Mr. Harold W. Keiser
Chief Nuclear Officer & President
Nuclear Business Unit
Public Service Electric & Gas Company
Post Office Box 236
Hancocks Bridge, NJ 08038

July 21, 1999

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 ISSUANCE OF AMENDMENT RE: FUEL STORAGE CRITICALITY (TAC NOS. MA4691 AND MA4692)

Dear Mr. Keiser:

The Commission has issued the enclosed Amendment Nos. 223 and 204 to Facility Operating License Nos. DPR-70 and DPR-75 for the Salem Nuclear Generating Station, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application dated February 2, 1999, as supplemented on April 26, 1999.

These amendments revise TS 5.6, "Fuel Storage, Criticality," to change the maximum unirradiated fuel assembly enrichment value for new fuel storage from 4.5 to 5.0 weight percent Uranium-235 and to allow the use of equivalent criticality control to that provided by the current TS requirement of 2.35 milligrams of Boron-10 per linear inch loading in the Integral Fuel Burnable Absorber pins.

A copy of our safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:
Patrick D. Milano, Sr. Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosures: 1. Amendment No. 223 to License No. DPR-70
2. Amendment No. 204 to License No. DPR-75
3. Safety Evaluation

cc w/encls: See next page

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

July 21, 1999

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These amendments revise TS 5.6, "Fuel Storage, Criticality," to change the maximum unirradiated fuel assembly enrichment value for new fuel storage from 4.5 to 5.0 weight percent Uranium-235 and to allow the use of equivalent criticality control to that provided by the current TS requirement of 2.35 milligrams of Boron-10 per linear inch loading in the Integral Fuel Burnable Absorber pins.

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3. Safety Evaluation

cc w/encls: See next page

Salem Nuclear Generating Station,
Units 1 and 2

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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 223
License No. DPR-70

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

   A. The application for amendment filed by the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated February 2, 1999, as supplemented on April 26, 1999, 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 set forth in 10 CFR Chapter I;

   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-70 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 223, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: July 21, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 223

FACILITY OPERATING LICENSE NO. DPR-70

DOCKET NO. 50-272

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
5-5	5-5
----------	5-5a
5-6	5-6
5-6a	5-6a

a. In accordance with the code requirements specified in Section 4.1 of the FSAR, with allowance for normal degradation pursuant to the applicable Surveillance Requirements,

b. For a pressure of 2485 psig, and

c. For a temperature of 650°F, except for the pressurizer which is 680°F.

VOLUME

5.4.2 The total water and steam volume of the reactor coolant system is 12,446 ± 426 cubic feet at a nominal Tavg of 573°F.

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1.1 The new fuel storage racks are designed and shall be maintained with:

a. A maximum K_{eff} equivalent of 0.95 with the storage racks flooded with unborated water.

b. A nominal 21.0 inch center-to-center distance between fuel assemblies.

c. Unirradiated fuel assemblies with enrichments less than or equal to 4.25 weight percent (w/o) U-235 with no requirements for Integral Fuel Burnable Absorber (IFBA) pins.

d. Unirradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235 which contain a minimum number of Integral Fuel Burnable Absorber (IFBA) pins. This minimum number of IFBA pins shall have an equivalent reactivity hold-down which is greater than or equal to the reactivity hold down associated with N IFBA pins, at a nominal 2.35 mg B-10/linear inch loading (1.5X), determined by the equation below:

$$N = 42.67 (E - 4.25)$$

5.6.1.2 The spent fuel storage racks are designed and shall be maintained with:

a. A maximum K_{eff} equivalent of 0.95 with the storage racks filled with unborated water.

b. A nominal 10.5 inch center-to-center distance between fuel assemblies stored in Region 1 (flux trap type) racks.

c. A nominal 9.05 inch center-to-center distance between fuel assemblies stored in Region 2 (non-flux trap) racks.

d. Fuel assemblies stored in Region 1 racks shall meet one of the following storage constraints.

