



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 26, 1996

Mr. Oliver D. Kingsley, Jr.,
President, TVA Nuclear and
Chief Nuclear Officer
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT UNIT 3 - DENIAL OF TECHNICAL
SPECIFICATION AMENDMENT REQUEST (TAC NO. M96527)

Dear Mr. Kingsley:

INTRODUCTION

On September 15, 1996, the Tennessee Valley Authority (TVA) submitted an emergency license amendment request for the Browns Ferry Nuclear Plant (BFN) Unit 3. This submittal requested a revision to technical specification (TS) 3.6.F.1 to extend the allowable time to operate with only a single reactor coolant recirculation loop in service from 24 hours to 7 days on a one-time basis. This extension was requested to permit continued operation of BFN Unit 3 while making repairs to 3A recirculation loop equipment. After reviewing TVA's submittal, the NRC denied this request. This decision was discussed with the BFN Site Vice President, Rick Machon, in a telephone call on the afternoon of September 15. This letter provides formal documentation of that decision, and describes issues of concern to the staff that led to this conclusion.

DISCUSSION

At 8:47 p.m. Central Daylight Time (CDT) on September 14, 1996, the BFN Unit 3 Loop A reactor recirculation pump tripped due to failure of the associated motor/generator. TS 3.6.F.1 permits continued plant operation for up to 24 hours with a single recirculation loop in service. If the second recirculation loop is not returned to service within that time, the reactor must be placed in hot shutdown mode, as defined by the technical specifications. TVA investigated the cause of the motor/generator failure, and determined that repairs could not be completed within 24 hours.

On the morning of September 15, TVA representatives called and briefed the NRC staff on this incident. TVA informed the NRC of its intent to seek an emergency technical specification amendment to permit continued operation of BFN Unit 3 for up to 1 week while performing repairs to Loop A recirculation components. TVA stated that it needed an NRC decision on the amendment request by 6:00 p.m. CDT in order to permit an orderly shutdown of the reactor, if the request was not approved. TVA's submittal was received at approximately 2:30 p.m. Eastern Daylight Time (EDT) that afternoon. NRC personnel immediately began reviewing this submittal.

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In the course of reviewing TVA's submittal, the NRR staff examined NUREG-1433, "Standard Technical Specifications General Electric Plants BWR/4" and the BFN Improved Standard Technical Specifications submittal of September 6, 1996. Safety evaluations supporting single-loop operation for Susquehanna, FitzPatrick, and Fermi were also reviewed.

The staff identified several problems during its review of TVA's submittal which led to our denial of the request. First, the revised technical specification proposed by TVA did not accomplish its intended purpose. The proposed wording was as follows:

The reactor shall not be operated with one recirculation loop out of service for more than 24 hours. With the reactor operating, if one recirculation loop is out of service, the plant shall be placed in a HOT SHUTDOWN CONDITION [defined by TS 1.0.K] ***on September 21, 1996 at 8:47 pm Central Daylight Saving Time,*** [emphasis added] unless the loop is sooner returned to service.

The emphasized text represents the text provided by TVA in place of the original text, which requires the reactor to be placed in hot shutdown within 24 hours.

The proposed change to the second sentence does not fulfill its intended purpose because it does not relieve TVA of the requirements of the first sentence of this specification, which continues to restrict single-loop operation to no more than 24 hours. An additional problem is also created because the proposed change, while presumably a temporary change, does not restore the original wording. Thus, the revised specification would require an immediate plant shutdown following loss of a recirculation loop after 8:47 CDT on September 21, 1996.

Additional issues were identified when the staff examined safety evaluations prepared to support single-loop operation for other boiling water reactors. The staff developed a list of items addressed in these evaluations, and compared it to information provided by TVA. The staff was unable to find sufficient information to address all items in TVA's submittal, so a copy of this list was provided to TVA. It would have been very beneficial if TVA had had an opportunity to review these earlier safety evaluations prior to making its submittal. Unfortunately, there was insufficient time to resolve these questions prior to TVA's deadline.

Further, during the telephone conference between TVA, Region II, and NRR, TVA was asked to reconcile the proposed emergency amendment with the proposed ISTS conversion. The proposed ISTS Bases state, in part:

Should a LOCA occur with one recirculation loop not in operation, the core flow coastdown and resultant core response may not be bounded by the LOCA analyses. Therefore, only a limited time is allowed to restore the inoperable loop to operating status.

Since this statement implies single-loop operation is undesirable, TVA was asked to explain how the emergency amendment addresses this concern.

TVA's response to this request noted that single-loop operation was not permitted within the current TS, and that its incorporation was not considered to be within the scope of the TS conversion process. This response does not address any technical reasons why extended single-loop operation was not requested by ISTS. In addition, it does not address why the caution in the ISTS Bases does not apply to the requested emergency extension of time allowable for single-loop operation.

Based on the issues discussed above, NRR concluded it would not be appropriate to issue the proposed emergency amendment within the time frame requested by TVA.

Subsequent consideration of TVA's request reveals additional problems. For example, ISTS limiting condition for operation 3.4.1 provides explicit controls on thermal limits associated with single-loop operation. TVA's submittal included additional thermal limit controls, but did not include specifications similar to the ISTS, and did not provide any justification for this deviation. Furthermore, the affected thermal limits are items within the scope of the BFN Unit 3 Core Operating Limits Report. TVA did not provide a revision to this report with its submittal.

TVA's submittal also refers extensively to NEDO-24236, "Browns Ferry Nuclear Plant Units 1, 2, and 3 Single Loop Operation," but does not provide any reference to NRC acceptance of this document. Thus, it is not clear that the analyses performed supporting the emergency amendment are consistent with approved methodology.

SUMMARY

Overall, the staff finds that the emergency amendment request did not support issuance of the amendment within the extremely tight schedule needed by TVA. It appears that TVA did not have sufficient time to develop a submittal that adequately addressed all issues associated with this specification.

A copy of the Notice of Denial of Application for Amendment to be published in the Federal Register is enclosed for your information. If you have questions regarding this matter, please contact me at (301)415-1470.

Sincerely,

ORIGINAL SIGNED BY:

Joseph F. Williams, Project Manager
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-296

Enclosure: Federal Register Notice

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BROWNS FERRY NUCLEAR PLANT

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