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

February 1, 1990

TO ALL LIGHT-WATER REACTOR LICENSEES AND APPLICANTS

SUBJECT: ALTERNATIVE REQUIREMENTS FOR FUEL ASSEMBLIES IN THE DESIGN FEATURES SECTION OF TECHNICAL SPECIFICATIONS (Generic Letter 90-02)

Technical Specifications (TS) include design requirements for fuel assemblies in Section 5, "Design Features." On a plant-specific basis, the staff has approved changes to these requirements that provide flexibility for improved fuel performance by permitting timely removal of fuel rods that are found to be leaking during a refueling outage or are determined to be probable sources of future leakage. Because these improvements in a licensee's fuel performance program will provide for reductions in future occupational radiation exposure and plant radiological releases, this alternative is being made available to all plants as a line-item improvement in TS.

The requirements included in Section 5 of the TS on "Design Features" address those features of the facility such as materials of construction and geometric arrangements which, if altered or modified, would have a significant effect on safety and are not covered under other sections of the TS on "Safety Limits," "Limiting Conditions for Operation," or "Surveillance Requirements." Recently, the staff approved a lead-plant request to modify the requirements for "Fuel Assemblies," Specification 5.3.1, for the McGuire and Catawba plants. That change allows the substitution of Zircaloy-4 or stainless steel filler rods or open water channels for fuel rods in fuel assemblies if justified by cycle-specific reload analyses using an NRC-approved methodology. In addition, the change requires that a special report describing the number of rods replaced be submitted to NRC if more than 30 rods in the core, or 10 rods in any assembly, are replaced per refueling.

The enclosed guidance addresses the preparation of a license amendment request for this change to TS. Licensees and applicants are encouraged to

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propose changes to their TS that are consistent with the guidance in the enclosure. Conforming amendment requests will be expeditiously reviewed by the NRC Project Manager for the facility. Please contact the Project Manager if you have questions on this matter.

Sincerely,

James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Guidance for the Modification of the Requirements for Fuel Assemblies in the Design Features Section of Technical Specifications
2. List of Most Recently Issued NRC Generic Letters

Computer Printout: See Jacket

GUIDANCE FOR THE MODIFICATION OF THE REQUIREMENTS FOR FUEL ASSEMBLIES IN THE DESIGN FEATURES SECTION OF TECHNICAL SPECIFICATIONS

INTRODUCTION

This enclosure provides guidance for the preparation of a license amendment request to modify the Technical Specifications (TS) requirements for "Fuel Assemblies" in the Section 5, "Design Features," of TS. This change to the TS permits the substitution of Zircaloy-4 or stainless steel filler rods or open water channels for fuel rods in fuel assemblies if justified by cycle-specific reload analyses.

DISCUSSION

The requirements for fuel assemblies specify the quantity of fuel assemblies and the number of fuel rods per assembly. Flexibility to deviate from the number of fuel rods per assembly is desirable to permit timely removal of fuel rods that are found to be leaking during a refueling outage or are determined to be probable sources of future leakage. This improvement in the licensee's fuel performance program will provide for reductions in future occupational radiation exposure and plant radiological releases.

The substitution of filler rods or open water channels for fuel rods is acceptable when justified by cycle-specific reload analyses using an NRC-approved methodology. This reload analyses will demonstrate that existing design limits and safety analyses criteria are met in advance of the next operating cycle. An "NRC-approved methodology" includes those methodologies acknowledged in the Final Safety Analysis Report and applied in support of the issuance of the original operating license. It also includes those subsequent methodologies that have been submitted to and accepted by the NRC staff as amendments to the operating license.

If the reconstitution of fuel assemblies through the use of filler rods or open water channels is extensive, this information should be reported to NRC. Therefore, if more than 30 rods in the core, or 10 rods in any assembly, are replaced during a refueling, a special report describing the number of rods replaced must be submitted to NRC in accordance with the provisions of the TS for special reports.

The attached example is a typical specification for fuel assemblies with the required modifications shown underlined. Proposed changes to plant TS should follow this guidance.

SUMMARY

The modification of the "Design Features" section of the TS on "Fuel Assemblies" will not result in modifications to fuel assemblies that would have a significant effect on safety because of the necessity to justify such changes using an NRC-approved methodology. This requirement will confirm conformance to existing design limits and that safety analyses criteria are met before operation during the next fuel cycle. A license amendment request to modify the requirements for "Fuel Assemblies" that is consistent with the guidance provided will result in flexibility for improved fuel performance.

MODEL TECHNICAL SPECIFICATION CHANGE
(CHANGES SHOWN UNDERLINED)

5.0 DESIGN FEATURES

5.3 REACTOR CORE

FUEL ASSEMBLIES

5.3.1 The core shall contain 193 fuel assemblies with each fuel assembly nominally containing 264 fuel rods clad with Zircaloy-4, except that substitution of Zircaloy-4 or stainless steel filler rods or open water channels for fuel rods may be made in fuel assemblies if justified by cycle-specific reload analyses using an NRC-approved methodology. Should more than 30 rods in the core, or 10 rods in any assembly, be replaced per refueling, a special report describing the number of rods replaced shall be submitted to the Commission pursuant to Specification 6.9.2 within 30 days after cycle startup. Each fuel rod shall have a nominal active fuel length of 144 inches. Reload fuel shall be similar in physical design to the initial core loading and shall have a maximum enrichment of 4.0 weight percent U-235.

