April 25, 2007

Mr. Preston D. Swafford
Interim Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3 — ISSUANCE OF AMENDMENTS REGARDING REVISION TO APPENDIX R LICENSE CONDITIONS TO REFLECT THREE-UNIT OPERATION (TAC NOS. MD3596, MD3597, AND MD3598)(TS-459)

Dear Mr. Swafford:

The Commission has issued the enclosed Amendment Nos. 271, 300, and 259 to Renewed Facility Operating Licenses Nos. DPR-33, DPR-52, and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2, and 3, respectively. These amendments are in response to your application dated November 15, 2006, as supplemented by letters dated January 11 and April 24, 2007. The submittal requested a revision to the Fire Protection License Condition for Units 1, 2, and 3, condition numbers (13), (14), and (7), respectively, to accommodate operation of all three Browns Ferry units.

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

Sincerely,

/RA/

Eva A. Brown, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-259, 50-260 and 50-296

Enclosures:
1. Amendment No. 271 to DPR-33
2. Amendment No. 300 to DPR-52
3. Amendment No. 259 to DPR-68
4. Safety Evaluation

cc w/enclosures: See next page

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DATE	4/25/07	4/25/07	4/16/07	4/25/07	4/25/07

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TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 271
Renewed 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 15, 2006, as supplemented by letters dated January 11, and April 24, 2007, 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 Renewed Facility Operating License is amended to read as follows:

C(13) Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for BFN as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007, and Supplement dated November 3, 1989; subject to the following provision:

> The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

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

/RA/

Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Renewed Operating License

Date of Issuance: April 25, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 271

RENEWED FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Replace Pages 3 and 5 of Renewed Operating License DPR-33 with the attached Pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE	INSERT
3	3
5	5

(3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or equipment and instrument calibration or associated with radioactive apparatus or components;

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 3458 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. **271**, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 234 to Facility Operating License DPR-33, the first performance is due at the end of the first surveillance interval that begins at implementation of the Amendment 234. For SRs that existed prior to Amendment 234, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the surveillance was last performed prior to implementation of Amendment 234.

(13) Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for BFN as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007, and Supplement dated November 3, 1989; subject to the following provision:

> The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(14) The licensee shall maintain the Augmented Quality Program for the Standby Liquid Control System to provide quality control elements to ensure component reliability for the required alternative source term function defined in the Updated Final Safety Analyses Report (UFSAR).

(15) The licensee is required to confirm that the conclusions made in TVA's letter dated September 17, 2004, for the turbine building remain acceptable using seismic demand accelerations based on dynamic seismic analysis prior to the restart of Unit 1.

D. The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be included in the next scheduled update to the UFSAR required by 10 CFR 50.71(e)(4) following the issuance of this renewed operating license. Until that update is complete, TVA may make changes to the programs and activities described in the supplement without prior Commission approval, provided that TVA evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

E. The UFSAR supplement, as revised, describes certain future activities to be completed prior to the period of extended operation. TVA shall complete these activities no later than December 20, 2013, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

F. All capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of the most recent NRC-approved version of the Boiling Water Reactor Vessels and Internals Project (BWRVIP) Integrated Surveillance Program (ISP) appropriate for the configuration of the specimens in the capsule. Any changes to the BWRVIP ISP capsule withdrawal schedule, including spare capsules, must be approved by the NRC prior to implementation. All capsules placed in storage must be maintained for future insertion. Any changes to storage requirements must be approved by the NRC, as required by 10 CFR Part 50, Appendix H.

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 300
Renewed 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 15, 2006, as supplemented by letters dated January 11, and April 24, 2007, 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 Renewed Facility Operating License is amended to read as follows:

C(14) Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for BFN as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007, and Supplement dated November 3, 1989; subject to the following provision:

> The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

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

/RA/

Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Renewed
Operating License

Date of Issuance: April 25, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 300

RENEWED FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Replace pages 3 and 5 of Renewed Operating License DPR-52 with the attached Pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE	INSERT
3	3
5	5

sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or equipment and instrument calibration or associated with radioactive apparatus or components;

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 3458 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. **300**, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 253 to Facility Operating License DPR-52, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 253. For SRs that existed prior to Amendment 253, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the surveillance was last performed prior to implementation of Amendment 253.

