



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

June 28, 1994

Docket Nos. 50-352
and 50-353

Mr. George A. Hunger, Jr.
Manager-Licensing, MC 52A-5
Philadelphia Electric Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, Pennsylvania 19087-0195

Dear Mr. Hunger:

SUBJECT: TECHNICAL SPECIFICATIONS CHANGE IN REFUELING CYCLE FROM 18 MONTHS TO 24 MONTHS, LIMERICK GENERATING STATION, UNITS 1 AND 2 (TAC NOS. M84377, M84378, M84705, AND M84706)

The Commission has issued the enclosed Amendment No. 71 to Facility Operating License No. NPF-39 and Amendment No. 34 to Facility Operating License No. NPF-85 for the Limerick Generating station, Units 1 and 2. These amendments consist of changes to the Technical Specification (TSs) in response to your applications dated September 1, 1992 and October 15, 1992. Additional information was provided in supplemental letters dated October 30, 1992, March 16, 1993, June 10, 1993, July 28, 1993, September 10, 1993, April 29, 1994, June 2, 1994, June 9, 1994 and June 15, 1994. These supplemental letters provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

The amendments extend the interval for certain TSs surveillance requirements to 24 months with an additional 25-percent grace period. The extension of the interval is accomplished for some surveillances by explicitly embedding the term 24 months in the particular line item requirement. For other surveillances, the extension is accomplished by changing the TS Section 1.0 definition of operating cycle or refueling cycle to a maximum of 731 days. A 25-percent grace period beyond 731 days is allowed.

During the review of the proposed revisions, the staff became aware that 24-hour emergency diesel generator (EDG) testing was being performed with the Limerick units at power. The staff expressed concern regarding this practice since the occurrence of a single event/electrical disturbance while the electrical output of an EDG is in parallel with the offsite power system could potentially result in the simultaneous loss of power from both of these sources when one of them is needed to power emergency loads. In response to this concern, the licensee presented information in their submittal of June 2, 1994 indicating why performing 24-hour EDG testing at power has low safety significance. Further, the licensee indicated that 2 of 4 EDGs supply adequate power to mitigate the consequences of Design Bases Accidents, with few exceptions. The exceptions involve two train systems that are

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powered by EDG 11 and EDG 12 which are Unit 1 associated EDGs. Staff review of the technical specifications for these two train systems indicated that if one train of a system is inoperable, the licensee must enter a 7-day action statement for that system. However, if one or more EDGs associated with these two train systems is inoperable, the licensee must establish operability of at least one train of the affected system including its associated EDG within 3 days. As such, this permits continued station operations at power with loss of safety system function for 3 days if operability of a train associated EDG is included when considering a train of these safety systems operable. The staff has expressed this concern to the licensee and at this time this issue has not been completely resolved. Thus, final resolution of this issue will be addressed in a subsequent staff report.

In your June 10, 1993, response to staff questions, you stated that surveillance 4.8.2.1.d would not be performed while the unit is operating. Restricting the performance of surveillances 4.8.2.1.d and 4.8.2.1.f for Modes 1, 2, or 3 is consistent with the staff's Standard TSs. You are requested to provide a description of the administrative controls used to ensure that surveillances 4.8.2.1.d and 4.8.2.1.f are not performed in Modes 1, 2, or 3, and notify the staff when you have fully implemented the provisions of these amendments.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Bi-weekly Federal Register Notice.

Sincerely,
Original signed by:
Frank Rinaldi, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 71 to License No. NPF-39
Amendment No. 34 to License No. NPF-85
 - 2. Safety Evaluation
- cc w/enclosures:
See next page

*PREVIOUS CONCURRENCE

OFFICE	PDI-2/DA	PDI-2/PM	*EMEB	*SPLB	*EELB	*SCSB
NAME	MO'Brien	FRinaldi:cb	JNorberg	CMcCracken	CBerlinger	RBarrett
DATE	6/17/94	6/17/94	04/11/94	04/12/94	04/13/94	04/26/94
OFFICE	*SRXB	*HICB	OTSB*	OGC*	PDI-2/D	
NAME	TCollins	JWermiel	CGrimes	CMarco	CMiller <i>cm</i>	
DATE	05/03/94	05/03/94	05/24/94	05/31/94	6/17/94	

June 28, 1994

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Frank Rinaldi, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 71 to
License No. NPF-39
Amendment No. 34 to
License No. NPF-85
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. George A. Hunger, Jr.
PECO Energy Company

Limerick Generating Station,
Units 1 & 2

cc:

J. W. Durham, Sr., Esquire
Sr. V.P. & General Counsel
PECO Energy Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Mr. Rich R. Janati, Chief
Division of Nuclear Safety
PA Dept. of Environmental Resources
P. O. Box 8469
Harrisburg, Pennsylvania 17105-8469

Mr. Dave Helker, 52A-5
PECO Energy Company
955 Chesterbrook Boulevard
Wayne, Pennsylvania 19087-5691

Mr. James A. Muntz
Superintendent-Technical
Limerick Generating Station
P. O. Box A
Sanatoga, Pennsylvania 19464

Mr. David R. Helwig, Vice President
Limerick Generating Station
Post Office Box A
Sanatoga, Pennsylvania 19464

Mr. James L. Kantner
Regulatory Engineer
Limerick Generating Station
P. O. Box A
Sanatoga, Pennsylvania 19464

Mr. Robert Boyce
Plant Manager
Limerick Generating Station
P.O. Box A
Sanatoga, Pennsylvania 19464

Library
US Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Mr. Larry Hopkins
Superintendent-Operations
Limerick Generating Station
P. O. Box A
Sanatoga, Pennsylvania 19464

Mr. Neil S. Perry
Senior Resident Inspector
US Nuclear Regulatory Commission
P. O. Box 596
Pottstown, Pennsylvania 19464

Mr. John Doering, Chairman
Nuclear Review Board
PECO Energy Company
955 Chesterbrook Boulevard
Mail Code 63C-5
Wayne, Pennsylvania 19087

Mr. Craig L. Adams
Superintendent - Services
Limerick Generating Station
P.O. Box A
Sanatoga, Pennsylvania 19464

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

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. 50-352

LIMERICK GENERATING STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 71
License No. NPF-39

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendments by Philadelphia Electric Company (the licensee) dated September 1, 1992, and October 15, 1992, as supplemented by letters dated October 30, 1992, March 16, 1993, June 10, 1993, July 28, 1993, September 10, 1993, April 29, 1994, June 2, 1994, June 9, 1994, and June 15, 1994, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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2. Accordingly, the license is amended by 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-39 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 71, are hereby incorporated into this license. Philadelphia Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of 30 days after the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the
Technical Specifications

Date of Issuance: June 28, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 71

FACILITY OPERATING LICENSE NO. NPF-39

DOCKET NO. 50-352

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

<u>Remove</u>	<u>Insert</u>
1-9	1-9
1-10	1-10*
3/4 1-5	3/4 1-5
3/4 1-6	3/4 1-6*
3/4 1-9	3/4 1-9*
3/4 1-10	3/4 1-10
3/4 1-19	3/4 1-19*
3/4 1-20	3/4 1-20
3/4 3-1	3/4 3-1
3/4 3-2	3/4 3-2*
3/4 3-9	3/4 3-9*
3/4 3-10	3/4 3-10
3/4 3-31	3/4 3-31*
3/4 3-32	3/4 3-32
3/4 3-39	3/4 3-39*
3/4 3-40	3/4 3-40
3/4 3-41	3/4 3-41*
3/4 3-42	3/4 3-42
3/4 3-47	3/4 3-47
3/4 3-48	3/4 3-48*
3/4 3-51	3/4 3-51*
3/4 3-52	3/4 3-52
3/4 3-71	3/4 3-71*
3/4 3-72	3/4 3-72
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3/4 3-76	3/4 3-76
3/4 3-87	3/4 3-87*
3/4 3-88	3/4 3-88

NPF-39

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

Remove

Insert

3/4 3-89
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3/4 3-89*
3/4 3-90

3/4 3-91
3/4 3-92

3/4 3-91
3/4 3-92*

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3/4 3-112

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3/4 4-10

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3/4 5-6*

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NPF-39

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

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3/4 7-32

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3/4 8-3
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3/4 8-5
3/4 8-6

3/4 8-5
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NPF-39

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

<u>Remove</u>	<u>Insert</u>
3/4 8-7	3/4 8-7
3/4 8-1a	3/4 8-7a*
3/4 8-11	3/4 8-11
3/4 8-12	3/4 8-12
3/4 8-21	3/4 8-21
3/4 8-22	3/4 8-22*
3/4 8-27	3/4 8-27
3/4 8-28	3/4 8-28
B 3/4 0-3	B 3/4 0-3*
B 3/4 0-4	B 3/4 0-4
B 3/4 6-5	B 3/4 6-5
B 3/4 6-6	B 3/4 6-6*
B 3/4 8-1	B 3/4 8-1*
B 3/4 8-2	B 3/4 8-2

TABLE 1.1
SURVEILLANCE FREQUENCY NOTATION

<u>NOTATION</u>	<u>FREQUENCY</u>
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
Q	At least once per 92 days.
SA	At least once per 184 days.
A	At least once per 366 days.
E	At least once per 18 months (550 days).
R (Refueling Interval)	At least once per 24 months (731 days).
S/U	Prior to each reactor startup.
P	Prior to each radioactive release.
N.A.	Not applicable.

DEFINITIONS

TABLE 1.2

OPERATIONAL CONDITIONS

<u>CONDITION</u>	<u>MODE SWITCH POSITION</u>	<u>AVERAGE REACTOR COOLANT TEMPERATURE</u>
1. POWER OPERATION	Run	Any temperature
2. STARTUP	Startup/Hot Standby	Any temperature
3. HOT SHUTDOWN	Shutdown# ***	> 200°F
4. COLD SHUTDOWN	Shutdown# ## ***	≤ 200°F
5. REFUELING*	Shutdown or Refuel** #	≤ 140°F

#The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that the control rods are verified to remain fully inserted by a second licensed operator or other technically qualified member of the unit technical staff.

##The reactor mode switch may be placed in the Refuel position while a single control rod drive is being removed from the reactor pressure vessel per Specification 3.9.10.1.

*Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

**See Special Test Exceptions 3.10.1 and 3.10.3.

***The reactor mode switch may be placed in the Refuel position while a single control rod is being recoupled provided that the one-rod-out interlock is OPERABLE.

SURVEILLANCE REQUIREMENTS (Continued)

4.1.3.1.4 The scram discharge volume shall be determined OPERABLE by demonstrating:

- a. The scram discharge volume drain and vent valves OPERABLE, when control rods are scram tested from a normal control rod configuration of less than or equal to 50% ROD DENSITY at least once per 24 months, by verifying that the drain and vent valves:
 1. Close within 30 seconds after receipt of a signal for control rods to scram, and
 2. Open when the scram signal is reset.
- b. Proper level sensor response by performance of a CHANNEL FUNCTIONAL TEST of the scram discharge volume scram and control rod block level instrumentation at least once per 92 days.

REACTIVITY CONTROL SYSTEMS

CONTROL ROD MAXIMUM SCRAM INSERTION TIMES

LIMITING CONDITION FOR OPERATION

3.1.3.2 The maximum scram insertion time of each control rod from the fully withdrawn position to notch position 5, based on deenergization of the scram pilot valve solenoids as time zero, shall not exceed 7.0 seconds.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With the maximum scram insertion time of one or more control rods exceeding 7 seconds:
 1. Declare the control rod(s) with the slow insertion time inoperable, and
 2. Perform the Surveillance Requirements of Specification 4.1.3.2c. at least once per 60 days when operation is continued with three or more control rods with maximum scram insertion times in excess of 7.0 seconds.

Otherwise, be in at least HOT SHUTDOWN within 12 hours.

- b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.3.2 The maximum scram insertion time of the control rods shall be demonstrated through measurement with reactor coolant pressure greater than or equal to 950 psig and, during single control rod scram time tests, the control rod drive pumps isolated from the accumulators:

- a. For all control rods prior to THERMAL POWER exceeding 40% of RATED THERMAL POWER following CORE ALTERATIONS or after a reactor shutdown that is greater than 120 days.
- b. For specifically affected individual control rods following maintenance on or modification to the control rod or control rod drive system which could affect the scram insertion time of those specific control rods, and
- c. For at least 10% of the control rods, on a rotating basis, at least once per 120 days of POWER OPERATION.

REACTIVITY CONTROL SYSTEMS

CONTROL ROD SCRAM ACCUMULATORS

LIMITING CONDITION FOR OPERATION

3.1.3.5 All control rod scram accumulators shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 5*.

ACTION:

- a. In OPERATIONAL CONDITION 1 or 2:
 1. With one control rod scram accumulator inoperable, within 8 hours:
 - a) Restore the inoperable accumulator to OPERABLE status, or
 - b) Declare the control rod associated with the inoperable accumulator inoperable.Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
 2. With more than one control rod scram accumulator inoperable, declare the associated control rods inoperable and:
 - a) If the control rod associated with any inoperable scram accumulator is withdrawn, immediately verify that at least one control rod drive pump is operating by inserting at least one withdrawn control rod at least one notch. If no control rod drive pump is operating and:
 - 1) If reactor pressure is ≥ 900 psig, then restart at least one control drive pump within 20 minutes or place the reactor mode switch in the shutdown position, or
 - 2) If reactor pressure is < 900 psig, then place the reactor mode switch in the Shutdown position.
 - b) Insert the inoperable control rods and disarm the associated control valves either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.Otherwise, be in at least HOT SHUTDOWN within 12 hours.
- b. In OPERATIONAL CONDITION 5*:
 1. With one withdrawn control rod with its associated scram accumulator inoperable, insert the affected control rod and disarm the associated directional control valves within one hour, either:
 - a) Electrically, or
 - b) Hydraulically by closing the drive water and exhaust water isolation valves.

*At least the accumulator associated with each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS

2. With more than one withdrawn control rod with the associated scram accumulator inoperable or no control rod drive pump operating, immediately place the reactor mode switch in the Shutdown position.
 - c. The provisions of Specification 3.0.4 are not applicable.
- 4.1.3.5 Each control rod scram accumulator shall be determined OPERABLE:
- a. At least once per 7 days by verifying that the indicated pressure is greater than or equal to 955 psig unless the control rod is inserted and disarmed or scrambled.
 - b. At least once per 24 months by:
 1. Performance of a:
 - a) CHANNEL FUNCTIONAL TEST of the leak detectors, and
 - b) CHANNEL CALIBRATION of the pressure detectors, and verifying an alarm setpoint of equal to or greater than 955 psig on decreasing pressure.

REACTIVITY CONTROL SYSTEMS

3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

WAITING CONDITION FOR OPERATION

3.1.5 The standby liquid control system consisting of a minimum of two pumps and corresponding flow paths, shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 5*

ACTION:

- a. In OPERATIONAL CONDITION 1 or 2:
 1. With only one pump and corresponding explosive valve OPERABLE, restore one inoperable pump and corresponding explosive valve to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
 2. With standby liquid control system otherwise inoperable, restore the system to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- b. In OPERATIONAL CONDITION 5*:
 1. With only one pump and corresponding explosive valve OPERABLE, restore one inoperable pump and corresponding explosive valve to OPERABLE status within 30 days or insert all insertable control rods within the next hour.
 2. With the standby liquid control system otherwise inoperable, insert all insertable control rods within 1 hour.

SURVEILLANCE REQUIREMENTS

4.1.5 The standby liquid control system shall be demonstrated OPERABLE:

- a. At least once per 24 hours by verifying that:
 1. The temperature of the sodium pentaborate solution is within the limits of Figure 3.1.5-1.
 2. The available volume of sodium pentaborate solution is at least 3160 gallons.
 3. The temperature of the pump suction piping is within the limits of Figure 3.1.5-1 for the most recent concentration analysis.

with any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days by:

1. Verifying the continuity of the explosive charge.
2. Determining by chemical analysis and calculation* that the available weight of sodium pentaborate is greater than or equal to 3754 lbs; the concentration of sodium pentaborate in solution is less than or equal to 13.8% and within the limits of Figure 3.1.5-1 and; the following equation is satisfied:

$$\frac{C}{13\% \text{ wt.}} \times \frac{E}{29 \text{ atom } \%} \times \frac{Q}{86 \text{ gpm}} \geq 1$$

where

C = Sodium pentaborate solution (% by weight)

Q = Two pump flowrate, as determined per surveillance requirement 4.1.5.c.