Specification 6.9.2 of the Standard Technical Specifications (STS) states:

> Special reports shall be submitted to the Regional Administrator of the Regional Office of the NRC within the time period specified for each report.

Plants whose Technical Specifications do not include STS 6.9.2 should ensure that the revised Specification 5.3.1 includes reporting requirements equivalent to the combination of STS 5.3.1 and 6.9.2 above.

LIST OF RECENTLY ISSUED GENERIC LETTERS

Generic Letter No.	Subject	Date of Issuance	Issued To
90-01	REQUEST FOR VOLUNTARY PARTICIPATION IN NRC REGULATORY IMPAC SURVEY	01/18/90	ALL LICENSEES OF OPERATING REACTORS & CONSTRUCTION PERMITS FOR LWR NUCLEAR POWER PLANTS
89-23	NRC STAFF RESPONSES TO QUESTIONS PERTAINING TO IMPLEMENTATION OF 10 CFR PART 26 - GENERIC LETTER 89-23	10/23/89	ALL HOLDERS OF OPERATING LICENSEES AND CONSTRUCTION PERMITS FOR NUCLEAR POWER PLANTS
89-22	POTENTIAL FOR INCREASED ROOF LOADS AND PLANT AREA FLOOD RUNOFF DEPTH AT LICENSED NUCLEAR POWER PLANTS DUE TO RECENT CHANGE IN PROBABLE MAXIMUM PRECIPITATION CRITERIA DEVELOPED BY THE NATIONAL WEATHER SERVICE (GENERIC LETTER 89-22)	10/19/89	ALL LICENSEES OF OPERATING REACTORS AND HOLDERS OF CONSTRUCTION PERMITS (EXCEPT BYRON BRAIDWOOD, VOGTLE, SOUTH TEXAS, AND RIVER BEND)
89-21	REQUEST FOR INFORMATION CONCERNING STATUS OF IMPLEMENTATION OF UNRESOLVED SAFETY ISSUE (USI) REQUIREMENTS	10/19/89	ALL HOLDERS OF OPERATING LICENSES AND CONSTRUCTION PERMITS FOR NUCLEAR POWER REACTORS
89-20	PROTECTED AREA LONG-TERM HOUSEKEEPING	09/26/89	ALL FUEL CYCLE FACILITY LICENSEES WHO POSSESS, USE, OR PROCESS FORMULA QUANTITIES OF STRATEGIC SPECIAL NUCLEAR MATERIAL
89-19	REQUEST FOR ACTION RELATED TO RESOLUTION OF UNRESOLVED SAFETY ISSUE A-47 "SAFETY IMPLICATION OF CONTROL SYSTEMS IN LWR NUCLEAR POWER PLANTS" PURSUANT TO 10 CFR 50.54(f)	09/20/89	ALL LICENSEES OF OPERATING REACTORS, APPLICANTS FOR OPERATING LICENSES AND HOLDERS OF CONSTRUCTION PERMITS FOR LIGHT WATER REACTOR NUCLEAR POWER PLANTS
89-18	RESOLUTION OF UNRESOLVED SAFETY ISSUE A-17, "SYSTEMS INTERACTIONS IN NUCLEAR POWER PLANTS	09/06/89	ALL HOLDERS OF OPERATING LICENSES OR CONSTRUCTION PERMITS FOR NUCLEAR POWER PLANTS

propose changes to their TS that are consistent with the guidance in the enclosure. Conforming amendment requests will be expeditiously reviewed by the NRC Project Manager for the facility. Please contact the Project Manager if you have questions on this matter.

Sincerely,

Original signed by
James G. Partlow

James G. Partlow
Associate Director for Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Guidance for the Modification of the Requirements for Fuel Assemblies in the Design Features Section of Technical Specifications
2. List of Most Recently Issued NRC Generic Letters

Distribution:
See Attached

Concurrence:

The following individuals concurred in this Generic Letter by their concurrence in the May 10, 1989 memorandum forwarding the Generic Letter to CRGR:

TGDunning, OTSB:DOEA; RLEmch, OTSB:DOEA; EJButcher, C:OTSB:DOEA; BCalure, TECH EDITOR; CHBerlinger, C:GCB:DOEA; CERossi, D:DOEA:NRR; FJCongel D:DREP:NRR; LCShao, D:DEST; SATreby, OGC; FJMiraglia, ADT:NRR; JHSniezek, DD:NRR.

In a memorandum from ELJordan, Chairman, CRGR, to JHSniezek, Deputy Director, NRR, dated August 11, 1989, CRGR waived their review of this Generic Letter.

José A. Calvo

Jose A. Calvo, Chief
Technical Specifications Branch
Division of Operational Events Assessment, NRR

DOCUMENT NAME: FUELGL HOXIE

ADT:NRR
FJMiraglia
1/29/90

AD:ADP:NRR
JGPartlow
1/26/90

1/26/90