LICENSE AUTHORITY FILE COPY

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

DO NOT REMOVE

June 25, 1984

Docket Nos. 50-259/260/296

Posted
Amdt. 95
to DPR-52

Mr. Hugh G. Parris
Manager of Power
Tennessee Valley Authority
500A Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Dear Mr. Parris:

The Commission has issued the enclosed Amendment Nos. 101, 95 and 68 to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3. These amendments are in response to your application dated November 7, 1983 (TVA BFNP TS 193)

The amendments change the Technical Specifications to eliminate the need for portable fuel loading chambers or periodic SRM source checks during a full core reload with both fresh and irradiated fuel.

A copy of the Safety Evaluation is also enclosed.

Sincerely,

Richard J. Clark

Richard J. Clark, Project Manager
Operating Reactors Branch #2
Division of Licensing

Enclosures:
1. Amendment No. 101to
   License No. DPR-33
2. Amendment No. 95 to
   License No. DPR-52
3. Amendment No. 68 to
   License No. DPR-68
4. Safety Evaluation

cc w/enclosures:
See next page

Mr. Hugh G. Parris
Tennessee Valley Authority
Browns Ferry Nuclear Plant, Units 1, 2 and 3

cc:

H. S. Sanger, Jr., Esquire
General Counsel
Tennessee Valley Authority
400 Commerce Avenue
E 11B 330
Knoxville, Tennessee 37902

Mr. Ron Rogers
Tennessee Valley Authority
400 Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Mr. Charles R. Christopher
Chairman, Limestone County Commission
Post Office Box 188
Athens, Alabama 35611

Ira L. Myers, M. D.
State Health Officer
State Department of Public Health
State Office Building
Montgomery, Alabama 36130

Mr. H. N. Culver
249A HBD
400 Commerce Avenue
Tennessee Valley Authority
Knoxville, Tennessee 37902

James P. O'Reilly
Regional Administrator
Region II Office
U. S. Nuclear Regulatory Commission
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

U. S. Environmental Protection
Agency
Region IV Office
Regional Radiation Representative
345 Courtland Street, N. W.
Atlanta, Georgia 30308

Resident Inspector
U. S. Nuclear Regulatory Commission
Route 2, Box 311
Athens, Alabama 35611

Mr. Donald L. Williams, Jr.
Tennessee Valley Authority
400 West Summit Hill Drive, W10B85
Knoxville, Tennessee 37902

George Jones
Tennessee Valley Authority
Post Office Box 2000
Decatur, Alabama 35602

Mr. Oliver Havens
U. S. Nuclear Regulatory Commission
Reactor Training Center
Osborne Office Center, Suite 200
Chattanooga, Tennessee 37411

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 101
License No. DPR-33

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated November 7, 1983, 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-33 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 101, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 25, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 101

FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Revise Appendix A as follows:

1. Remove the following pages and replace with identically numbered pages.

305

311

2. The marginal lines on these pages denote the area being changed.

3. Add the following new page:

305A

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.10.A Refueling Interlocks	4.10.A Refueling Interlocks
being withdrawn may be bypassed on a withdrawn control rod after the fuel assemblies in the cell containing (controlled by) that control rod have been removed from the reactor core. All other refueling interlocks shall be operable.	
B. Core Monitoring	B. Core Monitoring
1. During core alterations, except as in 3.10.B.2, two SRM's shall be operable, in or adjacent to any quadrant where fuel or control rods are being moved. For an SRM to be considered operable, the following shall be satisfied:	Prior to making any alterations to the core the SRM's shall be functionally tested and checked for neutron response. Thereafter, while required to be operable, the SRM's will be checked daily for response except as specified in 3.10.B.1.b.2.
a. The SRM shall be inserted to the normal operating level. (Use of special moveable, dunking type detectors during initial fuel loading and major core alterations in place of normal detectors is permissible as long as the detector is connected to the normal SRM circuit.)	
b.1 The SRM shall have a minimum of 3 cps with all rods fully inserted in the core, if one or more fuel assemblies are in the core, or,	
b.2 During a full core reload where both irradiated and fresh fuel is being loaded, SRM's (FLC's) may have a count rate of <3 cps provided that the SRM's are response checked at least once every 8 hours with a neutron source until >3 cps can be maintained, and provided also that the core is loaded in a spiral sequence only, or	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.10.B b.3 During a full core reload where both irradiated and fresh fuel are being loaded, four (4) irradiated fuel assemblies will be placed adjacent to each SRM to establish a count rate of >3 cps, provided each SRM is functionally tested prior to adjacent fuel loading, a neutron response is observed as the adjacent fuel is loaded, and the core is loaded in a spiral sequence only after the SRM adjacent fuel loading.	