1. Unirradiated fuel assemblies with a maximum enrichment of 4.25 w/o U-235 have unrestricted storage.

2. Unirradiated fuel assemblies with enrichments greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235, that do not contain Integral Fuel Burnable Absorber (IFBA) pins, may only be stored in the peripheral cells facing the concrete wall.

3. Unirradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235, which contain a minimum number of Integral Fuel Burnable Absorber (IFBA) pins have unrestricted storage. This minimum number of IFBA pins shall have an equivalent reactivity hold-down which is greater than or equal to the reactivity hold down associated with N IFBA pins, at a nominal 2.35 mg B-10/linear inch loading (1.5X), determined by the equation below:

$$N = 42.67 \ (E - 4.25)$$

4. Irradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o, that have attained the minimum burnup (BU) as determined by the equation below, have unrestricted storage.

$$BU \ (MWD/kg \ U) = -26.212 + 6.1677E$$

e. Fuel assemblies stored in Region 2 racks shall meet one of the following storage constraints.

1. Unirradiated fuel assemblies with a maximum enrichment of 5.0 w/o U-235 may be stored in a checkerboard pattern with intermediate cells containing only water or non-fissile bearing material.

2. Unirradiated fuel assemblies with a maximum enrichment (E) of 5.0 w/o U-235 may be stored in the central cell of any 3x3 array of cells provided the surrounding eight cells are empty or contain fuel assemblies that have attained the minimum burnup (BU) as determined by the equation below.

$$BU \ (MWD/kg \ U) = -15.48 + 17.80E - 0.7038E^2$$

In this configuration, none of the nine cells in any 3x3 array shall be common to cells in any other similar 3x3 array. Along the rack periphery, the concrete wall is equivalent to 3 outer cells in a 3x3 array.

3. Irradiated fuel assemblies with a maximum enrichment (E) of 5.0 w/o U-235 that have attained the minimum burnup (BU) as determined by the equation below, have unrestricted storage.

   $BU\ (MWD/kg\ U) = -32.06 + 25.21E - 3.723E^2 + 0.3535E^3$

4. Irradiated fuel assemblies with a maximum enrichment (E) of 5.0 w/o U-235 that have attained the minimum burnup (BU) as determined by the equation below, may be stored in a peripheral cell facing the concrete wall.

   $BU\ (MWD/kg\ U) = -25.56 + 15.14E - 0.602E^2$

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 124'8".

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1632 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

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

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 204
License No. DPR-75

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

   A. The application for amendment filed by the Public Service Electric & Gas Company, Philadelphia Electric Company, Delmarva Power and Light Company and Atlantic City Electric Company (the licensees) dated February 2, 1999, as supplemented on April 26, 1999, 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 set forth in 10 CFR Chapter I;

   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-75 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 204 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: July 21, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 204

FACILITY OPERATING LICENSE NO. DPR-75

DOCKET NO. 50-311

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
5-5	5-5
5-5a	5-5a
5-5b	5-5b

5.5 METEOROLOGICAL TOWER LOCATION

5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.

5.6 FUEL STORAGE

CRITICALITY

5.6.1.1 The new fuel storage racks are designed and shall be maintained with:

a. A maximum K_{eff} equivalent of equal to 0.95 with the storage racks flooded with unborated water.

b. A nominal 21.0 inch center-to-center distance between fuel assemblies.

c. Unirradiated fuel assemblies with enrichments less than or equal to 4.25 weight percent (w/o) U-235 with no requirements for Integral Fuel Burnable Absorber (IFBA) pins.

d. Unirradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235 which contain a minimum number of Integral Fuel Burnable Absorber (IFBA) pins. This minimum number of IFBA pins shall have an equivalent reactivity hold-down which is greater than or equal to the reactivity hold down associated with N IFBA pins, at a nominal 2.35 mg B-10/linear inch loading (1.5X), determined by the equation below:

$$N = 42.67 \ (E - 4.25)$$

5.6.1.2 The spent fuel storage racks are designed and shall be maintained with:

a. A maximum Keff equivalent of 0.95 with the storage racks filled with unborated water.

