REQUEST FOR AMENDMENT, RELOCATION OF TECHNICAL SPECIFICATION TABLES FOR INSTRUMENT RESPONSE TIME LIMITS

ATTACHMENT 3

TECHNICAL SPECIFICATION PAGES

and BASES CHANGES

Reflecting Relocation of Instrumentation Response Time Limits to the FSAR

CONTROLLED COPY

INDEX

LIST OF TABLES

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor protection system instrumentation channels shown in Table 3.3.1-1 shall be OPERABLE ~~with the REACTOR PROTECTION SYSTEM RESPONSE TIME as shown in Table 3.3.1-2~~.

APPLICABILITY: As shown in Table 3.3.1-1.

ACTION:

a. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system, place the inoperable channel(s) and/or that trip system in the tripped condition* within twelve hours. The provisions of Specification 3.0.4 are not applicable.

b. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for both trip systems, place at least one trip system** in the tripped condition within 1 hour and take the ACTION required by Table 3.3.1-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor protection system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.1.1-1.

4.3.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.1.3 The REACTOR PROTECTION SYSTEM RESPONSE TIME of each reactor trip functional unit ~~shown in Table 3.3.1-2~~ shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip system.

Neutron detectors are exempt from response time testing.

*An inoperable channel need not be placed in the tripped condition where this would cause the Trip Function to occur. In these cases, the inoperable channel shall be restored to OPERABLE status within six hours after the channel was first determined to be inoperable or the ACTION required by Table 3.3.1-1 for that Trip Function shall be taken.

**If more channels are inoperable in one trip system than in the other, place the trip system with more inoperable channels in the tripped condition, except when this would cause the Trip Function to occur.

TABLE 3.3.1-2

REACTOR PROTECTION SYSTEM RESPONSE TIMES

FUNCTIONAL UNIT	RESPONSE TIME (Seconds)
1. Intermediate Range Monitors:	
a. Neutron Flux - High	N.A.
b. Inoperative	N.A.
2. Average Power Range Monitor*:	
a. Neutron Flux - Upscale, Setdown	N.A.
b. Flow Biased Simulated Thermal Power - Upscale	6±1**
c. Fixed Neutron Flux - Upscale	≤ 0.09
d. Inoperative	N.A.
3. Reactor Vessel Steam Dome Pressure - High	≤ 0.55
4. Reactor Vessel Water Level - Low, Level 3	≤ 1.05
5. Main Steam Line Isolation Valve - Closure	≤ 0.06
6. DELETED	
7. Primary Containment Pressure - High	N.A.
8. Scram Discharge Volume Water Level - High	
a. Level Transmitter	N.A.
b. Float Switch	N.A.
9. Turbine Throttle Valve - Closure	≤ 0.06
10. Turbine Governor Valve Fast Closure, Trip Oil Pressure - Low	≤ 0.08#
11. Reactor Mode Switch Shutdown Position	N.A.
12. Manual Scram	N.A.

Delete.

*Neutron detectors are exempt from response time testing. Response time shall be measured from the detector output or from the input of the first electronic component in the channel.

**Including simulated thermal power time constant.

#Measured from start of turbine control valve fast closure.

CONTROLLED COPY

CONTROLLED COPY

3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.2 The isolation actuation instrumentation channels shown in Table 3.3.2-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.2-2 ~~and with ISOLATION SYSTEM RESPONSE TIME as shown in Table 3.3.2-3.~~

APPLICABILITY: As shown in Table 3.3.2-1.

ACTION:

a. With an isolation actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.2-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

b. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system:

1. If placing the inoperable channel(s) in the tripped condition would cause an isolation, the inoperable channel(s) shall be restored to OPERABLE status within
   a) 12 hours for trip functions common to RPS Instrumentation; and
   b) 24 hours for trip functions not common to RPS Instrumentation.

   or the ACTION required by Table 3.3.2-1 for the affected trip function shall be taken.

