

February 8, 1999

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

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SUBJECT: ISSUANCE OF AMENDMENTS - VOGTLE ELECTRIC GENERATING PLANT,
UNITS 1 AND 2 (TAC NOS. MA2303 AND MA2304)

Dear Mr. Beasley:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 106 to Facility Operating License NPF-68 and Amendment No. 84 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 (TS) in response to your application dated July 13, 1998, as supplemented by letters dated December 16, 1998, and January 13, 1999.

The amendments revise the TS Section 1.1, Definitions, for "Engineered Safety Feature (ESF) Response Time" and "Reactor Trip System (RTS) Response Time" to provide for verification of response time for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

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,

original signed by J. Zimmerman for
David H. Jaffe, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosures:

1. Amendment No. 106 to NPF-68
2. Amendment No. 84 to NPF-81
3. Safety Evaluation

cc w/encls: See next page

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DOCUMENT NAME: G:\VOGTLE\AMD2304.WPD

OFFICE	PDII-2/FM	PDII-2/LA	OGC	PDII-2/II
NAME	D.JAFFE	L.BERRY	R. Bachmann	H.BERKOW
DATE	1/27/99	1/27/99	2/2/99	2/8/99
COPY	YES NO	(YES) NO	YES NO	YES (NO)

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001
February 8, 1999

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

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The amendments revise the TS Section 1.1, Definitions, for "Engineered Safety Feature (ESF) Response Time" and "Reactor Trip System (RTS) Response Time" to provide for verification of response time for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

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,

A handwritten signature in cursive script, appearing to read "David H. Jaffe".

David H. Jaffe, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosures:

1. Amendment No. 106 to NPF-68
2. Amendment No. 84 to NPF-81
3. Safety Evaluation

cc w/encls: See next page

Vogtle Electric Generating Plant

cc:

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Waynesboro, Georgia 30830



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 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 106
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 July 13, 1998, as supplemented by letters dated December 16, 1998, and January 13, 1999, 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.

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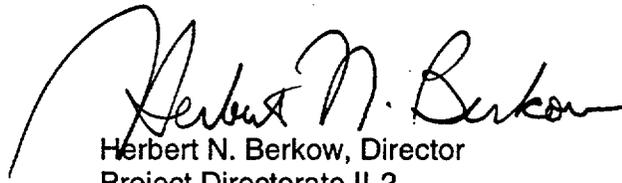
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-68 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 106, 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 from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: February 8, 1999



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. 84
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 Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), dated July 13, 1998, as supplemented by letters dated December 16, 1998, and January 13, 1999, 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. 84, 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 from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: February 8, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 106

FACILITY OPERATING LICENSE NO. NPF-68

DOCKET NO. 50-424

AND

TO LICENSE AMENDMENT NO. 84

FACILITY OPERATING LICENSE NO. NPF-81

DOCKET NO. 50-425

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change.

Remove

1.1-3
1.1-5
B 3.3-59

B 3.3-60
B 3.3-108

B 3.3-109a

Insert

1.1-3
1.1-5
B 3.3-59
B 3.3-59a*
B 3.3-59b**
B 3.3-60
B 3.3-108
B 3.3-108a
B 3.3-108b**
B 3.3-109a

*no changes - overflow

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1.1 Definitions (continued)

\bar{E} — AVERAGE
DISINTEGRATION ENERGY

\bar{E} shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 14 minutes, making up at least 95% of the total noniodine activity in the coolant.

ENGINEERED SAFETY
FEATURE (ESF) RESPONSE
TIME

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;
2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; or
3. Reactor Coolant System (RCS) LEAKAGE through a steam generator (SG) to the Secondary System;

(continued)

1.1 Definitions

PHYSICS TESTS
(continued)

- a. Described in Chapter 14 of the FSAR;
- b. Authorized under the provisions of 10 CFR 50.59; or
- c. Otherwise approved by the Nuclear Regulatory Commission.

