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The Electric Generating System

ELV-00511
1445n

June 12, 1989

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

PLANT VOGTLE - UNITS 1, 2
NRC DOCKETS 50-424, 50-425
OPERATING LICENSES NPF-68, NPF-81
REVISION TO TECHNICAL SPECIFICATION 5.3.1

Gentlemen:

In accordance with the provisions of 10 CFR 50.90 and 10 CFR 50.59, Georgia Power (GPC) hereby proposes to amend the Vogtle Electric Generating Plant (VEGP) Units 1 and 2 Technical Specifications, Appendix A to Operating Licenses NPF-68 and NPF-81.

Technical Specification 5.3.1 states that reload fuel shall have a maximum enrichment not to exceed 3.5 weight percent U-235. This proposed change to the Technical Specification revises the value to 4.55 weight percent U-235. At the time that the VEGP Units 1 and 2 Technical Specifications were developed the reload fuel enrichment value was based on predicted energy requirements for 12 month operating cycles at VEGP. The revised enrichment value is requested in support of anticipated increased energy requirements for longer fuel cycles. This change is in the Design Features section of the Technical Specifications and does not involve any change to the Safety Limits, Limiting Conditions for Operation or Surveillance Requirements.

Parameters such as shutdown margin, reactivity coefficients and power peaking factors are not affected by this change. The specification of the fuel enrichment in the Design Features section alone does not uniquely determine nor limit the values of the reactor core parameters contained elsewhere in the Technical Specifications. Each reload design is evaluated to confirm that the cycle core design adheres to the limits that exist in the current accident analyses and Technical Specifications. With respect to increasing the maximum enrichment which can be stored in New Fuel or Spent Fuel Storage racks, criticality analyses have been performed to demonstrate that applicable NRC licensing criteria are met for the receipt and storage of 4.55 weight percent U-235 fuel. These analyses are discussed in Enclosure 2.

Georgia Power Company requests that the proposed change to the VEGP Units 1 and 2 Technical Specification be approved by October 1, 1989 in order to allow receipt of reload fuel for the second refueling outage of Unit 1.

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Enclosure 1 provides a detailed description of the proposed change and the circumstances necessitating the change request.

Enclosure 2 provides the bases for a determination that the proposed change does not involve significant hazards considerations.

Enclosure 3 provides instructions for incorporating the proposed change into the Technical Specifications. The proposed revised page for the combined VEGP Units 1 and 2 Technical Specifications is included with Enclosure 3.

Pursuant to the requirements of 10 CFR 50.91, the designated state official will be sent a copy of this letter and all applicable enclosures.

Mr. W. G. Hairston, III states that he is a Senior Vice President of Georgia Power Company, and is authorized to execute this oath on behalf of Georgia Power Company and that to the best of his knowledge and belief, the facts set forth in this letter and enclosures are true.

GEORGIA POWER COMPANY

By: W. G. Hairston, III
W. G. Hairston, III

Sworn to and subscribed before me this 12th day of June, 1989.

Sherry Ann Mitchell
Notary Public
MY COMMISSION EXPIRES DEC. 15, 1992

xc: Georgia Power Company
Mr. C. K. McCoy
Mr. G. Bockhold, Jr.
Mr. R. M. Odom
Mr. J. P. Kane
NORMS

U. S. Nuclear Regulatory Commission
Mr. S. D. Ebner Regional Administrator
Mr. J. B. Hopkins, Licensing Project Manager, NRR
Mr. J. F. Rogge, Senior Resident Inspector, Vogtle

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ENCLOSURE 1

PLANT VOGTLE - UNITS 1, 2
NRC DOCKETS 50-424, 50-425
OPERATING LICENSES NPF-68, NPF-81
REVISION TO TECHNICAL SPECIFICATION 5.3.1

DESCRIPTION AND BASIS FOR THE CHANGE

This proposed change to section 5.3.1 of the VEGP Units 1 and 2 Technical Specification revises the maximum reload fuel enrichment from 3.5 weight percent to 4.55 weight percent. The current value of 3.5 weight percent was chosen based on predicted energy requirements for 12 month fuel cycles. Anticipated longer cycles and improved capacity factors indicate that reload fuel of higher enrichment will be necessary.

The enrichment for reload fuel assemblies is based on the energy requirements for the cycle. The enrichment in combination with the number of reload fuel assemblies are the primary factors in determining the energy available for the subsequent cycle. The value of the enrichment does not directly affect Limiting Conditions for Operation or Safety Limits. Plant Safety during operation is assured during the evaluation of each reload design to confirm that the cycle core design will adhere to the limits of the current accident analyses and Plant Technical Specifications.

This change to the Technical Specifications is necessary before reload fuel of the anticipated higher enrichment can be received and stored in the new fuel storage area, spent fuel pool or transferred to the reactor for use.

The value of the enrichment is the primary factor in the criticality analyses in support of new and spent fuel handling and storage. The effects of this change on criticality analyses are discussed in Enclosure 2. The manufacturing tolerance for average fuel assembly enrichment is 0.05 weight percent. The proposed revision to the specification includes this tolerance, which is consistent with the criticality analyses which assumed a maximum enrichment of 4.55 weight percent (4.5 weight percent plus the 0.05 weight percent tolerance). This will assure that the description in the Technical Specification will be consistent with the as-delivered fuel.