OR

2. If placing the inoperable channel(s) in the tripped conditions would not cause an isolation, the inoperable channel(s) and/or that trip system shall be placed in the tripped condition within
   a) 12 hours for trip functions common to RPS Instrumentation; and
   b) 24 hours for trip functions not common to RPS Instrumentation.

The provisions of Specification 3.0.4 are not applicable.

c. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for both trip systems, place at least one trip system* in the tripped condition within one hour and take the ACTION required by Table 3.3.2-1.

---

*Place one trip system (with the most inoperable channels) in the tripped condition. The trip system need not be placed in the tripped condition when this would cause the isolation to occur.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each isolation actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.2.1-1.

4.3.2.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.2.3 The ISOLATION SYSTEM RESPONSE TIME of each isolation trip function ~~shown in Table 3.3.2-3~~ shall be demonstrated to be within its limit at least once per 18 months.* Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months, where N is the total number of redundant channels in a specific isolation trip system.

insert: Radiation detectors are exempt from response time testing.

~~*Response time testing of the Isolation Actuation Instrumentation Response Times for Isolation Groups 3 and 4, as specified in Technical Specification Table 3.3.2-1, is not a requirement for OPERABILITY until entry into a COLD SHUTDOWN condition no later than startup from the Spring 1994 Refueling Outage.~~

CONTROLLED COPY

TABLE 3.3.2-3

ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME

TRIP FUNCTION	RESPONSE TIME (Seconds)#
1. PRIMARY CONTAINMENT ISOLATION	
a. Reactor Vessel Water Level	
1) Low, Level 3	N.A.
2) Low Low, Level 2	≤ 1.0*/≤ 13(a)**
b. Drywell Pressure - High	≤ 13(a)
c. Main Steam Line	
1) DELETED	
2) Pressure - Low	≤ 1.0*/≤ 13(a)**
3) Flow - High	≤ 0.5*/≤ 13(a)**
d. Main Steam Line Tunnel Temperature - High	N.A.
e. Main Steam Line Tunnel Δ Temperature - High	N.A.
f. Condenser Vacuum - Low	N.A.
g. Manual Initiation	N.A.
2. SECONDARY CONTAINMENT ISOLATION	
a. Reactor Building Vent Exhaust Plenum Radiation - High(b)	≤ 13(a)
b. Drywell Pressure - High	≤ 13(a)
c. Reactor Vessel Water Level - Low Low, Level 2	≤ 13(a)
d. Manual Initiation	N.A.
3. REACTOR WATER CLEANUP SYSTEM ISOLATION	
a. Δ Flow - High	≤ 13(a)##
b. Heat Exchanger Area Temperature - High	N.A.
c. Heat Exchanger Area Ventilation Δ Temp. - High	N.A.
d. Pump Area Temperature - High	N.A.
e. Pump Area Ventilation Δ Temp. - High	N.A.
f. SLCS Initiation	N.A.
g. Reactor Vessel Water Level - Low Low, Level 2	≤ 13(a)
h. RWCU/RCIC Line Routing Area Temperature - High	N.A.
i. RWCU Line Routing Area Temperature - High	N.A.
j. Manual Initiation	N.A.

~~TABLE 3.3.2-3 (Continued)~~

~~ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME~~

TRIP FUNCTION	RESPONSE TIME (Seconds)#
4. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION	
a. RCIC Steam Line Flow - High	≤ 13(a)
b. RHR/RCIC Steam Line Flow - High	≤ 13(a)
c. RCIC Steam Supply Pressure - Low	≤ 13(a)
d. RCIC Turbine Exhaust Diaphragm Pressure - High	N.A.
e. RCIC Equipment Room Temperature - High	N.A.
f. RCIC Equipment Room Δ Temperature - High	N.A.
g. RWCU/RCIC Steam Line Routing Area Temperature - High	N.A.
h. Drywell Pressure - High	N.A.
i. Manual Initiation	N.A.
5. RHR SYSTEM SHUTDOWN COOLING MODE ISOLATION	
a. Reactor Vessel Water Level - Low, Level 3	≤ 13(a)
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	N.A.
c. Equipment Area Temperature - High	N.A.
d. Equipment Area Ventilation Δ Temp. - High	N.A.
e. Shutdown Cooling Return Flow Rate - High	N.A.
f. RHR Heat Exchanger Area Temperature - High	N.A
g. Manual Initiation	N.A.