PRESSURE AND
TEMPERATURE LIMITS
REPORT (PTLR)

The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates and the nominal PORV setpoints for the cold overpressure protection system, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Unit operation within these operating limits is addressed in individual specifications.

QUADRANT POWER TILT
RATIO (QPTR)

QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.

RATED THERMAL POWER
(RTP)

RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3565 MWt.

REACTOR TRIP
SYSTEM (RTS) RESPONSE
TIME

The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.15 (continued)

calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

As appropriate, each channel's response must be verified every 18 months on a STAGGERED TEST BASIS. Testing of the final actuation devices is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.15 (continued)

times. Experience has shown that these components usually pass this surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.3.1.15 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response.

SR 3.3.1.16

SR 3.3.1.16 is the performance of a COT for the low fluid oil pressure portion of the Turbine Trip Functions as described in SR 3.3.1.7 except that the Frequency is after each entry into MODE 3 for a unit shutdown and prior to exceeding the P-9 interlock trip setpoint. The surveillance is modified by two Notes. Note 1 states that the surveillance may be satisfied if performed within the previous 31 days. Note 2 states that verification of the setpoint is not required. The Frequency ensures that the turbine trip on low fluid oil pressure channels is OPERABLE after each unit shutdown and prior to entering the Mode of Applicability (above the P-9 power range neutron flux interlock) for this instrument function.

REFERENCES

1. FSAR, Chapter 7.

(continued)

BASES

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BASES

REFERENCES
(continued)

2. FSAR, Chapter 6.
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 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.
 - Amendments 48 and 49 (Unit 1) and Amendments 27 and 28 (Unit 2), deletion of RTS Power Range Neutron Flux High Negative Rate Trip.
 - Amendments 60 (Unit 1) and 39 (Unit 2), RTS Overtemperature ΔT setpoint revision.
 - Amendments 57 (Unit 1) and 36 (Unit 2), RTS Overtemperature and Overpower ΔT time constants and Overtemperature ΔT setpoint.
 - Amendments 43 and 44 (Unit 1) and 23 and 24 (Unit 2), revised Overtemperature and Overpower ΔT trip setpoints and allowable values.
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.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.7 (continued)

The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable. The steam line pressure-low and steam line pressure negative rate-high functions have time constants specified in their setpoints.

SR 3.3.2.8

This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response Time testing acceptance criteria are included in the FSAR, Chapter 16 (Ref. 8). Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the Trip Setpoint value at the sensor, to the point at which the equipment in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).

For channels that include dynamic transfer functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer functions set to one with the resulting measured response time compared to the appropriate FSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from:

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.2.8 (continued)

(1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in-place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

ESF RESPONSE TIME tests are conducted on an 18 month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel. Therefore, staggered testing results in response time

(continued)

BASES

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BASES

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.
-



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 106 TO FACILITY OPERATING LICENSE NPF-68
AND AMENDMENT NO. 84 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 July 13, 1998, as supplemented by letters dated December 16, 1998, and January 13, 1999, Southern Nuclear Operating Company, Inc., et al. (the licensee) proposed license amendments to change the Technical Specifications (TS) for Vogtle Electric Generating Plant (Vogtle), Units 1 and 2. The proposed changes would revise the TS Section 1.1, Definitions, for "Engineered Safety Feature (ESF) Response Time" and "Reactor Trip System (RTS) Response Time" to provide for verification of response time for selected components provided the components and the methodology for verification have been previously reviewed and approved by the NRC. The supplements dated December 16, 1998, and January 13, 1999, provided clarifying information that did not change the July 13, 1998, application and the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

Instrument channel response time is, generally, the time span from when a monitored variable exceeds a predetermined setpoint, at the channel sensor, until the actuated device begins its safety function. Response time testing (RTT) has been an integral part of the TS instrument surveillance program to assure the proper functioning of the sensors and instrumentation loops for the ESF and the RTS.