E = Boron 10 enrichment (atom % Boron 10)

3. Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- c. Demonstrating that, when tested pursuant to Specification 4.0.5, the minimum flow requirement of 41.2 gpm per pump at a pressure of greater than or equal to 1190 psig is met.
- d. At least once per 24 months during shutdown by:
1. Initiating at least one of the standby liquid control system loops, including an explosive valve, and verifying that a flow path from the pumps to the reactor pressure vessel is available by pumping demineralized water into the reactor vessel. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch which has been certified by having one of the batch successfully fired. All injection loops shall be tested in 3 operating cycles.
 2. Verify all heat-traced piping between storage tank and pump suction is unblocked.**
- e. Prior to addition of Boron to storage tank verify sodium pentaborate enrichment to be added is ≥ 29 atom % Boron 10.

*This test shall also be performed anytime water or boron is added to the solution or when the solution temperature drops below the limits of Figure 3.1.5-1 for the most recent concentration analysis, within 24 hours after water or boron addition or solution temperature is restored.

**This test shall also be performed whenever suction piping temperature drops below the limits of Figure 3.1.5-1 for the most recent concentration analysis, within 24 hours after solution temperature is restored.

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 12 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 24 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 24 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 24 months where N is the total number of redundant channels in a specific reactor trip system.

*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 6 hours or the ACTION required by Table 3.3.1-1 for that Trip Function shall be taken.

**The trip system need not be placed in the tripped condition if this would cause the Trip Function to occur. When a trip system can be placed in the tripped condition without causing the Trip Function to occur, place the trip system with the most inoperable channels in the tripped condition; if both systems have the same number of inoperable channels, place either trip system in the tripped condition.

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TABLE 3.3.1-1
REACTOR PROTECTION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (a)</u>	<u>ACTION</u>
1. Intermediate Range Monitors ^(b) :			
a. Neutron Flux - High	2 3, 4 5(c)	3 3 3(d)	1 2 3
b. Inoperative	2 3, 4 5	3 3 3(d)	1 2 3
2. Average Power Range Monitor ^(e) :			
a. Neutron Flux - Upscale, Setdown	2 3 5(c)(1)	2 2 2(d)	1 2 3
b. Neutron Flux - Upscale 1) Flow Biased 2) High Flow Clamped	1 1	2 2	4 4
c. Inoperative	1, 2 3 5(c)(1)	2 2 2(d)	1 2 3
d. Downscale	1(g)	2	4
3. Reactor Vessel Steam Dome Pressure - High	1, 2(f)	2	1
4. Reactor Vessel Water Level - Low, Level 3	1, 2	2	1
5. Main Steam Line Isolation Valve - Closure	1(g)	1/valve	4

INSTRUMENTATION

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 requirements 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 6 hours. If this cannot be accomplished, the ACTION required by Table 3.3.2-1 for the affected trip function shall be taken, or the channel shall be placed in the tripped condition.or
 2. If placing the inoperable channel(s) in the tripped condition 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.
 - b) 24 hours for trip functions not common* to RPS Instrumentation.

The provisions of Specification 3.0.4 are not applicable.

* Trip functions common to RPS Actuation Instrumentation are shown in Table 4.3.2.1-1.

INSTRUMENTATION

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- 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 1 hour and take the ACTION required by Table 3.3.2-1.

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 operations of all channels shall be performed at least once per 24 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 24 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 24 months, where N is the total number of redundant channels in a specific isolation trip system.

** The trip system need not be placed in the tripped condition if this would cause the Trip Function to occur. When a trip system can be placed in the tripped condition without causing the Trip Function to occur, place the trip system with the most inoperable channels in the tripped condition; if both systems have the same number of inoperable channels, place either trip system in the tripped condition.

TABLE 4.3.2.J (Continued)
ISOLATION ACTUATION INSTRUMENTS IN SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
7. <u>SECONDARY CONTAINMENT ISOLATION</u>				
a. Reactor Vessel Water Level Low, Low - Level 2	S	Q	R	1, 2, 3
b. Drywell Pressure## - High	S	Q	R	1, 2, 3
c.1. Refueling Area Unit 1 Ventilation Exhaust Duct Radiation - High	S	Q	R	*#
2. Refueling Area Unit 2 Ventilation Exhaust Duct Radiation - High	S	Q	R	*#
d. Reactor Enclosure Ventilation Exhaust Duct Radiation - High	S	Q	R	1, 2, 3
e. Outside Atmosphere To Reactor Enclosure Δ Pressure - Low	N.A.	M	Q	1, 2, 3
f. Outside Atmosphere To Refueling Area Δ Pressure - Low	N.A.	M	Q	*
g. Reactor Enclosure Manual Initiation	N.A.	R	N.A.	1, 2, 3
h. Refueling Area Manual Initiation	N.A.	R	N.A.	*

*Required when (1) handling irradiated fuel in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

**When not administratively bypassed and/or when any turbine stop valve is open.

#During operation of the associated Unit 1 or Unit 2 ventilation exhaust system.

##These trip functions (1b, 2a, 6b, and 7b) are common to the RPS actuation trip function.

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INSTRUMENTATION

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, take the ACTION required by Table 3.3.3-1.
- c. With either ADS trip system subsystem inoperable, restore the inoperable trip system to OPERABLE status within:
 1. 7 days, provided that the HPCI and RCIC systems are OPERABLE.
 2. 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 100 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 24 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 24 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 24 months where N is the total number of redundant channels in a specific ECCS trip system.

TABLE 3.3.3-3

EMERGENCY CORE COOLING SYSTEM RESPONSE TIMES

<u>ECCS</u>	<u>RESPONSE TIME (Seconds)</u>
1. CORE SPRAY SYSTEM	≤ 27
2. LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM	≤ 40
3. AUTOMATIC DEPRESSURIZATION SYSTEM	N.A.
4. HIGH PRESSURE COOLANT INJECTION SYSTEM	≤ 30
5. LOSS OF POWER	N.A.

TABLE 4.3.3.1-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
1. <u>CORE SPRAY SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	Q	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. Reactor Vessel Pressure - Low	S	Q	R	1, 2, 3, 4*, 5*
d. Manual Initiation	N.A.	R	N.A.	1, 2, 3, 4*, 5*
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	Q	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. Reactor Vessel Pressure - Low	S	Q	R	1, 2, 3
d. Injection Valve Differential Pressure - Low (Permissive)	S	Q	R	1, 2, 3, 4*, 5*
e. Manual Initiation	N.A.	R	N.A.	1, 2, 3, 4*, 5*
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM***</u>				
a. Reactor Vessel Water Level - Low Low, Level 2	S	Q	R	1, 2, 3
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. Condensate Storage Tank Level - Low	S	Q	R	1, 2, 3
d. Suppression Pool Water Level - High	S	Q	E	1, 2, 3
e. Reactor Vessel Water Level - High, Level 8	S	Q	R	1, 2, 3
f. Manual Initiation	N.A.	R	N.A.	1, 2, 3

TABLE 4.3 1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	Q	R	1, 2, 3
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. ADS Timer	N.A.	Q	Q	1, 2, 3
d. Core Spray Pump Discharge Pressure - High	S	Q	R	1, 2, 3
e. RHR LPCI Mode Pump Discharge Pressure - High	S	Q	R	1, 2, 3
f. Reactor Vessel Water Level - Low, Level 3	S	Q	R	1, 2, 3
g. Manual Initiation	N.A.	R	N.A.	1, 2, 3
h. ADS Drywell Pressure Bypass Timer	N.A.	Q	Q	1, 2, 3
5. <u>LOSS OF POWER</u>				
a. 4.16 kV Emergency Bus Under-voltage (Loss of Voltage) 	N.A.	R	N.A.	1, 2, 3, 4**, 5**
b. 4.16 kV Emergency Bus Under-voltage (Degraded Voltage)	S	M	R	1, 2, 3, 4**, 5**

* When the system is required to be OPERABLE per Specification 3.5.2.

** Required OPERABLE when ESF equipment is required to be OPERABLE.

*** Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 200 psig.

† Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

|| Loss of Voltage Relay 127-11X is not field settable.

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Amendment No. 53

INSTRUMENTATION

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.4.1 The anticipated transient without scram recirculation pump trip (ATWS-RPT) system instrumentation channels shown in Table 3.3.4.1-1 shall be OPERABLE with their trip setpoints set consistent with values shown in the Trip Setpoint column of Table 3.3.4.1-2.

APPLICABILITY: OPERATIONAL CONDITION 1.

ACTION:

- a. With an ATWS recirculation pump trip system instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.4.1-2, declare the channel inoperable until the channel is restored to OPERABLE status with the channel trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels per Trip System requirement for one or both trip systems, place the inoperable channel(s) in the tripped condition within 24 hours.
- c. With the number of OPERABLE channels two or more less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system and:
 1. If the inoperable channels consist of one reactor vessel water level channel and one reactor vessel pressure channel, place both inoperable channels in the tripped condition within 24 hours, or, if this action will initiate a pump trip, declare the trip system inoperable.
 2. If the inoperable channels include two reactor vessel water level channels or two reactor vessel pressure channels, declare the trip system inoperable.
- d. With one trip system inoperable, restore the inoperable trip system to OPERABLE status within 72 hours or be in at least STARTUP within the next 6 hours.
- e. With both trip systems inoperable, restore at least one trip system to OPERABLE status within 1 hour or be in at least STARTUP within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.3.4.1.1. Each ATWS recirculation pump trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.1-1.

4.3.4.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

INSTRUMENTATION

SURVEILLANCE REQUIREMENTS

4.3.4.2.1 Each end-of-cycle recirculation pump trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.2.1-1.

4.3.4.2.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

4.3.4.2.3 The END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME of each trip function shown in Table 3.3.4.2-3 shall be demonstrated to be within its limit at least once per 24 months. Each test shall include at least the logic of one type of channel input, turbine control valve fast closure or turbine stop valve closure, such that both types of channel inputs are tested at least once per 48 months. The measured time shall be added to the most recent breaker arc suppression time and the resulting END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME shall be verified to be within its limit.

4.3.4.2.4 The time interval necessary for breaker arc suppression from energization of the recirculation pump circuit breaker trip coil shall be measured at least once per 60 months.

TABLE 3.3.4.2-1

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM*</u>
1. Turbine Stop Valve - Closure	2**
2. Turbine Control Valve-Fast Closure	2**

* A trip system may be placed in an inoperable status for up to 6 hours for required surveillance provided that the other trip system is OPERABLE.

** This function shall be automatically bypassed when turbine first stage pressure is equivalent to THERMAL POWER LESS than 30% of RATED THERMAL POWER.

TABLE 4.3.4.2.1-1

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Turbine Stop Valve-Closure	Q*	R
2. Turbine Control Valve-Fast Closure	Q*	R

* Including trip system logic testing.

INSTRUMENTATION

3/4.3.5 REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.5 The reactor core isolation cooling (RCIC) system actuation instrumentation channels shown in Table 3.3.5-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.5-2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3 with reactor steam dome pressure greater than 150 psig.

ACTION:

- a. With a RCIC system actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.5-2, 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 RCIC system actuation instrumentation channels inoperable, take the ACTION required by Table 3.3.5-1.

SURVEILLANCE REQUIREMENTS

4.3.5.1 Each RCIC system actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.5.1-1.

4.3.5.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

TABLE 4.3.7.2-1

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Triaxial Time-History Accelerographs (T/A's)			
a. Sensors			
1) XE-VA-102 Primary Containment Foundation (Loc. 109-R15-177)	N.A.	SA	R
2) XE-VA-103 Containment Structure (Diaphragm Slab)	N.A.	SA	R
3) XE-VA-104 Reactor Enclosure Foundation (Loc. 111-R11-177)	N.A.	SA	R
4) XE-VA-105 Reactor Piping Support (Mn. Stm. Line 'D,' E1 313', in containment)	N.A.	SA	R
5) XE-VA-106 Outside Containment on Seismic Category I Equipment, (RHR Heat Exchanger, Loc. 102-R15-177)	N.A.	SA	R
6) XRSR-VA-107* Foundation of an Independent Seismic Category I Structure (Spray Pond Pump House, E1 237')	N.A.	SA	R
b. Recorders (Panel 00C693)			
1) XR-VA-102 for XE-VA-102	N.A.	SA	R
2) XR-VA-103 for XE-VA-103	N.A.	SA	R
3) XR-VA-104 for XE-VA-104	N.A.	SA	R
4) XR-VA-105 for XE-VA-105	N.A.	SA	R
5) XR-VA-106 for XE-VA-106	N.A.	SA	R

*Includes sensor, trigger, recorder, and backup power supply.

TABLE 4.3.7.2-1 (Continued)

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
c. Triaxial Seismic Trigger (S/T)			
1) XSH-VA-001 (Activates Items 1.b.1) thru 5) above)	N.A.	SA	R
2. Triaxial Peak Recording Accelerograph (P/A's)			
a. XR-VA-151 Reactor Equipment (Top of reactor vessel head)	N.A.	N.A.	R
b. XR-VA-152 Reactor Piping (Mn. Stm. Line 'D,' E1 313', in containment)	N.A.	N.A.	R
c. XR-VA-153 Reactor Equipment Outside Containment (RHR Heat Exchanger, Loc. 203-R15-201)	N.A.	N.A.	R
3. Triaxial Seismic Switches			
a. XSHH-VA-001 Primary Containment Foundation (Loc. 118-R16-177)	N.A.	SA	R
4. Triaxial Response Spectrum Analyzer (RSA)	N.A.	SA	R

INSTRUMENTATION

REMOTE SHUTDOWN SYSTEM INSTRUMENTATION AND CONTROLS

LIMITING CONDITION FOR OPERATION

3.3.7.4 The remote shutdown system instrumentation and controls shown in Table 3.3.7.4-1 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With the number of OPERABLE remote shutdown system instrumentation channels less than required by Table 3.3.7.4-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
- b. With the number of OPERABLE remote shutdown system controls less than required in Table 3.3.7.4-1, restore the inoperable control(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.4.1 Each of the above required remote shutdown monitoring instrumentation channels shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.7.4-1.

4.3.7.4.2 Each of the above remote shutdown control switch(es) and control circuits shall be demonstrated OPERABLE by verifying its capability to perform its intended function(s) at least once per 24 months.

TABLE 4.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
1. Reactor Vessel Pressure	M	R
2. Reactor Vessel Water Level	M	R
3. Suppression Chamber Water Level	M	R
4. Suppression Chamber Water Temperature	M	R
5. Suppression Chamber Air Temperature	M	R
6. Primary Containment Pressure	M	R
7. Drywell Air Temperature	M	R
8. Drywell Oxygen Concentration Analyzer	M	Q [#]
9. Drywell Hydrogen Concentration Analyzer	M	Q [*]
10. Safety/Relief Valve Position Indicators	M	R
11. Primary Containment Post LOCA Radiation Monitors	M	R ^{**}
12. North Stack Wide Range Accident Monitor ^{***}	M	R
13. Neutron Flux	M	R

*Using calibration gas containing:

- Zero volume percent hydrogen, balance nitrogen.
- Five volume percent hydrogen, balance nitrogen.

**CHANNEL CALIBRATION shall consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/h and a one point calibration check of the detector below 10 R/h with an installed or portable gamma source.

***High range noble gas monitors.

#Using calibration gas containing:

- Zero volume percent oxygen, balance nitrogen.
- Five volume percent oxygen, balance nitrogen.

INSTRUMENTATION

SOURCE RANGE MONITORS

LIMITING CONDITION FOR OPERATION

3.3.7.6 At least the following source range monitor channels shall be OPERABLE:

- a. In OPERATIONAL CONDITION 2*, three.
- b. In OPERATIONAL CONDITION 3 and 4, two.

APPLICABILITY: OPERATIONAL CONDITIONS 2*, 3, and 4.

ACTION:

- a. In OPERATIONAL CONDITION 2* with one of the above required source range monitor channels inoperable, restore at least three source range monitor channels to OPERABLE status within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- b. In OPERATIONAL CONDITION 3 or 4 with one or more of the above required source range monitor channels inoperable, verify all insertable control rods to be inserted in the core and lock the reactor mode switch in the Shutdown position within 1 hour.

SURVEILLANCE REQUIREMENTS

4.3.7.6 Each of the above required source range monitor channels shall be demonstrated OPERABLE by:

- a. Performance of a:
 1. CHANNEL CHECK at least once per:
 - a) 12 hours in CONDITION 2*, AND
 - b) 24 hours in CONDITION 3 or 4.
 2. CHANNEL CALIBRATION** at least once per 24 months.
- b. Performance of a CHANNEL FUNCTIONAL TEST:
 1. Within 24 hours prior to moving the reactor mode switch from the Shutdown position, if not performed within the previous 7 days, and
 2. At least once per 31 days.
- c. Verifying, prior to withdrawal of control rods, that the SRM count rate is at least 3.0 cps*** with the detector fully inserted.