(3) The licensee is authorized to relocate certain requirements included in Appendix A and the former Appendix B to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's

(14) Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for BFN as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007, and Supplement dated November 3, 1989; subject to the following provision:

> The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(15) The licensee shall maintain the Augmented Quality Program for the Standby Liquid Control System to provide quality control elements to ensure component reliability for the required alternative source term function defined in the Updated Final Safety Analyses Report (UFSAR).

D. The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be included in the next scheduled update to the UFSAR required by 10 CFR 50.71(e)(4) following the issuance of this renewed operating license. Until that update is complete, TVA may make changes to the programs and activities described in the supplement without prior Commission approval, provided that TVA evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

E. The UFSAR supplement, as revised, describes certain future activities to be completed prior to the period of extended operation. TVA shall complete these activities no later than June 28, 2014, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

F. All capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of the most recent NRC-approved version of the Boiling Water Reactor Vessels and Internals Project (BWRVIP) Integrated Surveillance Program (ISP) appropriate for the configuration of the specimens in the capsule. Any changes to the BWRVIP ISP capsule withdrawal schedule, including spare capsules, must be approved by the NRC prior to implementation. All capsules placed in storage must be maintained for future insertion. Any changes to storage requirements must be approved by the NRC, as required by 10 CFR Part 50, Appendix H.

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 259
Renewed 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 15, 2006, as supplemented by letters dated January 11, and April 24, 2007, 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 Renewed Facility Operating License is amended to read as follows:

C(7) Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for BFN as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007, and Supplement dated November 3, 1989; subject to the following provision:

> The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

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

/RA/

Thomas H. Boyce, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Renewed
Operating License

Date of Issuance: April 25, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 259

RENEWED FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Replace Pages 3 and 4 of Renewed Operating License DPR-68 with the attached Pages.
The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE	INSERT
3	3
4	4

(3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or equipment and instrument calibration or associated with radioactive apparatus or components;

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 3458 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. **259**, except for Amendment No. 248, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 212 to Facility Operating License DPR-68, the first performance is due at the end of the first surveillance interval that begins at implementation of the Amendment 212. For SRs that existed prior to Amendment 212, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the surveillance was last performed prior to implementation of Amendment 212.

(3) The licensee is authorized to relocate certain requirements included in Appendix A and the former Appendix B to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's application dated September 6, 1996; as supplemented May 1, August 14, November 5 and 14, December 3, 4, 11, 22, 23, 29, and 30, 1997; January 23, March 12, April 16, 20 and 28, May 7, 14, 19, and 27, and June 2, 5, 10 and 19, 1998; evaluated in the NRC staff's Safety Evaluation enclosed with this amendment. This amendment is effective immediately and shall be implemented within 90 days of the date of this amendment.

(4) Deleted.

(5) Classroom and simulator training on all power uprate related changes that affect operator performance will be conducted prior to operating at uprated conditions. Simulator changes that are consistent with power uprate conditions will be made and simulator fidelity will be validated in accordance with ANSI/ANS 3.5-1985. Training and the plant simulator will be modified, as necessary, to incorporate changes identified during startup testing. This amendment is effective immediately.

(6) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Browns Ferry Nuclear Plant Physical Security Plan, Training and Qualification Plan, and Contingency Plan," submitted by letter dated September 10, 2004, and supplemented on October 22, 2004.

(7) Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for BFN as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007, and Supplement dated November 3, 1989; subject to the following provision:

> The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(8) Deleted.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 271

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-33

AMENDMENT NO. 300 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-52

AMENDMENT NO. 259 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-68

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3

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

1.0 INTRODUCTION

By application dated November 15, 2006, as supplemented by letters dated January 11, and April 24, 2007, the Tennessee Valley Authority (TVA, the licensee) requested changes to the fire protection license conditions for the Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3. The proposed changes would revise the fire protection program (FPP) referenced in the fire protection license conditions to accommodate three-unit operation. This review includes the revised Browns Ferry Fire Protection Report (FPR), submitted on February 28, 2006, to support power operation of all three units.

The supplements dated January 11 and April 24, 2007, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on December 19, 2006 (71 FR 76000).