The Westinghouse Owners Group (WOG) performed two analyses to assess the impact of elimination of RTT for instruments and instrument loops. These analyses also discussed alternate test methodologies that would show that the instrumentation was functioning correctly. The first of these analyses was Westinghouse Owners Group Licensing Topical Report WCAP-13632-P, Revision (Rev.) 2, "Elimination of Pressure Sensor Response Time Testing Requirements," dated August 1995, which was approved by the staff's safety evaluation (SE) dated September 5, 1995. The second analysis, WCAP-14036-P, Rev. 1, "Elimination of Periodic Protection Channel Response Time Tests," dated December 1995, was approved by the staff's SE dated October 6, 1998. The NRC staff's SEs, approving WCAP-13632-P, Rev. 2, and WCAP-14036-P, Rev. 1, stipulated certain conditions that individual plant licensees must meet when implementing the guidelines in WCAP-13632-P, Rev. 2, and WCAP-14036-P, Rev. 1, on a plant-specific basis.

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3.0 PROPOSED CHANGES AND EVALUATION

There are two types of changes contained within the licensee's request. The first is to eliminate periodic pressure sensor RTT in accordance with WCAP-13632-P, Rev. 2, and the second change is to eliminate protective channel RTT for the RTS and ESF actuation system in accordance with WCAP-14036-P, Rev. 1.

For the first change, the licensee proposes to no longer perform RTT on the following sensors:

- Barton 764/351
- Rosemount 1153DB
- Rosemount 1153GB
- Rosemount 1153HB
- Rosemount 1154DH
- Rosemount 1154SH
- Tobar 32DP
- Tobar 32PA
- Tobar 32PG
- Veritrak 76DP
- Veritrak 76PG
- Veritrak 76PH

These sensors are listed in the staff's SE dated September 5, 1995, approving WCAP-13632-P, Rev. 2. Since the staff has already reviewed the generic analysis, the licensee needs only to meet the conditions for plant-specific amendments discussed in Section 4 of this SE.

For the second change, the licensee proposed elimination of RTT for the RTS and ESF system, and instead will depend upon calibration and other periodic testing, as described in WCAP-14036-P, Rev. 1, in order to determine the proper operation and functioning of the RTS and ESF instrumentation. In those cases where the TS requires the licensee to verify that a protective system can meet its protective function in a prescribed time, a bounding response time will be added to those portions of the protective system actual response time tested in order to determine the total system response time. The requirement to actually measure the response times would be eliminated, and instead, the response times will be verified by summing allocated times for sensors, the process protection system, the nuclear instrumentation system, and the logic system. These allocated values will be added to the measured times for the actuated devices and compared to the overall analysis limits.

The TS changes, proposed by the licensee, would revise the TS 1.1 definition for "Engineered Safety Features (ESF) Response Time" and "Reactor Trip System (RTS) Response Time" to provide for verification of response time for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC. The TS requirements for response time verification will continue to be implemented by surveillance requirements (SRs) 3.3.1.15 and 3.3.2.8.

The definition for ESF response time would be changed by adding a sentence to allow response times for selected components to be verified. The definition currently reads:

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

With the addition of the proposed sentence (as underlined), the definition will state:

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

Likewise, the definition for RTS response time would be changed by adding a sentence to allow times for selected components to be verified. The definition currently reads:

The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

With the addition of the proposed sentence (as underlined), the definition will state:

The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

Evaluation: The addition of these sentences will allow the licensee to verify the component response times rather than performing an actual RTT. These changes are in accordance with the report WCAP-14036-P, Revision 1, and the staff's SE approving that report, and are, therefore, acceptable to the staff.

The licensee has proposed a change to Bases Section B 3.3.1, RTS Instrumentation, Surveillance Requirements, SR 3.3.1.15.

Proposed Change: Add two paragraphs after the paragraph ending "The response time may be measured by a series of overlapping tests such that the entire response time is measured," and before the paragraph starting "As appropriate, each channel's response must be verified every 18 months on a STAGGERED TEST BASIS." These paragraphs will read:

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

The licensee has proposed a change to Bases Section B 3.3.1, RTS Instrumentation, References.

