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SOUTHERN COMPANY
*Energy to Serve Your World*℠

May 21, 2001

Docket No. 50-366

HL-6063

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Edwin I. Hatch Nuclear Plant
Request to Revise Technical Specifications:
Response Time Testing

Ladies and Gentlemen:

In accordance with the provisions set forth in 10 CFR50.90, as required by 10 CFR 50.59(c)(1), Southern Nuclear Operating Company (SNC) is proposing changes to the Plant Hatch Unit 2 Technical Specifications, Appendix A to Operating License NPF-5, respectively. The proposed changes eliminate the response time testing requirements for the reactor protection system signals reactor high steam dome pressure and reactor level low.

Enclosure 1 provides a description and justification of the proposed changes. Enclosure 2 describes SNC's determination that the proposed changes do not involve a significant hazards consideration, as well as the environmental evaluation. Enclosure 3 includes the page change instructions, and the marked-up and published Tech Spec changes. A mark-up of the changed Bases pages are also included.

In accordance with the requirements of 10 CFR50.91, a copy of this letter and all applicable enclosures will be sent to the designated State official of the Environmental Protection Division of the Georgia Department of Natural Resources.

Mr. H. L. Sumner, Jr. states he is Vice President of Southern Nuclear Operating Company and is authorized to execute this oath on behalf of Southern Nuclear Operating Company, and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

Lewis Sumner

H. L. Sumner, Jr.

*Sworn to and subscribed before me this* 21st *day of* May *2001.*

Elaine E. Bolton
Notary Public

*Commission Expiration Date:* 5-25-2003

A001

OCV/eb

Enclosures:
1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Page Change Instructions, Mark-up and Changed Pages
4. Bases Changes

cc: Southern Nuclear Operating Company
Mr. P. H. Wells, Nuclear Plant General Manager
SNC Document Management (R-Type A02.001)

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. L. N. Olshan, Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. L. A. Reyes, Regional Administrator
Mr. J. T. Munday, Senior Resident Inspector - Hatch

State of Georgia
Mr. L. C. Barrett, Commissioner - Department of Natural Resources

Enclosure 1

Edwin I. Hatch Nuclear Plant – Unit 2
Request to Revise Technical Specifications:
Response Time Testing

Basis for Change Request

**Proposed Change 1**

This proposed change removes references to Surveillance Requirement (SR) 3.3.1.1.16 from Table 3.3.1.1-1, Functions 3 and 4. This proposed change eliminates the requirement to perform response time testing for Reactor Protection System (RPS) functions, Reactor Pressure Steam Dome Pressure-High and Reactor Vessel Water Level-Low, Level 3.

**Proposed Change 2**

This proposed change deletes note 2 from SR 3.3.1.1.16. This change removes instructions that will no longer be applicable with the implementation of Proposed Change 1.

**Basis for Proposed Changes 1 and 2**

Both proposed changes are associated with the elimination of response time testing requirements for certain RPS instrumentation loop components from the Technical Specifications. Specifically, the response time testing requirements to be eliminated include specified loop instrumentation for RPS channels, Reactor Pressure Steam Dome Pressure-High and Reactor Vessel Water Level-Low, Level 3. An analysis performed by the BWR Owners' Group (BWROG), with Southern Nuclear Operating Company (SNC) participation, and documented in NEDO-32291, Supplement 1 (Ref. 1) shows that other periodic tests required by Technical Specifications, such as channel calibrations, channel checks, channel functional tests, and logic system functional tests, provide adequate assurance that instrument response times are within acceptance limits.

The above stated position is supported by the guidance of IEEE 338-1977, endorsed by Regulatory Guide 1.118, Revision 2, which contains the following statement:

> "Response time testing of all safety related equipment, per se, is not required if, in lieu of response time testing, the response time of the safety equipment is verified by functional testing, calibration checks or other tests, or both. This is acceptable if it can be demonstrated that changes in response time beyond acceptable limits are accompanied by changes in performance characteristics which are detectable during routine periodic tests."

