

December 7, 1994

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

Dear Mr. Kingsley:

SUBJECT: ISSUANCE OF TECHNICAL SPECIFICATION AMENDMENTS FOR THE BROWNS FERRY
NUCLEAR PLANT UNIT 2 (TAC NO. M89471) (TS 347T)

The Commission has issued the enclosed Amendment No. 228 to Facility Operating
Licenses No. DPR-52 for the Browns Ferry Nuclear Plant (BFN) Unit 2. This
amendment is in response to your application dated May 11, 1994, requesting a
temporary extension of the allowed outage time for certain components at BFN
Unit 2.

A copy of the NRC's Safety Evaluation is enclosed. A Notice of Issuance will
be included in the Commission's next biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

Joseph F. Williams, Project Manager
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-260

- Enclosures: 1. Amendment No. 228 to License No. DPR-52
- 2. Safety Evaluation

Distribution w/enclosures

Docket File
PUBLIC
BFN Reading
S. Varga
J. Zwolinski
G. Hill T-5-C-3
C. Grimes O-11-E-22
ACRS (4)
OPA
OC/LFDCB T-9-E10
B. Boger RII
M. Lesser RII
J. Wing
A. Pal

090088

DOCUMENT NAME: G:\BFN\TS347T.AMD

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure
"E" = Copy with attachment/enclosure "N" = No copy

OFFICE	PDII-4/L	E	PDII-4/PM	E	OGC	FE	OTSB	N	PDII-4/D	C
NAME	Bogert		JWilliams		Abott		CGrimes		FHeddon	
DATE	11/21/94		11/21/94		12/5/94		11/22/94		12/7/94	

22 Nov 94
OTSB concurrence assumed separate documentation by EELB and SPSB.
SPSB + EELB POSITIONS ARE DOCUMENTED IN MEMORANDA DATED 11/21/94 AND 11/23/94, RESPECTIVELY.
JFW 11/23/94

9412120074 941207
PDR ADDCK 05000260
P PDR

OFFICIAL RECORD COPY

NRC FILE CENTER COPY

AMENDMENT NO. 288 FOR BROWNS FERRY UNIT 2 - DOCKET NO. 50-260
DATED: December 7, 1994

Distribution w/enclosure

Docket File

PUBLIC

BFN Reading

S. Varga

G. Hill (2)

T-5-C-3

A. Pal

J. Wing

ACRS (4)

OPA

OC/LFDCB

T-9-E10

L. Dudes

B. Boger

RII

M. Lesser

RII

Mr. Oliver D. Kingsley, Jr.
Tennessee Valley Authority

BROWNS FERRY NUCLEAR PLANT

cc:

Mr. O. J. Zeringue, Sr. Vice President
Nuclear Operations
Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Dr. Mark O. Medford, Vice President
Engineering & Technical Services
Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. D. E. Nunn, Vice President
New Plant Completion
Tennessee Valley Authority
3B Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. R. D. Machon, Site Vice President
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35602

General Counsel
Tennessee Valley Authority
ET 11H
400 West Summit Hill Drive
Knoxville, TN 37902

Mr. P. P. Carrier, Manager
Corporate Licensing
Tennessee Valley Authority
4G Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. T. D. Shriver
Nuclear Assurance and Licensing
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35602

Mr. Pedro Salas
Site Licensing Manager
Browns Ferry Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Decatur, AL 35602

TVA Representative
Tennessee Valley Authority
11921 Rockville Pike, Suite 402
Rockville, MD 20852

Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW., Suite 2900
Atlanta, GA 30323

Mr. Leonard D. Wert
Senior Resident Inspector
Browns Ferry Nuclear Plant
U.S. Nuclear Regulatory Commission
10833 Shaw Road
Athens, AL 35611

Chairman
Limestone County Commission
310 West Washington Street
Athens, AL 35611

State Health Officer
Alabama Department of Public Health
434 Monroe Street
Montgomery, AL 36130-1701



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 228
License No. DPR-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Tennessee Valley Authority (the licensee) dated May 11, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act); and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 228, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Frederick J. Hebdon, Director
Project Directorate II-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: December 7, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 228

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the enclosed pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change. Overleaf* pages are provided to maintain document completeness.