*With IRM's on range 2 or below.

**Neutron detectors may be excluded from CHANNEL CALIBRATION.

***May be reduced, provided the source range monitor has an observed count rate and signal-to-noise ratio on or above the curve shown in Figure 3.3.6-1.

INSTRUMENTATION

TRAVERSING IN-CORE PROBE SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.3.7.7 The traversing in-core probe system shall be OPERABLE with:
- a. Five movable detectors, drives and readout equipment to map the core, and
 - b. Indexing equipment to allow all five detectors to be calibrated in a common location.

APPLICABILITY: When the traversing in-core probe is used for:

- a. Recalibration of the LPRM detectors, and
- b.* Monitoring the APLHGR, LHGR, MCPR, or MFLPD.

ACTION:

With the traversing in-core probe system inoperable, suspend use of the system for the above applicable monitoring or calibration functions. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.7 The traversing in-core probe system shall be demonstrated OPERABLE by normalizing each of the above required detector outputs within 72 hours prior to use for the LPRM calibration function.

*Only the detector(s) in the required measurement location(s) are required to be OPERABLE.

INSTRUMENTATION

CHLORINE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8.1 Two independent chlorine detection system subsystems shall be OPERABLE with their alarm and trip set points adjusted to actuate at a chlorine concentration of less than or equal to 0.5 ppm

APPLICABILITY: ALL OPERATIONAL CONDITIONS.

ACTION:

- a. With one chlorine detection subsystem inoperable, restore the inoperable detection system to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.
- b. With both chlorine detection subsystems inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.1 Each of the above required chlorine detection system subsystems shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 12 hours,
- b. CHANNEL FUNCTIONAL TEST at least once per 92 days, and
- c. CHANNEL CALIBRATION at least once per 24 months.

INSTRUMENTATION

TOXIC GAS DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8.2 Two independent toxic gas detection system subsystems shall be OPERABLE with their alarm setpoints adjusted to actuate at a toxic gas concentration of less than or equal to:

<u>CHEMICAL</u>	<u>MONITOR SET POINT (ppm)</u>
Ammonia	25
Ethylene Oxide	50
Formaldehyde	5
Vinyl Chloride	10
Phosgene	0.4

APPLICABILITY: ALL OPERATIONAL CONDITIONS.

ACTION:

- a. With one toxic gas detection subsystem inoperable, restore the inoperable detection system to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.
- b. With both toxic gas detection subsystems inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.2 Each of the above required toxic gas detection system subsystems shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 12 hours.
- b. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- c. CHANNEL CALIBRATION at least once per 24 months.

INSTRUMENTATION

FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.7.9 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3.7.9-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

ACTION:

- a. With the number of OPERABLE fire detection instruments in one or more zones:
 1. Less than, but more than one-half of, the Total Number of Instruments shown in Table 3.3.7.9-1 for Function A, restore the inoperable Function A instrument(s) to OPERABLE status within 14 days or within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside an inaccessible zone, then inspect the area surrounding the inaccessible zone at least once per hour.
 2. One less than the Total Number of Instruments shown in Table 3.3.7.9-1 for Function B, or one-half or less of the Total Number of Instruments shown in Table 3.3.7.9-1 for Function A, or with any two or more adjacent instruments inoperable, within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside an inaccessible zone, then inspect the area surrounding the inaccessible zone at least once per hour.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.9.1 The above required fire detection instruments which are accessible during unit operation shall be demonstrated OPERABLE:

- a. For smoke detectors, at least once per 12 months by performance of a CHANNEL FUNCTIONAL TEST.
- b. For heat detectors, at least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST on one or more detectors in each signal-initiation circuit. Detectors shall be selected such that different detectors are tested in each test. All detectors shall be tested at least once per 5 years.

INSTRUMENTATION

LOOSE-PART DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.10 The loose-part detection system shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With one or more loose-part detection system channels inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.10 Each channel of the loose-part detection system shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 24 hours,
- b. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- c. CHANNEL CALIBRATION at least once per 24 months.

Section 3.3.7.11 (Deleted)

THE INFORMATION FROM THIS TECHNICAL SPECIFICATIONS SECTION HAS BEEN RELOCATED TO THE ODCM. TECHNICAL SPECIFICATIONS PAGES 3/4 3-99 THROUGH 3/4 3-102 OF THIS SECTION HAVE BEEN INTENTIONALLY OMITTED.

INSTRUMENTATION

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 31 days by:
 - 1. Cycling each of the following valves through at least one complete cycle from the running position:
 - a) For the overspeed protection control system;
 - 1) Four high pressure turbine control valves
 - b) For the electrical overspeed trip system and the mechanical overspeed trip system;
 - 1) Four high pressure turbine control valves
- c. At least once per 24 months by performance of a CHANNEL CALIBRATION of the turbine overspeed protection instrumentation.
- d. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of all valve seats, disks and stems and verifying no unacceptable flaws or excessive corrosion. If unacceptable flaws or excessive corrosion are found, all other valves of that type shall be inspected.

INSTRUMENTATION

3/4.3.9 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.9 The feedwater/main turbine trip system actuation instrumentation channels shown in the Table 3.3.9-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.9-2.

APPLICABILITY: As shown in Table 3.3.9-1.

ACTION:

- a. With a feedwater/main turbine trip system actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.9-2, declare the channel inoperable and either place the inoperable channel in the tripped condition until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value, or declare the associated system inoperable.
- b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels requirement, restore the inoperable channel to OPERABLE status within 7 days or be in at least STARTUP within the next 6 hours.
- c. With the number of OPERABLE channels two less than required by the Minimum OPERABLE Channels requirement, restore at least one of the inoperable channels to OPERABLE status within 72 hours or be in at least STARTUP within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.3.9.1 Each feedwater/main turbine trip system 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 4.3.9.1-1.

4.3.9.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

* A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in the tripped condition.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.1.1.1 Each pump discharge valve shall be demonstrated OPERABLE by cycling each valve through at least one complete cycle of full travel during each startup* prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER.

4.4.1.1.2 Each pump MG set scoop tube mechanical and electrical stop shall be demonstrated OPERABLE with overspeed setpoints less than or equal to 109% and 107%, respectively, of rated core flow, at least once per 24 months.

4.4.1.1.3 Establish a baseline APRM and LPRM** neutron flux noise value within the regions for which monitoring is required (Specification 3.4.1.1, ACTION c) within 2 hours of entering the region for which monitoring is required unless baselining has previously been performed in the region since the last refueling outage.

4.4.1.1.4 With one reactor coolant system recirculation loop not in operation, at least once per 12 hours verify that:

- a. Reactor THERMAL POWER is \leq 70% of RATED THERMAL POWER,
- b. The recirculation flow control system is in the Local Manual mode, and
- c. The speed of the operating recirculation pump is \leq 90% of rated pump speed.
- d. Core flow is greater than 39% when THERMAL POWER is within the restricted zone of Figure 3.4.1.1-1.

4.4.1.1.5 With one reactor coolant system recirculation loop not in operation, within 15 minutes prior to either THERMAL POWER increase or recirculation loop flow increase, verify that the following differential temperature requirements are met if THERMAL POWER is \leq 30% of RATED THERMAL POWER or the recirculation loop flow in the operating recirculation loop is \leq 50% of rated loop flow:

- a. \leq 145°F between reactor vessel steam space coolant and bottom head drain line coolant,
- b. \leq 50°F between the reactor coolant within the loop not in operation and the coolant in the reactor pressure vessel, and
- c. \leq 50°F between the reactor coolant within the loop not in operation and the operating loop.

The differential temperature requirements of Specification 4.4.1.1.5b. and c. do not apply when the loop not in operation is isolated from the reactor pressure vessel.

*If not performed within the previous 31 days.

**Detector levels A and C of one LPRM string per core octant plus detectors A and C of one LPRM string in the center of the core should be monitored.

REACTOR COOLANT SYSTEM

3/4.4.2 SAFETY/RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.4.2 The safety valve function of at least 11 of the following reactor coolant system safety/relief valves shall be OPERABLE with the specified code safety valve function lift settings:*

- 4 safety/relief valves @ 1130 psig \pm 1%
- 5 safety/relief valves @ 1140 psig \pm 1%
- 5 safety/relief valves @ 1150 psig \pm 1%

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With the safety valve function of one or more of the above required safety/relief valves inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- b. With one or more safety/relief valves stuck open, provided that suppression pool average water temperature is less than 105°F, close the stuck open safety/relief valve(s); if unable to close the stuck open valve(s) within 2 minutes or if suppression pool average water temperature is 110°F or greater, place the reactor mode switch in the Shutdown position.
- c. With one or more safety/relief valve acoustic monitors inoperable, restore the inoperable acoustic monitors to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.2.1 The acoustic monitor for each safety/relief valve shall be demonstrated OPERABLE with the setpoint verified to be 0.20 of the full open noise level## by performance of a:

- a. CHANNEL FUNCTIONAL TEST at least once per 92 days, and a
- b. CHANNEL CALIBRATION at least once per 24 months**.

4.4.2.2 At least 1/2 of the safety relief valves shall be removed, set pressure tested and reinstalled or replaced with spares that have been previously set pressure tested and stored in accordance with manufacturer's recommendations at least once per 24 months, and they shall be rotated such that all 14 safety relief valves are removed, set pressure tested and reinstalled or replaced with spares that have been previously set pressure tested and stored in accordance with manufacturer's recommendations at least once per 54 months.

- * The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures.
- ** The provisions of Specification 4.0.4 are not applicable provided the Surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test.
- # Up to 2 inoperable valves may be replaced with spare OPERABLE valves with lower setpoints until the next refueling.
- ## Initial setting shall be in accordance with the manufacturer's recommendation. Adjustment to the valve full open noise level shall be accomplished during the startup test program.

REACTOR COOLANT SYSTEM

3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.3.1 The following reactor coolant system leakage detection systems shall be OPERABLE:

- a. The primary containment atmosphere gaseous radioactivity monitoring system,
- b. The drywell floor drain sump and drywell equipment drain tank flow monitoring system,
- c. The drywell unit coolers condensate flow rate monitoring system, and
- d. The primary containment pressure and temperature monitoring system.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.*

ACTION:

With only three of the above required leakage detection systems OPERABLE, operation may be continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours when the required gaseous radioactive monitoring system, primary containment pressure and temperature monitoring system and/or the drywell unit coolers condensate flow rate monitoring system is inoperable; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1 The reactor coolant system leakage detection systems shall be demonstrated operable by:

- a. Primary containment atmosphere gaseous radioactivity monitoring systems—performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 24 months.
- b. The primary containment pressure shall be monitored at least once per 12 hours and the primary containment temperature shall be monitored at least once per 24 hours.
- c. Drywell floor drain sump and Drywell equipment drain tank flow monitoring system—performance of a CHANNEL FUNCTIONAL TEST, at least once per 31 days and a CHANNEL CALIBRATION TEST at least once per 24 months.
- D. Drywell unit coolers condensate flow rate monitoring system—performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 24 months.

*The primary containment atmosphere gaseous radioactivity monitor is not required to be OPERABLE until OPERATIONAL CONDITION 2.

REACTOR COOLANT SYSTEM

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION

3.4.3.2 Reactor coolant system leakage shall be limited to:

- a. No PRESSURE BOUNDARY LEAKAGE.
- b. 5 gpm UNIDENTIFIED LEAKAGE.
- c. 30 gpm total leakage.
- d. 25 gpm total leakage averaged over any 24-hour period.
- e. 1 gpm leakage at a reactor coolant system pressure of 950 +10 psig from any reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1.
- f. 2 gpm increase in UNIDENTIFIED LEAKAGE over a 24-hour period.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- b. With any reactor coolant system leakage greater than the limits in b, c and/or d above, reduce the leakage rate to within the limits within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- c. With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one other closed manual, deactivated automatic, or check* valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- d. With one or more of the high/low pressure interface valve leakage pressure monitors shown in Table 3.4.3.2-1 inoperable, restore the inoperable monitor(s) to OPERABLE status within 7 days or verify the pressure to be less than the alarm setpoint at least once per 12 hours; restore the inoperable monitor(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- e. With any reactor coolant system leakage greater than the limit in f above, identify the source of leakage within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

Which have been verified not to exceed the allowable leakage limit at the last refueling outage or after the last time the valve was disturbed, whichever is more recent.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The reactor coolant system leakage shall be demonstrated to be within each of the above limits by:

- a. Monitoring the primary containment atmospheric gaseous radioactivity at least once per 12 hours (not a means of quantifying leakage),
- b. Monitoring the drywell floor drain sump and drywell equipment drain tank flow rate at least once per eight (8) hours,
- c. Monitoring the drywell unit coolers condensate flow rate at least once per 12 hours,
- d. Monitoring the primary containment pressure at least once per 12 hours (not a means of quantifying leakage),
- e. Monitoring the reactor vessel head flange leak detection system at least once per 24 hours, and
- f. Monitoring the primary containment temperature at least once per 24 hours (not a means of quantifying leakage).

4.4.3.2.2 Each reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1 shall be demonstrated OPERABLE by leak testing pursuant to Specification 4.0.5 and verifying the leakage of each valve to be within the specified limit:

- a. At least once per 24 months, and
- b. Prior to returning the valve to service following maintenance, repair or replacement work on the valve which could affect its leakage rate.

The provisions of Specification 4.0.4 are not applicable for entry into OPERATIONAL CONDITION 3.

4.4.3.2.3 The high/low pressure interface valve leakage pressure monitors shall be demonstrated OPERABLE with alarm setpoints set less than the allowable values in Table 3.4.3.2-1 by performance of a:

- a. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- b. CHANNEL CALIBRATION at least once per 24 months.

EMERGENCY CORE COOLING SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- d. For the ADS:
 - 1. With one of the above required ADS valves inoperable, provided the HPCI system, the CSS and the LPCI system are OPERABLE, restore the inoperable ADS valve to OPERABLE status within 14 days or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to ≤ 100 psig within the next 24 hours.
 - 2. With two or more of the above required ADS valves inoperable, be in at least HOT SHUTDOWN within 12 hours and reduce reactor steam dome pressure to ≤ 100 psig within the next 24 hours.
- e. With a CSS and/or LPCI header ΔP instrumentation channel inoperable, restore the inoperable channel to OPERABLE status within 72 hours or determine the ECCS header ΔP locally at least once per 12 hours; otherwise, declare the associated CSS and/or LPCI, as applicable, inoperable.
- f. In the event an ECCS system is actuated and injects water into the reactor coolant system, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

EMERGENCY CORE COOLING SYSTEMS
SURVEILLANCE REQUIREMENTS

4.5.1 The emergency core cooling systems shall be demonstrated OPERABLE by:

- a. At least once per 31 days:
 1. For the CSS, the LPCI system, and the HPCI system:
 - a) Verifying by venting at the high point vents that the system piping from the pump discharge valve to the system isolation valve is filled with water.
 - b) Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct* position.
 2. For the LPCI system, verifying that both LPCI system subsystem cross-tie valves (HV-51-182 A, B) are closed with power removed from the valve operators.
 3. For the HPCI system, verifying that the HPCI pump flow controller is in the correct position.
 4. For the CSS and LPCI system, performance of a CHANNEL FUNCTIONAL TEST of the injection header ΔP instrumentation.
- b. Verifying that, when tested pursuant to Specification 4.0.5:
 1. Each CSS pump in each subsystem develops a flow of at least 3175 gpm against a test line pressure corresponding to a reactor vessel to primary containment differential pressure of ≥ 105 psid plus head and line losses.
 2. Each LPCI pump in each subsystem develops a flow of at least 10,000 gpm against a test line pressure corresponding to a reactor vessel to primary containment differential pressure of ≥ 20 psid plus head and line losses.
 3. The HPCI pump develops a flow of at least 5600 gpm against a test line pressure which corresponds to a reactor vessel pressure of 1000 psig plus head and line losses when steam is being supplied to the turbine at 1000, +20, -80 psig.**
- c. At least once per 24 months:
 1. For the CSS, the LPCI system, and the HPCI system, performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded from this test.

*Except that an automatic valve capable of automatic return to its ECCS position when an ECCS signal is present may be in position for another mode of operation.

**The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test. If OPERABILITY is not successfully demonstrated within the 12-hour period, reduce reactor steam dome pressure to less than 200 psig within the following 72 hours.

