Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609

April 14, 1996
TVA-BFN-TS-375

10 CFR 50.4
10 CFR 50.90
10 CFR 50.91

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

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - TECHNICAL SPECIFICATION (TS) 375 - CHANGE IN OPERABILITY REQUIREMENTS FOR REACTOR VESSEL WATER LEVEL INSTRUMENTATION

In accordance with the provisions of 10 CFR 50.4 and 50.90, TVA is submitting a request for an amendment (TS-375) to licenses DPR-33, DPR-52 and DPR-68 to change the TSs for Units 1, 2, and 3. The proposed change revises the minimum required number of operable reactor vessel water level trip systems (TS Table 3.2.B) during the period that the reactor coolant system instrument line excess flow check valve surveillance tests are being performed. This check valve surveillance testing is required by TS 4.7.D.1.d.

Plant personnel have identified a condition that has led TVA to seek this TS change in order to resolve any potential conflict between these two TS requirements. Historically, the performance of the surveillance testing was interpreted to be acceptable because it was a requirement of the TS. However, this testing conflicts with the literal reading of the provisions of TS Table 3.2.B. These conflicting requirements will prevent the resumption of power operations. Unit 2 is in its eighth refueling outage. The physical characteristics of these excess flow check valves and their specific application at BFN require this surveillance testing be performed with reactor system pressure in excess of 500 psig. This pressure is available at BFN only under hot conditions or in cold shutdown during hydrostatic/reactor system leak checks. For maximum personnel safety, it is desirable to perform this testing while the reactor is in cold shutdown.

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The Unit 2 hydrostatic testing is currently expected to occur no later that April 18, 1996. Since failure to act in a timely way would result in prevention of resumption of operation, TVA requests this proposed amendment be processed under the emergency provisions of 10 CFR 50.91.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the change is exempt from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). The BFN Plant Operations Review Committee and the BFN Nuclear Safety Review Board have reviewed this proposed change and determined that operation of BFN Units 1, 2, and 3 in accordance with the proposed change will not endanger the health and safety of the public. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Alabama State Department of Public Health.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. This includes TVA's determination that the proposed change does not involve a significant hazards consideration, and is exempt from environmental review. Enclosure 2 contains copies of the appropriate TS pages from Units 1, 2, and 3 marked-up to show the proposed change. Enclosure 3 forwards the revised TS pages for Units 1, 2, and 3 which incorporate the proposed change.

TVA requests that the revised TS be made effective within 24 hours of NRC approval. If you have any questions about this change, please contact me at (205) 729-2636.

Sincerely,

Pedro Salas
Manager of Site Licensing

Enclosures
cc: see page 3

Subscribed and sworn to before me
on this 14th day of APRIL 1996.

Barbara A. Blanton
Notary Public

My Commission Expires My Commission Expires 10/06/98

Enclosures
cc (Enclosures):

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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, AND 3

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE TS-375
DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

I. DESCRIPTION OF THE PROPOSED CHANGE

TVA is adding a note to BFN Technical Specifications for Units 1, 2, and 3. This note clarifies the minimum number of operable channels per trip system required to be operable during testing of the reactor coolant system instrument line flow check valves in accordance with TS section 4.7.D.1.d.

The specific changes are described below:

1. Units 1, 2 and 3 TS pages 3.2/4.2-14

   Table 3.2.B, Column 1, Minimum No. Operable channel Per Trip System for the Reactor Water Level Instrumentation LIS-3-58 A through D currently requires minimum of two operable channels per trip systems.

The proposed change to Column 1, Minimum No. Operable channel Per Trip System adds a reference to Note 19, column one item four. The reactor low water level instrumentation (LIS-3-58A-D) with trip level setting greater than or equal to 398 inches above vessel zero.