ENCLOSURE 2

PLANT VOGTLE - UNITS 1, 2
NRC DOCKETS 50-424, 50-425
OPERATING LICENSES NPF-68, NPF-81
REVISION TO TECHNICAL SPECIFICATION 5.3.1

10 CFR 50.92 EVALUATION

In accordance with 10 CFR 50.92, the proposed amendment to the VEGP Units 1 and 2 Technical Specifications has been evaluated and it has been determined that operating the facility in accordance with the proposed amendment would not involve significant hazards considerations. The bases for this determination follows:

BACKGROUND

The development of the VEGP Units 1 and 2 Technical Specifications was based on the Westinghouse Standard Technical Specifications which include a statement of the maximum anticipated enrichment for reload fuel. A value of 3.5 weight percent was chosen for the initial Technical Specification based on anticipated energy requirements for 12 month fuel cycles and expected capacity factors. Longer fuel cycles and improved capacity factors will require reload fuel to be capable of producing increased amounts of energy. Therefore, additional enrichment is anticipated for future fuel cycles starting with cycle 3 for VEGP Unit 1.

The proposed change increases the maximum reload fuel enrichment from 3.5 weight percent to 4.55 weight percent. Fuel enrichment is not a direct input to the reactor safety analysis. It is used in conjunction with other parameters such as the number of fuel assemblies, burnup of existing fuel, burnable poisons and reload schemes to derive measurable reactor core parameters to assure that the reactor is maintained within the limits used for the safety analyses. The specification of the enrichment does not limit the values of the reactor core parameters that are used to assure that the reactor is operated within the scope of the existing safety analyses. Each reload core design is evaluated to confirm that it will remain within the accident analyses and Technical Specification limits.

The enrichment of the fuel does enter directly into criticality analyses for new fuel and spent fuel storage and handling. This requires that criticality analyses, for the new fuel storage racks, the Unit 1 spent fuel storage racks and the Unit 2 spent fuel racks, demonstrate that the NRC required limits are met with the higher enrichment. These analyses have been evaluated or reperformed in order to demonstrate that applicable NRC licensing criteria for criticality are met for storage of 4.55 weight percent U-235 fuel.

ENCLOSURE 2 (CONT'D)

10 CFR 50.92 EVALUATION

The current Technical Specification value does not include the manufacturer's enrichment tolerance. The intent of this change is to allow reload core designs to utilize design enrichments of up to 4.55 weight percent. Since the as-built fuel has a manufacturing tolerance of 0.05 weight percent, that tolerance has been included in the proposed specification and in the supporting criticality analyses.

ANALYSIS

Spent Fuel Storage

The VEGP Unit 1 Spent Fuel Storage pool has racks designed by Westinghouse. The criticality analysis for these racks were based on 4.3 weight percent U-235 as discussed in the VEGP Final Safety Analysis Report section 4.3.2.6. These racks have been reanalyzed for fuel of 4.55 weight percent. The results of the reanalysis confirmed that K_{eff} remains less than the required value of 0.95 even with the higher enriched 4.55 weight percent fuel, using either Westinghouse 17 x 17 Standard or OFA fuel assemblies. These analyses are summarized in the Westinghouse report entitled "Criticality Analysis of Vogtle Unit 1 Spent Fuel Racks" which is contained in Attachment 1 to this enclosure.

The VEGP Unit 2 Spent Fuel Storage pool has racks designed by CBI/Holtec. The criticality analysis for these racks were based on $4.55 \pm .05$ weight percent U-235 as described in the VEGP Final Safety Analysis Report section 4.3.2.6. This analysis was transmitted to the NRC by letter GN-1479 dated August 12, 1988. This analysis, which was based on the most restrictive dimensions of the as-built racks, resulted in a maximum K_{eff} of .9433 using Westinghouse 17 x 17 Standard fuel assemblies and an enrichment of $4.55 \pm .05$ weight percent U-235. A subsequent evaluation was performed with Westinghouse 17 x 17 OFA fuel assemblies and an enrichment of $4.50 \pm .05$ weight percent U-235. The results of this evaluation demonstrated that the value of K_{eff} will remain less than 0.95.

New Fuel Storage

The VEGP New Fuel Storage area, which is common to both units, was originally analyzed for new fuel enrichment of 3.5 weight percent U-235 as stated in FSAR section 4.3.2.6. The New Fuel Storage racks have been reanalyzed using 5.0 ± 0.5 weight percent U-235. This reanalysis is contained in Attachment 2 to this enclosure, and demonstrates that the value of K_{eff} remains below 0.95 (or 0.98 for optimum moderation) which is the criterion established by ANSI N210-1976 and currently referenced by the FSAR.

ENCLOSURE 2 (CONT'D)

10 CFR 50.92 EVALUATION

CONCLUSION

The use of reload fuel with an enrichment of 4.55 weight percent U-235 will not involve a significant increase in the probability or consequences of any accidents previously evaluated because the enrichment is not a unique parameter in the safety analyses and the change does not affect the normal refueling process that ensures that the core design for each cycle is within the current safety analyses.

This change to the Technical Specifications does not create the possibility of a new or different kind of accident from any previously evaluated because it does not result in any physical changes to the plant, and therefore does not present the possibility of a new or different type of event other than those that have been previously evaluated.

This change will not involve a significant reduction in a margin of safety because it does not result in a change to the types of safety analyses required nor to their acceptance criteria. Criticality analyses have been performed to demonstrate that the new fuel storage and spent fuel storage criteria will continue to be met.

Based on the discussion and analyses presented above GPC has concluded that revising the enrichment limit for reload fuel from 3.5 weight percent U-235 to 4.55 weight percent U-235 in Technical Specification 5.3.1 will not result a significant hazards consideration as described in 10 CFR 50.92.