



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

August 22, 2000

Mr. J. B. Beasley, Jr.  
Vice President  
Southern Nuclear Operating  
Company, Inc.  
Post Office Box 1295  
Birmingham, Alabama 35201-1295

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 RE: ISSUANCE  
OF AMENDMENTS (TAC NOS. MA6331 AND MA6332)

Dear Mr. Beasley:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 114 to Facility Operating License NPF-68 and Amendment No. 92 to Facility Operating License NPF-81 for the Vogtle Electric Generating Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application dated August 24, 1999, as supplemented on December 29, 1999, and June 16, 2000.

The amendments revise Technical Specification 3.3.2 "Engineered Safety Features Actuation System (ESFAS) Instrumentation" to relax the slave relay test frequency from quarterly to every refueling not to exceed 18 months.

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

Sincerely,

Ramin Assa, Project Manager, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosures:

1. Amendment No. 114 to NPF-68
2. Amendment No. 92 to NPF-81
3. Safety Evaluation

cc w/encls: See next page

August 22, 2000

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/RA/

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OFFICIAL RECORD COPY

Vogtle Electric Generating Plant

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
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SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

VOGTLE ELECTRIC GENERATING PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 114  
License No. NPF-68

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Vogtle Electric Generating Plant, Unit 1 (the facility) Facility Operating License No. NPF-68 filed by the Southern Nuclear Operating Company, Inc. (Southern Nuclear), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), dated August 24, 1999, as supplemented on December 29, 1999, and June 16, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;
  - 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 hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-68 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 114 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Richard L. Emch, Jr. Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: August 22, 2000



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

VOGTLE ELECTRIC GENERATING PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 92  
License No. NPF-81

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Vogtle Electric Generating Plant, Unit 2 (the facility) Facility Operating License No. NPF-81 filed by the Southern Nuclear Operating Company, Inc. (Southern Nuclear), acting for itself, Georgia Power Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), dated August 24, 1999, as supplemented on December 29, 1999, and June 16, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;
  - 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 hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-81 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 92 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Richard L. Emch, Jr., Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: August 22, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 114

FACILITY OPERATING LICENSE NO. NPF-68

DOCKET NO. 50-424

AND

TO LICENSE AMENDMENT NO. 92

FACILITY OPERATING LICENSE NO. NPF-81

DOCKET NO. 50-425

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change. \*Overleaf pages are provided.

Remove

3.3.2-7  
\*3.3.2-8  
\*B 3.3.2-47  
B 3.3.2-48  
---  
---  
\*B 3.3.2-51  
B 3.3.2-52

Insert

3.3.2-7  
3.3.2-8  
B 3.3.2-47  
B 3.3.2-48  
B 3.3.2-48a  
B 3.3.2-48b  
B 3.3.2-51  
B 3.3.2-52

SURVEILLANCE REQUIREMENTS

-----NOTE-----  
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.  
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SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.2.2	Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.3	Perform MASTER RELAY TEST.	31 days on a STAGGERED TEST BASIS
SR 3.3.2.4	Perform COT.	92 days
SR 3.3.2.5	Perform SLAVE RELAY TEST.	18 months
SR 3.3.2.6	-----NOTE----- Verification of setpoint not required for manual initiation functions. ----- Perform TADOT.	18 months

(continued)

**SURVEILLANCE REQUIREMENTS (continued)**

SURVEILLANCE	FREQUENCY
<p>SR 3.3.2.7. <u>NOTE</u>  This Surveillance shall include verification that the time constants used for the Steam Line Pressure instrument functions are adjusted to the prescribed values.</p> <hr/> <p>Perform CHANNEL CALIBRATION.</p>	<p>18 months</p>
<p>SR 3.3.2.8 <u>NOTE</u>  Not required to be performed for the turbine driven AFW pump until 24 hours after SG pressure is <math>\geq 900</math> psig.</p> <hr/> <p>Verify ESFAS RESPONSE TIMES are within limit.</p>	<p>18 months on a STAGGERED TEST BASIS</p>
<p>SR 3.3.2.9 <u>NOTE</u>  Verification of setpoint not required.</p> <hr/> <p>Perform TADOT.</p>	<p>18 months</p>

BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

SR 3.3.2.3

SR 3.3.2.3 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The time allowed for the testing (4 hours) and the surveillance interval are justified in Reference 7.

SR 3.3.2.4

SR 3.3.2.4 is the performance of a COT.

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. Setpoints must be found within the Allowable Values specified in Table 3.3.1-1.

The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of the surveillance interval extension analysis (Ref. 7) when applicable.

The Frequency of 92 days is justified in Reference 7.

SR 3.3.2.5

SR 3.3.2.5 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function, or is placed in a condition

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.2.5 (continued)

where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay.

For slave relays and associated auxiliary relays in the ESFAS actuation system circuit that are Potter and Brumfield (P&B) type MOTOR-DRIVEN RELAYS (MDRs), the SLAVE RELAY TEST is performed on an 18-month frequency. This test frequency is based on relay reliability assessments presented in WCAP-13878, "Reliability Assessment of Potter and Brumfield MDR Series Relays." The reliability assessments are relay specific and apply only to Potter and Brumfield MDR series relays. Quarterly testing of the slave relays associated with non-P&B MDR auxiliary relays will be administratively controlled until an alternate method of testing the auxiliary relays is developed or until they are replaced by P&B MDR series relays.