REMOVE

3.9/4.9-5
3.9/4.9-6

3.9/4.9-11
3.9/4.9-12

INSERT

3.9/4.9-5*
3.9/4.9-6
3.9/4.9-10a
3.9/4.9-10b
3.9/4.9-11
3.9/4.9-12*

3.9/4.9 AUXILIARY ELECTRICAL SYSTEM

LIMITING CONDITIONS FOR OPERATION

3.9.A. Auxiliary Electrical Equipment

3. Buses and Boards Available

- a. The respective start bus is energized for each common station-service transformer designated as an offsite power source.

- b. The 4-kV bus tie board is energized and capable of supplying power to the units 1 and 2 shutdown boards if a cooling tower transformer is designated as an offsite power source.

- c. The units 1 and 2 4-kV shutdown boards are energized.

SURVEILLANCE REQUIREMENTS

4.9.A. Auxiliary Electrical System

3. Logic Systems

- a. Both divisions of the common accident signal logic system shall be tested every 18 months to demonstrate that it will function on actuation of the core spray system of each reactor to provide an automatic start signal to all 4 units 1 and 2 diesel generators.

- b. Once every 18 months, the condition under which the 480-volt load shedding logic system is required shall be simulated using pendant test switches and/or pushbutton test switches to demonstrate that the load shedding logic system would initiate load shedding signals on the diesel auxiliary boards, RMOV boards, and the 480-V shutdown boards.

3.9/4.9 AUXILIARY ELECTRICAL SYSTEM

LIMITING CONDITIONS FOR OPERATION

3.9.A. Auxiliary Electrical Equipment

3.9.A.3. (Cont'd)

- d. The 480-V shutdown boards 2A and 2B are energized.
 - e. The units 1 and 2 diesel auxiliary boards are energized.
 - f. Loss of voltage and degraded voltage relays OPERABLE on 4-kV shutdown boards A, B, C, and D.
 - g. Shutdown buses 1 and 2 energized.
 - h. The 480-V reactor motor-operated valve (RMOV) boards 2D & 2E are energized with motor-generator (mg) sets 2DN, 2DA, 2EN, and 2EA in service.
4. The three 250-V unit batteries, the four shutdown board batteries, a battery charger for each battery, and associated battery boards are OPERABLE.*

*Except as specified in 3.9.B.8.c on page 3.9/4.9-10a from January 1, 1995, to December 31, 1995.

SURVEILLANCE REQUIREMENTS

4.9.A. Auxiliary Electrical System

4. Undervoltage Relays

- a. (Deleted)
- b. Once every 18 months, the conditions under which the loss of voltage and degraded voltage relays are required shall be simulated with an undervoltage on each shutdown board to demonstrate that the associated diesel generator will start.

3.9.B Operation With Inoperable Equipment

*8. From and after the date that one of the 250-V shutdown board batteries and/or its associated battery board is found to be inoperable for any reason, continued REACTOR POWER OPERATION is permissible during the succeeding five days in accordance with 3.9.B.7 except as noted in 3.9.B.8.a, b, and c below:

- a. For the purpose of shutdown board battery and component replacement only, REACTOR POWER OPERATION is permissible for the succeeding forty-five (45) days providing:
 1. Only one of the shutdown board batteries and associated components is being replaced at a time.
 2. All components normally supplied from the shutdown board battery which is being replaced are fed from its alternate source.
 3. Units 1 and 3 are defueled.
- b. NRC notification for 3.9.B.7 is not required for shutdown board battery and component replacement.
- c. Resumption of REACTOR POWER OPERATION is permissible following a shutdown while shutdown board battery and component replacements are in progress.

* From January 1, 1995, to December 31, 1995, the provisions of Specification 3.9.B.8 on this page will apply while modifications are being performed on the shutdown board batteries and/or their associated battery boards.

