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JOSEPH A. TIERNAN
VICE PRESIDENT
NUCLEAR ENERGY

June 9, 1988

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Criticality - New And Spent Fuel Storage
Technical Specification

Gentlemen:

The Baltimore Gas and Electric Company hereby requests an Amendment to its Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Unit Nos. 1 & 2, respectively, with the submittal of the proposed changes to the Technical Specifications.

CHANGE (BG&E FCR 7-3004)

Change Technical Specification 5.6.1 and 5.6.2 for Unit 1 and Unit 2 to increase the enrichment limit of the new and spent fuel storage racks from the current 4.1 wt% U-235 to a maximum of 5.0 wt% U-235 as shown on the marked-up copies attached to this transmittal.

DETERMINATION OF SIGNIFICANT HAZARDS

This proposed change has been evaluated against the standards in 10 CFR 50.92 and has been determined to involve no significant hazards considerations, in that operation of this facility in accordance with the proposed amendment would not:

- i. involve a significant increase in the probability or consequences of an accident previously evaluated; or

An increase to a maximum enrichment of 5.0 wt% U-235 does not involve a significant increase in the probability or consequences of an accident previously evaluated. Because of the conservative techniques and assumptions used to calculate the maximum possible neutron multiplication factor, there is more than reasonable assurance that there are no significant hazards involved in storing fuel assemblies enriched as high as 5.0 wt% U-235 in the new and spent fuel storage racks under both normal and postulated accident conditions. As shown in the attached criticality analysis

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(Attachment 1), storing unirradiated fuel at 5.0 wt% U-235 in the most reactive configuration in the spent fuel racks results in a maximum multiplication factor of 0.945, including all uncertainties. Also, if a 4 inch axial gap in the poison material was imposed at the active fuel centerline in every poison sheet in the spent fuel racks, the increase in the multiplication factor would be 0.004. In all cases the values of the multiplication factor are below the required limit of 0.95.

- ii. create the possibility of a new or different type of accident from any accident previously evaluated; or

The proposed change to the enrichment limit does not result in any change in the configuration of the plant, equipment design, or equipment use nor does it require any change in the accident analysis methodology. Therefore, the proposed change will not create the possibility for an accident or malfunction of a different type from any previously evaluated.

- iii. involve a significant reduction in a margin of safety.

The proposed changes were evaluated for potential impact on the following systems:

New Fuel Storage Racks

The maximum multiplication factor with 5.0 wt% U-235 fuel assemblies is 0.89. The previous analysis for 4.1 wt% U-235 fuel assemblies also resulted in a multiplication factor of 0.89. The reason that the maximum multiplication factor remains constant while the enrichment has been increased is due to the better modeling of the new fuel storage racks.

The previous analysis assumed a thick close-fitting concrete reflector above the active region of the storage facility. The current analysis used the as-built design which has no concrete structure immediately above the facility.

Spent Fuel Storage Racks

The most reactive configuration for unirradiated 5.0 wt% U-235 fuel assemblies results in a maximum multiplication factor of 0.945. When 4 inch axial gaps in the poison material are uniformly imposed at the active fuel center line in every cell, the increase in the multiplication factor is 0.004. In the previous analysis for 4.1 wt% U-235 fuel assemblies a maximum multiplication factor of 0.936 resulted. The maximum change in multiplication factor from increasing enrichment to 5.0 wt% U-235 is .009. The multiplication factor of 0.945 for 5.0 wt% U-235 fuel is still below the required limit of 0.95.

The margin of safety has been reduced for the spent fuel storage racks but not significantly - the maximum possible multiplication factor is still below the limit of 0.95.

ENVIRONMENTAL ASSESSMENT OF PROPOSED CHANGE

The only potential for significant adverse environmental impact associated with the storage of more highly enriched fuel lies in the area of accidental criticality. However, in support of the Technical Specification change, the degree of subcriticality of all fuel storage racks at Calvert Cliffs has been reevaluated, with the conclusion being that criteria for the required degree of subcriticality continue to be met at the increased enrichment level. Consequently, it is concluded that the requested increase in enrichment level: a) does not create the potential for new types of accidents, and b) does not increase the consequences of accidents beyond those previously reviewed and approved.

The alternative to increasing allowable enrichment to 5.0 wt% U-235 would be continued operation with 4.1 wt% U-235 fuel assemblies, which would increase the number of fuel assemblies required per reload. That, in turn, would increase the amount of fuel stored on site prior to shipment to the repository, increasing the additional on-site capacity needed and making it needed sooner. There would also be an increased number of shipments of spent fuel to the repository, and a larger volume of high level waste to be stored. These actions would have a greater environmental effect than the proposed change.

It is concluded that there is no adverse environmental impact associated with the proposed increase in allowable enrichment to 5.0 wt% U-235.

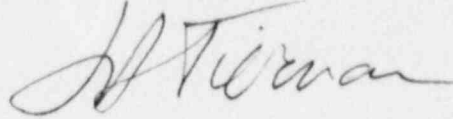
SAFETY COMMITTEE REVIEW

These proposed changes to the Technical Specifications and our determination of significant hazards have been reviewed by our Plant Operations and Off-Site Safety Review Committees, and they have concluded that implementation of these changes will not result in an undue risk to the health and safety of the public.

FEE DETERMINATION

Pursuant to 10 CFR 170.21, we are including BG&E Check No. 1916543 in the amount of \$150.00 to the NRC to cover the application fee for this request.

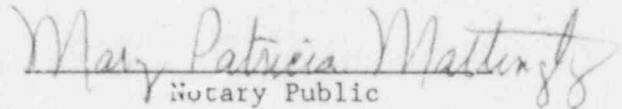
Very truly yours,



STATE OF MARYLAND :
Calvert County : TO WIT :
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I hereby certify that on the 9th day of June, 1988, before me, the subscriber, a Notary Public of the State of Maryland in and for ST. MARY'S, personally appeared Joseph A. Tiernan, being duly sworn, and states that he is Vice President of the Baltimore Gas and Electric Company, a corporation of the State of Maryland; that he provides the foregoing response for the purposes therein set forth; that the statements made are true and correct to the best of his knowledge, information, and belief; and that he was authorized to provide the response on behalf of said Corporation.

WITNESS my Hand and Notarial Seal:


Notary Public

My Commission Expires: 7-1-90

6/9/88
Date

JAT/RHB/cew

Attachment

- cc: D. A. Brune, Esquire
- J. E. Silberg, Esquire
- R. A. Capra, NRC
- S. A. McNeil, NRC
- W. T. Russell, NRC
- D. C. Trimble, NRC
- T. Magette, DNR