The analysis contained in NEDO-32291, Supplement 1 (Ref. 1), provides the basis for eliminating selected response time testing requirements. The analysis was performed for BWRs, and its applicability to plant Hatch has been verified with regards to the proposed Technical Specification changes. NEDO-32291, Supplement 1, was submitted to the NRC for review as a topical report in December, 1997. The BWROG submitted additional information to the staff in Addendum 1 to NEDO-32291, Supplement 1 in November, 1998 (Ref. 2). The NRC approved the Topical Report by a Safety Evaluation Report (SER) issued in June, 1999 (Ref. 3)

The BWROG analysis includes the identification of potential failure modes of components in the affected instrumentation loops that could potentially impact the instrument loop response time. In addition, plant operating experiences were reviewed to identify response time failures and how they were detected. The failure modes identified were evaluated to determine if the effect on response time would be detected by other testing requirements contained in the Technical Specifications.

The results of the BWROG analysis demonstrate that any credible failure of the instrument loop components would either be bounded by a bounding response time (BRT) or would be detected by other Technical Specifications testing requirements, such as channel calibration, channel check, channel functional test, and logic system functional test. These other testing requirements are sufficient to identify failure modes or degradations in instrument response times and assure operation of the analyzed instrument loops are within acceptance limits. Furthermore, the BWROG has described various defense in depth issues (Ref. 2) which clearly demonstrate that from a realistic basis, there is no safety significance even if instrumentation loop response times are significantly longer than the loop BRTs. Therefore, potential errors in the conclusions of the analysis and BRTs resulting from unanticipated failure modes of components do not affect the overall conclusion that elimination of the identified response time testing requirements has no substantial detrimental impact on plant safety.

In Summary, NEDO-32291, Supplement 1, evaluations and plant specific conditions demonstrate that response time testing can be eliminated for the following RPS loops.

1. Reactor Pressure Steam Dome Pressure-High

2. Reactor Vessel Water Level-Low, Level 3.

## Additional Required Information

In addition to the above justification and in accordance with the guidance in the NRC SER on BWROG Topical Report NEDO-32291, Supplement 1, the following information is provided:

SNC has evaluated the RPS loops identified and found they are enveloped by NEDO-32291, Supplement 1, as detailed on the Attachment to this Enclosure. Each Hatch scram contactor and one interposing relay, not shared by other loops, are response time tested with an acceptance criteria of ≤ 50 mS for RPS function APRM Two-Out-Of-Four Voter. Hence, 45 mS is used as the scram contactor BRT in the analysis as identified by NEDO-32291, Supplement 1, Section B.7.2.2.

SNC commitments in response to the requirements of the NRC-SER are as follows:

1. Before installation, or after any maintenance or repair of the relays, the Agastat relays identified on the Attachment to this Enclosure will be tested to ensure the normally open contacts of the relays open in 70 mS or less after power is removed from the relay coil.
2. The Agastat relays identified on the Attachment to this Enclosure will be replaced prior to or at the end of their qualified life. Alternatively, a justification for life extension will be documented.
3. The manufacturer's instructions will be followed for setup and adjustment of the HFA relays identified on the Attachment to this Enclosure before initial operation and after any repair or maintenance.
4. Before installation, or after any maintenance or repair of the relays, the HFA relays identified on the Attachment to this Enclosure will be tested to ensure that the normally open contacts of the relays open in 20 mS or less after power is removed from the relay coil.
5. The trip units and relays identified on the Attachment to this Enclosure are procured by SNC as "nuclear safety related", or are dedicated for nuclear-safety-related application under a utility dedication program.
6. Provisions have been made to ensure that operators and technicians, through an appropriate training program, are aware of the consequences of instrument response time degradation, and that applicable procedures have been reviewed and revised, as necessary, to assure that technicians monitor for response time degradation during the performance of calibrations and functional tests.
7. Provisions have been made to ensure that components of a different type or model than that identified on the Attachment to this Enclosure will be evaluated in accordance with the criteria of Section 8.6.3 of NEDO-32291, Supplement 1, prior to installation in place of the components identified on the Attachment to this Enclosure.

Statements 1 through 7 apply only to the trip units and relays covered by these proposed Technical Specification changes.

