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SUBJECT: Application for amends to Licenses DPR-33, DPR-52 & DPR-68, changing valve timing for containment isolation valves.

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TENNESSEE VALLEY AUTHORITY

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JUN 13 1988

TVA-BFN-TS-244

10 CFR 50.90

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

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-259
50-260
50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - TVA BFN TECHNICAL SPECIFICATION NO. 244 -
(NRC TAC NO. 00074, 00075, 00076)

In accordance with the provisions of 10 CFR 50.4 and 50.90, we are submitting a request for an amendment to licenses DPR-33, DPR-52, and DPR-68 to change the BFN Technical Specifications for units 1, 2, and 3 (enclosure 1).

This proposed amendment will change the valve timing for two containment isolation valves associated with the Residual Heat Removal System. The timing change is a result of compliance with 10 CFR 50.49 environmental qualification. This amendment has been identified as a restart requirement. We request these changes be reviewed and approved in an expeditious manner and issued prior to September 1, 1988. Description, reason for change, and justification in support of the proposed changes are enclosed (enclosure 2). A proposed determination of no significant hazards is provided (enclosure 3).

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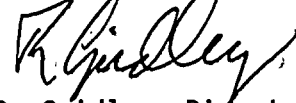
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JUN 13 1988

Enclosed is a check for the \$150 amendment fee required by 10 CFR 170.12. We request these amendments be effective on receipt.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



R. Gridley, Director
Nuclear Licensing and
and Regulatory Affairs

Sworn to and subscribed before me
on this 13th day of June 1988.

Paulette H. White
Notary Public

My Commission Expires 8-24-88

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ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATIONS REVISIONS

BROWNS FERRY NUCLEAR PLANT

UNITS 1, 2, AND 3

(TVA BFN TS 244)

ENCLOSURE 2

DESCRIPTION AND JUSTIFICATION BROWNS FERRY NUCLEAR PLANT (BFN)

Description of Change

The BFN Units 1, 2, and 3 Technical Specification Table 3.7.A is being revised to change the maximum operating time for the inboard low pressure coolant injection (LPCI) valves FCV 74-53 and FCV 74-67 from 30 seconds to 40 seconds.

Reason for Change

Environmental qualification modifications required to meet 10 CFR 50.49 criteria resulted in longer stroke times for selected valves in the Emergency Core Cooling System (ECCS). The motor brakes for the LPCI injection valves FCV 74-53 and FCV 74-67 could not be qualified for a harsh postaccident environment nor could qualified brakes be procured. The valve operator brakes were removed and the valves were regreared which increased the valve stroke time from 30 seconds to 40 seconds.

Justification for Change

LPCI is an operating mode of the Residual Heat Removal (RHR) System. LPCI operation uses two identical pump loops, each loop with two pumps in parallel. The two loops are arranged to discharge water into different reactor recirculation loops. The LPCI injection valves (FCV 74-53 and 67) are normally closed. The LPCI System is initiated by either high drywell pressure (2.45 psig) or low reactor vessel water level (378 inches). When reactor vessel pressure has dropped to 450 psig, the LPCI injection valves to both recirculation loops (FCV 74-53 and 67) automatically open allowing the LPCI pumps to inject water into the reactor vessel as reactor pressure drops below the pump shutoff head.

A comprehensive loss of coolant accident (LOCA) analysis was performed with the new valve stroke time. The safety evaluation also examined the impact of the extended valve stroke time on non-LOCA events (i.e., high energy line breaks [HELB] and Appendix R fire events), other safety functions of the valves (i.e., containment isolation), and offsite dose calculations.

Historically, the worst case line break and single failure combination has been a recirculation discharge line break with an assumed failure of the LPCI injection valve. The extended valve stroke time increased the limiting peak clad temperature by approximately 50° F. For this worst case with the 40 second valve stroke time, the peak clad temperature would reach 1886° F. Other break locations and failures were analyzed; the limiting break event for BFN is the 100 percent recirculation discharge line break with an assumed single failure of the LPCI injection valve.



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Justification for Change (Cont'd)