b. A nominal 10.5 inch center-to-center distance between fuel assemblies stored in Region 1 (flux trap type) racks.

c. A nominal 9.05 inch center-to-center distance between fuel assemblies stored in Region 2 (non-flux trap) racks.

d. Fuel assemblies stored in Region 1 racks shall meet one of the following storage constraints.

1. Unirradiated fuel assemblies with a maximum enrichment of 4.25 w/o U-235 have unrestricted storage.

2. Unirradiated fuel assemblies with enrichments greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235, that do not contain Integral Fuel Burnable Absorber (IFBA) pins, may only be stored in the peripheral cells facing the concrete wall.

3. Unirradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235, which contain a minimum number of Integral Fuel Burnable Absorber (IFBA) pins have unrestricted storage. This minimum number of IFBA pins shall have an equivalent reactivity hold-down which is greater than or equal to the reactivity hold down associated with N IFBA pins, at a nominal 2.35 mg B-10/linear inch loading (1.5X), determined by the equation below:

$$N = 42.67 (E - 4.25)$$

4. Irradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o, that have attained the minimum burnup (BU) as determined by the equation below, have unrestricted storage.

$$BU \text{ (MWD/kg U)} = -26.212 + 6.1677E$$

e. Fuel assemblies stored in Region 2 racks shall meet one of the following storage constraints.

1. Unirradiated fuel assemblies with a maximum enrichment of 5.0 w/o U-235 may be stored in a checkerboard pattern with intermediate cells containing only water or non-fissile bearing material.

2. Unirradiated fuel assemblies with a maximum enrichment (E) of 5.0 w/o U-235 may be stored in the central cell of any 3x3 array of cells provided the surrounding eight cells are empty or contain fuel assemblies that have attained the minimum burnup (BU) as determined by the equation below.

$$BU \text{ (MWD/kg U)} = -15.48 + 17.80E - 0.7038E^2$$

In this configuration, none of the nine cells in any 3x3 array shall be common to cells in any other similar 3x3 array. Along the rack periphery, the concrete wall is equivalent to 3 outer cells in a 3x3 array.

3. Irradiated fuel assemblies with a maximum enrichment (E) of 5.0 w/o U-235 that have attained the minimum burnup (BU) as determined by the equation below, have unrestricted storage.

$$BU \text{ (MWD/kg U)} = -32.06 + 25.21E - 3.723E^2 + 0.3535E^3$$

4. Irradiated fuel assemblies with a maximum enrichment (E) of 5.0 w/o U-235 that have attained the minimum burnup (BU) as determined by the equation below, may be stored in a peripheral cell facing the concrete wall.

$$BU\ (MWD/kg\ U) = -\ 25.56 + 15.14E - 0.602E^2$$

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 124'8".

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1632 fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 223 AND 204 TO FACILITY OPERATING

LICENSE NOS. DPR-70 AND DPR-75

PUBLIC SERVICE ELECTRIC & GAS COMPANY

PHILADELPHIA ELECTRIC COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-272 AND 50-311

1.0 INTRODUCTION

By letter dated February 2, 1999, as supplemented on April 26, 1999, the Public Service Electric & Gas Company (the licensee) submitted a request for changes to the Salem Nuclear Generating Station, Unit Nos. 1 and 2, Technical Specifications (TSs). The requested changes would increase the limit for the uranium-235 (U-235) enrichment of new (unirradiated) fuel stored in the new fuel storage racks. The proposed changes would allow for the storage of fuel with a maximum nominal enrichment of 5.0 weight percent (w/o) U-235, with a tolerance of +0.05 w/o, in the new fuel storage racks. The U.S. Nuclear Regulatory Commission (NRC) staff previously approved the storage of fuel assemblies with maximum enrichments of 5.0 w/o U-235 in the Salem spent fuel storage racks. The requested changes would also allow the use of equivalent criticality control to that provided by the current TS requirement of 2.35 milligrams of Boron-10 per linear inch loading in the Integral Fuel Burnable Absorber pins. Plant operation using the higher enriched fuel will be demonstrated to be acceptable by the cycle-specific reload safety evaluation performed prior to each fuel loading. The April 26, 1999, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