2. For the HPCI system, verifying that:
 - a) The system develops a flow of at least 5600 gpm against a test line pressure corresponding to a reactor vessel pressure of ≥ 200 psig plus head and line losses, when steam is being supplied to the turbine at $200 + 15, - 0$ psig.**
 - b) The suction is automatically transferred from the condensate storage tank to the suppression chamber on a condensate storage tank water level - low signal and on a suppression chamber water level - high signal.
 3. Performing a CHANNEL CALIBRATION of the CSS, LPCI, and HPCI system discharge line "keep filled" alarm instrumentation.
 4. Performing a CHANNEL CALIBRATION of the CSS header ΔP instrumentation and verifying the setpoint to be \leq the allowable value of 4.4 psid.
 5. Performing a CHANNEL CALIBRATION of the LPCI header ΔP instrumentation and verifying the setpoint to be \leq the allowable value of 3.0 psid.
- d. For the ADS:
1. At least once per 31 days, performing a CHANNEL FUNCTIONAL TEST of the accumulator backup compressed gas system low pressure alarm system.
 2. At least once per 24 months:
 - a) Performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence, but excluding actual valve actuation.
 - b) Manually opening each ADS valve when the reactor steam dome pressure is greater than or equal to 100 psig** and observing that either:
 - 1) The control valve or bypass valve position responds accordingly, or
 - 2) There is a corresponding change in the measured steam flow.
 - c) Performing a CHANNEL CALIBRATION of the accumulator backup compressed gas system low pressure alarm system and verifying an alarm setpoint of 90 ± 2 psig on decreasing pressure.

** The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test. If HPCI or ADS OPERABILITY is not successfully demonstrated within the 12-hour period, reduce reactor steam dome pressure to less than 200 psig or 100 psig, respectively, within the following 72 hours.

EMERGENCY CORE COOLING SYSTEMS

3/4 5.2 ECCS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.5.2 At least two of the following shall be OPERABLE:

- a. Core spray system (CSS) subsystems with a subsystem comprised of:
 1. Two OPERABLE CSS pumps, and
 2. An OPERABLE flow path capable of taking suction from at least one of the following water sources and transferring the water through the spray sparger to the reactor vessel:
 - a) From the suppression chamber, or
 - b) When the suppression chamber water level is less than the limit or is drained, from the condensate storage tank containing at least 135,000 available gallons of water, equivalent to a level of 29 feet.
- b. Low pressure coolant injection (LPCI) system subsystems with a subsystem comprised of:
 1. One OPERABLE LPCI pump, and
 2. An OPERABLE flow path capable of taking suction from the suppression chamber and transferring the water to the reactor vessel.

APPLICABILITY: OPERATIONAL CONDITIONS 4 and 5*.

ACTION:

- a. With one of the above required subsystems inoperable, restore at least two subsystems to OPERABLE status within 4 hours or suspend all operations with a potential for draining the reactor vessel.
- b. With both of the above required subsystems inoperable, suspend CORE ALTERATIONS and all operations with a potential for draining the reactor vessel. Restore at least one subsystem to OPERABLE status within 4 hours or establish SECONDARY CONTAINMENT INTEGRITY within the next 8 hours.

*The ECCS is not required to be OPERABLE provided that the reactor vessel head is removed, the cavity is flooded, the spent fuel pool gates are removed, and water level is maintained within the limits of Specifications 3.9.8 and 3.9.9.

CONTAINMENT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- b. The combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests to less than or equal to $0.60 L_a$, and
- c. The leakage rate to less than or equal to 11.5 scf per hour for any one main steam line through the isolation valves, and
- d. The combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment to less than or equal to 1 gpm times the total number of such valves,

prior to increasing the reactor coolant system temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The primary containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI 45.4-1972 and BN-TOP-1 and verifying the result by the Mass Point Methodology described in ANSI N56.8-1981:

- a. Three Type A Overall Integrated Containment Leakage Rate tests shall be conducted at 40 +/- 10 month intervals during shutdown at P_a , 44.0 psig, during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection.**
- b. If any periodic Type A test fails to meet $0.75 L_a$, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet $0.75 L_a$, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet $0.75 L_a$, at which time the above test schedule may be resumed.
- c. The accuracy of each Type A test shall be verified by a supplemental test which:
 1. Confirms the accuracy of the test by verifying that the difference between the supplemental data and the Type A test data is within $0.25 L_a$. The formula to be used is: $[L_o + L_{am} - 0.25 L_a] \leq L_c \leq [L_o + L_{am} + 0.25 L_a]$ where L_c = supplemental test result; L_o = superimposed leakage; L_{am} = measured Type A leakage.
 2. Has duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test.
 3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be between $0.75 L_a$ and $1.25 L_a$.

* Exemption to Appendix "J" to 10 CFR Part 50.

* The interval between the second and third Overall Integrated Leakage Rate tests of the first 10-year service period will be extended to the sixth Unit 1 refueling outage. As a result, the duration of the first 10-year service period will be extended to the end of the sixth Unit 1 refueling outage.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. Type B and C tests shall be conducted with gas at P_s , 44.0 psig*, at intervals no greater than 24 months except for tests involving:
 - 1. Air locks,
 - 2. Main steam line isolation valves,
 - 3. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment, and
- e. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.
- f. Main steam line isolation valves shall be leak tested at least once per 24 months, not to exceed the requirements of 10 CFR 50, Appendix J. |
- g. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment shall be leak tested at least once per 24 months, not to exceed the requirements of 10 CFR 50, Appendix J. |
- h. The provisions of Specification 4.0.2 are not applicable to Specifications 4.6.1.2a., 4.6.1.2b., 4.6.1.2c., 4.6.1.2d., and 4.6.1.2e.

*Unless a hydrostatic test is required per Table 3.6.3-1.

CONTAINMENT SYSTEMS

MSIV LEAKAGE CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.4 Two independent MSIV leakage control system (LCS) subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With one MSIV leakage control system subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.4 Each MSIV leakage control system subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Starting the blower(s) from the control room and operating the blower(s) for at least 15 minutes.
 2. Energizing the heaters and verifying a temperature rise indicating heater operation on downstream piping.
- b. During each COLD SHUTDOWN, if not performed within the previous 92 days, by cycling each motor operated valve through at least one complete cycle of full travel.
- c. At least once per 24 months by:
 1. Performance of a functional test which includes simulated actuation of the subsystem throughout its operating sequence, and verifying that each interlock and timer operates as designed, each automatic valve actuates to its correct position and the blower starts.
 2. Verifying that the blower(s) develops at least the below required vacuum at the rated capacity:
 - a) Inboard valves, 15" H₂O at 100 scfm.
 - b) Outboard valves, 15" H₂O at 200 scfm.
- d. By verifying the operating instrumentation to be OPERABLE by performance of a:
 1. CHANNEL CHECK at least once per 24 hours,
 2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
 3. CHANNEL CALIBRATION at least once per 24 months.

CONTAINMENT SYSTEMS

PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.5 The structural integrity of the primary containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.5.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the structural integrity of the primary containment not conforming to the above requirements, restore the structural integrity to within the limits within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5.1 The structural integrity of the exposed accessible interior and exterior surfaces of the primary containment, including the liner plate, shall be determined during the shutdown for each Type A containment leakage rate test by a visual inspection of those surfaces. This inspection shall be performed prior to the Type A containment leakage rate test to verify no apparent changes in appearance or other abnormal degradation.

4.6.1.5.2 Reports Any abnormal degradation of the primary containment structure detected during the above required inspections shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days. This report shall include a description of the condition of the liner and concrete, the inspection procedure, the tolerances on cracking, and the corrective actions taken.

CONTAINMENT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

3. With the suppression chamber average water temperature greater than 120°F, depressurize the reactor pressure vessel to less than 200 psig within 12 hours.
- c. With only one suppression chamber water level indicator OPERABLE and/or with less than eight suppression pool water temperature indicators, one in each of the eight locations OPERABLE, restore the inoperable indicator(s) to OPERABLE status within 7 days or verify suppression chamber water level and/or temperature to be within the limits at least once per 12 hours.
- d. With no suppression chamber water level indicators OPERABLE and/or with less than seven suppression pool water temperature indicators covering at least seven locations OPERABLE, restore at least one water level indicator and at least seven water temperature indicators to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- e. With the drywell-to-suppression chamber bypass leakage in excess of the limit, restore the bypass leakage to within the limit prior to increasing reactor coolant temperature above 200°F.

SURVEILLANCE REQUIREMENTS

- 4.6.2.1 The suppression chamber shall be demonstrated OPERABLE:
 - a. By verifying the suppression chamber water volume to be within the limits at least once per 24 hours.
 - b. At least once per 24 hours by verifying the suppression chamber average water temperature to be less than or equal to 95°F, except:
 1. At least once per 5 minutes during testing which adds heat to the suppression chamber, by verifying the suppression chamber average water temperature less than or equal to 105°F.
 2. At least once per hour when suppression chamber average water temperature is greater than or equal to 95°F, by verifying:
 - a) Suppression chamber average water temperature to be less than or equal to 110°F, and
 - b) THERMAL POWER to be less than or equal to 1% of RATED THERMAL POWER 12 hours after suppression chamber average water temperature has exceeded 95°F for more than 24 hours.
 3. At least once per 30 minutes following a scram with suppression chamber average water temperature greater than or equal to 95°F, by verifying suppression chamber average water temperature less than or equal to 120°F.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. By verifying at least 8 suppression pool water temperature indicators in at least 8 locations, OPERABLE by performance of a:
1. CHANNEL CHECK at least once per 24 hours.
 2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
 3. CHANNEL CALIBRATION at least once per 24 months,

with the temperature alarm setpoint for:

1. High water temperature:
 - a) First setpoint $\leq 95^{\circ}\text{F}$
 - b) Second setpoint $\leq 105^{\circ}\text{F}$
 - c) Third setpoint $\leq 110^{\circ}\text{F}$
 - d) Fourth setpoint $\leq 120^{\circ}\text{F}$
- d. By verifying at least two suppression chamber water level indicators OPERABLE by performance of a:
 1. CHANNEL CHECK at least once per 24 hours,
 2. CHANNEL FUNCTIONAL TEST at least once per 92 days, and
 3. CHANNEL CALIBRATION at least once per 24* months,

with the water level alarm setpoint for high water level $\leq 24'1\text{-}1/2''$

- e. Drywell-to-suppression chamber bypass leak tests shall be conducted at 40 +/- 10 month intervals to coincide with the ILRT at an initial differential pressure of 4 psi and verifying that the A/\sqrt{k} calculated from the measured leakage is within the specified limit. If any drywell-to-suppression chamber bypass leak test fails to meet the specified limit, the test schedule for subsequent tests shall be reviewed and approved by the Commission. If two consecutive tests fail to meet the specified limit, a test shall be performed at least every 24 months until two consecutive tests meet the specified limit, at which time the test schedule may be resumed.
- f. By conducting a leakage test on the drywell-to-suppression chamber vacuum breakers at a differential pressure of at least 4.0 psi and verifying that the total leakage area A/\sqrt{k} contributed by all vacuum breakers is less than or equal to 24% of the specified limit and the leakage area for an individual set of vacuum breakers is less than or equal to 12% of the specified limit. The vacuum breaker leakage test shall be conducted during each refueling outage for which the drywell-to-suppression chamber bypass leak test in Specification 4.6.2.1.d is not conducted.

* The CHANNEL CALIBRATION for level transmitters LT-55-1N062B, -1N062F shall be performed at least once per 18 months.

CONTAINMENT SYSTEMS

3/4.6.3 PRIMARY CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 The primary containment isolation valves and the instrumentation line excess flow check valves shown in Table 3.6.3-1 shall be OPERABLE with isolation times less than or equal to those shown in Table 3.6.3-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one or more of the primary containment isolation valves shown in Table 3.6.3-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 4 hours either:
1. Restore the inoperable valve(s) to OPERABLE status, or
 2. Isolate each affected penetration by use of at least one de-activated automatic valve secured in the isolated position,* or
 3. Isolate each affected penetration by use of at least one closed manual valve or blind flange.*
 4. The provisions of Specification 3.0.4 are not applicable provided that within 4 hours the affected penetration is isolated in accordance with ACTION a.2. or a.3. above, and provided that the associated system, if applicable, is declared inoperable and the appropriate ACTION statements for that system are performed.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- b. With one or more of the instrumentation line excess flow check valves shown in Table 3.6.3-1 inoperable, operation may continue and the provisions of Specifications 3.0.3 and 3.0.4 are not applicable provided that within 4 hours either:

1. The inoperable valve is returned to OPERABLE status, or
2. The instrument line is isolated and the associated instrument is declared inoperable.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*Isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under administrative control.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.3.1 Each primary containment isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.

4.6.3.2 Each primary containment automatic isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that on a containment isolation test signal each automatic isolation valve actuates to its isolation position.

4.6.3.3 The isolation time of each primary containment power operated or automatic valve shown in Table 3.6.3-1 shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

4.6.3.4 Each reactor instrumentation line excess flow check valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that the valve checks flow.

4.6.3.5 Each traversing in-core probe system explosive isolation valve shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying the continuity of the explosive charge.
- b. At least once per 24 months by removing the explosive squib from the explosive valve, such that each explosive squib in each explosive valve will be tested at least once per 120 months, and initiating the explosive squib. The replacement charge for the exploded squib shall be from the same manufactured batch as the one fired or from another batch which has been certified by having at least one of that batch successfully fired. No squib shall remain in use beyond the expiration of its shelf-life and/or operating life, as applicable.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each suppression chamber - drywell vacuum breaker shall be:

- a. Verified closed at least once per 7 days.
- b. Demonstrated OPERABLE:
 1. At least once per 31 days and within 2 hours after any discharge of steam to the suppression chamber from the safety/relief valves, by cycling each vacuum breaker through at least one complete cycle of full travel.
 2. At least once per 31 days by verifying both position indicators OPERABLE by observing expected valve movement during the cycling test.
 3. At least once per 24 months by:
 - a) Verifying each valve's opening setpoint, from the closed position, to be 0.5 psid \pm 5%, and
 - b) Verifying both position indicators OPERABLE by performance of a CHANNEL CALIBRATION.
 - c) Verifying that each outboard valve's position indicator is capable of detecting disk displacement ≥ 0.050 ", and each inboard valve's position indicator is capable of detecting disk displacement ≥ 0.120 ".

CONTAINMENT SYSTEMS

3/4.6.5 SECONDARY CONTAINMENT

REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.5.1.1 REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

Without REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY, restore REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1.1 REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY shall be demonstrated by:

- a. Verifying at least once per 24 hours that the pressure within the reactor enclosure secondary containment is greater than or equal to 0.25 inch of vacuum water gauge.
- b. Verifying at least once per 31 days that:
 1. All reactor enclosure secondary containment equipment hatches and blowout panels are closed and sealed.
 2. At least one door in each access to the reactor enclosure secondary containment is closed.
 3. All reactor enclosure secondary containment penetrations not capable of being closed by OPERABLE secondary containment automatic isolation dampers/valves and required to be closed during accident conditions are closed by valves, blind flanges, slide gate dampers or deactivated automatic dampers/valves secured in position.
- c. At least once per 24 months:
 1. Verifying that one standby gas treatment subsystem will draw down the reactor enclosure secondary containment to greater than or equal to 0.25 inch of vacuum water gauge in less than or equal to 121 seconds with the reactor enclosure recirc system in operation and
 2. Operating one standby gas treatment subsystem for one hour and maintaining greater than or equal to 0.25 inch of vacuum water gauge in the reactor enclosure secondary containment at a flow rate not exceeding 1250 cfm with wind speeds of ≤ 7.0 mph as measured on the wind instrument on Tower 1, elevation 30' or, if that instrument is unavailable, Tower 2, elevation 159'.

CONTAINMENT SYSTEMS

3/4.6.5 SECONDARY CONTAINMENT

REFUELING AREA SECONDARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.5.1.2 REFUELING AREA SECONDARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITION *.

ACTION:

Without REFUELING AREA SECONDARY CONTAINMENT INTEGRITY, suspend handling of irradiated fuel in the secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.5.1.2 REFUELING AREA SECONDARY CONTAINMENT INTEGRITY shall be demonstrated by:

- a. Verifying at least once per 24 hours that the pressure within the refueling area secondary containment is greater than or equal to 0.25 inch of vacuum water gauge.
- b. Verifying at least once per 31 days that:
 1. All refueling area secondary containment equipment hatches and blowout panels are closed and sealed.
 2. At least one door in each access to the refueling area secondary containment is closed.
 3. All refueling area secondary containment penetrations not capable of being closed by OPERABLE secondary containment automatic isolation dampers/valves and required to be closed during accident conditions are closed by valves, blind flanges, slide gate dampers or deactivated automatic dampers/valves secured in position.
- c. At least once per 24 months:

Operating one standby gas treatment subsystem for one hour and maintaining greater than or equal to 0.25 inch of vacuum water gauge in the refueling area secondary containment at a flow rate not exceeding 764 cfm.