2. Revised Units 1 and 2 TS page 3.2/4.2-24, Unit 3 TS page 3.2/4.2-23 to add Note 19. Note 19 reads as follows:

   Only one trip system will be required to be OPERABLE during testing of the reactor coolant system instrument line flow check valves in accordance with TS section 4.7.D.1.d, provided the reactor is in COLD SHUTDOWN. Manual and automatic initiating capability of CSS and LPCI will be available, but with a reduced number of instrument channels.

II. REASON FOR THE PROPOSED CHANGE

Plant personnel have identified a condition that has led TVA to seek this TS change in order to resolve any potential conflict between these two TS requirements. The proposed change revises the minimum required number of operable reactor vessel water level trip systems (TS Table 3.2.B) during the period that the reactor coolant system instrument line excess flow check valve surveillance tests are being performed. This check valve surveillance testing is required by TS 4.7.D.1.d.

Unit 2 is in its eighth refueling outage. The physical characteristics of these excess flow check valves and their specific application at BFN require this surveillance testing be performed with reactor system pressure in excess of 500 psig. This pressure is available at BFN only under hot conditions or in cold shutdown during hydrostatic/reactor system leak checks. The safest time to perform this testing is while the reactor is in cold shutdown. The Unit 2 hydrostatic testing is currently scheduled for April 18, 1996 at 1400 CDT. Since failure to act in a timely way would result in prevention of resumption of operation, TVA requests this proposed amendment be processed under the emergency provisions of 10 CFR 50.91.

III. SAFETY ANALYSIS

Despite the fact that the minimum Technical Specification required number of reactor vessel water level trip systems will not be operable during the period that the reactor coolant system instrument line flow check valve surveillance tests are being performed, only one variable leg will be removed from service at a time. The other variable leg and its associated reactor vessel water level instrumentation will remain in service and be capable of initiating the Core Spray System, LPCI, and the multiplier relay from the Core Spray System that, in conjunction with drywell high pressure, initiates an accident signal. However, this resulting configuration is not single failure proof.

In addition to the remaining leg (either LS-3-58A-B or LS-3-58C-D) being available for automatic initiation, the following reactor vessel water level instrumentation will not be affected by the proposed modifications and will remain in service:

INSTRUMENT	RANGE
Flood-Up Range (2-LI-3-55)	0 to 400"

While this instrumentation is not configured to substitute for the automatic initiation of the reactor vessel water level instrumentation that is being removed from service (either LS-3-58A-B or LS-3-58C-D), it will provide the operators with reactor vessel water level indication. In case of a single failure in the remaining variable leg (either LS-3-58C-D or LS-3-58A-B), the operators would manually initiate the Core Spray System and LPCI, as appropriate.

During the performance of the reactor coolant system instrument line flow check valve surveillance tests, the plant will be in a cold shutdown condition with the primary system temperature at less than 212 degrees Fahrenheit.

While in a cold shutdown condition, the incidents to be

considered are an inadvertent drain down of the reactor vessel due to a pipe break, a leak in the reactor coolant pressure boundary due to maintenance or valve mispositioning, or a recirculation pump seal failure. The BFN licensing basis does not assume a double-ended guillotine break of a recirculation discharge line during hydrostatic testing of the primary system. No unique safety actions are required with the reactor vessel head on and reactor pressure greater than 850 psig because the core is more than one rod subcritical and could not achieve criticality with the full withdrawal of any one control rod. Pipe breaks during hydrostatic testing are not a potential threat. The primary piping has been analyzed to the design criteria, and with the temperature being below 212 degrees Fahrenheit, the pipe stress margins preclude critical or circumferential cracks.

Piping failures are considered to have an extremely low probability of occurrence due to the low temperature and margins inherent in reactor system piping design, the probability of a loss of reactor vessel inventory and the need for automatic initiation of the Core Spray System and LPCI during the time period when one trip system is out of service is considered remote.

However, if a leak is assumed in the primary system piping during the performance of this test, and there is a single failure in the remaining trip system that prevents automatic initiation of the safety functions, sufficient instrumentation will be available for the operators to identify and respond to the event. The equipment required to mitigate the event will be available and the operators will be able to manually initiate the safety functions.

