December 1, 2004

10 CFR 54

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop: OWFN P1-35
Washington, D.C. 20555-0001

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 LICENSE RENEWAL APPLICATION – ELECTRICAL AND INSTRUMENT AND CONTROL SYSTEMS (I&C) SYSTEMS SECTION 2.5 – REQUEST FOR ADDITONAL INFORMATION (RAI) (TAC NOS. MC1704, MC1705, AND MC1706)

By letter dated December 31, 2003, TVA submitted, for NRC review, an application pursuant to 10 CFR 54, to renew the operating licenses for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. As part of its review of TVA's license renewal application, the NRC staff, by letter dated November 1, 2004, identified areas where additional information is needed to complete its review.

The request for additional information (RAI) relates to the Electrical and I&C Section 2.5 of the License Renewal Application, the Electrical and Instrumentation and Control scoping and screening results.

The enclosure to this letter contains the specific NRC requests for additional information and the corresponding TVA response.

If you have any questions regarding this information, please contact Ken Brune, Browns Ferry License Renewal Project Manager, at (423) 751-8421.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 1, 2004.

Sincerely,

Original signed by:

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cc: See page 3

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cc: continued page 4

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ENCLOSURE

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

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI),
RELATED TO ELECTRICAL AND INSTRUMENT AND CONTROL (I&C) SYSTEMS
SECTION 2.5

(SEE ATTACHED)

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

RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION (RAI), RELATED TO ELECTRICAL AND INSTRUMENT AND CONTROL (I&C) SYSTEMS SECTION 2.5

By letter dated December 31, 2003, the Tennessee Valley Authority (TVA) submitted for NRC review, an application pursuant to 10 CFR 54 to renew the operating licenses for the Browns Ferry Nuclear Plant, Units 1, 2, and 3. As part of its review of TVA's license renewal application, the NRC staff, by letter dated November 1, 2004, identified areas where additional information is needed to complete its review.

The request for additional information (RAI) relates to the Electrical and I&C Section 2.5 of the License Renewal Application, the Electrical and Instrumentation and Control scoping and screening results.

Listed below are the specific NRC information requests and the corresponding TVA responses.

NRC RAI 2.5-1

Section 2.5.1 of the LRA states that scoping and screening of electrical and I&C components was performed using the "spaces" approach described in Section 2.1. Were all plant spaces evaluated under this methodology? If any spaces were excluded from evaluation identify those spaces that were excluded and provide the reason why each space was excluded.

TVA Response to RAI 2.5-1

The "spaces" approach was used for scoping and screening of all plant spaces. The only time the "spaces" approach was not utilized was scoping and screening of the SBO recovery path. The "intended function" approach was utilized to identify which specific components were required for SBO recovery.

RAI 2.5-2

Section 2.5.1 of the LRA states that if a component in a commodity group existed in an area where the area conditions exceeded the commodity group's limiting environmental parameters; a further

evaluation could be performed to determine if the component was required for an in-scope system's intended function. Identify all the components that were excluded from the scope of license renewal as a result of these further evaluations and provide the basis used for excluding each component.

TVA Response to RAI 2.5-2

The following cables or cable types were scoped in by the "spaces" approach but screened out of the scope of license renewal using further evaluations:

Cable Type THHN is PVC insulated lighting wire. THHN lighting wire was used in one circuit in the Drywell for normal lighting. This circuit is not required for Appendix R or SBO lighting and was screened out of the scope of license renewal.

Cable Type TW is a PVC insulated ground wire. BFN uses an ungrounded electrical system thus equipment grounds are for personnel protection only and degradation of the PVC insulation would not adversely affect equipment operation.

The Safe Shutdown Analysis does not list any safety-related intended functions for Source Range and Intermediate Range Nuclear Instrumentation. Therefore, the Source Range and the Intermediate Range Nuclear Instrumentation circuitry are screened out and are not subject to an AMR.

The Safe Shutdown Analysis does not list any safety-related functions associated with the Rod Block Monitors (RBMs). Therefore, the RBM circuitry is screened out and is not subject to an AMR.