2.0 REGULATORY EVALUATION

2.1 Fire Protection Requirements and Guidance

Following the 1975 Unit 1 fire, the U.S. Nuclear Regulatory Commission (NRC) established a Special Review Group to evaluate the need for improving the FPPs at all nuclear power plants (NPPs). The group found serious design inadequacies that were documented in NUREG-0500, "Recommendations Related to Browns Ferry Fire," dated February 1976. Based upon the recommendations in NUREG-0500, the NRC developed technical guidance for new plants, which were issued as Branch Technical Position (BTP) Auxiliary and Power Conversion Systems Branch (APCSB) 9.5-1. Guidance for operating plants was provided later in Appendix A to BTP APCSB 9.5-1, which relies on BTP APCSB 9.5-1, which was later revised and became BTP Chemical and Mechanical Engineering Branch (CMEB) 9.5-1.

On February 17, 1981, the final rule concerning fire protection Title 10 to the *Code of Federal Regulations* (10 CFR), Section 50.48 and Appendix R to 10 CFR Part 50 (Appendix R) became effective. Accordingly, 10 CFR 50.48(a) requires that each operating NPP has a fire protection

plan that satisfies Criterion 3, “Fire protection” of Appendix A to Part 50. Section 50.48(b) to 10 CFR of the final rule required all reactors licensed to operate before January 1, 1979, to comply with three sections of Appendix R, even if the NRC had previously approved alternative fire protection features in these areas. These sections are III.G, III.J, and III.O. As III.O excludes inerted containments, it is not applicable to the BFN units.

Paragraph III.G.2 of 10 CFR Part 50 Appendix R states:

> Except as provided for in paragraph G.3 of this section, where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:
>
> > a. Separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating. Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier;
> >
> > b. Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area; or
> >
> > c. Enclosure of cable and equipment and associated non-safety circuits of one redundant train in a fire barrier having a 1- hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.

2.2 Fire Protection Licensing Background

The NRC issued a license for Unit 1 to operate on December 20, 1973; Unit 2 was licensed to operate on August 2, 1974; and Unit 3 was licensed to operate on August 18, 1976.

On March 22, 1975, a significant fire started when plant workers in the cable spreading room used an open flame to test for air leakage through a non-fire-rated penetration seal. This penetration led to the reactor building and the fire ignited both the penetration seal material and the electrical cables that passed through it. The fire burned for almost 7 hours before it was extinguished. Units 1 and 2 subsequently restarted in 1976.

During the recovery and restart of Units 2 and 3, between 1985 and 1995, TVA submitted several requests for license amendments and exemptions to the regulations, and made various commitments to implement station modifications required for compliance with 10 CFR 50.48 and Appendix R, and for implementing the guidance of Generic Letter (GL) 86-10, *Implementation of Fire Protection Requirements*.

On October 31, 1984, the licensee submitted a revised Appendix R evaluation for all three BFN units. In March 1985 all three units were shut down due to performance issues. By letter dated January 31, 1986, the TVA submitted a new plan. This document superseded the licensee's previous submittals' evaluations of their compliance with Appendix R. On December 8, 1988 the NRC issued a safety evaluation (SE) on post-fire safe-shutdown in support of Unit 2. Subsequently, this SE was supplemented by the NRC staff on October 3, 1989.

On March 31, 1993, the NRC staff issued an SE that reviewed the new BFN FPR. The FPR is a combination of four fire protection licensing documents. The March 31, 1993, SE addresses the FPR, which, at that time, contained the Fire Protection Plan, Fire Hazards Analysis, Safe Shutdown Analysis, and Unit 2 Appendix R Safe Shutdown Program. The approval was for Unit 2. At that time Units 1 and 3 were shut down.

In a letter dated December 15, 1992, TVA submitted the revised BFN FPR for combined operation of Units 2 and 3 for staff review and approval. This document was superseded with another submittal on December 20, 1994. On November 2, 1995, the NRC issued an SE finding the BFN FPR acceptable, assuming Units 2 and 3 operating and Unit 1 shutdown and defueled.