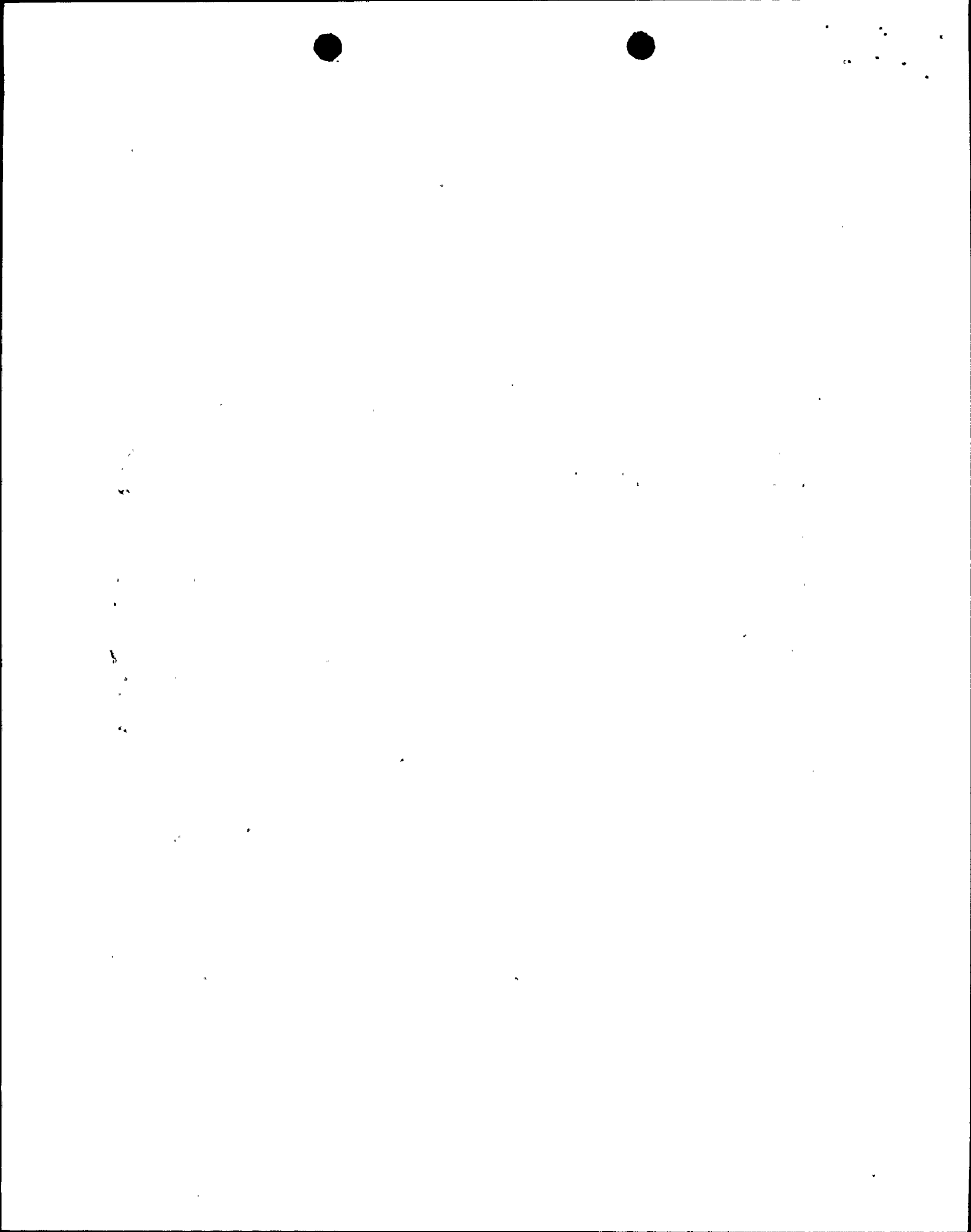
In addition to providing water to flood the reactor during a LOCA, the valves are part of the return path for the cooling water to the reactor vessel during operation of the shutdown cooling mode of the RHR System. The shutdown cooling mode of the RHR involves long periods of manual operation such that the 10-second increase in the valve stroke time will not adversely affect the function of the LPCI valves in this mode.

The LPCI valves involved in the proposed change are also containment isolation valves. The containment isolation function of each LPCI line is provided by two valves in series: the testable check valve inside the drywell and the normally closed injection valve (FCV 74-53 or 67). The LPCI injection valves have an automatic isolation signal during shutdown cooling. The injection valves are normally closed and only open during shutdown cooling, surveillance testing, and when required by LOCA. During shutdown cooling, the reactor pressure is low enough that rapid reactor isolation is not necessary. For a postulated break along the LPCI line, the testable check valve can provide isolation until the redundant isolation valves are closed.

The LPCI System is also used to protect core integrity for HELB events and for certain Appendix R fire events. Analysis indicated the HELB event is not the most limiting for BFN. The Appendix R fire event is similar to the HELB event in that the reactor will be isolated for a long time after event initiation. Reactor depressurization is accomplished with the main steam relief valves (MSRVs). Thus, the core cooling capability is more dependent on the pump shutoff head than the valve stroke time.

Summary

A comprehensive LOCA analysis was performed with the new valve stroke times. The evaluation also examined the impact of extended valve stroke times on non-LOCA events, other safety functions on the valves, and offsite dose calculations. This safety evaluation demonstrated that the extended valve stroke times will have insignificant impact on all the analysis above. Furthermore, they will not result in any changes in the Maximum Average Planar Linear Heat Generation Ratio (MAPLHGR) for all fuel types at BFN.



ENCLOSURE 3

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION BROWNS FERRY NUCLEAR PLANT (BFN) UNITS 1, 2, AND 3

Description of Proposed Amendment

The BFN Units 1, 2, and 3 Technical Specification Table 3.7.A is being revised to change the maximum operating time for the inboard LPCI valves from 30 to 40 seconds.

Basis for Proposed No Significant Hazards Consideration Determination

NRC has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92(c). A proposed amendment to an operating license involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, or (2) create the possibility of a new or different kind of accident from an accident previously evaluated, or (3) involve a significant reduction in a margin of safety.

1. The proposed amendment does not involve a significant increase in the probability or consequences of any accident previously evaluated. The change only modifies the performance and acceptance criteria for the valves. The safety functions of the valves remain unchanged.
2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated. Changing the performance criteria of the valves in terms of valve stroke time does not create any accident or malfunction of a different type. It only changes the time of occurrence for LPCI response during an accident event previously documented in the Final Safety Analysis Report (FSAR). The change presents an insignificant impact in terms of overall plant safety.
3. The proposed amendment does not involve a significant reduction in a margin of safety. The consequences of various accident events with the new stroke time have been evaluated and have been demonstrated to have no impact on MAPLHGR for all fuel types.

Determination of Basis for Proposed No Significant Hazards

Since the application for amendment involves a proposed change that is encompassed by the criteria for which no significant hazards consideration exists, TVA has made a proposed determination that the application involves no significant hazards consideration.