Proposed Change: Add References 10 and 11, to read:

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.

The licensee has proposed a change to Bases Section B 3.3.2, ESFAS Instrumentation, Surveillance Requirements, SR 3.3.2.8.

Proposed Change: Add two paragraphs after the paragraph ending "The response time may be measured by a series of overlapping tests such that the entire response time is measured," and before the paragraph starting "ESF RESPONSE TIME tests are conducted on an 18 month STAGGERED TEST BASIS." These paragraphs will read:

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in-place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP-14036-P Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

The licensee has proposed a change to Bases Section B 3.3.2, ESFAS Instrumentation, References.

Proposed Change: Add References 10 and 11, to read:

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.

Evaluation: These changes describe the rationale that allows the licensee to verify the component response times by using approved methodology instead of performing an actual RTT. These changes are in accordance with WCAP-14036-P, Revision 1, as approved by the staff's SE and are, therefore, acceptable to the staff.

4.0 VERIFICATION OF PLANT-SPECIFIC CONDITIONS

4.1 The NRC staff stipulated several conditions in the generic SE approving WCAP-13632-P, Rev. 2, which must be met by the individual licensee referencing the topical report before the guidance could be implemented in plant specific TS change proposals. From the licensee's submittals, the NRC staff verified that the licensee has met or will meet the applicable conditions as follows:

- 4.1.1 Condition: Perform a hydraulic RTT prior to installation of a new transmitter/switch or following refurbishment of the transmitter/switch (e.g., sensor cell or variable damping components) to determine an initial sensor-specific response time value.

Licensee's Response: "Consistent with the proposed TS changes (including the associated Bases for SR 3.3.1.15 and SR 3.3.2.8) and EPRI Report NP-7243, Revision 1, the applicable plant procedures will include revisions which stipulate that pressure sensor response times must be verified by performance of an appropriate response time test prior to placing a sensor into operational service and re-verified following maintenance that may adversely affect sensor response time."

Evaluation: This response fulfills the condition in the staff's generic SE, approving WCAP-13632-P, Rev. 2, and is, therefore, acceptable to the NRC staff.

- 4.1.2 Condition: For transmitters and switches that use capillary tubes, perform an RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.

Licensee's Response: "Plant procedure revisions (and/or other appropriate administrative controls) will stipulate that pressure sensors (transmitters and switches) utilizing capillary tubes, e.g., containment pressure, must be subjected to RTT after initial installation and following any maintenance or modification activity which could damage the transmitter capillary tubes."

Evaluation: This response fulfills the condition in the staff's generic SE, approving WCAP-13632-P, Rev. 2, and is, therefore, acceptable to the NRC staff.

- 4.1.3 Condition: If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed or perform hydraulic RTT of the sensor following each calibration.

Licensee Response: "VEGP has no pressure transmitters with variable damping installed in any RTS or ESFAS application for which RTT is required; therefore, no VEGP procedure changes or enhanced administrative controls are required. If VEGP replaces any transmitters in the future with variable damping capability, then VEGP will implement procedure changes and/or establish appropriate administrative controls to assure the variable damping potentiometer cannot be inadvertently changed. Examples of such administrative controls may include use of pressure transmitters that are factory set and hermetically sealed to prohibit tampering or in situ application of a tamper seal (or sealant) on the potentiometer to secure and give a visual indication of the potentiometer position."

Evaluation: This response fulfills the condition in the staff's generic SE, approving WCAP-13632-P, Rev. 2, and is, therefore, acceptable to the NRC staff.

- 4.1.4 Condition: Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters, for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4 and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," dated December 22, 1992. As an alternative to performing periodic drift

monitoring of Rosemount transmitters, licensees may complete the following actions: (1) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and (2) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

Licensee Response: "Georgia Power provided responses to NRC Bulletins 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount" and 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount" by letters dated July 17, 1990, and February 26, 1993 respectively. These letters are included in Enclosure 5 and address the actions that SNC is taking with respect to item 4 above."