By letter dated April 1, 1993, the NRC staff stated the following:

> The NRC staff recognizes that the Appendix R Safe Shutdown Program at BFN, contained in the Fire Protection Program does not accommodate operation of BFN, Units 1 and 3. By letter dated December 15, 1992, TVA submitted the Appendix R Safe Shutdown Program for combined operation of Units 2 and 3 for staff review and approval. Additionally, TVA has committed to submit the Appendix R Safe Shutdown Program for BFN, Units 1, 2, and 3, for staff review and approval prior to Unit 1 restart....However, as discussed with TVA on March 15, 1993, and documented by TVA letter dated March 19, 1993, TVA must submit an application to amend the BFN licenses prior to restart of Unit 3 and then Unit 1. These license amendments will revise the fire protection license condition of Units 1, 2, and 3, to reflect each succeeding staff safety evaluation approving the Appendix R Safe Shutdown Program as incorporated in the BFN Fire Protection Report for Unit 2/3 operation and then finally for Unit 1/2/3 operation.

By letter dated January 3, 2006, the NRC staff requested TVA to provide information regarding the FPP that will be implemented at BFN upon restart of Unit 1. The licensee responded in letters dated February 3 and 28, 2006, and provided a version integrating all three BFN units into the FPR in a letter dated February 28, 2006.

3.0 TECHNICAL EVALUATION

3.1 Fire Protection Program and Fire Hazards Analysis

Nuclear power plants use the concept of defense-in-depth to achieve the required high degree of safety by using various levels of safety systems. With respect to the FPP, the defense-in-depth principle is aimed at achieving an adequate balance in (1) preventing fires from starting; (2) detecting fires quickly, suppressing those fires that occur, putting them out quickly, and

limiting their damage; and (3) designing plant safety systems so that a fire that starts in spite of the fire prevention program and burns for a considerable time in spite of fire protection activities will not prevent essential plant safety functions from being performed. The primary objective of the FPP is to minimize both the probability and consequences of postulated fires.

The Browns Ferry FPR is a consolidated document that contains the Fire Protection Plan, Fire Hazards Analysis, the Safe Shutdown Analysis and Appendix R Safe Shutdown Program. As previously stated, the licensee program was approved for Units 2 and 3 with Unit 1 shutdown and defueled.

3.1.1 Organization and Staffing

The NRC staff reviewed the Operations staffing requirements needed to support the addition of Unit 1 operation. The licensee indicated that staffing was increased to support operation of Units 1, 2, and 3. This increase was primarily to support the interim compensatory measures in place to address identified deficiencies with the safe shutdown methodology. These compensatory measures require the use of significant operator manual actions (OMAs) as outlined in the licensee's Safe Shutdown Instructions (SSIs). TVA indicated that to support the SSI an additional Unit Supervisor (US), Reactor Operator (RO), and two Auxiliary Unit Operators (AUOs) with a total staffing level one Shift Manager, four USs, six ROs, eight AUOs, and one Shift Technical Advisor were needed. TVA indicated that the appropriate procedures were revised to reflect this increase. The combined Units 1, 2, and 3 staffing requirements will be met prior to entering Mode 2.

The staffing for the site fire brigade remains unchanged with an Incident Commander and five members (i.e., fire brigade leader and four members) onsite at all times. Additional support is provided through a contract with a local fire department.

As the qualification requirements remain unchanged and the staffing is consistent with the guidance provided in BTP CMEB 9.5-1, the NRC staff finds the organization and staff acceptable to support three-unit operation and notes that a revision to this staffing may be needed due to necessary changes to the FPR and associated analyses.

3.1.2 Administrative Controls

The administrative controls are common to all three units. The combustible control program and the control of ignition sources for Unit 1 have been incorporated into the station program approved for Units 2 and 3. Additionally, the same communications system that was previously approved will be used. As no modifications or additions were made that had the potential to adversely affect the capability to safely shutdown, and the administrative programs will be conducted consistent with the existing program, which was approved in an SEs dated March 31, 1993 and November 2, 1995, the NRC staff find this acceptable.

3.1.3 Fire Protection Systems

Section 50.48(c)(5) of 10 CFR Part 50, as originally written, required that any modifications that the licensee planned in order to meet the requirements of paragraph III.G.3 of Appendix R must be reviewed and approved by the NRC. GL 81-12, *Fire Protection Rule* (45 FR 76602, dated

November 19, 1980), provided guidance to licensees concerning the information required by the regulation. The NRC staff then reviewed these plans and incorporated these licensee documents into the "approved FPP" for Units 2 and 3. Implementation of this program was incorporated into the operating license for the plant.