2.1 Background

New (fresh) fuel is normally stored dry in the new fuel racks. However, to meet the criteria stated in Section 9.1.1, "New Fuel Storage," of the NRC Standard Review Plan (SRP), k_{eff} must not exceed 0.95 with the racks fully loaded with fuel of the highest anticipated reactivity and flooded with unborated water. Furthermore, k_{eff} must be no greater than 0.98 under low-density (optimum moderation) conditions. The maximum calculated reactivity must include a margin for

uncertainties in reactivity calculations and in manufacturing tolerances such that the true k_{eff} will not exceed these limits at a 95% probability, with a 95% confidence (95/95) level.

2.2 Evaluation

The licensee performed its analysis of the reactivity effects of fuel storage in the new fuel storage racks with the NITAWL, XSDRNPM, and KENO Va methodologies using the 227 energy group neutron cross section library generated from ENDF/B-V data. The analytical methods and models used in the reactivity analysis are widely used for the analysis of fuel rack reactivity and have been benchmarked against results from numerous critical experiments. These experiments simulate the Salem storage racks as realistically as possible with respect to parameters important to reactivity such as enrichment, assembly spacing, and moderator properties. The NRC has concluded that the analysis methods used are acceptable and capable of predicting the reactivity of the Salem new fuel storage rack with a high degree of confidence.

The fuel assembly parameters used in the criticality analysis are based on the Westinghouse 17x17 Vantage 5H (V5H) fuel assembly design. However, with the simplifying assumptions employed (no grids, sleeves, axial blankets, etc.), the analysis is also appropriate for Westinghouse 17x17 Vantage+ and Performance+ assembly types. No credit was taken for any natural enrichment axial blankets, fission product buildup, spacer grids or spacer sleeves, or burnable absorbers. The NRC staff finds that these are conservative assumptions and are acceptable.

For the full density moderation analysis, the moderator was assumed to be pure water at a density of 1.0 gm/cc. All fuel rods contain uranium oxide (UO_2) at a U-235 enrichment of 4.65 w/o (nominal) and 4.70 w/o (maximum) over the entire length of each rod without integral fuel burnable absorbers (IFBAs). The calculated k_{eff} included a method bias determined from benchmark critical comparisons, a 95/95 uncertainty in the method bias, and 95/95 uncertainties arising from consideration of mechanical and material thickness tolerances. The maximum calculated k_{eff} was 0.9324. Since k_{eff} is less than 0.95, including uncertainties at a 95/95 probability/confidence level, the NRC staff's acceptance criterion for precluding criticality is met under full density water flooding conditions for storage of Westinghouse 17x17 fuel assemblies with nominal enrichments up to 4.65 w/o U-235.

For the low density, optimum moderation analysis, a fully loaded rack of fuel assemblies with nominal enrichments of 5.0 w/o U-235 (5.05 w/o maximum) was modeled. A method bias determined from benchmark critical experiments, as well as appropriate 95/95 uncertainties, were included for the low density, optimum moderation analysis. The analysis shows that for 5.05 w/o fuel, the maximum k_{eff} under low density moderation conditions of 0.9120 occurs at 0.05 gm/cc water density. Since k_{eff} is less than 0.98, including uncertainties at a 95/95 probability/confidence level, the NRC staff's acceptance criterion for precluding criticality under low-density, optimum-moderation conditions, is met.