The operator would be initially aware of a loss of coolant inventory as a result of a lowering of reactor pressure. Other indications would subsequently occur if the loss of inventory was not stopped (e.g., upon receipt of an abnormal water level alarm at approximately 555" above vessel zero [6" below normal water level] and an automatic depressurization system blowdown permissive alarm at approximately 546" above vessel zero). These two indications come from reactor vessel water level instrumentation, which is unaffected by the reactor coolant system instrument line flow check valve surveillance tests being performed. If the reactor water level reached 398" above vessel zero, the Emergency Operating Instructions direct the operator to manually initiate LPCI if it was not automatically initiated.

The LPCI and Core Spray Low Pressure Permissives for the injection valves are not inhibited by the isolation of a single variable leg during primary system hydrostatic testing.

Therefore, requiring only one trip system for the reactor low water level instrument channel (LS-3-58A-D) be operable during the period that the reactor coolant system instrument line flow check valve surveillance tests are being performed is justified due to:

1) the low primary system temperature,

2) the low probability of an event that would result in the drain down of the reactor vessel,

3) the automatic initiating capability of the remaining reactor vessel water level trip system, and

4) the other reactor vessel level instrumentation and equipment that is available for manual operator intervention in the event of a plant transient or accident.

FIGURE 1
Reactor Vessel Water Level Instrumentation

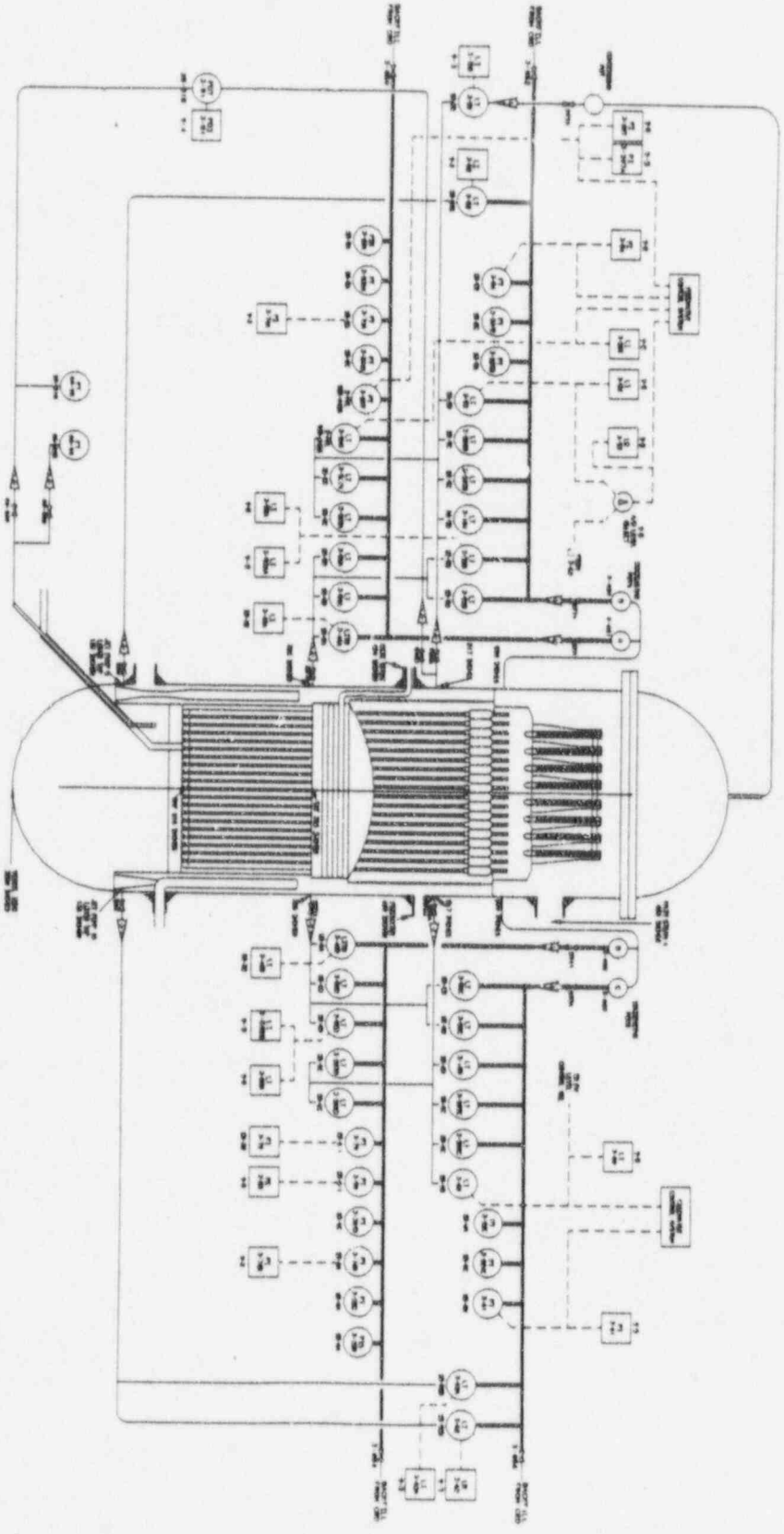
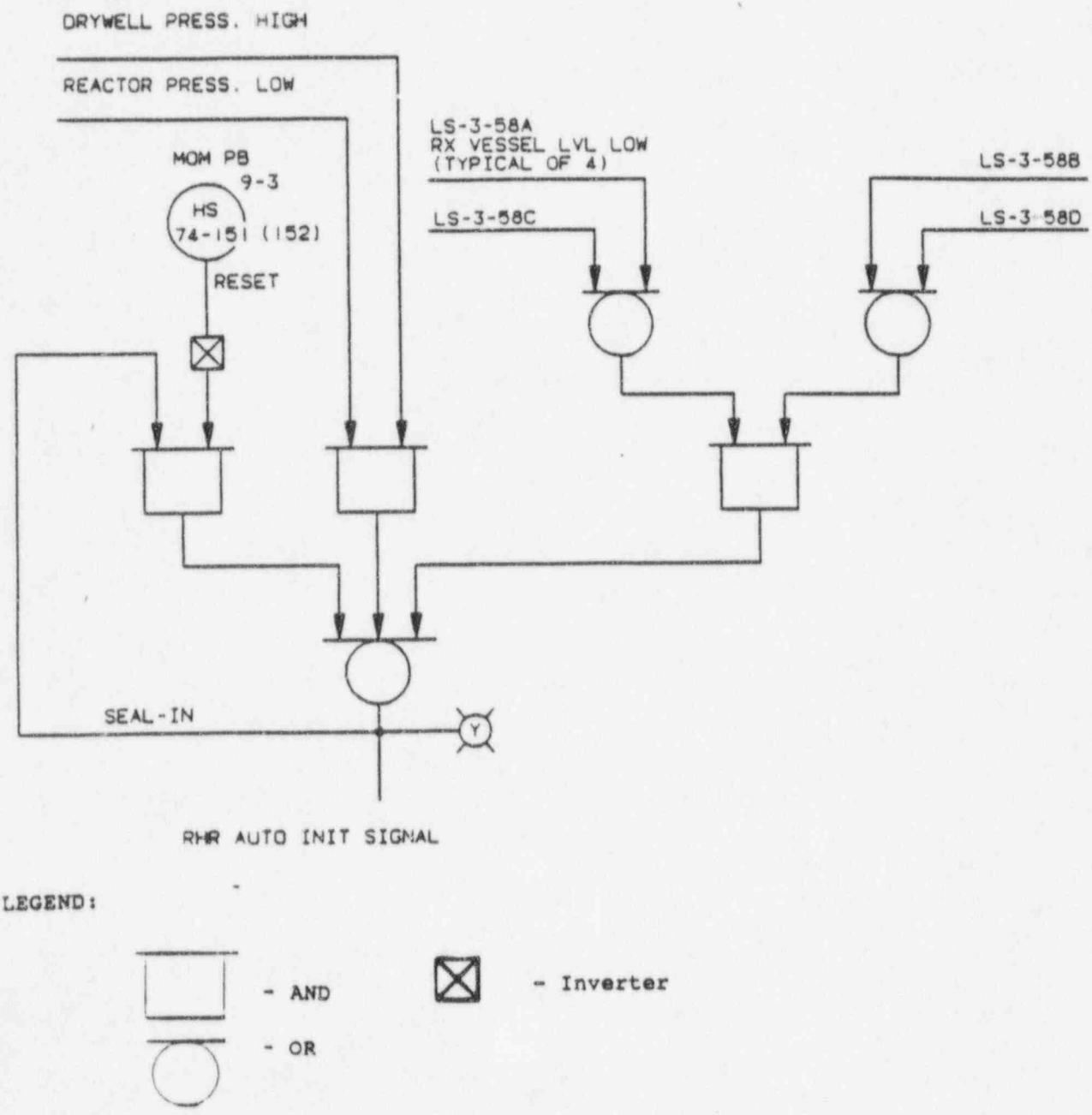