THIS PAGE INTENTIONALLY LEFT BLANK

3.9/4.9 AUXILIARY ELECTRICAL SYSTEM

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.9.B Operation With Inoperable Equipment

- | *8. From and after the date that one of the 250-V shutdown board batteries and/or its associated battery board is found to be INOPERABLE for any reason, continued REACTOR POWER OPERATION is permissible during the succeeding five days in accordance with 3.9.B.7.
9. When one division of the logic system is INOPERABLE, continued REACTOR POWER OPERATION is permissible under this condition for seven days, provided the CSCS requirements listed in Specification 3.9.B.3 are satisfied. The NRC shall be notified within 24 hours of the situation, the precautions to be taken during this period, and the plans to return the failed component to an OPERABLE state.
10. (deleted)
11. The following limiting conditions for operation exist for the undervoltage relays which start the diesel generators on the 4-kV shutdown boards.

| * From January 1, 1995, to December 31, 1995, the provisions of Specification 3.9.B.8 on page 3.9/4.9-10a will apply while modifications are being performed on the shutdown board batteries and/or their associated battery boards.

3.9/4.9 AUXILIARY ELECTRICAL SYSTEM

LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.9.B. Operation With Inoperable Equipment

3.9.B.11 (Cont'd)

- a. The loss of voltage relay channel which starts the diesel generator for a complete loss of voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the degraded voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b).
- b. The degraded voltage relay channel which starts the diesel generator for degraded voltage on a 4-kV shutdown board may be INOPERABLE for 10 days provided the loss of voltage relay channel on that shutdown board is OPERABLE (within the surveillance schedule of 4.9.A.4.b).
- c. One of the three phase-to-phase degraded voltage relays provided to detect a degraded voltage on a 4-kV shutdown board may be INOPERABLE for 15 days provided both of the following conditions are satisfied.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 228

TO FACILITY OPERATING LICENSE NO. DPR-52

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT UNIT 2

DOCKET NO. 50-260

1.0 INTRODUCTION

By letter dated May 11, 1994, the Tennessee Valley Authority (the licensee) requested an amendment to the technical specifications (TS) for the Browns Ferry Nuclear Plant (BFN) Unit 2. This request proposes a temporary extension of the allowed outage time (AOT) given in TS 3.9.B.8 for 250 V dc shutdown board control power supply (250 V dc SDBCPS) batteries. The licensee proposes to extend the AOT while it replaces these batteries and associated hardware that supply 250 V dc control power to the BFN Unit 1 and 2 shutdown boards. The replacement is needed because the batteries are approaching the end of their service life, and additional capacity will be needed to support multi-unit operation.

The licensee determined that approximately 45 days will be required to perform the modifications and conduct necessary testing for each power supply. TS 3.9.B.8 permits an AOT of 5 days if one of the batteries and/or associated battery board that supplies shutdown board control power is found to be inoperable. The temporary AOT extension applies only to the power supply being modified. The existing 5-day AOT will remain in effect for the existing power supplies prior to the modification, and to the modified power supplies after their return to service. The licensee plans to begin these modifications in early 1995, and has requested that the extended AOT be in effect from January 1 to December 31, 1995.

2.0 EVALUATION

2.1 Proposed Temporary Changes to the TS

The licensee proposed to change the BFN Unit 2 TS Section 3.9.B.8 temporarily for a period of 1 year from January 1, 1995, to December 31, 1995. At present, the TS Section 3.9.B.8 reads as follows:

From and after the date that one of the 250-V shutdown board batteries and/or its associated battery board is found to be INOPERABLE for any reason, continued REACTOR POWER OPERATION is permissible during the succeeding five days in accordance with 3.9.B.7.

ENCLOSURE 2

The licensee proposed to change the TS Section 3.9.B.8 as follows:

From and after the date that one of the 250-V shutdown board batteries and/or its associated battery board is found to be inoperable for any reason, continued REACTOR POWER OPERATION is permissible during the succeeding five days in accordance with 3.9.B.7 except as noted in 3.9.B.8.a,b, and c below:

- a. For the purpose of shutdown board battery and component replacement only, REACTOR POWER OPERATION is permissible for the succeeding forty-five (45) days providing:
 1. Only one of the shutdown board batteries and associated components is being replaced at a time.
 2. All components normally supplied from the shutdown board battery which is being replaced are fed from its alternate source.
 3. Units 1 and 3 are defueled.
- b. NRC notification for 3.9.B.7 is not required for shutdown board battery and component replacement.
- c. Resumption of REACTOR POWER OPERATION is permissible following a shutdown while shutdown board battery and component replacements are in progress.

NOTE: The provisions of specification 3.9.B.8 will apply from January 1, 1995, to December 31, 1995, while modifications are being performed on the shutdown board batteries and/or their associated battery boards.

