

ATTACHMENT I

PROPOSED TECHNICAL SPECIFICATION
CHANGE
RELATED TO
MAXIMUM SPENT FUEL ENRICHMENT

POWER AUTHORITY OF THE STATE OF NEW YORK
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333

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5.5 (cont'd)

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- B. The spent fuel storage pool is designed to maintain K_{eff} less than .95 under all conditions as described in the Authority's application for spent fuel storage modification transmitted to NRC July 26, 1978. In order to assure that the criteria is met, new fuel will be limited to an axial loading of 16.28 gm. U-235/axial cm, or equivalent. The number of fuel assemblies stored in the spent fuel pool shall not exceed 2244.

5.6 SEISMIC DESIGN

The reactor building and all engineered safeguards are designed on a basis of dynamic analysis using acceleration response spectrum curves which are normalized to a ground motion of 0.08 g for the Operating Basis Earthquake, and 0.15 g, from the Design Basis Earthquake.

ATTACHMENT II

SAFETY EVALUATION

RELATED TO

MAXIMUM SPENT FUEL ENRICHMENT

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SECTION I - Description of Change

The proposed change to the Technical Specifications converts the specification on maximum enrichment allowed in fuel placed in the spent fuel racks from 3.3 w/o U-235 to 16.28 gm U-235/axial cm. These two forms of the specification are equivalent. The specification in terms of U-235 axial loading was obtained by linear extrapolation of the nominal licensing base data of Reference 1. The base case criticality calculation was run for an enrichment of 3.0 w/o U-235, which corresponds to an axial loading of 14.8 gm U-235/axial cm. The revised axial loading is 10% higher, corresponding to a 10% increase in enrichment.

The basis for this change is contained in the criticality analysis performed for the original spent fuel rack modification submittal and reported in Reference 1. That analysis showed that for 3.0 w/o U-235, the base case with all uncertainties added, the margin to the 0.95 maximum neutron multiplication criterion was 5.6%. It also showed that for enrichments varying from 2.7 w/o U-235 to 3.3 w/o U-235, there was a sensitivity to the calculated k_{eff} of $0.8\% \Delta k / 0.1$ w/o U-235. Therefore, it can be concluded that, for an enrichment of 3.3 w/o U-235, there remains a margin of $3.2\% \Delta k$ to the 0.95 limit. No gadolinia was assumed in this criticality analysis (Reference 2, pages 3.2 - 3.3). Gadolinia in fresh fuel has strong negative effect on reactivity and therefore provides significantly increased margin to the reactivity limit.

SECTION II - Purpose of Change

This change removes an inconsistency between the maximum fuel enrichment permitted in the spent fuel storage racks as it appears in the Technical Specifications (Section 5.5.B, p. 246), and the allowed maximum axial fuel loading, expressed as 14.8 gm U-235/axial cm or equivalent, as it appears in Section 3.1.2 of the Commission's Safety Evaluation Report (Reference 2) in approval of the spent fuel rack modification. This inconsistency resulted from the fact that the criticality analysis in the original submittal, (Reference 1) was performed at an enrichment of 3.0 w/o U-235 corresponding to an axial loading of 14.8 gm U-235/axial cm, but the technical specification change applied for a maximum permissible enrichment of 3.3 w/o U-235, which corresponds to 16.28 gm U-235/ axial cm. as explained above.

SECTION III - Impact of the Change

This change will allow fresh fuel of the highest enrichment presently contemplated for use to be loaded into the spent fuel racks while remaining within the criterion of maximum neutron multiplication factor less than 0.95.

These changes to the JAF Technical Specifications will not alter the conclusions of either the FSAR or SER accident analysis.

SECTION IV - Implementation of the Modification

The changes as proposed will not impact the fire protection or ALARA programs at JAF.

SECTION V - Conclusion

The incorporation of these modifications: a) will not change the probability nor the consequence of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report; and c) will not reduce the margin of safety as defined in the basis for any Technical Specification, and d) does not constitute an unreviewed safety question.

SECTION VI - References

- (a) JAF FSAR
- (b) JAF SER
- (c) Paul J. Early to Thomas A. Ippolito, dated July 26, 1978 regarding Spent Fuel Storage Modification.
- (d) Thomas A. Ippolito to George T. Berry, dated June 18, 1981, Operating License Amendment 55 and Safety Evaluation.