Storage of fuel assemblies with nominal enrichments greater than 4.65 w/o U-235 is achievable by means of the concept of reactivity equivalencing. This concept is predicated upon the reactivity decrease associated with the addition of IFBAs. IFBAs consist of neutron absorbing

material applied as a thin zirconium diboride coating on the outside of the UO_2 fuel pellet. A series of IFBA rod number versus enrichment ordered pairs are generated which all yield the equivalent k_{eff} when the fuel is stored in the fresh fuel racks. The minimum Westinghouse standard boron loading is assumed as well as the standard IFBA patterns used by Westinghouse. However, since the worth of individual IFBA rods can change depending on position within the assembly, a conservative reactivity margin was included in the development of the IFBA requirement to account for this effect. The IFBA requirements also include a conservatism of approximately 10 percent on the total number of IFBA rods at the 5.0 w/o end (i.e., about 2 extra IFBA rods for a 5.0 w/o fuel assembly) to account for calculational uncertainties. The results indicate that an assembly with an initial U-235 enrichment of 4.65 w/o is equivalent to an assembly initially enriched to 5.0 w/o U-235 containing 24 IFBAs. Both satisfy the NRC staff's criterion of k_{eff} no greater than 0.95 in a fully-flooded Salem fresh-fuel storage rack.

The criticality analysis has shown that fresh fuel assemblies with enrichments less than or equal to 4.65 w/o U-235 can be stored in the new fuel storage racks without IFBA rods. Fuel assemblies with enrichments greater than 4.65 but less than 5.0 w/o U-235 must contain a number of IFBA rods (with an equivalent nominal 2.35 mg B-10 per linear inch loading). However, the current storage restrictions for the spent fuel pool allow unrestricted storage (in the spent fuel pool racks) of unirradiated fuel assemblies with a maximum U-235 enrichment of 4.25 w/o. Unirradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235 must contain IFBA rods with a nominal 2.35 mg B-10 per linear inch loading and a number of IFBA rods equal to or greater than N, where N is given by

$$N = 42.67 (E - 4.25)$$

Therefore, for consistency with the spent fuel storage requirements, this equation will be included in the amended TSs for the new fuel storage racks and will preclude the possibility of having new fuel assemblies which would not satisfy the requirements for unrestricted storage in the spent fuel pool.

2.3 Proposed TS Changes

The licensee proposed the following TS changes. Based on the evaluation presented above, the NRC staff finds these changes to be acceptable.

(1) TS 5.6.1.1.c is being modified to allow unrestricted storage in the new fuel racks of unirradiated fuel assemblies with enrichments less than or equal to 4.25 w/o U-235 and no IFBA rods.

(2) TS 5.6.1.1.d is being added to allow storage in the new fuel racks of unirradiated fuel assemblies with enrichments (E) greater than 4.25 w/o U-235 and less than or equal to 5.0 w/o U-235 which contain a minimum number of IFBA rods (N) determined by

$$N = 42.67 (E - 4.25)$$

2.4 Summary

Based on the preceding review, the NRC staff finds the criticality aspects of the proposed enrichment increase to the Salem new fuel storage racks to be acceptable and to meet the requirements of General Design Criterion 62 for the prevention of criticality in fuel storage and handling.

Although the Salem TSs have been modified to specify the above-mentioned fuel as acceptable for storage in the new fuel racks, evaluations of reload core designs (using any enrichment) will, of course, be performed on a cycle-by-cycle basis as part of the reload safety evaluation process. Each reload design is evaluated to confirm that the cycle core design adheres to the limits that exist in the accident analyses and the TSs to ensure that reactor operation is acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State official was notified of the proposed issuance of the amendments. 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 was published in the Federal Register on July 21, 1999 (64 FR 39178).

Accordingly, based upon the environmental assessment, the Commission has determined that the issuance of these amendments 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: July 21, 1999