**References**:

1. NEDO-32291, Supplement 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements", Boiling Water Reactor Owners' Group, December, 1997
2. NEDO-32291, Supplement 1, Addendum 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements", Boiling Water Reactor Owners' Group (BWROG-98076), November, 1998
3. NRC SER, Evaluation of Boiling Water Reactor Owners' Group Topical Report NEDO-32291, Supplement 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements", June 1999

Attachment to Enclosure 1

**Edwin I. Hatch Nuclear Plant - Unit 2**
**Response Time Testing Instrumentation Loop Components**

**RTT TRIP FUNCTION TABLE NO.** 3.3.1.1-1 **HATCH UNIT 2** **(1 of 1)**
**RTT TRIP FUNCTION ITEM NO.** 3
**SYSTEM DESCRIPTION** Reactor Protection System Response Time
**TRIP FUNCTION DESCRIPTION** Reactor Vessel Steam Dome Pressure – High
**RTT REQUIREMENT (Sec.)** ≤ 0.55

NEDO –32291 TABLE C.2-2

**LOOP TYPE** H

| Sensor & BRT | Trip Unit(1)(5) & BRT | TU Output Relay(2)(6) & BRT | Logic Relay(3)(6) & BRT | Output Relay(4)(6) & BRT | Loop BRT (Sec.) |
|---|---|---|---|---|---|
| 2B21-N078A<br>200 mS | 2B21-N678A<br>24 mS | 2C71A-K308A<br>140 mS | 2C71A-K5A<br>40 mS | 2C71A-K14A,E<br>45 mS | 0.449 |
| 2B21-N078B<br>200 mS | 2B21-N678B<br>24 mS | 2C71A-K308B<br>140 mS | 2C71A-K5B<br>40 mS | 2C71A-K14B,F<br>45 mS | 0.449 |
| 2B21-N078B<br>200 mS | 2B21-N678C<br>24 mS | 2C71A-K308C<br>140 mS | 2C71A-K5C<br>40 mS | 2C71A-K14C,G<br>45 mS | 0.449 |
| 2B21-N078B<br>200 mS | 2B21-N678D<br>24 mS | 2C71A-K308D<br>140 mS | 2C71A-K5D<br>40 mS | 2C71A-K14D,H<br>45 mS | 0.449 |

**Notes:**

(1) GE Model 184C5988Gxxx Trip Unit
(2) Agastat Model EGPB Relay
(3) GE Model 12HFA151A9 Relay
(4) GE Model CR305 Magnetic Contactor
(5) Trip Function: de-energize output
(6) Trip Function: de-energize to open normally open contact

**Reference Drawing Numbers:**

H-24409
H-24412
H-24415
H-24418
H-27610
H-27611
H-27612
H-27613
H-27614

**RTT TRIP FUNCTION TABLE NO.** 3.3.1.1-1 **HATCH UNIT 2** **(1 of 1)**
**RTT TRIP FUNCTION ITEM NO.** 4
**SYSTEM DESCRIPTION** Reactor Protection System Response Time
**TRIP FUNCTION DESCRIPTION** Reactor Vessel Water Level – Low, Level 3
**RTT REQUIREMENT (Sec.)** ≤ 1.05

NEDO –32291 TABLE C.2-2

**LOOP TYPE** H

| Sensor & BRT | Trip Unit(1)(5) & BRT | TU Output Relay(2)(6) & BRT | Logic Relay(3)(6) & BRT | Output Relay(4)(6) & BRT | Loop BRT (Sec.) |
|---|---|---|---|---|---|
| 2B21-N080A<br>180 mS | 2B21-N680A<br>24 mS | 2C71A-K305A<br>140 mS | 2C71A-K6A<br>40 mS | 2C71A-K14A,E<br>45 mS | 0.429 |
| 2B21-N080B<br>180 mS | 2B21-N680B<br>24 mS | 2C71A-K305B<br>140 mS | 2C71A-K6B<br>40 mS | 2C71A-K14B,F<br>45 mS | 0.429 |
| 2B21-N080B<br>180 mS | 2B21-N680C<br>24 mS | 2C71A-K305C<br>140 mS | 2C71A-K6C<br>40 mS | 2C71A-K14C,G<br>45 mS | 0.429 |
| 2B21-N080B<br>180 mS | 2B21-N680D<br>24 mS | 2C71A-K305D<br>140 mS | 2C71A-K6D<br>40 mS | 2C71A-K14D,H<br>45 mS | 0.429 |