Evaluation: The staff confirmed that the licensee's submittals referenced in its response are consistent with the preceding condition. Therefore, this response fulfills the condition in the staff's generic SE, approving WCAP-14036-P, Rev. 1, and is, therefore, acceptable to the NRC staff.

4.2 The staff SE approving WCAP-14036-P, Rev. 1, also had a requirement that must be met by the individual licensee referencing the topical report before the guidance could be implemented in plant-specific TS change proposals. The requirement is as follows:

Condition: "Since the performance of RTT is a TS requirement, licensees referencing WCAP-14036 must submit a TS amendment to eliminate that requirement for the identified equipment. In that amendment request, the licensee must verify that the failure modes and effects analysis (FMEA) performed by the WOG is applicable to the equipment actually installed in the licensee's facility, and that the analysis is valid for the versions of the boards used in the protection system."

Licensee Response: In a letter number LCV-1175-A dated December 16, 1998, the licensee stated that "...the Failure Modes and Effects Analysis (FMEA) in WCAP-14036 Rev. 1, is applicable to the equipment actually installed at Vogtle Units 1 and 2, and the analysis is valid for the versions of boards utilized."

Evaluation: This response fulfills the condition in the staff's generic SE, approving WCAP-14036-P, Rev. 1, and is, therefore, acceptable to the NRC staff.

4.3 In addition to the preceding conditions, when a plant accident analysis determines that a mitigation system is required to actuate in a certain response time, the testing for that response time is generally required by the TS. The licensee's amendment request will eliminate some of the testing previously required. The two topical reports mentioned above provide adequate justification that calibrations and other surveillance testing will prove that the instruments are functioning properly. When the testing is not done to a portion of the instrument loop, but the TS requires the verification of assumptions made in the accident analysis, some assumed or bounding value for the untested portion of the

loop must be added to the tested portion, to arrive at a total system response time. WCAP-14036-P, Rev. 1, included those maximum or bounding response times for the equipment, which was analyzed in that report. WCAP-13632-P, Rev. 2, did not have similar bounding response times approved for the sensors, which were addressed in that topical report. These bounding sensor response time values were included in the licensee's letter, dated January 13, 1999. In that letter, the licensee stated:

Allocated sensor times are derived from method (3) section (9) WCAP-13632 rev. 2 (Vendor Engineering Specifications). Tobar, Veritrak, and Barton times were provided on Table 9-1. Rosemount times are from Rosemount manuals 4302 and 4631. The Rosemount response time specifications may also be found in NUREG/CR-5383. Transmitter FMEAs are based upon EPRI report NP-7243 rev. 1.

The sensor bounding response time values were as follows:

<u>Sensor Type</u>	<u>Bounding Response Value</u>
Barton 764	400 mSec
Barton 351	1 Sec
Rosemount 1153DB	200 mSec
Rosemount 1153GB	200 mSec
Rosemount 1153HB	200 mSec
Rosemount 1154DH	200 mSec
Rosemount 1154SH	200 mSec
Tobar 32DP	400 mSec
Tobar 32PA	200 mSec
Tobar 32PG	200 mSec
Veritrak 76DP	400 mSec
Veritrak 76PG	200 mSec
Veritrak 76PH	200 mSec

Use of these values, and the values found in WCAP-14036-P, Rev. 1, is consistent with the staff generic approval of RTT elimination, and is therefore, acceptable.

On the basis of its review, the staff concludes that the licensee has implemented the provisions of the generic SE for RTT elimination and satisfied the applicable plant-specific conditions in accordance with the approved reports WCAP-13632-P, Rev. 2, and WCAP-14036-P, Rev. 1; therefore, the staff concludes that the proposed Vogtle TS modifications for selected instrument RTT elimination are acceptable.

5.0 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.

6.0 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 (63 FR 53957 dated October 7, 1998). 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.

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

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