REFERENCES

1. Refueling interlocks (BFNP FSAR Subsection 7.6)

B. Core Monitoring

The SRM's are provided to monitor the core during periods of station shutdown and to guide the operator during refueling operations and station startup. Requiring two operable SRM's in or adjacent to any core quadrant where fuel or control rods are being moved assures adequate monitoring of that quadrant during such alterations. The requirement of 3 counts per second provides assurance that neutron flux is being monitored and ensures that startup is conducted only if the source range flux level is above the minimum assumed in the control rod drop accident.

During a full core reload SRM/FLC (Fuel Loading Chamber) operability will be verified using a portable external source at least once every 8 hours until sufficient fuel has been loaded to maintain 3 cps. A large number of fuel assemblies will not be required to maintain 3 cps. This increased surveillance rate assures proper detector operability until that time.

During a full core reload, irradiated fuel may be placed adjacent to each SRM to maintain a count rate >3 cps. Four (4) irradiated fuel assemblies will be placed in the four adjacent fuel locations to each SRM to establish the >3 cps count rate. The response of each SRM to the adjacent fuel loading will demonstrate neutron response. Each SRM will be functionally tested prior to loading the adjacent fuel assemblies. This precludes the use of FLC's as mandatory for a full core reload.

Under the special condition of removing the full core with all control rods inserted and electrically disarmed, it is permissible to allow SRM count rate to decrease below 3 cps. All fuel moves during core unloading will reduce reactivity. It is expected that the SRM's will drop below 3 cps before all of the fuel is unloaded. Since there will be no reactivity additions during this period, the low number of counts will not present a hazard. When all of the fuel has been removed to the spent fuel storage pool, SRM's will no longer be required. Requiring the SRM's to be functionally tested prior to fuel removal assures that the SRM's will be operable at the start of fuel removal. The daily response check of the SRM's ensures their continued operability until the count rate diminishes due to fuel removal. Control rods in cells from which all fuel has been removed and which are outside the periphery of the then existing fuel matrix may be armed electrically and moved for maintenance purposes during full core removal, provided all rods that control fuel are fully inserted and electrically disarmed.

REFERENCES

1. Neutron Monitoring System (BFNP FSAR Subsection 7.5)

2. Morgan, W. R.,"In-Core Neutron Monitoring System for General Electric Boiling Water Reactors," General Electric Company, Atomic Power Equipment Department, November 1968, revised April 1969 (APED-5706)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 95
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 November 7, 1983, 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. 95 , 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 25, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 95

FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Revise Appendix A as follows:

1. Remove the following pages and replace with identically numbered pages.

305

311

2. The marginal lines on these pages denote the area being changed.

3. Add the following new page:

305A

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.10.A Refueling Interlocks	4.10.A Refueling Interlocks
being withdrawn may be bypassed on a withdrawn control rod after the fuel assemblies in the cell containing (controlled by) that control rod have been removed from the reactor core. All other refueling interlocks shall be operable.	
B. Core Monitoring	B. Core Monitoring
1. During core alterations, except as in 3.10.B.2, two SRM's shall be operable, in or adjacent to any quadrant where fuel or control rods are being moved. For an SRM to be considered operable, the following shall be satisfied:	Prior to making any alterations to the core the SRM's shall be functionally tested and checked for neutron response. Thereafter, while required to be operable, the SRM's will be checked daily for response except as specified in 3.10.B.1.b.2.
a. The SRM shall be inserted to the normal operating level. (Use of special moveable, dunking type detectors during initial fuel loading and major core alterations in place of normal detectors is permissible as long as the detector is connected to the normal SRM circuit.)	
b.1 The SRM shall have a minimum of 3 cps with all rods fully inserted in the core, if one or more fuel assemblies are in the core, or,	
b.2 During a full core reload where both irradiated and fresh fuel is being loaded, SRM's (FLC's) may have a count rate of <3 cps provided that the SRM's are response checked at least once every 8 hours with a neutron source until >3 cps can be maintained, and provided also that the core is loaded in a spiral sequence only, or	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.10.B b.3 During a full core reload where both irradiated and fresh fuel are being loaded, four (4) irradiated fuel assemblies will be placed adjacent to each SRM to establish a count rate of >3 cps, provided each SRM is functionally tested prior to adjacent fuel loading, a neutron response is observed as the adjacent fuel is loaded, and the core is loaded in a spiral sequence only after the SRM adjacent fuel loading.	