Prior to restarting Unit 1, the licensee upgraded fire protection systems in Unit 1 to the latest National Fire Protection Association (NFPA) code requirements. Almost all of the Unit 1 fire suppression system was replaced. The Unit 1 fire detection system was replaced and integrated with the control room alarm displays. Certain fire dampers have been replaced with code compliant dampers. The licensee indicated the use of NFPA codes in the design installation of fire suppression, fire detection and fire dampers. As these systems meet the guidance provided in BTP CMEB 9.5-1, the NRC staff finds the fire protection systems acceptable.

Portable fire extinguishers were approved for all areas of the plant to meet NFPA 10, *Standard for Portable Fire Extinguishers*, in the March 31, 1993, SE. This is incorporated into Unit 1 and is acceptable.

3.1.4 Building Design

Prior to Unit 1 restart, the previous FPP treated Unit 1 as a single fire area. Consistent with applicable guidance, TVA is dividing the Unit 1 Reactor Building into six fire zones. TVA conducted a review to ensure that fire barriers, fire doors, floor drains, and personnel access and egress response routes added as a result of Unit 1 operation were appropriately addressed. The control room complex is shared with Unit 2 and the previous review for this area remains bounding. Just like Units 2 and 3, the containment is inerted during normal operation, therefore no increase in fire hazard is seen. The licensee has provided emergency lighting as required by paragraph III.J of Appendix R in access routes and in areas required for safe shutdown. As the addition of Unit 1 does not alter the performance requirements for fire protections structures or components, any modifications or additions were accomplished consistent with applicable NFPA guidance and the procedures reviewed previously by the NRC staff, the building design is, therefore, found acceptable for three-unit operation.

3.1.5 Post-Fire Safe Shutdown

Paragraph III.G.1 of Appendix R (III.G.1) outlines the performance objectives of the FPP relative to post-fire safe shutdown. The objectives are to ensure that one success path of structures, systems, and components necessary for hot shutdown is free of fire damage, and to limit fire damage such that one success path of structures, systems, and components (SSCs) necessary to achieve and maintain cold shutdown can be repaired or made operable within a specified time period using onsite capabilities.

The NRC staff observed that various fire areas in the FPR were designated as III.G.1 separation areas. Regulatory Issue Summary (RIS) 2005-30, *Clarification of Post-Fire Safe-Shutdown Circuit Regulatory Requirements*, indicates that III.G.1 protection for redundant safe-shutdown systems may not be claimed for redundant systems in a III.G.2 area by crediting an OMA at an emergency control station. Unless alternative or dedicated shutdown capability is provided, redundant circuits credited for post-fire safe shutdown and located in the same fire area must be protected in accordance with III.G.2 without the use of emergency control stations of any kind.

As stated in RIS 2006-10, *Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions*:

> . . .if one of the redundant trains in the same fire area is free of fire damage by one of the specified means in paragraph III.G.2, then the use of operator manual actions, or other means necessary, to mitigate fire-induced operation or maloperation to the second train may be considered in accordance with the licensee's fire protection program and license condition since paragraph III.G.2 has been satisfied.

Manual actions are also permitted when using alternative shutdown in accordance with III.G.3. Therefore, it is the NRC staff's understanding that for a fire area designated as III.G.1, one path of SSCs remains free from fire damage without crediting an OMA at an emergency control station. If not, the provisions of III.G.2 or III.G.3 are applicable and those actions should be addressed consistent with the licensee's April 24, 2006, commitment concerning OMAs. As the licensee has indicated that the Browns Ferry units are in compliance with Appendix R, with the exception of the crediting of manual actions in lieu of separation for identified III.G.2 areas, the NRC staff finds that the FPP adequately addresses the post-fire performance objectives of III.G.1.

3.1.5 Safe Shutdown

As discussed above, paragraph III.G.2 of Appendix R requires that, where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation—as a result of hot shorts, open circuits, or shorts to ground—of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, a means of ensuring that one of the redundant trains is free of fire damage shall be provided.