SR 3.3.2.6

SR 3.3.2.6 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and AFW pump start on trip of all MFW pumps. It is performed every 18 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). The Frequency is based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints for manual initiation Functions. The manual initiation Functions have no assumed setpoints.

SR 3.3.2.7

SR 3.3.2.7 is the performance of a CHANNEL CALIBRATION.

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

(continued)

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.3.2.7 (continued)

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

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BASES

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**BASES**

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**SURVEILLANCE  
REQUIREMENTS**

SR 3.3.2.8 (continued)

verification of these devices every 18 months. The 18 month Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

This SR is modified by a Note that clarifies that the turbine driven AFW pump is tested within 24 hours after reaching 900 psig in the SGs.

SR 3.3.2.9

SR 3.3.2.9 is the performance of a TADOT as described in SR 3.3.2.6 for the P-4 Reactor Trip Interlock, and the Frequency is once per 18 months. This Frequency is based on operating experience. The SR is modified by a note that excludes verification of setpoints during the TADOT. The function tested has no associated setpoint.

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**REFERENCES**

1. FSAR, Chapter 6.
2. FSAR, Chapter 7.
3. FSAR, Chapter 15.
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. WCAP-11269, Westinghouse Setpoint Methodology for Protection Systems; as supplemented by:
  - Amendments 38 (Unit 1) and 18 (Unit 2), ESFAS Safety Injection Pressurizer — Low allowable value revision.
  - Amendments 34 (Unit 1) and 14 (Unit 2), RTS Steam Generator Water Level — Low Low, ESFAS Turbine Trip and Feedwater Isolation SG Water Level — High High, and ESFAS AFW SG Water Level — Low Low.

(continued)

BASES

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REFERENCES  
(continued)

- Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised ESFAS Interlocks Pressurizer P-11 trip setpoint and allowable value.
  - 7. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.
  - 8. FSAR, Chapter 16.
  - 9. Westinghouse Letter GP-16696, November 5, 1997.
  - 10. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.
  - 11. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.
  - 12. WCAP-13878-P-A Revision 2, "Reliability Assessment of Potter & Brumfield MDR Series Relays," April 1996.
  - 13. WCAP-13900 Revision 0, "Extension of Slave Relay Surveillance Test Intervals," April 1994.
  - 14. WCAP-14129 Revision 1, "Reliability Assessment of Westinghouse Type AR Relays Used as SSPS Slave Relays," January 1999.
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 114 TO FACILITY OPERATING LICENSE NPF-68  
AND AMENDMENT NO. 92 TO FACILITY OPERATING LICENSE NPF-81

SOUTHERN NUCLEAR OPERATING COMPANY, INC., ET AL.

VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2

DOCKET NOS. 50-424 AND 50-425

## 1.0 INTRODUCTION

By letter dated August 24, 1999, as supplemented on December 29, 1999, and June 16, 2000, Southern Nuclear Operating Company, Inc., et al. (the licensee) proposed license amendments to change the Technical Specifications (TS) for the Vogtle Electric Generating Plant (VEGP or Vogtle), Units 1 and 2. The proposed changes would revise TS 3.3.2 "Engineered Safety Features Actuation System (ESFAS) Instrumentation" to relax the slave relay test frequency from quarterly to every refueling not to exceed 18 months.

The supplemental letters dated December 29, 1999, and June 16, 2000, provided clarifying information that did not change the scope of the August 24, 1999, application nor the initial proposed no significant hazards consideration determination.

## 2.0 BACKGROUND

The Vogtle TS requires quarterly testing of slave relays in the ESFAS. This requirement involves testing the relays at power, with the risk of inadvertent actuation of the engineered safety feature (ESF) equipment. In addition, the on-line testing of slave relays may require significant plant manipulation or removal from service of various equipment. Westinghouse Owners Group (WOG) sponsored a reliability assessment of Potter & Brumfield (P&B) relay types to establish a slave relay surveillance test interval based on relay reliability. The WOG study is documented in WCAP-13878, "Reliability Assessment of Motor-driven Rotary Relay Manufactured by Potter & Brumfield (P&B MDR) Relays." The proposed change allows relaxing the slave relay test interval from every 92 days to every 18 months for circuits containing P&B MDR series relays. The TS requirement for slave relay testing will continue to be implemented by TS Surveillance Requirement (SR) 3.3.2.5.