*Required when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel, with the vessel head removed and fuel in the vessel.

CONTAINMENT SYSTEMS

REACTOR ENCLOSURE SECONDARY CONTAINMENT AUTOMATIC ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.5.2.1 The reactor enclosure secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.1-1 shall be OPERABLE with isolation times less than or equal to the times shown in Table 3.6.5.2.1-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With one or more of the reactor secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.1-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 8 hours either:

- a. Restore the inoperable valves to OPERABLE status, or
- b. Isolate each affected penetration by use of at least one deactivated valve secured in the isolation position, or
- c. Isolate each affected penetration by use of at least one closed manual valve, blind flange or slide gate damper.

Otherwise, in OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.2.1 Each reactor enclosure secondary containment ventilation system automatic isolation valve shown in Table 3.6.5.2.1-1 shall be demonstrated OPERABLE:

- a. Prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.
- b. At least once per 24 months by verifying that on a containment isolation test signal each isolation valve actuates to its isolation position.
- c. By verifying the isolation time to be within its limit at least once per 92 days.

TABLE 3.6.5.2.1-1
REACTOR ENCLOSURE SECONDARY CONTAINMENT VENTILATION SYSTEM
AUTOMATIC ISOLATION VALVES

<u>REACTOR ENCLOSURE (ZONE I)</u>	<u>MAXIMUM ISOLATION TIME (Seconds)</u>	<u>ISOLATION SIGNALS^(a)</u>
1. Reactor Enclosure Ventilation Supply Valve HV-76-107	5	B,H,S,U
2. Reactor Enclosure Ventilation Supply Valve HV-76-108	5	B,H,S,U
3. Reactor Enclosure Ventilation Exhaust Valve HV-76-157	5	B,H,S,U
4. Reactor Enclosure Ventilation Exhaust Valve HV-76-158	5	B,H,S,U
5. Reactor Enclosure Equipment Compartment Exhaust Valve HV-76-141	5	B,H,S,U
6. Reactor Enclosure Equipment Compartment Exhaust Valve HV-76-142	5	B,H,S,U
7. Drywell Purge Exhaust Valve HV-76-030	5	B,H,S,U,R,T
8. Drywell Purge Exhaust Valve HV-76-031	5	B,H,S,U,R,T
9. Drywell Purge Exhaust Inboard Valve HV-57-214 (Unit 2)	5	B,H,S,U,W,R,T
10. Drywell Purge Exhaust Outboard Valve HV-57-215 (Unit 2)	6	B,H,S,U,W,R,T
11. Suppression Pool Purge Exhaust Inboard Valve HV-57-204 (Unit 2)	5	B,H,S,U,W,R,T
12. Suppression Pool Purge Exhaust Outboard Valve HV-57-212 (Unit 2)	6	B,H,S,U,W,R,T

(a) See Specification 3.3.2, Table 3.3.2-1, for isolation signals that operate each automatic valve.

LIMERICK - UNIT 1

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JUN 1 - 1989
Effective when OL is issued to Unit 2

CONTAINMENT SYSTEMS

REFUELING AREA SECONDARY CONTAINMENT AUTOMATIC ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.5.2.2 The refueling area secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.2-1 shall be OPERABLE with isolation times less than or equal to the times shown in Table 3.6.5.2.2-1.

APPLICABILITY: OPERATIONAL CONDITION *.

ACTION:

With one or more of the refueling area secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.2-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 8 hours either:

- a. Restore the inoperable valves to OPERABLE status, or
- b. Isolate each affected penetration by use of at least one deactivated valve secured in the isolation position, or
- c. Isolate each affected penetration by use of at least one closed manual valve, blind flange or slide gate damper.

Otherwise, in OPERATIONAL CONDITION *, suspend handling of irradiated fuel in the refueling area secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.5.2.2 Each refueling area secondary containment ventilation system automatic isolation valve shown in Table 3.6.5.2.2-1 shall be demonstrated OPERABLE:

- a. Prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.
- b. At least once per 24 months by verifying that on a containment isolation test signal each isolation valve actuates to its isolation position.
- c. By verifying the isolation time to be within its limit at least once per 92 days.

*Required when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 24* months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the subsystem by:
1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 3000 cfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%; and
 3. Verify that when the fan is running the subsystem flowrate is 2800 cfm minimum from each reactor enclosure (Zones I and II) and 2200 cfm minimum from the refueling area (Zone III) when tested in accordance with ANSI N510-1980.
 4. Verify that the pressure drop across the refueling area to SGTS prefilter is less than 0.25 inches water gage while operating at a flow rate of 2400 cfm \pm 10%.
- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%.
- d. At least once per 24 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 9.1 inches water gauge while operating the filter train at a flow rate of 8400 cfm \pm 10%.

*Surveillance interval is an exception to the guidance provided in Regulatory Guide 1.52, Revision 2, March 1978.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying that the fan starts and isolation valves necessary to draw a suction from the refueling area or the reactor enclosure recirculation discharge open on each of the following test signals:
 - a) Manual initiation from the control room, and
 - b) Simulated automatic initiation signal.
3. Verifying that the temperature differential across each heater is $\geq 15^{\circ}\text{F}$ when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 3000 cfm \pm 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 3000 cfm \pm 10%.
- g. After any major system alteration:
 1. Verify that when the SGTS fan is running the subsystem flowrate is 2800 cfm minimum from each reactor enclosure (Zones I and II) and 2200 cfm minimum from the refueling area (Zone III).
 2. Verify that one standby gas treatment subsystem will drawdown reactor enclosure Zone I secondary containment to greater than or equal to 0.25 inch of vacuum water gauge in less than or equal to 121 seconds with the reactor enclosure recirculation system in operation and the adjacent reactor enclosure and refueling area zones are in their isolation modes.

CONTAINMENT SYSTEMS

REACTOR ENCLOSURE RECIRCULATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.5.4 Two independent reactor enclosure recirculation subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one reactor enclosure recirculation subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With both reactor enclosure recirculation subsystems inoperable, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.4 Each reactor enclosure recirculation subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates properly.
- b. At least once per 24* months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the subsystem by:
 1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 60,000 cfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and
 3. Verifying a subsystem flow rate of 60,000 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980.

*Surveillance interval is an exception to the guidance provided in Regulatory Guide 1.52, Revision 2, March 1978.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%.
- d. At least once per 24 months by:
 1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the filter train at a flow rate of 60,000 cfm \pm 10%, verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.
 2. Verifying that the filter train starts and the isolation valves which take suction on and return to the reactor enclosure open on each of the following test signals:
 - a. Manual initiation from the control room, and
 - b. Simulated automatic initiation signal.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 60,000 cfm \pm 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 60,000 cfm \pm 10%.

CONTAINMENT SYSTEMS
3/4.6.6 PRIMARY CONTAINMENT ATMOSPHERE CONTROL
PRIMARY CONTAINMENT HYDROGEN RECOMBINER SYSTEMS
LIMITING CONDITION FOR OPERATION

3.6.6.1 Two independent primary containment hydrogen recombiner systems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With one primary containment hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.1 Each primary containment hydrogen recombiner system shall be demonstrated OPERABLE:

- a. At least once per 6 months by performance of:
 1. A CHANNEL CHECK of all Control Room Recombiner Instrumentation.
 2. A Trickle Heat Circuit check.
 3. A Heater Coil Check.
 4. A verification of valve operation by stroking all the valves to their proper positions.
- b. At least once per 24 months by:
 1. Performing a CHANNEL CALIBRATION of all control room recombiner instrumentation and control circuits.
 2. Verifying the integrity of all heater electrical circuits by performing a resistance to ground test within 30 minutes following the below required functional test. The resistance to ground for any heater phase shall be greater than or equal to one (1) megohm.
 3. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure; i.e., loose wiring or structural connections, deposits of foreign materials, etc.
 4. Verifying during a recombiner system functional test that the minimum heater outlet gas temperature increases to greater than or equal to 1150°F within 120 minutes and maintained for at least one hour.
- c. By measuring the system leakage rate:
 1. As a part of the overall integrated leakage rate test required by Specification 3.6.1.2, or
 2. By measuring the leakage rate of the system outside of the containment isolation valves at P_s, 44.0 psig, on the schedule required by Specification 4.6.1.2, and including the measured leakage as a part of the leakage determined in accordance with Specification 4.6.1.2.

CONTAINMENT SYSTEMS

DRYWELL HYDROGEN MIXING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6.2 Four independent drywell unit cooler hydrogen mixing subsystems (1AV212, 1BV212, 1GV212, 1HV212) shall be OPERABLE with each subsystem consisting of one unit cooler fan.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2

ACTION:

With one drywell unit cooler hydrogen mixing subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.2 Each drywell unit cooler hydrogen mixing subsystem shall be demonstrated OPERABLE at least once per 92 days by:

- a. Starting the system from the control room, and
- b. Verifying that the system operates for at least 15 minutes.

PLANT SYSTEMS

EMERGENCY SERVICE WATER SYSTEM - COMMON SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least the following independent emergency service water system loops, with each loop comprised of:

- a. Two OPERABLE emergency service water pumps, and
- b. An OPERABLE flow path capable of taking suction from the emergency service water pumps wet pits which are supplied from the spray pond or the cooling tower basin and transferring the water to the associated Unit 1 and common safety-related equipment,

shall be OPERABLE:

- a. In OPERATIONAL CONDITIONS 1, 2, and 3, two loops.
- b. In OPERATIONAL CONDITIONS 4, 5, and *, one loop.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, and *.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3:
 1. With one emergency service water pump inoperable, restore the inoperable pump to OPERABLE status within 45 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 2. With one emergency service water pump in each loop inoperable, restore at least one inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 3. With one emergency service water system loop otherwise inoperable, declare all equipment aligned to the inoperable loop inoperable**, restore the inoperable loop to OPERABLE status with at least one OPERABLE pump within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*When handling irradiated fuel in the secondary containment.

**The diesel generators may be aligned to the OPERABLE emergency service water system loop provided confirmatory flow testing has been performed. Those diesel generators not aligned to the OPERABLE emergency service water system loop shall be declared inoperable and the actions of 3.8.1.1 taken.

PLANT SYSTEMS
LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

4. With three ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 72 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 5. With four ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 8 hours, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 4 or 5:
1. With only one emergency service water pump and its associated flowpath OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated safety related equipment inoperable and take the ACTION required by Specifications 3.5.2 and 3.8.1.2.
- c. In OPERATIONAL CONDITION *
1. With only one emergency service water pump and its associated flow path OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or verify adequate cooling remains available for the diesel generators required to be OPERABLE or declare the associated diesel generator(s) inoperable and take the ACTION required by Specification 3.8.1.2. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENT

- 4.7.1.2 At least the above required emergency service water system loop(s) shall be demonstrated OPERABLE:
- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) that is not locked, sealed, or otherwise secured in position, is in its correct position.
 - b. At least once per 24 months by verifying that:
 1. Each automatic valve actuates to its correct position on its appropriate ESW pump start signal.
 2. Each pump starts automatically when its associated diesel generator starts.

*When handling irradiated fuel in the secondary containment.

**An ESW pump/diesel generator pair consists of an ESW pump and its associated diesel generator. If either an ESW pump or its associated diesel generator becomes inoperable, then the ESW pump/diesel generator pair is inoperable.

PLANT SYSTEMS

ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.1.3 The spray pond shall be OPERABLE with:

- a. A minimum pond water level at or above elevation 250' 10" Mean Sea Level, and
- b. A pond water temperature of less than or equal to 88°F.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, and *.

ACTION:

With the requirements of the above specification not satisfied:

- a. In OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- b. In OPERATIONAL CONDITION 4 or 5, declare the RHRSW system and the emergency service water system inoperable and take the ACTION required by Specifications 3.7.1.1 and 3.7.1.2.
- c. In OPERATIONAL CONDITION *, declare the emergency service water system inoperable and take the ACTION required by Specification 3.7.1.2. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.3 The spray pond shall be determined OPERABLE:

- a. By verifying the pond water level to be greater than its limit at least once per 24 hours.
- b. By verifying the water surface temperature (within the upper two feet of the surface) to be less than or equal to 88°F:
 - 1. at least once per 4 hours when the spray pond temperature is greater than or equal to 80°F; and
 - 2. at least once per 2 hours when the spray pond temperature is greater than or equal to 85°F; and
 - 3. at least once per 24 hours when the spray pond temperature is greater than 32°F.
- c. By verifying all piping above the frost line is drained within 1 hour after being used.

*When handling irradiated fuel in the secondary containment.

PLANT SYSTEMS

3/4.7.2 CONTROL ROOM EMERGENCY FRESH AIR SUPPLY SYSTEM - COMMON SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.2 Two independent control room emergency fresh air supply system subsystems shall be OPERABLE.

APPLICABILITY: All OPERATIONAL CONDITIONS and *.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3 with one control room emergency fresh air supply subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 4, 5, or *:
 1. With one control room emergency fresh air supply subsystems inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or initiate and maintain operation of the OPERABLE subsystem in the radiation isolation mode of operation.
 2. With both control room emergency fresh air supply subsystems inoperable, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- c. The provisions of Specification 3.0.3 are not applicable in OPERATIONAL CONDITION*.

SURVEILLANCE REQUIREMENTS

4.7.2 Each control room emergency fresh air supply subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying the control room air temperature to be less than or equal to 85°F effective temperature.
- b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates with the heaters OPERABLE.
- c. At least once per 24** months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the subsystem by:
 1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 3000 cfm ± 10%.

* When irradiated fuel is being handled in the secondary containment.

** Surveillance interval is an exception to the guidance provided in Regulatory Guide 1.52, Revision 2, March 1978.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and
 3. Verifying a subsystem flow rate of 3000 cfm \pm 10% during subsystem operation when tested in accordance with ANSI N510-1980.
- d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%.
- e. At least once per 24 months by:
1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the subsystem at a flow rate of 3000 cfm \pm 10%; verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.
 2. Verifying that on each of the below chlorine isolation mode actuation test signals, the subsystem automatically switches to the chlorine isolation mode of operation and the isolation valves close within 5 seconds:
 - a) Outside air intake high chlorine, and
 - b) Manual initiation from the control room.
 3. Verifying that on each of the below radiation isolation mode actuation test signals, the subsystem automatically switches to the radiation isolation mode of operation and the control room is maintained at a positive pressure of at least 1/8 inch water gauge relative to the turbine enclosure and auxiliary equipment room and outside atmosphere during subsystem operation with an outdoor air flow rate less than or equal to 525 cfm:
 - a) Outside air intake high radiation, and
 - b) Manual initiation from control room.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 3000 cfm \pm 10%.

- g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 3000 cfm \pm 10%.

PLANT SYSTEMS

3/4.7.3 REACTOR CORE ISOLATION COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.3 The reactor core isolation cooling (RCIC) system shall be OPERABLE with an OPERABLE flow path capable of automatically taking suction from the suppression pool and transferring the water to the reactor pressure vessel.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3 with reactor steam dome pressure greater than 150 psig.

ACTION:

- a. With the RCIC system inoperable, operation may continue provided the HPCI system is OPERABLE; restore the RCIC system to OPERABLE status within 14 days. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 150 psig within the following 24 hours.
- b. In the event the RCIC system is actuated and injects water into the reactor coolant system, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.7.3 The RCIC system shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Verifying by venting at the high point vents that the system piping from the pump discharge valve to the system isolation valve is filled with water.
 2. Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
 3. Verifying that the pump flow controller is in the correct position.
- b. At least once per 92 days by verifying that the RCIC pump develops a flow of greater than or equal to 600 gpm in the test flow path with a system head corresponding to reactor vessel operating pressure when steam is being supplied to the turbine at 1000 + 20, - 80 psig.*

*The provisions of Specification 4.0.4 are not applicable, provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test. If OPERABILITY is not successfully demonstrated within the 12-hour period, reduce reactor steam pressure to less than 150 psig within the following 72 hours.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. At least once per 24 months by:
1. Performing a system functional test which includes simulated automatic actuation and restart and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded.
 2. Verifying that the system will develop a flow of greater than or equal to 600 gpm in the test flow path when steam is supplied to the turbine at a pressure of 150 + 15, - 0 psig.*
 3. Verifying that the suction for the RCIC system is automatically transferred from the condensate storage tank to the suppression pool on a condensate storage tank water level-low signal.
 4. Performing a CHANNEL CALIBRATION of the RCIC system discharge line "keep filled" level alarm instrumentation.