The only safety-related functions listed in the Safe Shutdown Analysis for the Traversing Incore Probe system (TIP) is provide a reactor coolant pressure boundary. Therefore, TIP circuitry is screened out and is not subject to an AMR.

The following inaccessible medium-voltage cables located in underground conduit duct banks were screened out and not subject to an AMR since they do not perform an intended function for license renewal as specified by 10 CFR 54.4.

- Cables routed to Off-gas Treatment Building transformers A & B

- Cables routed from the Condensate Circulating Water Pumps to the Condensate Circulating Water Pump (CCWP) capacitor banks
- Cables routed to Cooling Tower equipment

NRC RAI 2.5-3

On the three license renewal drawings identified in LRA Section 2.5.1 that depict the recovery path for station blackout (SBO), identify the location of each commodity group component in the recovery path circuit. Do the SBO recovery path circuits include the control circuit wiring that is associated with the power circuits shown on the drawings? If not, why? Are there any underground power circuits used in the SBO recovery paths? If so, were they identified as requiring an AMR? If not, why?

TVA Response to RAI 2.5-3

The following identifies the location of each commodity group component in the SBO recovery path.

Path from the 500 KV switchyard to the 4kV Shutdown Boards for all three units:

Transmission conductor runs between breaker 5214/5244/5264 and disconnect 5215/5245/5265.

Transmission conductor runs between breaker 5218/5248/5268 and disconnect 5219/5249/5269.

Switchyard bus runs between disconnect 5215/5245/5265 and disconnect 5219/5249/5269.

Transmission conductor runs from the tee between disconnect 5215/5245/5265 and disconnect 5219/5249/5269 to the Main Transformers with small sections of switchyard bus at the tee and main transformer.

Isolated phase bus runs between the Main Transformers and the Unit Station Service Transformers.

Non-segregated phase bus runs between the Unit Station Service Transformers and the 4kV Unit Boards.

All other busses between the 4kV Unit Boards and the 4kV Shutdown Boards are made of insulated cables.

Path from the 161kV switchyard to the 4kV Shutdown Boards for all three units:

Switchyard bus runs between disconnect 935 and disconnect 923, disconnect 925 and disconnect 929, and disconnect 927 and disconnect 919.

Transmission conductor runs between disconnect 923 and breaker 924, breaker 924 and disconnect 925, disconnect 929 and breaker 928, and breaker 928 and disconnect 927.

Transmission conductor runs from the tee between disconnects 935 & 923 and disconnects 919 & 902 to the Common Station Service Transformers with small sections of switchyard bus at the Common Station Service Transformer.

Non-segregated phase bus runs between the Common Station Service Transformers and the 4160V Unit Start Board.

All other busses between the 4160V Unit Start Board and the 4kV Shutdown Boards are made of insulated cables.

The SBO recovery path circuits include control circuit wiring. The low voltage power and control circuit wiring associated with the power circuit breakers and disconnects is included in the scope of license renewal.

There are no 500kV, 161kV, or 4kV underground power circuits used in SBO recovery paths.

RAI 2.5-4

During a telephone conference held on July 28, 2004, in response to draft request for additional information, D-RAI 3.6-3, the applicant stated that in 1997 a XLPE insulated CCWP capacitor bank cable failed in-service at BFN. Why were these cables not included within the scope of license renewal and identified as a component that requires an AMR?

TVA Response to RAI 2.5-4

The Condensate Circulating Water (CCW) system (system 027) is in scope for license renewal because it provides manual vacuum breaking capability to prevent backflow from cooling tower warm channel into the forebay upon trip of the CCW pumps.

As stated in response to RAI 2.5-2 above, the Condenser Circulating Water Pump (CCWP) capacitor bank cables are medium-voltage cables that do not perform an intended function for license renewal as specified in 10 CFR 54.4. Therefore, these cables are screened out and not subject to an AMR.

The capacitor bank provides additional starting power for the Condenser Circulating Water Pumps to minimize loading on the electrical distribution system.