The associated Bases to SR 3.3.2.5 clarify that the circuits containing P&B MDR series relays may be tested on an 18-month frequency and that the 18-month test frequency for the slave relay is based on industry operating history and relay reliability. The proposed change in slave relay test frequency is based on information contained in Westinghouse Electric Corporation (WEC) topical report WCAP-13878, Revision 1, "Reliability Assessment of Potter & Brumfield MDR Series Relays," June 1994. By letter dated May 31, 1996, from Bruce Boger (NRC) to Tom Greene (WOG), the NRC-approved WCAP-13878; WCAP-14117, "Reliability Assessment

of Potter & Brumfield MDR Service Relays," June 1994; and WCAP-13900, "Extension of Slave Relay Surveillance Test Intervals," April 1994. On November 2, 1999, Westinghouse informed the NRC that WCAP-13878-P, Revision 1, contains some errors and by letter dated November 5, 1999, Westinghouse submitted WCAP-13878, Revision 2. WEC has further determined that the changes do not affect the conclusions of the WCAP and the NRC safety evaluation. By letter dated July 12, 2000, from Stuart A. Richard (NRC) to H. A. Sapp (WEC), the NRC approved WCAP-13878, Revision 2.

### 3.0 EVALUATION

Generic Letter 93-05, "Line Item Technical Specification Improvements To Reduce Surveillance Requirements for Testing During Power Operation," was approved in September 1993. This Generic Letter resulted from the recommendations of a 1983 NRC task group formed to investigate problems with surveillance testing required by TS. The studies found that while some testing at power is essential to verify equipment and system operability, safety can be improved, equipment degradation decreased, and unnecessary personnel burden relaxed by reducing the amount of testing at power. Slave relay testing frequency relaxation is consistent with the NRC task group recommendations.

WCAP-13878 contains the technical basis and methodology for extending the ESFAS slave relay test interval for P&B MDR series relays. The NRC safety evaluation report for WP-13878 requires the licensee to submit the following information:

1. Verify that the generic analysis in WCAP-13878 is applicable to their plant.

The VEGP solid-state protection system (SSPS) utilizes P&B MDR relay Models 4103-1 and 4121-1 as slave relays. The VEGP SSPS consists of two redundant trains of four-bay Westinghouse SSPS. The input, logic, and first output bays are virtually identical to Farley's SSPS, in which temperature data were collected for WCAP-13878. VEGP has an additional output bay. The VEGP P&B MDR relays dissipate about 6.5 watts when energized, substantially less than the AR relays in Farley plant. The temperature rise in the VEGP SSPS cabinets has been verified to be within the assumptions of WCAP-13878. The VEGP SSPS is located in the Main Control Room (MCR). TS require that the VEGP MCR be kept at less than 85°F. In reviewing MCR temperature data, it was determined that the typical MCR temperature ranged from 70°F to 78°F. This figure is within the temperature assumptions in WCAP-13878.

In summary, the VEGP SSPS utilizes P&B MDR relays identical to those analyzed in WCAP-13878. The environmental conditions in which these relays are located are bounded by the assumptions in WCAP-13878; thus the analysis and conclusions in WCAP-13878 are applicable to VEGP.

2. Ensure that their procurement program for P&B relays is adequate for detecting the types of failures that are discussed in References 9, 10, 11, and 12.

VEGP purchases P&B MDR relays as new safety-related components. Although VEGP does not utilize refurbished or reworked P&B MDR relays, each new P&B MDR relay is inspected for conditions that could indicate sub-standard refurbishment. The specific conditions that must be evaluated are identified in licensee procedure 70522-C, "Material Receipt Inspection." During receipt inspection, new P&B MDR relays are verified to have been manufactured after 1992. All

P&B MDR relays in the warehouse were inspected, and any that were manufactured before 1993 were removed from inventory.

3. Ensure that all pre-1992 P&B MDR relays which are used in either normally energized or a 20% duty cycle have been removed from ESFAS application.

VEGP performed a review of the SSPS and determined that all slave relays that perform TS required functions are normally de-energized while the plant is at power. During refueling outages and cold shutdowns, the SSPS is normally removed from service, thus VEGP does not have any ESFAS slave relays that are either normally energized or energized for a 20-percent duty cycle.

4. Ensure that the contact loading analysis for P&B MDR relays has been performed to determine the acceptability of these relays

VEGP has completed a contact loading study covering each contact on every SSPS slave relay for Unit 1 and found that they are well within the design basis of the slave relays. Unit 2 SSPS design and loads are similar to those of Unit 1 and were not reviewed. However, a cursory review of Unit 2 SSPS slave relay contact loading has been performed and found to be the same as that of Unit 1. The contact loading study recorded the manufacturer, the model, and the device ratings of each actuation device (solenoid or relay) operated by each slave relay contact. In the contact loading study, all slave relay single contacts were evaluated for overload, continuous current, and switching capabilities for both ac and dc contact applications of the slave relay contacts. Contact derating required for inductive loads was considered in determining the acceptability of the loading. All slave relays contact loading were found to be acceptable. Additionally, a review of slave relay surveillance history found no intermittent contact failures indicative of contact erosion.

The staff has reviewed the plant-specific analysis and concludes that the generic analysis contained in WCAP-13878-P-A is applicable to Vogtle Units 1 and 2; therefore, the proposed change to TS 3.3.2, "Engineered Safety Feature Actuation System Instrumentation," to relax the slave relay test frequency from quarterly to every refueling not to exceed 18 months is acceptable.

#### 4.0 STATE CONSULTATION

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

#### 5.0 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 change 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 (65 FR 15386). 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.

## 6.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: S. Rhow

Date: August 22, 2000