*The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the tests. If OPERABILITY is not successfully demonstrated within the 12-hour period, reduce reactor steam pressure to less than 150 psig within the following 72 hours.

PLANT SYSTEMS

HALON SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.6.4 The following Halon systems shall be OPERABLE with the storage tanks having at least 95% of full charge weight and 90% of full charge pressure:

- a. Remote Shutdown Panel Area 540, EL 289' (Raised Floor), and
- b. Auxiliary Equipment Room 542, EL 289' (Raised Floor).

APPLICABILITY: Whenever equipment protected by the Halon systems is required to be OPERABLE.

ACTION:

- a. With one or more of the above required Halon systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6.4 Each of the above required Halon systems shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position.
- b. At least once per 6 months by verifying Halon storage tank weight and pressure.
- c. At least once per 18 months by:
 1. Performance of a functional test of the general alarm circuit and associated alarm and interlock devices.
- d. At least once per 24 months by:
 1. Performance of a system flow test to assure no blockage.

PLANT SYSTEMS

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.6.5 The fire hose stations shown in Table 3.7.6.5-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE.

ACTION:

- a. With one or more of the fire hose stations shown in Table 3.7.6.5-1 inoperable, provide gated wye(s) on the nearest OPERABLE hose station(s). One outlet of the wye shall be connected to the standard length of hose provided at the hose station. The second outlet of the wye shall be connected to a length of hose sufficient to provide coverage for the area left unprotected by the inoperable hose station. Where it can be demonstrated that the physical routing of the fire hose would result in a recognizable hazard to operating technicians, plant equipment, or the hose itself, the fire hose shall be stored in a roll at the outlet of the OPERABLE hose station. Signs shall be mounted above the gated wye(s) to identify the proper hose to use. The above ACTION shall be accomplished within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise route the additional hose within 24 hours.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6.5 Each of the fire hose stations shown in Table 3.7.6.5-1 shall be demonstrated OPERABLE:

- a. At least once per 31 days by a visual inspection of the fire hose stations accessible during plant operation to assure all required equipment is at the station.
- b. At least once per 18 months by:
 1. Visual inspection of the fire hose stations not accessible during plant operation to assure all required equipment is at the station.
 2. Removing the hose for inspection and reracking, and
 3. Inspecting all gaskets and replacing any degraded gaskets in the couplings.
- c. At least once per 3 years by:
 1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.
 2. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above the maximum fire main operating pressure, whichever is greater.

PLANT SYSTEMS

3/4.7.7 FIRE RATED ASSEMBLIES

LIMITING CONDITION FOR OPERATION

3.7.7 All fire rated assemblies, including walls, floor/ceilings, cable tray enclosures and other fire barriers, separating safe shutdown fire areas or separating portions of redundant systems important to safe shutdown within a fire area, and all sealing devices in fire rated assembly penetrations, including fire doors, fire windows, fire dampers, cable, piping and ventilation duct penetration seals and ventilation seals, shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

- a. With one or more of the above required fire rated assemblies and/or sealing devices inoperable, within 1 hour establish a continuous fire watch on at least one side of the affected assembly(s) and/or sealing device(s) or verify the OPERABILITY of fire detectors on at least one side of the inoperable assembly(s) and sealing device(S) and establish an hourly fire watch patrol.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.7.1 Each of the above required fire rated assemblies and penetration sealing devices shall be verified OPERABLE at least once per 24 months by performing a visual inspection of:

- a. The exposed surfaces of each fire rated assembly.
- b. Each fire window, fire damper, and associated hardware.
- c. At least 12.5% of each type of sealed penetration, except internal conduit seals. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 12.5% of each type of sealed penetration shall be made. This inspection process shall continue until a 12.5% sample with no apparent changes in appearance or abnormal degradation is found. Samples shall be selected such that each penetration seal will be inspected at least once per 16 years.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.7.7.2 Each of the above required fire doors which are not electrically supervised shall be verified OPERABLE by inspecting the closing mechanism and latches at least once per 6 months, and by verifying:

- a. That each locked-closed fire door is closed at least once per 7 days.
- b. That each unlocked fire door without electrical supervision is closed at least once per 24 hours.

4.7.7.3 Each of the above required fire doors which are electrically supervised shall be verified OPERABLE:

- a. By verifying that each locked-closed fire door is closed at least once per 7 days.
- b. By verifying the OPERABILITY of the fire door supervision system for each electrically supervised fire door by performing a CHANNEL FUNCTIONAL TEST at least once per 31 days.
- c. By inspecting the closing mechanism and latches at least once per 6 months.

PLANT SYSTEMS

3/4.7.8 MAIN TURBINE BYPASS SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.8 The main turbine bypass system shall be OPERABLE as determined by the number of operable main turbine bypass valves being greater than or equal to that specified in the CORE OPERATING LIMITS REPORT.

APPLICABILITY: OPERATIONAL CONDITION 1, when THERMAL POWER is greater than or equal to 25% of RATED THERMAL POWER.

ACTION: With the main turbine bypass system inoperable, restore the system to OPERABLE status within 1 hour or take the ACTION required by Specification 3.2.3.c.

SURVEILLANCE REQUIREMENTS

4.7.8 The main turbine bypass system shall be demonstrated OPERABLE at least once per:

- a. 31 days by cycling each turbine bypass valve through at least one complete cycle of full travel,
- b. 24 months by performing a system functional test which includes simulated automatic actuation, and by verifying that each automatic valve actuates to its correct position, and
- c. 24 months by determining TURBINE BYPASS SYSTEM RESPONSE TIME to be less than or equal to the value specified in the CORE OPERATING LIMITS REPORT.

ELECTRICAL POWER SYST

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability, and
- b. Demonstrated OPERABLE at least once per 24 months by transferring, manually and automatically, unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each of the above required diesel generators shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8.1.1.2-1 on a STAGGERED TEST BASIS by:
 1. Verifying the fuel level in the day fuel tank.
 2. Verifying the fuel level in the fuel storage tank.
 3. Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day fuel tank.
 4. Verify that the diesel can start* and gradually accelerate to synchronous speed with generator voltage and frequency at 4285 ± 420 volts and 60 ± 1.2 HZ.
 5. Verify diesel is synchronized, gradually loaded* to an indicated 2700-2800 KW** and operates with this load for at least 60 minutes.
 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
 7. Verifying the pressure in all diesel generator air start receivers to be greater than or equal to 225 psig.

* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine pre-lube and warmup procedures, and as applicable regarding loading and shutdown recommendations.

** This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring by the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

ELECTRICAL POWER SYSTEMS
SURVEILLANCE REQUIREMENTS (Continued)

b. By removing accumulated water:

- 1) From the day tank at least once per 31 days and after each occasion when the diesel is operated for greater than 1 hour, and
- 2) From the storage tank at least once per 31 days.

c. By sampling new fuel oil in accordance with ASTM D4057-81 prior to addition to the storage tanks and:

- 1) By verifying in accordance with the tests specified in ASTM D975-81 prior to addition to the storage tanks that the sample has:
 - a) An API Gravity of within 0.3 degrees at 60°F or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity at 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees.
 - b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if gravity was not determined by comparison with the supplier's certification.
 - c) A flash point equal to or greater than 125°F, and
 - d) A clear and bright appearance with proper color when tested in accordance with ASTM D4176-82.
- 2) By verifying within 31 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are met when tested in accordance with ASTM D975-81 except that the analysis for sulfur may be performed in accordance with ASTM D1552-79 or ASTM D2622-82.

d. At least once every 31 days by obtaining a sample of fuel oil from the storage tanks in accordance with ASTM D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM D2276-78, Method A, except that the filters specified in ASTM D2276-78, Sections 5.1.6 and 5.1.7, may have a nominal pore size of up to three (3) microns.

e. At the following frequency by:

1. Every 18 months subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
2. Every 24 months verify the diesel generator capability to reject a load of greater than or equal to that of the RHR Pump Motor (992 Kw) for each diesel generator while maintaining voltage at 4285 ± 420 volts and frequency at 60 ± 1.2 Hz.

SURVEILLANCE REQUIREMENTS (Continued)

3. Every 24 months verifying the diesel generator capability to reject a load of 2850 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection.
4. Every 24 months simulating a loss-of-offsite power by itself, and:
 - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel generator starts* on the auto-start signal, energizes the emergency busses within 10 seconds, energizes the auto-connected loads through the individual load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4285 ± 420 volts and 60 ± 1.2 Hz during this test.
5. Every 24 months verifying that on an ECCS actuation test signal, without loss-of-offsite power, the diesel generator starts* on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall reach 4285 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.
6. Every 24 months simulating a loss-of-offsite power in conjunction with an ECCS actuation test signal, and:
 - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.
 - b) Verifying the diesel generator starts* on the auto-start signal, energizes the emergency busses within 10 seconds, energizes the auto-connected shutdown loads through the individual load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4285 ± 420 volts and 60 ± 1.2 Hz during this test.
7. Every 24 months verifying that all automatic diesel generator trips, except engine overspeed and generator differential over-current are automatically bypassed upon an ECCS actuation signal.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine pre-lube and warm-up procedures, and as applicable regarding loading and shutdown recommendations.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

8. Every 18 months verifying the diesel generator operates* for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to an indicated 2950-3050 kW** and during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 2700-2800 kW**. Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement 4.8.1.1.2e.4.b).***
9. Every 24 months verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 3100 kW.
10. Every 24 months verifying the diesel generator's capability to:
 - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
 - b) Transfer its loads to the offsite power source, and
 - c) Be restored to its standby status.
11. Every 24 months verifying that with the diesel generator operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning the diesel generator to standby operation, and (2) automatically energizes the emergency loads with offsite power.
12. Every 24 months verifying that the automatic load sequence timers are OPERABLE with the interval between each load block within $\pm 10\%$ of its design interval.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading and shutdown recommendations.

**This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring by the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

***If Surveillance Requirement 4.8.1.1.2e.4.b) is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead, the diesel generator may be operated at 2700-2800 kW for 1 hour or until operating temperature has stabilized.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

13. Every 24 months verifying that the following diesel generator lockout features prevent diesel generator starting only when required:
 - a) Control Room Switch In Pull-To-Lock (With Local/Remote Switch in Remote)
 - b) Local/Remote Switch in Local
 - c) Emergency Stop
- f. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting* all four diesel generators simultaneously, during shutdown, and verifying that all four diesel generators accelerate to at least 882 rpm in less than or equal to 10 seconds.
- g. At least once per 10 years by:
 1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and
 2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section XI Article IWD-5000.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading and shutdown recommendations.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- h. At least once per 184 days the diesel generator shall be started* and verified to accelerate to synchronous speed in less than or equal to 10 seconds. The generator voltage and frequency shall reach 4285 ± 420 volts and 60 ± 1.2 HZ within 10 seconds after the start signal. The diesel generator shall be started for this test by using one of the following signals:
- a) Manual***
 - b) Simulated loss-of-offsite power by itself.
 - c) Simulated loss-of-offsite power in conjunction with an ECCS actuation test signal.
 - d) An ECCS actuation test signal by itself.

The generator shall be manually synchronized to its appropriate emergency bus, loaded to an indicated 2700-2800 KW** in less than or equal to 200 seconds, and operate for at least 60 minutes. This test, if it is performed so it coincides with the testing required by Surveillance Requirement 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5, may also serve to concurrently meet those requirements as well.

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2 within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading and shutdown recommendations.

**This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring by the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

***If diesel generator started manually from the control room, 10 seconds after the automatic prelube period.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 105 volts or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 - 1. The parameters in Table 4.8.2.1-1 meet the Category B limits,
 - 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and
 - 3. The average electrolyte temperature of each sixth cell is $\geq 60^{\circ}\text{F}$.
- c. At least once per 24 months by verifying that:
 - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anticorrosion material,
 - 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm excluding cable intercell connections, and
 - 4. The battery chargers will supply the currents listed below at a minimum of 132 volts for at least 8 hours.

<u>Charger</u>	<u>Current (Amperes)</u>
1BCA1	300
1BCA2	300
1BCB1	300
1BCB2	300
1BCC	75
1BCD	75

- d. At least once per 24 months by verifying that either:
 - 1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design duty cycle when the battery is subjected to a battery service test, or
 - 2. The battery capacity is adequate to supply a dummy load of the following profile while maintaining the battery terminal voltage greater than or equal to 105 volts for the nominal 125-volt batteries and 210 volts for the nominal 125/250-volt batteries:

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

<u>Division</u>	<u>Battery</u>	<u>LOAD CYCLE (amps)</u>		
		<u>0-1 Min.</u>	<u>1-239 Min.</u>	<u>239-240 Min.</u>
I	1A1	546	168	187
	1A2	449	129	147
II	1B1	889	158	321
	1B2	823	119	282
III	1C	193	31	31
IV	1D	169	21	21

Each 125/250-volt battery is rated at 1500 ampere-hours at an 8-hour discharge rate, based on a terminal voltage of 1.75 volts-per-cell at 77°F.

Each 125-volt battery is rated at 250 ampere-hours at an 8-hour discharge rate, based on a terminal voltage of 1.75 volts-per-cell at 77°F.

- e. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. At this once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test (Specification 4.8.2.1.d).
- f. At least once per 24 months performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

PRIMARY CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All primary containment penetration conductor overcurrent protective devices shown in Table 3.8.4.1-1 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one or more of the above required containment penetration conductor overcurrent devices shown in Table 3.8.4.1-1 inoperable:
 1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping and locking, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and
 2. Declare the affected system or component inoperable, and
 3. Verify at least once per 7 days thereafter the alternate device is tripped and locked, racked out, or removed, or the inoperable device is racked out or removed.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 Each of the primary containment penetration conductor overcurrent protective devices shown in Table 3.8.4.1-1 shall be demonstrated OPERABLE:

- a. At least once per 24 months:
 1. By verifying that the medium voltage 4.16 kV circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers and performing:
 - a) A CHANNEL CALIBRATION of the associated protective relays, and
 - b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and overcurrent control circuits function as designed.
 - c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

SURVEILLANCE REQUIREMENTS (Continued)

2. By selecting and functionally testing a representative sample of at least 10% of each type of the 480 VAC circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the long time delay trip element and 150% of the pickup of the short time delay trip element, and verifying that the circuit breaker operates within the time delay bandwidth for that current specified by the manufacturer. The instantaneous element shall be tested by injecting a current equal to +20% of the pickup value of the element and verifying that the circuit breaker trips instantaneously with no intentional time delay. Molded case circuit breaker testing shall also follow this procedure except that generally no more than two trip elements, time delay and instantaneous, will be involved; and for instantaneous magnetic only breakers the instantaneous element will be tested by injecting a current equal to -20%/+40% of the pickup value of the element. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

- b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection of all Class 1E motor operated valves shall be either:

- a. Continuously bypassed for all valves with maintained position control switches; or,
- b. Bypassed only under accident conditions for all valves with spring-return-to-normal control switches.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves not bypassed continuously or only under accident conditions, as applicable, restore the thermal overload bypass within 8 hours or declare the affected valve(s) inoperable and apply the appropriate ACTION statement(s) for the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2.1 The thermal overload protection for the above required valves which are continuously bypassed and temporarily placed in force only when the valve motor is undergoing periodic or maintenance testing shall be verified to be bypassed following periodic or maintenance testing during which the thermal overload protection was temporarily placed in force.

4.8.4.2.2 At least once per 24 months, a CHANNEL FUNCTIONAL TEST of all those valves which are bypassed only under accident conditions (valves with spring-return-to-normal control switches) shall be performed to verify that the thermal overload protection will be bypassed under accident conditions.

ELECTRICAL POWER SYSTEMS

REACTOR PROTECTION SYSTEM ELECTRICAL POWER MONITORING

LIMITING CONDITION FOR OPERATION

3.8.4.3 Two reactor protection system (RPS) electric power monitoring channels for each inservice RPS Inverter or alternate power supply shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

- a. With one RPS electric power monitoring channel for an inservice RPS Inverter or alternate power supply inoperable, restore the inoperable power monitoring channel to OPERABLE status within 72 hours or remove the associated RPS Inverter or alternate power supply from service.
- b. With both RPS electric power monitoring channels for an inservice RPS Inverter or alternate power supply inoperable, restore at least one electric power monitoring channel to OPERABLE status within 24 hours or remove the associated RPS Inverter or alternate power supply from service.