3.10 BASES

REFERENCES

1. Refueling interlocks (BFNP FSAR Subsection 7.6)

B. Core Monitoring

The SRM's are provided to monitor the core during periods of station shutdown and to guide the operator during refueling operations and station startup. Requiring two operable SRM's in or adjacent to any core quadrant where fuel or control rods are being moved assures adequate monitoring of that quadrant during such alterations. The requirement of 3 counts per second provides assurance that neutron flux is being monitored and ensures that startup is conducted only if the source range flux level is above the minimum assumed in the control rod drop accident.

During a full core reload SRM/FLC (Fuel Loading Chamber) operability will be verified using a portable external source at least once every 8 hours until sufficient fuel has been loaded to maintain 3 cps. A large number of fuel assemblies will not be required to maintain 3 cps. This increased surveillance rate assures proper detector operability until that time.

During a full core reload, irradiated fuel may be placed adjacent to each SRM to maintain a count rate >3 cps. Four (4) irradiated fuel assemblies will be placed in the four adjacent fuel locations to each SRM to establish the >3 cps count rate. The response of each SRM to the adjacent fuel loading will demonstrate neutron response. Each SRM will be functionally tested prior to loading the adjacent fuel assemblies. This precludes the use of FLC's as mandatory for a full core reload.

Under the special condition of removing the full core with all control rods inserted and electrically disarmed, it is permissible to allow SRM count rate to decrease below 3 cps. All fuel moves during core unloading will reduce reactivity. It is expected that the SRM's will drop below 3 cps before all of the fuel is unloaded. Since there will be no reactivity additions during this period, the low number of counts will not present a hazard. When all of the fuel has been removed to the spent fuel storage pool, SRM's will no longer be required. Requiring the SRM's to be functionally tested prior to fuel removal assures that the SRM's will be operable at the start of fuel removal. The daily response check of the SRM's ensures their continued operability until the count rate diminishes due to fuel removal. Control rods in cells from which all fuel has been removed and which are outside the periphery of the then existing fuel matrix may be armed electrically and moved for maintenance purposes during full core removal, provided all rods that control fuel are fully inserted and electrically disarmed.

REFERENCES

1. Neutron Monitoring System (BFNP FSAR Subsection 7.5)

2. Morgan, W. R.,"In-Core Neutron Monitoring System for General Electric Boiling Water Reactors," General Electric Company, Atomic Power Equipment Department, November 1968, revised April 1969 (APED-5706)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 68
License No. DPR-68

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated November 7, 1983, 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-68 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 68, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 25, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 68

FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Revise Appendix A as follows:

1. Remove the following pages and replace with identically numbered pages.

336

342

2. The marginal lines on these pages denote the area being changed.

3. Add the following new page:

336A

3.10 CORE ALTERATIONS

B. Core Monitoring

1. During core alterations, except as in 3.10.B.2, two SRM's shall be operable, in or adjacent to any quadrant where fuel or control rods are being moved. For an SRM to be considered operable, the following shall be satisfied:

a. The SRM shall be inserted to the normal operating level. (Use of special moveable, dunking type detectors during initial fuel loading and major core alterations in place of normal detectors is permissible as long as the detector is connected to the normal SRM circuit.)