Section 3 of the licensee FPR proposes to use the same safe-shutdown methods utilized in Units 2 and 3. The approved program in the SEs dated March 31, 1993 and November 2, 1995, included meeting the separation criteria of Appendix R, paragraph III to ensure that one train of safe shutdown equipment remains free of fire damage. The NRC staff noted that fire areas other than fire area 16 (control building) rely on the use OMAs to accomplish post-fire safe-shutdown, however manual actions in lieu of compliance with paragraph III.G.2 are not allowed without an exemption. A review of fire protection exemptions found that no exemption has been requested by the licensee nor approved by the NRC staff for these manual actions. Therefore, the use of OMAs in lieu of compliance with paragraph III.G.2 is one of the generic issues identified during this review.

Another issue concerns how the licensee dealt with spurious operation of components resulting from a postulated fire. The FPR states that:

> . . .fire development is considered to be slow and progressive allowing time to respond to spurious actuations one at a time.

In RIS 2005-30, the NRC staff noted that licensees need to address the potential for concurrent spurious actuations, based on regulatory requirements and on industry test results. In RIS 2004-03, Rev. 1, *Risk-Informed Approach for Post-Fire Safe-Shutdown Circuit Inspections*, the NRC staff provided information concerning the probabilities, given a fire, of certain types of circuit interactions. During the review, the NRC staff noted that the licensee assumptions to address spurious actuations for Unit 1 did not conform to NRC guidance.

The reviews for these generic issues are addressed in the following sections.

3.1.5.1 Alternative or Dedicated Shutdown

Consistent with paragraph III.G.3 of Appendix R (III.G.3) alternative, dedicated, or backup shutdown capability and its associated circuits, independent of cables, systems, or components in the area, room, or zone under consideration, should be provided, in areas where the fire protection features cannot ensure safe shutdown capability in the event of a fire in that area, or where redundant success paths of systems required for hot shutdown located in the same fire area may be subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems. Fire detection and a manually actuated fixed water suppression system or an automatically actuated gaseous suppression system should be installed in the area, room, or zone under consideration. Paragraph III.L of Appendix R (III.L) contains the performance requirements for III.G.3.

As discussed above, the previously approved FPP can be found in the SEs dated March 31, 1993, and November 2, 1995. These SEs identify fire area 16 as the only fire area requiring alternative shutdown (III.G.3). The NRC staff's review of the FPR noted that no additional III.G.3 areas were added as a result of the addition of Unit 1 to the FPP. Therefore, the NRC staff finds that the FPR as it relates to III.G.3 and by extension the provisions of III.L is acceptable.

3.1.5.2 Fire Induced Circuit Failures

Cables whose fire-induced failure could cause maloperation of redundant trains in a III.G.2 area due to hot shorts must be protected. The requirement to protect associated circuits includes protecting circuits that are not directly used to perform a safe-shutdown function but can cause a spurious actuation and affect safe shutdown. Therefore, unapproved OMAs may not be credited for such circuits. The issue of using OMAs in lieu of protection of those cables is an issue at BFN as well as a generic industry issue.

In order to address, the licensee's reliance on unapproved OMAs, a public meeting was held on April 5, 2006. The NRC staff discussed the licensee's approach to achieving post-fire safe-shutdown using OMAs for fires in fire areas containing redundant safe shutdown trains of equipment. As a result of this meeting the licensee, in a letter dated April 24, 2006 (ADAMS Accession No. ML061150055), committed to the following:

- For Unit 1, TVA will correct the 10 CFR Part 50, Appendix R III.G.2 manual operator actions shown to be risk significant (Greater-Than-Green) as a result of the Fire Protection Significance Determination Process (FPSDP) prior to restart (enter into Mode 2 or 3);

- For Unit 1, take compensatory actions for 10 CFR Part 50, Appendix R III.G.2 manual operator actions identified as Green via the FPSDP prior to restart (enter into Mode 2 or 3);

- For Units 2 and 3, TVA will correct or take compensatory actions for the 10 CFR Part 50, Appendix R III.G.2 manual operator actions shown to be risk significant (Greater-Than-Green) as a result of the FPSDP prior to September 6, 2006; and

- For Units 2 and 3, take compensatory actions for 10 CFR Part 50, Appendix R III.G.2 manual operator actions identified as Green via the FPSDP prior to September 6, 2006.

In a letter dated April 24, 2007, the licensee confirmed that these commitments had been completed.