FIGURE 2
Reactor Vessel Water Level Instrumentation Initiating Logic



NOTE: The RHR automatic initiation logic is shown. The automatic initiation logic for Core Spray is similar.

IV. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

TVA has concluded that operation of Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 in accordance with the proposed change to the technical specifications does not involve a significant hazards consideration. TVA's conclusion is based on its evaluation, in accordance with 10 CFR 50.91(a)(1), of the three standards set forth in 10 CFR 50.92(c).

A. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change in the applicability of the minimum number of reactor low water level instrument channels required to be operable does not increase the frequency of the precursors to design basis events or operational transients analyzed in the Browns Ferry Final Safety Analysis Report. Therefore, the probability of an accident previously evaluated is not significantly increased.

While in a cold shutdown condition with the reactor vessel below 212 degrees Fahrenheit, the incidents to be considered are an inadvertent drain down of the reactor vessel due to a pipe break, a leak in the reactor coolant pressure boundary due to maintenance or valve mispositioning, or a recirculation pump seal failure. The other variable leg and its associated reactor vessel water level instrumentation will remain in service and be capable of initiating the required safety functions. In addition, several other reactor vessel water level instruments will remain in service and will provide the operators with reactor vessel water level indication in case of a single failure in the remaining variable leg. Based on input from this instrumentation, the operators would manually initiate the required safety functions, as appropriate. Therefore, the proposed changes will not significantly increase the consequences of an accident previously evaluated.

B. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The change to the number of reactor vessel water level trip systems required to be operable does not create a new pathway for radioactive material to reach the environment. The out of service instruments are used to indicate plant parameters and to initiate systems required to mitigate accidents or plant transients. The remaining instrumentation will still be available to automatically initiate the required functions. The operators will have sufficient time to manually

initiate the required functions if a single failure occurs in the remaining instrumentation. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

C. **The proposed amendment does not involve a significant reduction in a margin of safety.**

The proposed change to the number of reactor vessel water level trip systems required to be operable does not change the licensing or design basis limits for the initiation of protective actions. The time available for the control room operators to take manual actions will adequately compensate for the lack of single failure proof automatic initiation capability of the Core Spray and Low Pressure Coolant Injection systems during the period in which the affected systems will be out of service. Therefore, the proposed amendment does not involve a significant reduction in the margin of safety.

V. ENVIRONMENTAL IMPACT CONSIDERATION

The proposed change does not involve a significant hazards consideration, a change in the types of, or increase in, the amounts of any effluents that may be released offsite, or a significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.