b.1 The SRM shall have a minimum of 3 cps with all rods fully inserted in the core, if one or more fuel assemblies are in the core, or

b.2 During a full core reload where both irradiated and fresh fuel is being loaded, SRM's (FLC's) may have a count rate of <3 cps provided that the SRM's are response checked at least once every 8 hours with a neutron source until >3 cps can be maintained, and provided also that the core is loaded in a spiral sequence only, or

4.10 CORE ALTERATIONS

B. Core Monitoring

Prior to making any alterations to the core the SRM's shall be functionally tested and checked for neutron response. Thereafter, while required to be operable, the SRM's will be checked daily for response except as specified in 3.10.B.1.b.2.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.10.B.	
b.3 During a full core reload where both irradiated and fresh fuel are being loaded, four (4) irradiated fuel assemblies will be placed adjacent to each SRM to establish a count rate of >3 cps, provided each SRM is functionally tested prior to adjacent fuel loading, a neutron response is observed as the adjacent fuel is loaded, and the core is loaded in a spiral sequence only after the SRM adjacent fuel loading.	

provides primary reactivity control for the fuel assemblies in the cell associated with that control rod.

Thus, removal of an entire cell (fuel assemblies plus control rod) results in a lower reactivity potential of the core. The requirements for SRM operability during these core alterations assure sufficient core monitoring.

REFERENCES

1. Refueling interlocks (BFNP FSAR Subsection 7.6)

B. Core Monitoring

The SRM's are provided to monitor the core during periods of station shutdown and to guide the operator during refueling operations and station startup. Requiring two operable SRM's in or adjacent to any core quadrant where fuel or control rods are being moved assures adequate monitoring of that quadrant during such alterations. The requirement of 3 counts per second provides assurance that neutron flux is being monitored and insures that startup is conducted only if the source range flux level is above the minimum assumed in the control rod drop accident.

During a full core reload SRM/FLC (Fuel Loading Chamber) operability will be verified using a portable external source at least once every 8 hours until sufficient fuel has been loaded to maintain 3 cps. A large number of fuel assemblies will not be required to maintain 3 cps. This increased surveillance rate assures proper detector operability until that time.

During a full core reload, irradiated fuel may be placed adjacent to each SRM to maintain a count rate >3 cps. Four (4) irradiated fuel assemblies will be placed in the four adjacent fuel locations to each SRM to establish the >3 cps count rate. The response of each SRM to the adjacent fuel loading will demonstrate neutron response. Each SRM will be functionally tested prior to loading the adjacent fuel assemblies. This precludes the use of FLC's as mandatory for a full core reload.

Under the special condition of removing the full core with all control rods inserted and electrically disarmed, it is permissible to allow SRM count rate to decrease below 3 cps. All fuel moves during core unloading will reduce reactivity. It is expected that the SRM's will drop below 3 cps before all of the fuel is unloaded. Since there will be no reactivity additions during this period, the low number of counts will not present a hazard. When all of the fuel has been removed to the spent fuel storage pool, SRM's will no longer be required. Requiring the SRM's to be functionally tested prior to fuel removal assures that the SRM's will be operable at the start of fuel removal. The daily response check of the SRM's ensures their continued operability until the count rate diminishes due to fuel removal. Control rods in cells from which all fuel has been removed may be armed electrically and moved for maintenance purposes during full core removal, provided all rods that control fuel are fully inserted and electrically disarmed.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 101TO FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 95 TO FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 68 TO FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNIT NOS. 1, 2 AND 3

DOCKET NOS. 50-259, 50-260 AND 50-296

1.0 Introduction

By letter dated November 7, 1983 (TS-193) the Tennessee Valley Authority (the licensee or TVA) requested amendments to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2 and 3. The amendments would permit irradiated fuel assemblies to be loaded next to source range monitor (SRM) detectors for use as neutron sources to verify SRM operability. This would eliminate the need for use of portable fuel loading chambers (FLC's) or periodic SRM source tests during a full core reload.

2.0 Evaluation

The requested change is an addition to the limiting condition for operations (LCO) for core monitoring during core alterations. The addition will be 3.10.B.1.b.3 in each of the unit's TS. The addition is to the conditions required for a Source Range Monitor (SRM) to be considered operable. The specific area addressed is the LCO related to minimum count rate.