**Notes:**

(1) GE Model 184C5988Gxxx Trip Unit
(2) Agastat Model EGPB Relay
(3) GE Model 12HFA151A9 Relay
(4) GE Model CR305 Magnetic Contactor
(5) Trip Function: de-energize output
(6) Trip Function: de-energize to open normally open contact

**Reference Drawing Numbers:**

H-24409
H-24412
H-24415
H-24418
H-27610
H-27611
H-27612
H-27613
H-27614

Enclosure 2

Edwin I. Hatch Nuclear Plant – Unit 2
Request to Revise Technical Specifications:
Response Time Testing

10 CFR 50.92 Evaluation

**Proposed Change 1**

This proposed change removes references to Surveillance Requirement (SR) 3.3.1.1.16 from Table 3.3.1.1-1, Functions 3 and 4. This proposed change eliminates the requirement to perform response time testing for Reactor Protection System (RPS) functions Reactor Pressure Steam Dome Pressure-High and Reactor Vessel Water Level-Low, Level 3.

**Proposed Change 2**

This proposed change deletes note 2 from SR 3.3.1.1.16. This change removes instructions that will no longer be applicable with the implementation of Proposed Change 1.

**Basis for Proposed Changes 1 and 2**

Southern Nuclear Operating Company (SNC) has reviewed the proposed Technical Specifications changes described above and determined they do not involve a significant hazards consideration based on the following:

1. The changes do not involve a significant increase in the probability or consequences of an accident previously evaluated. The purpose of the proposed changes is to eliminate response time testing requirements for select components in the RPS. However, because of the continued application of other existing Technical Specifications requirements, such as channel calibrations, channel checks, channel functional tests, and logic system functional tests, the response time of the RPS will be maintained within the acceptance limits assumed in plant safety analyses. This will assure successful mitigation of an initiating event. The proposed Technical Specifications changes do not affect the capability of the associated systems to perform their intended function within their required response time. The BWR Owners' Group (BWROG) has documented an evaluation in NEDO-32291, Supplement 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements", which was submitted to the NRC for review and approval as a Topical Report in December 1997. The BWROG submitted additional information to the staff in Addendum 1 to NEDO 32291, Supplement 1 in November, 1998. Subsequently, the NRC approved the Topical Report by a Safety Evaluation Report (SER) issued in June, 1999.

   This evaluation demonstrates that response time testing is redundant to the other Technical Specifications requirements listed in the proceeding paragraph. These other tests are sufficient to identify failure modes or degradation in instrument response time and ensure operation of the associated systems within acceptance limits. Furthermore, Addendum 1

to NEDO 32291, Supplement 1 clearly demonstrates defense-in-depth, such that from a realistic basis, there is no safety significance even if instrumentation loop response times are significantly longer than the loop bounding response times.

2. The proposed changes will not create the possibility of a new or different kind of accident from any accident previously analyzed. The proposed Technical Specifications changes do not affect the capability of the RPS to perform its intended function within the acceptance limits assumed in plant safety analyses. Periodic surveillance of these RPS instrument loop components will continue and may be used to detect degradation that could cause the response time characteristic to exceed the BRT allowance.

3. The proposed changes do not involve a significant reduction in the margin of safety. The current Technical Specifications response times are based on the maximum allowable values assumed in the plant safety analyses, which conservatively establish the margin of safety. As described above, the proposed Technical Specifications changes do not affect the capability of the associated systems to perform their intended function within the allowed response time used as the basis for the plant safety analyses. Plant and system responses to an initiating event will remain in compliance with the assumptions of the safety analyses; therefore, the margin of safety is not affected.

   Although not explicitly evaluated, the proposed Technical Specifications changes enhance plant safety and operation by:

   a. Reducing the time safety systems are unavailable,

   b. Reducing the potential for inadvertent safety system actuation,

   c. Reducing shutdown risk,

   d. Eliminating the diversion of key personnel to conduct unnecessary testing.