The licensee, in accordance with their FPP, is using the manual action as compensatory measures until the issues are resolved. NRC guidance and expectations are provided in RIS 2006-010, *Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions*. This guidance advises that the compensatory measures employed should be feasible. In April 2007, the NRC staff reviewed the feasibility of selected OMAs by a walkdown of the TVA SSIs. The NRC staff found that the OMAs were feasible and SSIs were appropriately established to ensure that the capability to safely shut down the reactor could be achieved.

On September 6, 2006, the NRC extended enforcement discretion related to the disposition of potential noncompliances involving fire induced circuit failure vulnerabilities that have the potential to affect safe shutdown of a facility. This discretion is contained in Enforcement Guidance Memorandum 98-02, Revision 2, Supplement 1 (ADAMS Accession No. ML062480380). The EGM discusses those licensees that have initiated corrective actions noncompliances involving OMAs used to address fire-induced circuit failures, will receive enforcement discretion for those noncompliances provided licensees complete the corrective actions in a timely manner. The NRC expects timely completion of the corrective actions consistent with RIS 2005-20, *Revision to Guidance Formerly Contained in NRC Generic Letter 91-18*, dated September 26, 2005 (ADAMS Accession No. ML052020424).

The NRC staff reviewed the licensee's interim compensatory measures involving OMAs during a site visit conducted in June 2006. The NRC staff identified that TVA had performed a risk evaluation of the fire areas employing III.G.2 post-fire OMAs outside the main control room to achieve safe shutdown using the guidance of NRC IMC 0609, Appendix F, FPSDP. The NRC staff found, however, that the risk evaluation was not complete, as it did not address the risk contribution of transient combustible fires, the risk impact of potential fire-induced spurious equipment operation, or consider the potential risk significance of common OMAs (i.e., the same or very similar OMAs used in multiple fire areas, or in the same area, but in response to different fire initiators). In addition, the NRC staff determined that the risk evaluation should include documentation of deviations from the FPSDP. The licensee was informed and Problem Evaluation Report 104418 was initiated for tracking of the incomplete risk assessment. Subsequently, the NRC staff reviewed the licensee's corrective actions to ensure that those OMAs whose risk significance were classified as Greater-than-Green were not impacted by the deficiencies of the risk evaluation. The NRC staff noted that the licensee's risk evaluation still did not address concurrent spurious actuations, however this review concluded that licensee actions taken should enable the licensee to reasonably identify those OMAs that are Greater-Than-Green.

RIS 2006-10, addresses the use of compensatory measures, additional guidance exists in RIS 2005-07, Compensatory Measures to Satisfy the Fire Protection Program Requirements, dated April 19, 2005. Consistent with this guidance, TVA has indicated that they will document any missing or degraded fire barriers, for which a manual action is used, in accordance with their corrective action program. As the compensatory measures in place give assurance that in the short term adequate protection can be maintained, the NRC staff finds this interim approach acceptable until full compliance with paragraph III.G.2 can be established.

3.1.5.3 Spurious Actuations

Unless alternative or dedicated shutdown capability is provided or an exemption from paragraph III.G.2 is granted, circuits that could cause maloperation or prevent operation of redundant trains for post-fire safe shutdown and are located in the same fire area must be protected in accordance with paragraph III.G.2. It was previously established that TVA's safe shutdown analysis had not adequately evaluated those circuits, which if damaged could cause the maloperation of or failure to operate systems required to mitigate a fire.

At a public meeting held on April 5, 2006, the NRC staff discussed the licensee's approach to achieving post-fire safe-shutdown using the assumption of a single spurious actuation at a time. The licensee's response indicated that they would follow guidance provided by NRC generic communications. In a telephone conference on November 21, 2006, the licensee indicated that they believed that the single spurious actuation was their licensing basis. As noted in RIS 2005-30, to meet the requirements of paragraph III.G of Appendix R, a licensee must consider the effects of multiple concurrent spurious actuations. The FPR does not consider concurrent spurious actuations, and there are no exemptions approved for Unit 1 for not analyzing multiple concurrent spurious actuations.

RIS 2006-10, addresses the use of compensatory measures, additional guidance exists in RIS 2005-07, "Compensatory Measures to Satisfy the Fire Protection Program Requirements," dated April 19, 2005. Consistent with this guidance, TVA has indicated that they will document any missing or degraded fire barriers in accordance with their corrective action program. As the compensatory measures in place give assurance that in the short term adequate protection can be maintained, the NRC staff finds this interim approach acceptable until full compliance with paragraph III.G.2 can be established.