The licensee also proposes to add a reference to the temporary AOT extension to TS 3.9.A.4.

2.2 Discussion

The licensee stated that the extension of the AOT is required to allow performance of the control power system upgrade at power. Four 250 V dc control power supplies (A, B, C, and D) provide control power to Units 1 and 2, 480 V and 4160 V shutdown boards and anticipated transient without scram (ATWS) loads. The existing batteries are approaching the end of their qualified service life, and will soon need to be replaced. The first battery's qualified service life expires in November 1996.

The licensee has designed a new 250 V dc SDBCPS system to handle the new loads added since previous three-unit operation. Modifications to install new components are needed to support the return to service of BFN Unit 3, which is expected in late 1995 or early 1996. The primary new load to be added is the

ATWS mitigation system for Units 1 and 3. Other miscellaneous loads will also be added.

The existing power supplies are of lead-calcium grid construction (C&D type 3DCU-9) with a 1-minute rating of 148 amperes and an 8-hour discharge rating of 100 ampere-hours at a terminal voltage of 210 V at 77°F. The C&D type KCR-11 batteries were selected as the most practical replacement battery considering multi-unit operation load requirements, available margin, and economics. The new batteries will have a 1-minute rating of 500 amperes and an 8-hour discharge rating of 410 ampere-hours at a terminal voltage of 210 V at 77°F.

Each shutdown board is supplied 250 V dc control power from a normal source (250 V dc control power supply) or from an alternate safety-related source (250 V unit dc power supply). The ATWS loads also have redundant control power supplies from 250 V dc control power system. To ensure that a reliable source of control power is available to the shutdown boards while the modifications are in progress, control power for the affected shutdown boards will be provided by their alternate power supply. The licensee has determined that the alternate power supply has adequate capacity to supply loads under normal and accident conditions. Calculations were performed to show that normal and accident electrical loading on alternate source is acceptable. All cables used for the alternate feeds have been evaluated for ampacity, voltage drop, short-circuit, and protection considerations, and determined to be acceptable. The power supply configuration during the modification period is essentially the same as currently exists when a 250 V dc SDBCPS is out of service within the 5-day AOT period.

Due to an increase in the size and weight of the new batteries, new seismic Class 1, three-tier battery racks will be fabricated and installed. Larger capacity battery chargers will also be installed. The existing battery chargers have a capacity of 20 amperes. With BFN Units 2 and 3 operating, the chargers will need to have a capacity of at least 22 amperes. The new charger has a capacity of 50 amperes. Furthermore, the existing 250 V dc control power supply distribution panels are rated at 100 amperes and are too small to accommodate load growth and hence will be replaced by new 300 ampere, 250 V dc panels. The existing ground fault detectors for the 250 V dc control power supplies will be replaced by new detectors that are located on the new distribution panels. Also, the power supplies to these ground fault detectors will be upgraded. The electrical cables and circuits associated with the 250 V dc control power supplies (e.g., battery charger circuit breakers and input and output power cables) will be replaced. The replaced cables will be installed in conduits and are seismically qualified.

The licensee reviewed the maintenance activities associated with the system batteries and found several recent battery malfunctions. The licensee stated it believes that the installation of new components will increase system reliability.

The licensee stated that the existing batteries require annual maintenance as they approach the end of their qualified life. Installing new batteries will reduce the maintenance requirements since the new batteries will require

biennial maintenance. Furthermore, the annual maintenance requires that the batteries be removed from service, reducing their availability. Therefore, increasing the maintenance period will improve the system's overall availability.

The licensee stated that the modifications to the BFN Unit 1 and 2 control power supplies will be performed in series on one power supply at a time. The modifications to the first control power supply are scheduled to begin in early January 1995. The remaining power supply modifications will follow promptly while minimizing the impact on the plant. The licensee estimates that the modifications work and testing on each power supply will require approximately 45 days to complete. The licensee estimates that a 2-week period in between each modification period is needed to prepare for the work and conduct maintenance and testing of other equipment. This 2-week period extends the time needed to perform modifications on each power supply to approximately 2 months each, so approximately 8 months is required to perform the four power supply modifications. The licensee's schedule included an additional 4 months for contingency purposes to ensure that unforeseen circumstances can be handled without additional impact on NRC and TVA. Therefore, the temporary TS change is needed for a period of 1 year.