## Environmental Consequences

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (1) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed amendment is not required

Enclosure 3

Edwin I. Hatch Nuclear Plant – Unit 2
Request to Revise Technical Specifications:
Response Time Testing

Page Change Instructions,
Marked-up and Changed Technical Specifications Changes

| Page | Replace |
|---|---|
| 3.3-6 | 3.3-6 |
| 3.3-8 | 3.3-8 |

SURVEILLANCE REQUIREMENTS (continued)

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.3.1.1.13 | ----------NOTES----------<br>1. Neutron detectors are excluded.<br>2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.<br>----------<br>Perform CHANNEL CALIBRATION. | 18 months |
| SR 3.3.1.1.14 | (Not used.) | |
| SR 3.3.1.1.15 | Perform LOGIC SYSTEM FUNCTIONAL TEST. | 18 months |
| SR 3.3.1.1.16 | ----------NOTES----------<br>1. Neutron detectors are excluded.<br>2. ~~For Functions 3 and 4, channel sensors are excluded.~~ (NOT USED)<br>3. For Function 5, "*n*" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency.<br>----------<br>Verify the RPS RESPONSE TIME is within limits. | 18 months on a STAGGERED TEST BASIS |
| SR 3.3.1.1.17 | Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow. | 18 months |

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

| FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | CONDITIONS REFERENCED FROM REQUIRED ACTION D.1 | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|---|---|---|---|---|
| 2. Average Power Range Monitor (continued) | | | | | |
| e. Two-out-of-Four Voter | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.10<br>SR 3.3.1.1.15<br>SR 3.3.1.1.16 | NA |
| f. OPRM Upscale | 1 | 3[c] | I | SR 3.3.1.1.1<br>SR 3.3.1.1.8<br>SR 3.3.1.1.10<br>SR 3.3.1.1.13<br>SR 3.3.1.1.17 | NA |
| 3. Reactor Vessel Steam Dome Pressure - High | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15<br>~~SR 3.3.1.1.16~~ | ≤ 1085 psig |
| 4. Reactor Vessel Water Level - Low, Level 3 | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15<br>~~SR 3.3.1.1.16~~ | ≥ 0 inches |
| 5. Main Steam Isolation Valve - Closure | 1 | 8 | F | SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15<br>SR 3.3.1.1.16 | ≤ 10% closed |
| 6. Drywell Pressure - High | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 1.92 psig |
| 7. Scram Discharge Volume Water Level - High | | | | | |
| a. Resistance Temperature Detector | 1,2 | 2 | G | SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |
| | 5[a] | 2 | H | SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |
| b. Float Switch | 1,2 | 2 | G | SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |
| | 5[a] | 2 | H | SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |

(continued)

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(c) Each APRM channel provides inputs to both trip systems.

SURVEILLANCE REQUIREMENTS (continued)

| SURVEILLANCE | | FREQUENCY |
|---|---|---|
| SR 3.3.1.1.13 | ----------NOTES----------<br>1. Neutron detectors are excluded.<br><br>2. For Function 1, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.<br>----------<br><br>Perform CHANNEL CALIBRATION. | 18 months |
| SR 3.3.1.1.14 | (Not used.) | |
| SR 3.3.1.1.15 | Perform LOGIC SYSTEM FUNCTIONAL TEST. | 18 months |
| SR 3.3.1.1.16 | ----------NOTES----------<br>1. Neutron detectors are excluded.<br><br>2. (Not used.)<br><br>3. For Function 5, "*n*" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency.<br>----------<br><br>Verify the RPS RESPONSE TIME is within limits. | 18 months on a STAGGERED TEST BASIS |
| SR 3.3.1.1.17 | Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow. | 18 months |

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

| FUNCTION | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | CONDITIONS REFERENCED FROM REQUIRED ACTION D.1 | SURVEILLANCE REQUIREMENTS | ALLOWABLE VALUE |
|---|---|---|---|---|---|
| 2. Average Power Range Monitor (continued) | | | | | |
| e. Two-out-of-Four Voter | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.10<br>SR 3.3.1.1.15<br>SR 3.3.1.1.16 | NA |
| f. OPRM Upscale | 1 | 3[c] | I | SR 3.3.1.1.1<br>SR 3.3.1.1.8<br>SR 3.3.1.1.10<br>SR 3.3.1.1.13<br>SR 3.3.1.1.17 | NA |
| 3. Reactor Vessel Steam Dome Pressure - High | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 1085 psig |
| 4. Reactor Vessel Water Level - Low, Level 3 | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≥ 0 inches |
| 5. Main Steam Isolation Valve - Closure | 1 | 8 | F | SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15<br>SR 3.3.1.1.16 | ≤ 10% closed |
| 6. Drywell Pressure - High | 1,2 | 2 | G | SR 3.3.1.1.1<br>SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 1.92 psig |
| 7. Scram Discharge Volume Water Level - High | | | | | |
| a. Resistance Temperature Detector | 1,2 | 2 | G | SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |
| | 5[a] | 2 | H | SR 3.3.1.1.9<br>SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |
| b. Float Switch | 1,2 | 2 | G | SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |
| | 5[a] | 2 | H | SR 3.3.1.1.13<br>SR 3.3.1.1.15 | ≤ 57.15 gallons |