3.1.6 Summary

The NRC staff concludes that the FPP's design criteria and bases are acceptable to meet the requirements of 10 CFR 50.48 and the applicable general design criteria. This conclusion is based on the FPP meeting the guidelines of BTP CMEB, as well as applicable industry standards. In meeting these requirements and guidelines the licensee has provided an acceptable basis for the design and location of safety-related structures and systems to minimize the probability and effect of fires and explosions; has provided a fire detection and fire fighting system of appropriate capacity and capability to minimize adverse effects of fire on safety-related systems; and demonstrated that shared SSCs of the fire protection systems will not prevent their ability to perform their intended safety function. Additionally, the NRC staff concludes that, with the exceptions noted in Section 3.1.5 and 4.0, the design of the BFN safe-shutdown SSCs provide reasonable assurance that fuel integrity is maintained (i.e., fuel design limits are not exceeded). For alternative or dedicated shutdown, reactor coolant system process variables are sufficiently maintained within those predicted for a loss of normal ac power, and fission product boundary integrity are not affected.

3.2 Amendments to the Licenses

In an SE dated April 1, 1993 (ADAMS Accession No. ML020030120), the NRC staff indicated that the Unit 2 Appendix R Safe Shutdown Program had been incorporated into the FPR in accordance with GL 88-12. As a result, the Technical Specification provisions and License

Condition approved for Unit 2 (Amendment No. 192) in a letter dated March 6, 1991 (ADAMS Accession No. ML020090226) was redundant and no longer necessary. Since a modified Safe Shutdown Program has been evaluated by the NRC staff and found acceptable, each unit must be amended to accurately reflect the program that is being/will be implemented. Therefore, the operating licenses will be amended to accomplish the following:

- Remove the March 6, 1991, safety evaluation from all three BFN FP license conditions; and
- Add the April 1, 1993, safety evaluation to all three BFN FP license conditions.

Additionally, the operating licenses will be amended to reflect this SE in all three BFN FP license conditions. The revised condition will read as follows:

> Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for BFN as approved in the safety evaluations dated December 8, 1988; March 31, 1993; April 1, 1993; November 2, 1995; April 25, 2007, and Supplement dated November 3, 1989; subject to the following provision:
>
> > The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

4.0 REGULATORY COMMITMENTS

In a letter dated April 24, 2006 (ML061150055), the licensee committed to the following:

- For Unit 1, TVA will correct the 10 CFR 50, Appendix R III.G.2 manual operator actions shown to be risk significant (Greater-Than-Green) as a result of the SDP prior to restart (enter into Mode 2 or 3);

- For Unit 1, take compensatory actions for 10 CFR 50, Appendix R III.G.2 manual operator actions identified as Green via the SDP prior to restart (enter into Mode 2 or 3);

- For Units 2 and 3, TVA will correct or take compensatory actions for the 10 CFR 50, Appendix R III.G.2 manual operator actions shown to be risk significant (Greater-Than-Green) as a result of the SDP prior to September 6, 2006; and

- For Units 2 and 3, take compensatory actions for 10 CFR 50, Appendix R III.G.2 manual operator actions identified as Green via the SDP prior to September 6, 2006.

As discussed previously, the licensee indicated that these commitments were complete in a letter dated April 24, 2007. Additionally, this letter reiterated the following commitment:

- The industry issue Post-Fire Safe Shutdown Circuit Analysis Spurious Actuations will be tracked to resolution through the TVA Corrective Action Program. TVA will continue to follow this issue and work with industry and NRC towards a resolution of the issue.

In this letter TVA also indicated that it would:

- Identify the post-fire manual actions outside the control room in 10 CFR 50 Appendix R III.G.2 areas in the site Corrective Action Program; and

- Use the FPSDP (Inspection Manual 0609, Appendix F) to evaluate and determine the risk associated with the 10 CFR 50, Appendix R III.G.2 areas with post-fire manual actions.

5.0 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.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (71 FR 11169). Accordingly, the amendment meets 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 amendment.

7.0 CONCLUSION

The Commission has 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 manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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