SURVEILLANCE REQUIREMENTS

4.8.4.3 The above specified RPS electric power monitoring channels shall be determined OPERABLE:

- a. At least once per six months by performance of a CHANNEL FUNCTIONAL TEST.
- b. At least once per 24 months by demonstrating the OPERABILITY of overvoltage, undervoltage, and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic, and output circuit breakers and verifying the following setpoints.
 1. Overvoltage \leq 132 VAC,
 2. Undervoltage \geq 109 VAC,
 3. Underfrequency \geq 57 Hz.

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The same principle applies with regard to the allowable outage time limits of the ACTION requirements, if compliance with the ACTION requirements for one specification results in entry into an OPERATIONAL CONDITION or condition of operation for another specification in which the requirements of the Limiting Condition for Operation are not met. If the new specification becomes applicable in less time than specified, the difference may be added to the allowable outage time limits of the second specification. However, the allowable outage time limits of ACTION requirements for a higher CONDITION of operation may not be used to extend the allowable outage time that is applicable when a Limiting Condition for Operation is not met in a lower CONDITION of operation.

The shutdown requirements of Specification 3.0.3 do not apply in CONDITIONS 4 and 5, because the ACTION requirements of individual specifications define the remedial measures to be taken.

Specification 3.0.4 establishes limitations on a change in OPERATIONAL CONDITIONS when a Limiting Condition for Operation is not met. It precludes placing the facility in a higher CONDITION of operation when the requirements for a Limiting Condition for Operation are not met and continued noncompliance to these conditions would result in a shutdown to comply with the ACTION requirements if a change in CONDITIONS were permitted. The purpose of this specification is to ensure that facility operation is not initiated or that higher CONDITIONS of operation are not entered when corrective action is being taken to obtain compliance with a specification by restoring equipment to OPERABLE status or parameters to specified limits. Compliance with ACTION requirements that permit continued operation of the facility for an unlimited period of time provides an acceptable level of safety for continued operation without regard to the status of the plant before or after a change in OPERATIONAL CONDITIONS. Therefore, in this case, entry into an OPERATIONAL CONDITION or other specified condition may be made in accordance with the provisions of the ACTION requirements. The provisions of this specification should not, however, be interpreted as endorsing the failure to exercise good practice in restoring systems or components to OPERABLE status before plant startup.

When a shutdown is required to comply with ACTION requirements, the provisions of Specification 3.0.4 do not apply because they would delay placing the facility in a lower CONDITION of operation.

Specification 4.0.1 through 4.0.5 establish the general requirements applicable to Surveillance Requirements. These requirements are based on the Surveillance Requirements stated in the Code of Federal Regulations 10 CFR 50.36(c)(3):

"Surveillance requirements are requirements relating to test, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions of operation will be met."

Specification 4.0.1 establishes the requirement that surveillances must be performed during the OPERATIONAL CONDITIONS or other conditions for which the requirements of the Limiting Conditions for Operation apply unless otherwise stated in an individual Surveillance Requirement. The purpose of this specification is to ensure that surveillances are performed to verify the

3/4.0 APPLICABILITY

BASES

operational status of systems and components and that parameters are within specified limits to ensure safe operation of the facility when the plant is in an OPERATIONAL CONDITION or other specified condition for which the individual Limiting Conditions for Operation are applicable. Surveillance Requirements do not have to be performed when the facility is in an OPERATIONAL CONDITION for which the requirements of the associated Limiting Condition for Operation do not apply unless otherwise specified. The Surveillance Requirements associated with a Special Test Exception are only applicable when the Special Test Exception is used as an allowable exception to the requirements of a specification.

Specification 4.0.2 establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillances that are performed at each refueling outage and are specified with an 24-month surveillance interval. It is not intended that this provision be used repeatedly as a convenience to extend the surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. Likewise, it is not the intent that REFUELING INTERVAL surveillances be performed during power operation unless it is consistent with safe plant operation. The limitation of Specification 4.0.2 is based on engineering judgment and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

Specification 4.0.3 establishes the failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by the provisions of Specification 4.0.2, as a condition that constitutes a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation. Under the provisions of this specification, systems and components are assumed to be OPERABLE when Surveillance Requirements have been satisfactorily performed within the specified time interval. However, nothing in this provision is to be construed as implying that systems or components are OPERABLE when they are found or known to be inoperable although still meeting the Surveillance Requirements. This specification also clarifies that the ACTION requirements are applicable when Surveillance Requirements have not been completed within the allowed surveillance interval and that the time limits of the ACTION requirements apply from the point in time it is identified that a surveillance has not been performed and not at the time that the allowed surveillance interval was exceeded. Completion of the Surveillance Requirement within the allowable outage time limits of the ACTION requirements restores compliance with the requirements of Specification 4.0.3. However, this does not negate the fact that the failure to have performed the surveillance within the allowed surveillance interval, defined by the provisions of Specification 4.0.2, was violation of the OPERABILITY requirements of a Limiting Condition for Operation that is subject to enforcement action. Further, the failure to perform a surveillance within the provisions of Specification 4.0.2 constitutes a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation and any reports required by 10 CFR 50.73 shall be determined based on the length of time the surveillance interval has been exceeded, and the corresponding Limiting Conditions for Operation ACTION time requirements.

CONTAINMENT SYSTEMS

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3/4.6.5 SECONDARY CONTAINMENT

Secondary containment is designed to minimize any ground level release of radioactive material which may result from an accident. The Reactor Enclosure and associated structures provide secondary containment during normal operation when the drywell is sealed and in service. At other times the drywell may be open and, when required, secondary containment integrity is specified.

Establishing and maintaining a vacuum in the reactor enclosure secondary containment with the standby gas treatment system once per 24 months, along with the surveillance of the doors, hatches, dampers and valves, is adequate to ensure that there are no violations of the integrity of the secondary containment.

The OPERABILITY of the reactor enclosure recirculation system and the standby gas treatment systems ensures that sufficient iodine removal capability will be available in the event of a LOCA or refueling accident (SGTS only). The reduction in containment iodine inventory reduces the resulting SITE BOUNDARY radiation doses associated with containment leakage. The operation of this system and resultant iodine removal capacity are consistent with the assumptions used in the LOCA and refueling accident analyses. Provisions have been made to continuously purge the filter plenums with instrument air when the filters are not in use to prevent buildup of moisture on the adsorbers and the HEPA filters.

Although the safety analyses assumes that the reactor enclosure secondary containment draw down time will take 135 seconds, these surveillance requirements specify a draw down time of 121 seconds. This 14 second difference is due to the diesel generator starting and sequence loading delays which is not part of this surveillance requirement.

The reactor enclosure secondary containment draw down time analyses assumes a starting point of 0.25 inch of vacuum water gauge and worst case SGTS dirty filter flow rate of 2800 cfm. The surveillance requirements satisfy this assumption by starting the drawdown from ambient conditions and connecting the adjacent reactor enclosure and refueling area to the SGTS to split the exhaust flow between the three zones and verifying a minimum flow rate of 2800 cfm from the test zone. This simulates the worst case flow alignment and verifies adequate flow is available to drawdown the test zone within the required time. The Technical Specification Surveillance Requirement 4.6.5.3.b.3 is intended to be a multi-zone air balance verification without isolating any test zone.

The SGTS fans are sized for three zones and therefore, when aligned to a single zone or two zones, will have excess capacity to more quickly drawdown the affected zones. There is no maximum flow limit to individual zones or pairs of zones and the air balance and drawdown time are verified when all three zones are connected to the SGTS.

The three zone air balance verification and drawdown test will be done after any major system alteration, which is any modification which will have an effect on the SGTS flowrate such that the ability of the SGTS to drawdown the reactor enclosure to greater than or equal to 0.25 inch of vacuum water gage in less than or equal to 121 seconds could be affected.

CONTAINMENT SYSTEMS

BASES

3/4.6.5 SECONDARY CONTAINMENT (Continued)

The field tests for bypass leakage across the SGTS charcoal adsorber and HEPA filter banks are performed at a flow rate of $3000 \pm 10\%$ cfm. This flow rate corresponds to the maximum overall three zone inleakage rate of 3264 cfm.

The SGTS filter train pressure drop is a function of air flow rate and filter conditions. Surveillance testing is performed using either the SGTS or drywell purge fans to provide operating convenience.

Each reactor enclosure secondary containment zone and refueling area secondary containment zone is tested independently to verify the design leak tightness. A design leak tightness of 1250 cfm or less for each reactor enclosure and 764 cfm or less for the refueling area at a 0.25 inch of vacuum water gage will ensure that containment integrity is maintained at an acceptable level if all zones are connected to the SGTS at the same time.

The post-LOCA offsite dose analysis assumes a reactor enclosure secondary containment post-draw down leakage rate of 1250 cfm and certain post-accident X/Q values. While the post-accident X/Q values represent a statistical interpretation of historical meteorological data, the highest ground level wind speed which can be associated with these values is 7 mph (Pasquill-Gifford stability Class G for a ground level release). Therefore, the surveillance requirement assures that the reactor enclosure secondary containment is verified under meteorological conditions consistent with the assumptions utilized in the design basis analysis. Reactor Enclosure Secondary Containment leakage tests that are successfully performed at wind speeds in excess of 7 mph would also satisfy the leak rate surveillance requirements, since it shows compliance with more conservative test conditions.

3/4.6.6 PRIMARY CONTAINMENT ATMOSPHERE CONTROL

The OPERABILITY of the systems required for the detection and control of hydrogen combustible mixtures of hydrogen and oxygen ensures that these systems will be available to maintain the hydrogen concentration within the primary containment below the lower flammability limit during post-LOCA conditions. The primary containment hydrogen recombiner is provided to maintain the oxygen concentration below the lower flammability limit. The combustible gas analyzer is provided to continuously monitor, both during normal operations and post-LOCA, the hydrogen and oxygen concentrations in the primary containment. The primary containment atmospheric mixing system is provided to ensure adequate mixing of the containment atmosphere to prevent localized accumulations of hydrogen and oxygen from exceeding the lower flammability limit. The hydrogen control system is consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least two of the onsite A.C. and the corresponding D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. or D.C. source. At least two onsite A.C. and their corresponding D.C. power sources and distribution systems providing power for at least two ECCS divisions (1 Core Spray loop, 1 LPCI pump and 1 RHR pump in suppression pool cooling) are required for design basis accident mitigation as discussed in FSAR Table 6.3-3. Onsite A.C. operability requirements for common systems such as RHRSW and ESW are addressed in the appropriate system specification action statements.

The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one or more diesel generators are inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components, and devices, that depend on the remaining OPERABLE diesel generators as a source of emergency power, are also OPERABLE. The LPCI mode of the RHR system is considered a four train system, of which only two trains are required. The verification for LPCI is not required until two diesel generators are inoperable. This requirement is intended to provide assurance that a loss-of-offsite power event will not result in a complete loss of safety function of critical systems during the period when one or more of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for extended time periods and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, Regulatory Guide 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979 and Regulatory Guide 1.108,

ELECTRICAL POWER SYSTEMS
BASES

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

"Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977 except for paragraphs C.2.a(3), C.2.c(1), C.2.c(2), C.2.d(3) and C.2.d(4), and the periodic testing will be performed at least once per 24 months. The exceptions to Regulatory Guide 1.108 allow for gradual loading of diesel generators during testing and decreased surveillance test frequencies (in response to Generic Letter 84-15).

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978 and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations," except the test will be performed at least once every 24 months.

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.11 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to 7 days. During this 7-day period: (1) the allowable value for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.



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

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO. 50-353

LIMERICK GENERATING STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 34
License No. NPF-85

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by Philadelphia Electric Company (the licensee) dated September 1, 1992, and October 15, 1992, as supplemented by letters dated October 30, 1992, March 16, 1993, June 10, 1993, July 28, 1993, September 10, 1993, April 29, 1994, June 2, 1994, June 9, 1994, and June 15, 1994, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by 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-85 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 34, are hereby incorporated into this license. Philadelphia Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of 30 days after the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the
Technical Specifications

Date of Issuance: June 28, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 34

FACILITY OPERATING LICENSE NO. NPF-85

DOCKET NO. 50-353

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

<u>Remove</u>	<u>Insert</u>
1-9	1-9
1-10	1-10*
3/4 1-5	3/4 1-5
3/4 1-6	3/4 1-6*
3/4 1-9	3/4 1-9*
3/4 1-10	3/4 1-10
3/4 1-19	3/4 1-19*
3/4 1-20	3/4 1-20
3/4 3-1	3/4 3-1
3/4 3-2	3/4 3-2*
3/4 3-9	3/4 3-9*
3/4 3-10	3/4 3-10
3/4 3-31	3/4 3-31*
3/4 3-32	3/4 3-32
3/4 3-39	3/4 3-39*
3/4 3-40	3/4 3-40
3/4 3-41	3/4 3-41*
3/4 3-42	3/4 3-42
3/4 3-47	3/4 3-47
3/4 3-48	3/4 3-48*
3/4 3-51	3/4 3-51*
3/4 3-52	3/4 3-52
3/4 3-71	3/4 3-71*
3/4 3-72	3/4 3-72
-	-
3/4 3-76	3/4 3-76
3/4 3-87	3/4 3-87*
3/4 3-88	3/4 3-88

NPF-85

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

<u>Remove</u>	<u>Insert</u>
3/4 3-89	3/4 3-89*
3/4 3-90	3/4 3-90
3/4 3-91	3/4 3-91
3/4 3-92	3/4 3-92*
3/4 3-97	3/4 3-97
3/4 3-98	3/4 3-98*
3/4 3-111	3/4 3-111
3/4 3-112	3/4 3-112
3/4 4-1a	3/4 4-1a*
3/4 4-2	3/4 4-2
3/4 4-7	3/4 4-7
3/4 4-8	3/4 4-8
3/4 4-9	3/4 4-9*
3/4 4-10	3/4 4-10
3/4 5-3	3/4 5-3*
3/4 5-4	3/4 5-4
3/4 5-5	3/4 5-5
3/4 5-6	3/4 5-6*
3/4 6-3	3/4 6-3*
3/4 6-4	3/4 6-4
3/4 6-7	3/4 6-7
3/4 6-8	3/4 6-8*
3/4 6-13	3/4 6-13*
3/4 6-14	3/4 6-14
3/4 6-17	3/4 6-17*
3/4 6-18	3/4 6-18
3/4 6-45	3/4 6-45
3/4 6-46	3/4 6-46

NPF-85

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

Remove

Insert

3/4 6-47
3/4 6-48

3/4 6-47
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Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. Overleaf pages are provided to maintain document completeness.*

<u>Remove</u>	<u>Insert</u>
3/4 8-7	3/4 8-7
3/4 8-11	3/4 8-11
3/4 8-12	3/4 8-12
3/4 8-21	3/4 8-21
3/4 8-22	3/4 8-22*
3/4 8-27	3/4 8-27
3/4 8-28	3/4 8-28
B 3/4 0-3	B 3/4 0-3*
B 3/4 0-4	B 3/4 0-4
B 3/4 6-5	B 3/4 6-5
B 3/4 6-6	B 3/4 6-6*
B 3/4 8-1	B 3/4 8-1*
B 3/4 8-2	B 3/4 8-2

TABLE 1.1
SURVEILLANCE FREQUENCY NOTATION

<u>NOTATION</u>	<u>FREQUENCY</u>
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
Q	At least once per 92 days.
SA	At least once per 184 days.
A	At least once per 366 days.
E	At least once per 18 months (550 days).
R (Refueling Interval)	At least once per 24 months (731 days).
S/U	Prior to each reactor startup.
P	Prior to each radioactive release.
N.A.	Not applicable.

DEFINITIONS

TABLE 1.2

OPERATIONAL CONDITIONS

<u>CONDITION</u>	<u>MODE SWITCH POSITION</u>	<u>AVERAGE REACTOR COOLANT TEMPERATURE</u>
1. POWER OPERATION	Run	Any temperature
2. STARTUP	Startup/Hot Standby	Any temperature
3. HOT SHUTDOWN	Shutdown# ***	> 200°F
4. COLD SHUTDOWN	Shutdown# ## ***	≤ 200°F
5. REFUELING*	Shutdown or Refuel** #	≤ 140°F

#The reactor mode switch may be placed in the Run or Startup/Hot Standby position to test the switch interlock functions provided that the control rods are verified to remain fully inserted by a second licensed operator or other technically qualified member of the unit technical staff.

##The reactor mode switch may be placed in the Refuel position while a single control rod drive is being removed from the reactor pressure vessel per Specification 3.9.10.1.

*Fuel in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

**See Special Test Exceptions 3.10.1 and 3.10.3.

***The reactor mode switch may be placed in the Refuel position while a single control rod is being recoupled provided that the one-rod-out interlock is OPERABLE.