(continued)

(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(c) Each APRM channel provides inputs to both trip systems.

Enclosure 4

Edwin I. Hatch Nuclear Plant – Unit 2
Request to Revise Technical Specifications:
Response Time Testing

Bases Changes

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.15 (continued)

The LOGIC SYSTEM FUNCTIONAL TEST for APRM Function 2.e simulates APRM and OPRM trip conditions at the two-out-of-four voter channel inputs to check all combinations of two tripped inputs to the two-out-of-four logic in the voter channels and APRM related redundant RPS relays.

SR 3.3.1.1.16

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. This test may be performed in one measurement or in overlapping segments, with verification that all components are tested. The RPS RESPONSE TIME acceptance criteria are included in Reference 10.

RPS RESPONSE TIME for APRM two-out-of-four Voter Function 2.e includes the output relays of the voter and the associated RPS relays and contactors. (The digital portions of the APRM and two-out-of-four voter channels are excluded from RPS RESPONSE TIME testing because self-testing and calibration check the time base of the digital electronics.) Confirmation of the time base is adequate to assure required response times are met. Neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

Note 1 allows neutron detectors to be excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

~~Note 2 allows channel sensors for Reactor Vessel Steam Dome Pressure - High and Reactor Vessel Water Level - Low, Level 3 (Functions 3 and 4) to be excluded from RPS RESPONSE TIME testing. This allowance is supported by Reference 12 which concludes that any significant degradation of the channel sensor response time can be detected during the performance of other Technical Specifications SRs.~~

RPS RESPONSE TIME tests are conducted on an 18 month STAGGERED TEST BASIS. Note 3 requires STAGGERED TEST BASIS Frequency to be determined based on four channels per trip system, in lieu of the eight channels specified in Table 3.3.1.1-1 for the Main Steam Line Isolation

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.16 (continued)

Valve — Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. This Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

Add insert A

SR 3.3.1.1.17

This SR ensures that scrams initiated from OPRM Upscale Function 2.f will not be inadvertently bypassed when THERMAL POWER, as indicated by APRM Simulated Thermal Power, is ≥ 25% RTP and core flow, as indicated by recirculation drive flow, is < 60% rated core flow. This normally involves confirming the bypass setpoints. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. The actual Surveillance ensures that the OPRM Upscale Function is enabled (not bypassed) for the correct values of APRM Simulated Thermal Power and recirculation drive flow. Other Surveillances ensure that the APRM Simulated Thermal Power and recirculation flow properly correlate with THERMAL POWER and core flow, respectively.

If any bypass setpoint is nonconservative (i.e., the OPRM Upscale Function is bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% rated), then the affected channel is considered inoperable for the OPRM Upscale Function. Alternatively, the bypass setpoint may be adjusted to place the channel in a conservative condition (unbypass). If placed in the unbypass condition, this SR is met and the channel is considered OPERABLE.

The 18 month Frequency is based on engineering judgment and component reliability.

REFERENCES

1. FSAR, Section 7.2.
2. FSAR, Chapter 15.
3. FSAR, Section 6.3.3.

(continued)

Insert A

Note: SR 3.3.1.1.16 for Function 2.e confirms the response time of that function, and also confirms the response time of loop components common to APRM- Two Out Of Four Voter logic and other RPS loops.

BASES

REFERENCES (continued)

4. FSAR, Supplement 5A.

5. FSAR, Section 15.1.12.

6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.

7. FSAR, Section 15.1.38.

8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.

9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.

10. Technical Requirements Manual.

11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

12. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.

13. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.