There are currently two alternatives to meet a minimum count rate. These are, (1) have greater than 3 counts per second (3 CPS) with all control rods inserted if one or more fuel assemblies are in the core or (2) during a full core reload, which includes irradiated fuel, have less than 3 CPS provided the SRMs are checked for source response every 8 hours and the core is loaded in a spiral sequence.

The second alternative was approved in Amendment Nos. 53, 48 and 25 to Facility Operating License Nos. DPR-33, DPR-52 and DPR-68, respectively, issued October 11, 1979. This previous review covered most of the aspects relevant to the present change request.

As with alternative (2), the proposed amendments also apply to a full core reload which includes irradiated fuel and a spiral loading sequence. In

this alternative, however, the greater than 3 CPS count rate will be obtained by placing irradiated fuel assemblies adjacent to each SRM prior to the spiral fuel loading. Neutrons from the irradiated fuel will provide the count rate. This eliminates the requirement for (8 hour) source response checks required when the SRMS are below 3 CPS.

The requested change states that 4 irradiated assemblies will be placed adjacent to each SRM before beginning spiral loading, that each SRM will be functionally tested prior to adjacent loading, that neutron response will be observed during adjacent loading and that greater than 3 CPS will be required following adjacent loading. It is expected that this procedure will eliminate the need for the moveable dunking chambers (FLCs) previously used to supplement SRMs.

The irradiated fuel neutron source provides a continious source check for SRM operability rather than the periodic (8 hour) check of the second alternative. Since 4 adjacent fuel assemblies are well subcritical, even with no control rods (about 16 clustered and uncontrolled assemblies are required for a critical state), and the groups around the various SRMs are too separated to interact, there is no problem with criticality in loading the adjacent assemblies. (There is, of course, a requirement to have control rods inserted for the fuel loading.) The review of the subsequent spiral loading was discussed in the previous amendments and is essentially unchanged. In the new configuration there will be an additional fuel assembly between (and adjacent to) the SRM and the central core region with its initial spiral build up, but since this is a multiplying medium it will effectively reduce the attenuation of the flux from the central region previously considered. As discussed in the previous review this is, of course, a valid process only when the spiral build up contains (some) irradiated fuel to provide a source in the reload region.

The proposed TS change proposes 4 irradiated fuel assemblies adjacent to each SRM. The licensee could have requested to use fewer irradiated fuel assemblies (e.g., up to 4 fuel assemblies with sufficient neutron flux to give greater than 3 CPS, would be a satisfactory alternative). Similar TSs have been approved in the past. For example, 2 adjacent assemblies have been approved for Hatch and Vermont Yankee.

3.0 Summary

TVA has requested that an additional alternative in TS 3.10.B.1.b to assure SRM operability during spiral loading of an entire core involving irradiated fuel be added. It would replace the 8 hour neutron source check when count rates are below 3 CPS with an initial loading of 4 irradiated assemblies adjacent to each SRM if this results in a count rate greater than 3 CPS.

Based on our review we find that:

1. The process provides a continuous rather than periodic check of SRM operability;

2. There is no problem of criticality while loading SRM adjacent irradiated assemblies, and essentially no change from presently permitted procedures and resulting neutronic processes during the subsequent spiral loading;

3. The relevant neutronic processes, bounding those involved here, have been reviewed during a previous approved change request in this TS (3.10.B.1.b.2); and

4. Similar Technical Specifications previously have been approved for other BWRs (e.g. Hatch).

Therefore the addition of the proposed 3.10.B.1.b.3 to the Browns Ferry Units 1, 2 and 3 TS is acceptable.

5.0 Environmetal Considerations

These amendments involve a change in the installation or use of a facility component located within the restricted area. The staff has determined that the amendments involve no significant increase in the amounts of any effluents that may be released offsite and that there is no significant increase in individual or comulative occupation radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these 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 these amendments.

6.0 Conclusion

We have concluded, based on 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 mannner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of these amendments will not be inimical to the common defense and secuity or to the health and safety of the public.

Principal Contributors: H. Richings

Dated: June 25, 1984