CONTROLLED COPY

~~TABLE 3.3.2-3 (Continued)~~

~~ISOLATION SYSTEM INSTRUMENTATION RESPONSE TIME~~

~~TABLE NOTATIONS~~

(a) The isolation system instrumentation response time shall be measured and recorded as a part of the ISOLATION SYSTEM RESPONSE TIME. Isolation system instrumentation response time specified includes the diesel generator starting and sequence loading delays assumed in the accident analysis.

(b) Radiation detectors are exempt from response time testing. Response time shall be measured from detector output or the input of the first electronic component in the channel.

*Isolation system instrumentation response time for MSIVs only. No diesel generator delays assumed.

**Isolation system instrumentation response time for associated valves except MSIVs.

#Isolation system instrumentation response time specified for the Trip Function actuating each valve group shall be added to isolation time ~~shown in Table 3.6.3-1 and 3.6.5.2-1 for valves~~ in each valve group to obtain ISOLATION SYSTEM RESPONSE TIME for each valve.

~~##This response time does not include the 45-second time delay.~~

Insert

for each power operated or automatic primary containment isolation valve and secondary containment ventilation system automatic isolation valve (Table 3.6.5.2-1)

This change requested in Supply System letter G02-93-256 dated October 25, 1993

With approval of this request, this change will also be relocated.

3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3 The emergency core cooling system (ECCS) actuation instrumentation channels shown in Table 3.3.3-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.3-2 ~~and with EMERGENCY CORE COOLING SYSTEM RESPONSE TIME as shown in Table 3.3.3-3.~~

APPLICABILITY: As shown in Table 3.3.3-1.

ACTION:

a. With an ECCS actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.3-2, declare the channel inoperable until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

b. With one or more ECCS actuation instrumentation channels inoperable, within 24 hours take the ACTION required by Table 3.3.3-1.

c. With either ADS trip system "A" or "B" inoperable, restore the inoperable trip system to OPERABLE status:

   1. Within 7 days, provided that the HPCS and RCIC systems are OPERABLE; otherwise,

   2. Within 72 hours.

   Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 128 psig within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each ECCS actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.3.1-1.

4.3.3.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.3.3 The ECCS RESPONSE TIME of each ECCS trip function ~~shown in Table 3.3.3-3~~ shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific ECCS trip system.

~~*Response time testing of the Low Pressure Systems as specified in Technical Specification Table 3.3.3-3, items 1 and 2, is not a requirement for OPERABILITY until the startup following the next COLD SHUTDOWN, but no later than the startup following the Spring 1994 Refueling Outage.~~

CONTROLLED COPY

~~TABLE 3.3.3-3~~

~~EMERGENCY CORE COOLING SYSTEM RESPONSE TIMES~~

ECCS	RESPONSE TIME (Seconds)
1. LOW PRESSURE CORE SPRAY SYSTEM	$\leq$ 43
2. LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM	
a. Pumps A and B	$\leq$ 43
b. Pump C	$\leq$ 43
3. AUTOMATIC DEPRESSURIZATION SYSTEM	N.A.
4. HIGH PRESSURE CORE SPRAY SYSTEM	$\leq$ 27
5. LOSS OF POWER	N.A.

BASES

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

The reactor protection system automatically initiates a reactor scram to:

a. Preserve the integrity of the fuel cladding.

b. Preserve the integrity of the reactor coolant system.

c. Minimize the energy which must be adsorbed following a loss-of-coolant accident, and

d. Prevent inadvertent criticality.

