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2CAN059502

U. S. Nuclear Regulatory Commission
Document Control Desk
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Washington, DC 20555

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Technical Specification Change Request Regarding Allowable Outage Time
Extension For Low Pressure Safety Injection Train

Gentlemen:

Attached for your review and approval is a proposed Arkansas Nuclear One-Unit 2 (ANO-2) Technical Specification (TS) amendment revising specification 3.5.2 to allow up to seven days to restore low pressure safety injection (LPSI) train operability. This amendment is a collaborative effort of participating Combustion Engineering Owners Group members based on an integrated review and assessment of plant operations, deterministic and design basis considerations and plant risk.

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in the attached submittal.

Entergy Operations requests that the effective date for this change be within 30 days of NRC issuance of the amendment to allow for distribution and procedural revisions necessary to implement this change. Although this request is neither exigent nor emergency, your prompt review is requested.

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Very truly yours,

JWY/igm

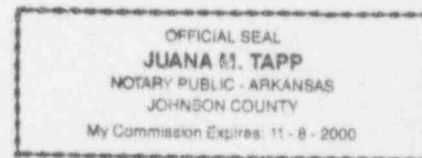
JWY/igm

Attachments

To the best of my knowledge and belief, the statements contained in this submittal are true.

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for Johnson
County and the State of Arkansas, this 19 day of May, 1995.

Juana M. Tapp
Notary Public
My Commission Expires 11-8-2000



cc: Mr. Leonard J. Callan
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ATTACHMENT

TO

2CAN059502

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT TWO

DOCKET NO. 50-368

DESCRIPTION OF PROPOSED CHANGES

- The allowed outage time (AOT) for a single low pressure safety injection (LPSI) system is being extended from 72 hours to seven days (168 hours).
- A minor administrative change was made by adding a hyphen to 2BS-26.

BACKGROUND

The two trains of the LPSI system, in combination with the two trains of the high pressure safety injection (HPSI) system, form two redundant emergency core cooling system (ECCS) subsystems. The two LPSI pumps are high volume, low head centrifugal pumps designed to supplement the safety injection tank (SIT) inventory in reflooding the reactor vessel to insure core cooling during the early stages of a large break loss of coolant accident (LOCA).

The LPSI pumps take suction from the refueling water tank (RWT), during the injection phase of a LOCA event, and pump the water through a common discharge header. Prior to penetrating containment, the LPSI header splits into four injection paths, with individual injection valves. Once inside containment, the LPSI headers combine with HPSI and SIT discharge piping and flow is directed through independent injection headers into each of the four reactor coolant system cold legs and into the reactor vessel. The LPSI system pumps start and valves open upon receipt of a safety injection actuation signal. When RWT level is drawn down by inventory transfer during the injection phase, a low low RWT level actuates a recirculation actuation signal (RAS) which stops the LPSI pumps. This is necessary to insure adequate net positive suction head remains available for the HPSI pumps and spray pumps. By design, post-LOCA long term core cooling is supplied by the HPSI pumps and containment spray pumps taking suction from the containment sump. The LPSI pumps are described in the ANO-2 Safety Analysis Report, Chapter 6.3.2.2.3.

The LPSI system is also used in conjunction with a portion of the containment spray system for decay heat removal in the shutdown cooling alignment.

DISCUSSION OF CHANGE

The current Arkansas Nuclear One-Unit 2 (ANO-2) Technical Specifications (TS) address the LPSI system as a portion of the ECCS subsystem. TS 3.5.2 requires two independent ECCS subsystems be operable. With one ECCS subsystem inoperable, based upon any component inoperability, the subsystem must be returned operable within 72 hours or transition to hot shutdown within the following 12 hours. The proposed change will allow up to seven days to restore operability to a LPSI system should that be the cause of ECCS subsystem inoperability.

The Combustion Engineering Owners Group (CEOG) report CE NPSD-995, "Joint Applications Report for Low Pressure Safety Injection System AOT Extension," explores the proposed change utilizing current probabilistic safety analysis (PSA) methodologies to address the changes in risk when compared with current TS time limitations.

This study considered the change in risk in three categories; "at power risk", "transition risk" and "shutdown risk." Consideration of the risk factors that are impacted by extending the AOT for a single LPSI train from 72 hours to seven days demonstrates a negligible increase in "at power risk" (<0.3%). In order to perform a more complete assessment of the overall change in risk, an accounting for avoided risks associated with reducing power and going to hot or cold shutdown is considered. This "transition risk" is important in understanding the tradeoff between shutting down the plant, in compliance with the TS action statement, when compared with restoring the LPSI train to operability while at power. Also of interest in assessing overall plant risk is the risk avoided based on LPSI system maintenance while in cold shutdown, or "shutdown risk." Every time the plant is placed in cold shutdown, the LPSI system is required for decay heat removal in the shutdown cooling mode of operation. Any maintenance performed on the LPSI system during shutdown cooling operations adds to the risk of a loss of shutdown cooling event. Therefore, performing LPSI system maintenance with the unit on-line, when the LPSI system is not normally in demand, represents a decrease in "shutdown risk."

The results of this study concluded that the change in core damage frequency due to increasing the LPSI AOT from 72 hours to seven days is insignificant (<0.3%). Additionally, when this risk is offset by the reduction in transition and shutdown risks, it can be shown that there is a reduction in overall plant risk. It is the conclusion of the study that the overall plant impact will be either risk beneficial, or at the very least, risk neutral.

The CEOG report also performed an assessment of the proposed change on large early release scenarios. The assessment of the three classes of events considered for these scenarios concluded that increased unavailability of one LPSI will result in a negligible impact on the large early release probability for ANO.

A minor administrative change was made by adding a hyphen to 2BS-26 to be consistent with normal component numbering at ANO.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

An evaluation of the proposed change has been performed in accordance with 10CFR50.91(a)(1) regarding no significant hazards considerations using the standards in 10CFR50.92(c). A discussion of these standards as they relate to this amendment request follows:

Criterion 1 - Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

The low pressure safety injection system (LPSI) is part of the Emergency Core Cooling System subsystem. Inoperable LPSI components are not considered to be accident initiators. Therefore, this change does not involve an increase in the probability of an accident previously evaluated.

The LPSI system was designed to mitigate the consequences of a large loss of coolant accident (LOCA). These proposed changes do not affect any of the assumptions used in deterministic LOCA analysis.

In order to fully evaluate the LPSI AOT extension, probabilistic safety analysis methods were utilized. The results of these analyses indicate no significant increase in the consequences of an accident previously evaluated. These analyses are detailed in CE NPSD-995, Combustion Engineering Owners Group "Joint Applications Report for Low Pressure Safety Injection System AOT Extension."

Therefore, this change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

Criterion 2 - Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated.

This proposed change does not change the design, configuration, or method of operation of the plant. Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

Criterion 3 - Does Not Involve a Significant Reduction in the Margin of Safety.

The proposed changes do not affect the technical specification limiting conditions for operation or their bases which support the deterministic analyses used to establish the margin of safety. Probabilistic evaluations used to support the requested technical specification changes have been demonstrated to be either risk neutral or risk beneficial. These evaluations are detailed in CE NPSD-995.

Therefore, this change does not involve a significant reduction in the margin of safety.

Therefore, based upon the reasoning presented above and the previous discussion of the amendment request, Entergy Operations has determined that the requested change does not involve a significant hazards consideration.

PROPOSED TECHNICAL SPECIFICATION CHANGES