The licensee committed to implement compensatory measures while performing the modifications during operation. These compensatory measures include developing a special procedure to address actions for dealing with transients or accidents, restricting the testing and maintenance that can be performed while modifications are in progress, and providing alternative means of supplying control power. The following compensatory measures will be in effect during the time that 250 V dc SDBCPS modifications are in progress:

- No planned maintenance on any of the safety-related 250 V dc power supplies that could affect their operation will be scheduled. Planned maintenance will be limited to those periods between control power supply modification outages.
- There will be no planned maintenance which could render critical safety equipment (such as diesel generators or emergency core cooling system pumps) out of service unless authorized by the Plant Manager. The licensee will develop a list of critical safety equipment within the scope of this limitation.
- Unplanned corrective maintenance will not be performed on critical safety equipment unless necessary to restore operability. This unplanned maintenance will receive the highest priority.
- Testing on the 250 V power supplies and critical safety equipment will be scheduled around control power supply modification outage periods where possible.
- Pre-job briefings to ensure that individuals are familiar with the scope of the special modifications activities, knowledgeable of their responsibilities, and aware of the hazards involved, will be conducted prior to beginning modifications on each power supply.

- Modification work will be performed in accordance with approved procedures and work instructions. Special training and procedures will be provided to operations personnel describing the actions to be taken if a 250 V dc power supply failure occurs while it is supplying shutdown board control power loads.
- If a 250 V plant dc power supply malfunctions while it is supplying shutdown board control power, the normal plant loads can be transferred to their alternate power supplies. However, control power will be lost to the affected shutdown boards. Therefore, a temporary power supply cable will be staged and made available so that control power can be restored to the shutdown boards.

These compensatory measures provide controls above and beyond those required by the Technical Specifications. These measures provide additional assurance that the facility will be operated in a safe manner for the duration of the 250 V dc SDBCPS modification activities.

Since the plant configuration during the proposed modification period is very similar to that existing during the current AOT period, the change in risk to the facility is dominated by the change in the AOT period from 5 to 45 days. The licensee evaluated the potential increase of the reactor core damage frequency of using the five alternate shutdown board control power supply systems during the proposed modification periods. Note that one of these modifications, BFN Unit 3 250 V dc SDBCPS 3EB, is permissible under the existing TS because BFN Unit 3 is defueled. No TS change is required to permit the licensee to upgrade this system. The proposed TS change is relevant only to the modifications to the BFN Unit 1 and 2 250 V dc SDBCPS, designated "A," "B," "C," and "D."

For the estimation of the core damage frequencies, the licensee used a probabilistic risk assessment (PRA) model derived from the BFN Unit 2 Individual Plant Examination (IPE), designated BFNQUICK. The truncation limits in this model were altered slightly to shorten the computation time. The altered model was shown to give a reactor core damage frequency comparable to that in the IPE for normal alignment of the shutdown board control power supply systems. The failure rates of various components in the power supply systems were also taken from the IPE.

The BFN Unit 2 IPE was submitted by the licensee on September 1, 1992. In response to staff requests on August 4, 1993 and November 19, 1993, the licensee provided additional information on September 21, 1993 and December 28, 1993. This information was reviewed by the NRC staff and its contractors. Results of this review were issued on September 28, 1994. In this review, the staff concluded that the IPE met the intent of Generic Letter 88-20 with no unresolved issues except that the licensee needs to further examine the benefit of certain containment performance improvements. These exceptions are not relevant to the proposed TS amendment.

The licensee used the BFNQUICK model to estimate the reactor core damage frequencies for the five SDBCPS systems, assuming that the normal batteries

were unavailable and the alternate batteries were used. The event trees were modified to reflect this assumption.

The estimated increase in the core damage frequency of using the alternate power systems over the normal alignment during a given modification ranges from 0.4 to 1.1 percent for the four cases affected by the proposed TS. The licensee provided no uncertainty analysis of the computation.

The staff has determined that the methodology used in the licensee's assessment is appropriate, the assumptions made are reasonable, and the supporting data are relevant. The staff concludes that the licensee's analysis is capable of determining whether the proposed modification would significantly affect the overall core damage risk.

