axial centimeter for fuel in the spent fuel storage facility assures an ample margin from criticality. Conservative assumptions and allowance for tolerances, void effects, calculational uncertainties, pool temperature effects, etc. have been considered in the derivation of these limits (1,2). Note that the 15.6 gm U-235/cm is equivalent to a 3 w/o enrichment. (7)

The 15.6 gm U-235/cm is the limit of U-235 at any plane through the assembly perpendicular to the length of the assembly. It is to assure that possible non-uniform enrichments along the length of fuel rods cannot lead to a critical condition.

The effects of a dropped fuel bundle onto stored fuel in the spent fuel storage facility has been analyzed. This analysis shows that the fuel bundle drop would not cause doses resulting from ruptured fuel pins that exceed 10 CFR 100 limits (3, 4, 5) and that dropped waste cans will not damage the pool liner.

The elevation limitation of the spent fuel shipping cask to no more than 6 inches above the top plate of the cask drop protection system prevents loss of the pool integrity resulting from postulated drop accidents. An analysis of the effects of a 100 ton cask drop from 6 inches has been done (6) which showed that the pool structure is capable of sustaining the loads imposed during such a drop. Limit switches on the crane restrict the elevation of the cask to $\leq$ 6 inches when it is above the top plate.

Superseded by correction letter of 11-26-84

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 77 TO PROVISIONAL OPERATING LICENSE NO. DPR-16

GPU NUCLEAR CORPORATION AND

JERSEY CENTRAL POWER AND LIGHT COMPANY

OYSTER CREEK NUCLEAR GENERATING STATION

DOCKET NO. 50-219

1.0 INTRODUCTION

By letter dated August 28, 1984, and supplemented September 7, 1984, GPU Nuclear Corporation (GPU) (the licensee) requested an amendment to Provisional Operating License No. DPR-16 for the Oyster Creek Nuclear Generating Station. This amendment would authorize removal of the weight limitation of the spent fuel shipping cask in Section 5.3.1.E of the Technical Specifications (TS).

A Notice of Consideration of Issuance of Amendment to License and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing related to the requested action was published in the Federal Register on September 28, 1984 (49 FR 38400). No request for hearing or public comments were received.

On October 14, 1983, a U.S. District Court, Western District of New York, issued a Partial Settlement Agreement and Order which requires GPU to return 224 spent fuel assemblies from the Nuclear Service Center in West Valley, New York to Oyster Creek. Accordingly, in preparation for receiving these fuel assemblies GPU is contracting for the use of two TN-9 spent fuel shipping casks each having a full load weight of 40.5 tons. The use of these casks would reduce the number of shipments from West Valley to 32 instead of the 114 required if the NLI 1/2 cask were utilized.

2.0 DISCUSSION AND EVALUATION

The staff has reviewed the existing Oyster Creek TS, Section 5.3.1.E, as well as the proposed change. The staff has also examined the applicability of the staff's previous findings regarding handling of the spent fuel cask as stated in the Safety Evaluation (SE) dated March 30, 1977 for Amendment 22 to the Oyster Creek License.

In the March 30, 1977 SE the staff imposed a 30-ton limitation on cask handling and stated that "movement of the 100-ton fuel cask assumed in the cask drop analyses will not be permitted until the details of the means used to limit the height to which the cask can be raised over the operating deck have been submitted by the licensee and approved by the NRC staff." Although the original analysis for the cask drop protection system had been performed by GPU using a 100-ton cask, this analysis was found acceptable by the staff only with the above condition satisfied as discussed in the March 30, 1977 SE. The licensee has proposed to use a TN-9 spent fuel shipping cask having a full load weight of 40.5 tons. The licensee has provided details of the means for limiting the height to which the cask can be raised. The design consists of redundant limit switches which will be provided to ensure that the cask will not be raised more than 6 inches above the operating deck. In addition, a "GO, NO-GO" gauge will be used to ensure the cask is at the correct height prior to movement. Specific procedures will be developed prior to use of the TN-9 cask.

The proposed change is in accordance with the criteria of SRP Section 9.1.5 and therefore, the staff concludes that the proposed change to Section 5.3.1.E of the TS is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of facility component located within the restricted area as defined in 10 CFR Part 20. The 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 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 this amendment.

4.0 CONCLUSION

The staff 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; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ACKNOWLEDGEMENT

This evaluation was prepared by A. Singh.

Dated: October 29, 1984