14. NEDO-31960-A, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

15. NEDO-31960-A, Supplement 1, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

16. NEDO-32465-A, "BWR Owners' Group Long-Term Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications," March 1996.

17. NEDO-32410P-A, Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," November 1997.

18. Letter, L.A. England (BWROG) to M.J. Virgilio, "BWR Owners' Group Guidelines for Stability Interim Corrective Action," June 6, 1994.

19. NEDO-32291-A, Supplement 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements", October, 1999.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.15 (continued)

The LOGIC SYSTEM FUNCTIONAL TEST for APRM Function 2.e simulates APRM and OPRM trip conditions at the two-out-of-four voter channel inputs to check all combinations of two tripped inputs to the two-out-of-four logic in the voter channels and APRM related redundant RPS relays.

SR 3.3.1.1.16

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. This test may be performed in one measurement or in overlapping segments, with verification that all components are tested. The RPS RESPONSE TIME acceptance criteria are included in Reference 10.

RPS RESPONSE TIME for APRM two-out-of-four Voter Function 2.e includes the output relays of the voter and the associated RPS relays and contactors. (The digital portions of the APRM and two-out-of-four voter channels are excluded from RPS RESPONSE TIME testing because self-testing and calibration check the time base of the digital electronics.) Confirmation of the time base is adequate to assure required response times are met. Neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

Note 1 allows neutron detectors to be excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

RPS RESPONSE TIME tests are conducted on an 18 month STAGGERED TEST BASIS. Note 3 requires STAGGERED TEST BASIS Frequency to be determined based on four channels per trip system, in lieu of the eight channels specified in Table 3.3.1.1-1 for the Main Steam Line Isolation Valve — Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. This Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.16 (continued)

Note: SR 3.3.1.1.16 for Function 2.e confirms the response time of that function and also confirms the response time of loop components common to APRM two-out-of-four voter logic and other RPS loops (Refs. 12 and 19).

SR 3.3.1.1.17

This SR ensures that scrams initiated from OPRM Upscale Function 2.f will not be inadvertently bypassed when THERMAL POWER, as indicated by APRM Simulated Thermal Power, is ≥ 25% RTP and core flow, as indicated by recirculation drive flow, is < 60% rated core flow. This normally involves confirming the bypass setpoints. Adequate margins for the instrument setpoint methodologies are incorporated into the actual setpoint. The actual Surveillance ensures that the OPRM Upscale Function is enabled (not bypassed) for the correct values of APRM Simulated Thermal Power and recirculation drive flow. Other Surveillances ensure that the APRM Simulated Thermal Power and recirculation flow properly correlate with THERMAL POWER and core flow, respectively.

If any bypass setpoint is nonconservative (i.e., the OPRM Upscale Function is bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% rated), then the affected channel is considered inoperable for the OPRM Upscale Function. Alternatively, the bypass setpoint may be adjusted to place the channel in a conservative condition (unbypass). If placed in the unbypass condition, this SR is met and the channel is considered OPERABLE.

The 18 month Frequency is based on engineering judgment and component reliability.

REFERENCES

1. FSAR, Section 7.2.
2. FSAR, Chapter 15.
3. FSAR, Section 6.3.3.
4. FSAR, Supplement 5A.
5. FSAR, Section 15.1.12.

(continued)

BASES

REFERENCES (continued)

6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.

7. FSAR, Section 15.1.38.

8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.

9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.

10. Technical Requirements Manual.

11. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

12. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.

13. NEDC-32410P-A, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," October 1995.

14. NEDO-31960-A, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

15. NEDO-31960-A, Supplement 1, "BWR Owners' Group Long-Term Stability Solutions Licensing Methodology," November 1995.

16. NEDO-32465-A, "BWR Owners' Group Long-Term Stability Detect and Suppress Solutions Licensing Basis Methodology and Reload Applications," March 1996.

17. NEDO-32410P-A, Supplement 1, "Nuclear Measurement Analysis and Control Power Range Neutron Monitor (NUMAC PRNM) Retrofit Plus Option III Stability Trip Function," November 1997.

18. Letter, L.A. England (BWROG) to M.J. Virgilio, "BWR Owners' Group Guidelines for Stability Interim Corrective Action," June 6, 1994.

19. NEDO-32291-A, Supplement 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements," October 1999.