This specification provides the limiting conditions for operation necessary to preserve the ability of the system to perform its intended function even during periods when instrument channels may be out of service because of maintenance. When necessary, one channel may be made inoperable for brief intervals to conduct required surveillance.

The reactor protection system is made up of two independent trip systems. There are usually four channels to monitor each parameter with two channels in each trip system. The outputs of the channels in a trip system are combined in a logic so that either channel will trip that trip system. The tripping of both trip systems will produce a reactor scram. The system meets the intent of IEEE-279 for nuclear power plant protection systems. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC 30851 P, "Technical Specification Improvement Analyses for BWR Reactor Protection System," as approved by the NRC and documented in the SER (letter to T. A. Pickens from A. Thadani dated July 15, 1987). The bases for the trip settings of the RPS are discussed in the bases for Specification 2.2.1.

The measurement of response time at the specified frequencies provides assurance that the protective functions associated with each channel are completed within the time limit assumed in the safety analyses. No credit was taken for those channels with response times indicated as not applicable. Response time may be demonstrated by any series of sequential, overlapping or total channel test measurement, provided such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either (1) inplace, onsite or offsite test measurements, or (2) utilizing replacement sensors with certified response times. The response time limits are contained in FSAR Chapter 7.

3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION

This specification ensures the effectiveness of the instrumentation used to mitigate the consequences of accidents by prescribing the OPERABILITY trip setpoints ~~and response times~~ for isolation of the reactor systems. When necessary, one channel may be inoperable for brief intervals to conduct required surveillance. Some of the trip settings may have tolerances explicitly stated where both the ~~high and low~~ values are critical and may have a substantial effect on safety. The setpoints of other instrumentation, where only the high or low end of the setting have a direct bearing on safety, are established at a level away from the normal operating range to prevent inadvertent actuation of the systems involved.

Except for the MSIVs, the safety analysis does not address individual sensor response times or the response times of the logic systems to which the sensors are connected. For D.C.-operated valves, a 3-second delay is assumed before the valve starts to move. For A.C.-operated valves, it is assumed that the A.C. power supply is lost and is restored by startup of the emergency diesel generators. In this event, a time of 13 seconds is assumed before the valve starts to move. In addition to the pipe break, the failure of the D.C.-operated valve is assumed; thus the signal delay (sensor response) is concurrent with the 13-second diesel startup. The safety analysis considers an allowable inventory loss in each case which in turn determines the valve speed in conjunction with the 13-second delay. It follows that checking the valve speeds and the 13-second time for emergency power establishment will establish the response time for the isolation functions. However, to enhance overall system reliability and to monitor instrument channel response time trends, the isolation actuation ~~instrumentation~~ response time shall be measured and recorded ~~as a part of the ISOLATION SYSTEM RESPONSE TIME.~~ The response time limits are contained in FSAR Chapter 7.

~~Operation with a trip set less~~ conservative than its Trip Setpoint but within its specified Allowable Value is acceptable on the basis that the difference between each Trip Setpoint and the Allowable Value is equal to or less than the drift allowance assumed for each trip in the safety analyses.

3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

The emergency core cooling system actuation instrumentation is provided to initiate actions to mitigate the consequences of accidents that are beyond the ability of the operator to control. This specification provides the OPERABILITY requirements, trip setpoints, ~~and response times~~ that will ensure effectiveness of the systems to provide the design protection. Although the instruments are listed by system, in some cases the same instrument may be used ~~to send the actuation signal to more than one system at the same time.~~ The response time limits are contained in FSAR Chapter 7.

~~Operation with a trip set less conservative~~ than its Trip Setpoint but within its specified Allowable Value is acceptable on the basis that the difference between each Trip Setpoint and the Allowable Value is equal to or less than the drift allowance assumed for each trip in the safety analyses.