The staff has determined that the licensee's assessment of the proposed battery modification activities during BFN Unit 2 power operations is valid, and the estimated overall potential increase in risk from relying upon the alternate power systems is negligibly small. The licensee's proposed activity also constitutes negligible risk to BFN Units 1 and 3 while they are shutdown and defueled during the planned modifications. Although the licensee provided no uncertainty analysis, the staff believes that the computed risk increase is within the uncertainty of the model calculations, based on the staff's knowledge of the PRA used in the IPE, and the staff's general knowledge of PRA methods and results.

The staff determined that there is diversity in the electrical distribution system at the Browns Ferry Nuclear Plant. This system was designed to support simultaneous power operation of three units. Since only BFN Unit 2 will be operating during the planned modification, there will be a large excess of electrical capacity and capability available.

The licensee has proposed that NRC notification per TS 3.9.B.7 not be required for the SDBCPS modifications. The resident inspector staff and other NRC personnel routinely closely monitor the licensee's modification activities. Therefore, deleting NRC notification requirements for these modifications is not expected to inhibit the agency's ability to monitor and evaluate the licensee's activities. Other requirements outside the scope of the modification activities are unaffected. Therefore, this proposed change is acceptable.

The licensee has proposed to permit the reactor to resume power operations if there is a shutdown during a modification period. The staff concludes that restarting the reactor does not represent a risk materially different from any risk associated with power operations prior to any shutdown. Other requirements outside the scope of the modification activities are unaffected. Therefore, this proposed change is acceptable.

The licensee has proposed to add a reference in TS 3.9.A.4 to the temporary allowed outage time extension. This reference is consistent with other requirements as discussed above, and is acceptable.

2.3 Summary

Based on its review, the staff agrees with the licensee that extending the 250 V dc SDBCPS AOT to 45 days will not adversely impact the health and safety of the public. The planned modifications will increase the capacity and reliability of the 250 V dc shutdown board control power supply system, which the staff believes is a net safety benefit. The proposed temporary amendment would allow the power supplies to be replaced without requiring a lengthy extension to a future Unit 2 refueling outage, or a costly modification to temporarily fulfill the 250 V dc SDBCPS functions during the modification period. The staff feels that the following considerations justify performance of the modifications while Unit 2 is operating:

- BFN Units 1 and 3 will be defueled during the modification. This results in a reduced electrical load on the batteries and excess capacity being available. The BFN electrical distribution system is designed to support operation of three units simultaneously. Since only BFN Unit 2 will be operating for the duration of the AOT extension, there is a large excess of electrical capacity available during the modification period.
- All safety systems will have power available and will remain operable during the proposed modifications. Appropriate configuration controls will be implemented by the licensee to ensure the continued availability of critical systems, and their prompt return to service if they are taken out of service for unplanned corrective maintenance.
- The licensee will implement other compensatory measures during the modifications periods, including training and materials which will improve the ability of facility personnel to recognize and mitigate the effects of a postulated control power supply failure.
- Only one shutdown board control power supply will be removed from service at a time. There is no change in the TS requirements associated with the control power systems which are not in the process of being modified.
- At no time during a modification period will any of the three plant power supplies be removed from service for planned maintenance. Therefore, 250 V dc control power will be provided through qualified, alternate safety-related power supplies for the duration of the modification period.
- Performing the proposed 250 V dc system modification will increase system reliability and is required for multi-unit operation due to an increase in loads. The staff believes this modification represents a net safety benefit to future facility operations as the existing control power supplies are replaced with more reliable and capable systems.
- The licensee's PSA is acceptable justification demonstrating there is an insignificant increase in risk associated with the proposed amendment.

- The removal of NRC reporting requirements and restart restrictions does not significantly affect the agency's ability to monitor licensee activities or significantly increase risk to the facility.

Based on these factors, the licensee's proposed TS to increase the allowed outage time, remove reporting requirements, and remove restart restrictions during the power supply modification are acceptable. The staff grants these amendments for a period of one year from January 1, 1995, to December 31, 1995.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Alabama State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes the surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (59 FR 42347). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based upon the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and (3) issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Amar Pal, James Wing, and Joseph Williams

Dated: December 7, 1994