SURVEILLANCE REQUIREMENTS (Continued)

4.1.3.1.4 The scram discharge volume shall be determined OPERABLE by demonstrating:

- a. The scram discharge volume drain and vent valves OPERABLE, when control rods are scram tested from a normal control rod configuration of less than or equal to 50% ROD DENSITY at least once per 24 months, by verifying that the drain and vent valves:
 1. Close within 30 seconds after receipt of a signal for control rods to scram, and
 2. Open when the scram signal is reset.
- b. Proper level sensor response by performance of a CHANNEL FUNCTIONAL TEST of the scram discharge volume scram and control rod block level instrumentation at least once per 92 days.

REACTIVITY CONTROL SYSTEMS

CONTROL ROD MAXIMUM SCRAM INSERTION TIMES

LIMITING CONDITION FOR OPERATION

3.1.3.2 The maximum scram insertion time of each control rod from the fully withdrawn position to notch position 5, based on deenergization of the scram pilot valve solenoids as time zero, shall not exceed 7.0 seconds.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With the maximum scram insertion time of one or more control rods exceeding 7 seconds:
 1. Declare the control rod(s) with the slow insertion time inoperable, and
 2. Perform the Surveillance Requirements of Specification 4.1.3.2c. at least once per 60 days when operation is continued with three or more control rods with maximum scram insertion times in excess of 7.0 seconds.

Otherwise, be in at least HOT SHUTDOWN within 12 hours.

- b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.1.3.2 The maximum scram insertion time of the control rods shall be demonstrated through measurement with reactor coolant pressure greater than or equal to 950 psig and, during single control rod scram time tests, the control rod drive pumps isolated from the accumulators:

- a. For all control rods prior to THERMAL POWER exceeding 40% of RATED THERMAL POWER following CORE ALTERATIONS or after a reactor shutdown that is greater than 120 days.
- b. For specifically affected individual control rods following maintenance on or modification to the control rod or control rod drive system which could affect the scram insertion time of those specific control rods, and
- c. For at least 10% of the control rods, on a rotating basis, at least once per 120 days of POWER OPERATION.

REACTIVITY CONTROL SYSTEMS

CONTROL ROD SCRAM ACCUMULATORS

LIMITING CONDITION FOR OPERATION

3.1.3.5 All control rod scram accumulators shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 5*.

ACTION:

- a. In OPERATIONAL CONDITION 1 or 2:
 1. With one control rod scram accumulator inoperable, within 8 hours:
 - a) Restore the inoperable accumulator to OPERABLE status, or
 - b) Declare the control rod associated with the inoperable accumulator inoperable.Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.
 2. With more than one control rod scram accumulator inoperable, declare the associated control rods inoperable and:
 - a) If the control rod associated with any inoperable scram accumulator is withdrawn, immediately verify that at least one control rod drive pump is operating by inserting at least one withdrawn control rod at least one notch. If no control rod drive pump is operating and:
 - 1) If reactor pressure is ≥ 900 psig, then restart at least one control rod drive pump within 20 minutes or place the reactor mode switch in the shutdown position, or
 - 2) If reactor pressure is < 900 psig, then place the reactor mode switch in the Shutdown position.
 - b) Insert the inoperable control rods and disarm the associated control valves either:
 - 1) Electrically, or
 - 2) Hydraulically by closing the drive water and exhaust water isolation valves.Otherwise, be in at least HOT SHUTDOWN within 12 hours.
- b. In OPERATIONAL CONDITION 5*:
 1. With one withdrawn control rod with its associated scram accumulator inoperable, insert the affected control rod and disarm the associated directional control valves within one hour, either:
 - a) Electrically, or
 - b) Hydraulically by closing the drive water and exhaust water isolation valves.

*At least the accumulator associated with each withdrawn control rod. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS

2. With more than one withdrawn control rod with the associated scram accumulator inoperable or no control rod drive pump operating, immediately place the reactor mode switch in the Shutdown position.
 - c. The provisions of Specification 3.0.4 are not applicable.
- 4.1.3.5 Each control rod scram accumulator shall be determined OPERABLE:
- a. At least once per 7 days by verifying that the indicated pressure is greater than or equal to 955 psig unless the control rod is inserted and disarmed or scrambled.
 - b. At least once per 24 months by:
 1. Performance of a:
 - a) CHANNEL FUNCTIONAL TEST of the leak detectors, and
 - b) CHANNEL CALIBRATION of the pressure detectors, and verifying an alarm setpoint of equal to or greater than 955 psig on decreasing pressure.

3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION

3.1.5 The standby liquid control system, consisting of a minimum of two pumps and corresponding flow paths, shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 5*

ACTION:

- a. In OPERATIONAL CONDITION 1 or 2:
 1. With only one pump and corresponding explosive valve OPERABLE, restore one inoperable pump and corresponding explosive valve to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
 2. With the standby liquid control system otherwise inoperable, restore the system to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- b. In OPERATIONAL CONDITION 5*:
 1. With only one pump and corresponding explosive valve OPERABLE, restore one inoperable pump and corresponding explosive valve to OPERABLE status within 30 days or insert all insertable control rods within the next hour.
 2. With the standby liquid control system otherwise inoperable, insert all insertable control rods within 1 hour.

SURVEILLANCE REQUIREMENTS

4.1.5 The standby liquid control system shall be demonstrated OPERABLE:

- a. At least once per 24 hours by verifying that:
 1. The temperature of the sodium pentaborate solution is within the limits of Figure 3.1.5-1.
 2. The available volume of sodium pentaborate solution is at least 4537 gallons.
 3. The temperature of the pump suction piping is greater than or equal to 70°F.

*With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 31 days by:

1. Verifying the continuity of the explosive charge.
2. Determining by chemical analysis and calculation* that the available weight of sodium pentaborate is greater than or equal to 5389 lbs; the concentration of sodium pentaborate in solution is less than or equal to 13.8% and within the limits of Figure 3.1.5-1 and; the following equation is satisfied:

$$\frac{C}{13\% \text{ wt.}} \times \frac{Q}{86 \text{ gpm}} \geq 1$$

where

C = Sodium pentaborate solution (% by weight)

Q = Two pump flowrate, as determined per surveillance requirement 4.1.5.c.

3. Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- c. Demonstrating that, when tested pursuant to Specification 4.0.5, the minimum flow requirement of 41.2 gpm per pump at a pressure of greater than or equal to 1190 psig is met.
- d. At least once per 24 months during shutdown by:

1. Initiating at least one of the standby liquid control system loops, including an explosive valve, and verifying that a flow path from the pumps to the reactor pressure vessel is available by pumping demineralized water into the reactor vessel. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch which has been certified by having one of the batch successfully fired. All injection loops shall be tested in 3 operating cycles.
2. Verify all heat-treated piping between storage tank and pump suction is unblocked.**

*This test shall also be performed anytime water or boron is added to the solution or when the solution temperature drops below 70°F, within 24 hours after water or boron addition or solution temperature is restored.

**This test shall also be performed whenever suction piping temperature drops below 70°F, within 24 hours after solution temperature is restored.

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 12 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 24 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 24 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 24 months where N is the total number of redundant channels in a specific reactor trip system.

*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 6 hours or the ACTION required by Table 3.3.1-1 for that Trip Function shall be taken.

**The trip system need not be placed in the tripped condition if this would cause the Trip Function to occur. When a trip system can be placed in the tripped condition without causing the Trip Function to occur, place the trip system with the most inoperable channels in the tripped condition; if both systems have the same number of inoperable channels, place either trip system in the tripped condition.

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Amendment No. 7
JUL 3 0 1990

TABLE 3.3.1-1
REACTOR PROTECTION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>APPLICABLE OPERATIONAL CONDITIONS</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM (a)</u>	<u>ACTION</u>
1. Intermediate Range Monitors ^(b) :			
a. Neutron Flux - High	2 3, 4 5(c)	3 3 3(d)	1 2 3
b. Inoperative	2 3, 4 5	3 3 3(d)	1 2 3
2. Average Power Range Monitor ^(e) :			
a. Neutron Flux - Upscale, Setdown	2 3 5(c)(1)	2 2 2(d)	1 2 3
b. Neutron Flux - Upscale 1) Flow Biased 2) High Flow Clamped	1 1	2 2	4 4
c. Inoperative	1, 2 3 5(c)(1)	2 2 2(d)	1 2 3
d. Downscale	1(g)	2	4
3. Reactor Vessel Steam Dome Pressure - High	1, 2(f)	2	1
4. Reactor Vessel Water Level - Low, Level 3	1, 2	2	1
5. Main Steam Line Isolation Valve - Closure	1(g)	1/valve	4

INSTRUMENTATION

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 requirements 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 6 hours. If this cannot be accomplished, the ACTION required by Table 3.3.2-1 for the affected trip function shall be taken, or the channel shall be placed in the tripped condition.
- or
2. If placing the inoperable channel(s) in the tripped condition 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,
 - b) 24 hours for trip functions not common* to RPS Instrumentation.

The provisions of Specification 3.0.4 are not applicable.

* Trip functions common to RPS Actuation Instrumentation are shown in Table 4.3.2.1-1.

INSTRUMENTATION

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- 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 1 hour and take the ACTION required by Table 3.3.2-1.

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 operations of all channels shall be performed at least once per 24 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 24 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 24 months, where N is the total number of redundant channels in a specific isolation trip system.

** The trip system need not be placed in the tripped condition if this would cause the Trip Function to occur. When a trip system can be placed in the tripped condition without causing the Trip Function to occur, place the trip system with the most inoperable channels in the tripped condition; if both systems have the same number of inoperable channels, place either trip system in the tripped condition.

TABLE 4.3.2.1- (Continued)
ISOLATION ACTUATION INSTRUMENT SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRE</u>
7. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level Low, Low - Level 2	S	Q	R	1, 2, 3
b. Drywell Pressure ## - High	S	Q	R	1, 2, 3
c.1. Refueling Area Unit 1 Ventilation Exhaust Duct Radiation - High	S	Q	R	*#
2. Refueling Area Unit 2 Ventilation Exhaust Duct Radiation - High	S	Q	R	*#
d. Reactor Enclosure Ventilation Exhaust Duct Radiation - High	S	Q	R	1, 2, 3
e. Outside Atmosphere To Reactor Enclosure Δ Pressure - Low	N.A.	M	Q	1, 2, 3
f. Outside Atmosphere To Refueling Area Δ Pressure - Low	N.A.	M	Q	*
g. Reactor Enclosure Manual Initiation	N.A.	R	N.A.	1, 2, 3
h. Refueling Area Manual Initiation	N.A.	R	N.A.	*

*Required when (1) handling irradiated fuel in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

**When not administratively bypassed and/or when any turbine stop valve is open.

#During operation of the associated Unit 1 or Unit 2 ventilation exhaust system.

##These trip functions (1b, 2a, 6b, and 7b) are common to the RPS actuation trip function.

LIMERICK - UNIT 2

3/4 3-31

Amendment No. 17.32

INSTRUMENTATION

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, take the ACTION required by Table 3.3.3-1.
- c. With either ADS trip system subsystem inoperable, restore the inoperable trip system to OPERABLE status within:
 1. 7 days, provided that the HPCI and RCIC systems are OPERABLE.
 2. 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 100 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 24 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 24 months. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 24 months where N is the total number of redundant channels in a specific ECCS trip system.

TABLE 3.3.3-3

EMERGENCY CORE COOLING SYSTEM RESPONSE TIMES

<u>ECCS</u>	<u>RESPONSE TIME (Seconds)</u>
1. CORE SPRAY SYSTEM	≤ 27
2. LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM	≤ 40
3. AUTOMATIC DEPRESSURIZATION SYSTEM	N.A.
4. HIGH PRESSURE COOLANT INJECTION SYSTEM	≤ 30
5. LOSS OF POWER	N.A.

TABLE 4.3.3.1-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
1. <u>CORE SPRAY SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	Q	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. Reactor Vessel Pressure - Low	S	Q	R	1, 2, 3, 4*, 5*
d. Manual Initiation	N.A.	R	N.A.	1, 2, 3, 4*, 5*
2. <u>LOW PRESSURE COOLANT INJECTION MODE OF RHR SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	Q	R	1, 2, 3, 4*, 5*
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. Reactor Vessel Pressure - Low	S	Q	R	1, 2, 3
d. Injection Valve Differential Pressure - Low (Permissive)	S	Q	R	1, 2, 3, 4*, 5*
e. Manual Initiation	N.A.	R	N.A.	1, 2, 3, 4*, 5*
3. <u>HIGH PRESSURE COOLANT INJECTION SYSTEM***</u>				
a. Reactor Vessel Water Level - Low Low, Level 2	S	Q	R	1, 2, 3
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. Condensate Storage Tank Level - Low	S	Q	R	1, 2, 3
d. Suppression Pool Water Level - High	S	Q	E	1, 2, 3
e. Reactor Vessel Water Level - High, Level 8	S	Q	R	1, 2, 3
f. Manual Initiation	N.A.	R	N.A.	1, 2, 3

TABLE 4.5. 1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>	<u>OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED</u>
4. <u>AUTOMATIC DEPRESSURIZATION SYSTEM</u>				
a. Reactor Vessel Water Level - Low Low Low, Level 1	S	Q	R	1, 2, 3
b. Drywell Pressure - High	S	Q	R	1, 2, 3
c. ADS Timer	N.A.	Q	Q	1, 2, 3
d. Core Spray Pump Discharge Pressure - High	S	Q	R	1, 2, 3
e. RHR LPCI Mode Pump Discharge Pressure - High	S	Q	R	1, 2, 3
f. Reactor Vessel Water Level - Low, Level 3	S	Q	R	1, 2, 3
g. Manual Initiation	N.A.	R	N.A.	1, 2, 3
h. ADS Drywell Pressure Bypass Timer	N.A.	Q	Q	1, 2, 3
5. <u>LOSS OF POWER</u>				
a. 4.16 kV Emergency Bus Under-voltage (Loss of Voltage) 	N.A.	R	N.A.	1, 2, 3, 4**, 5**
b. 4.16 kV Emergency Bus Under-voltage (Degraded Voltage)	S	M	R	1, 2, 3, 4**, 5**

* When the system is required to be OPERABLE per Specification 3.5.2.

** Required OPERABLE when ESF equipment is required to be OPERABLE.

*** Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 200 psig.

† Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

|| Loss of Voltage Relay 127-11X is not field settable.

LIMERICK - UNIT 2

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01/17/17
Amendment No. 17
December 17, 1991

INSTRUMENTATION

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.4.1 The anticipated transient without scram recirculation pump trip (ATWS-RPT) system instrumentation channels shown in Table 3.3.4.1-1 shall be OPERABLE with their trip setpoints set consistent with values shown in the Trip Setpoint column of Table 3.3.4.1-2.

APPLICABILITY: OPERATIONAL CONDITION 1.

ACTION:

- a. With an ATWS recirculation pump trip system instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.4.1-2, declare the channel inoperable until the channel is restored to OPERABLE status with the channel trip setpoint adjusted consistent with the Trip Setpoint value.
- b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels per Trip System requirement for one or both trip systems, place the inoperable channel(s) in the tripped condition within 24 hours.
- c. With the number of OPERABLE channels two or more less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system and:
 1. If the inoperable channels consist of one reactor vessel water level channel and one reactor vessel pressure channel, place both inoperable channels in the tripped condition within 24 hours, or, if this action will initiate a pump trip, declare the trip system inoperable.
 2. If the inoperable channels include two reactor vessel water level channels or two reactor vessel pressure channels, declare the trip system inoperable.
- d. With one trip system inoperable, restore the inoperable trip system to OPERABLE status within 72 hours or be in at least STARTUP within the next 6 hours.
- e. With both trip systems inoperable, restore at least one trip system to OPERABLE status within 1 hour or be in at least STARTUP within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.3.4.1.1 Each ATWS recirculation pump trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.1-1.

4.3.4.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

INSTRUMENTATION

SURVEILLANCE REQUIREMENTS

4.3.4.2.1 Each end-of-cycle recirculation pump trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.2.1-1.

4.3.4.2.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

4.3.4.2.3 The END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME of each trip function shown in Table 3.3.4.2-3 shall be demonstrated to be within its limit at least once per 24 months. Each test shall include at least the logic of one type of channel input, turbine control valve fast closure or turbine stop valve closure, such that both types of channel inputs are tested at least once per 48 months. The measured time shall be added to the most recent breaker arc suppression time and the resulting END-OF-CYCLE-RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME shall be verified to be within its limit.

4.3.4.2.4 The time interval necessary for breaker arc suppression from energization of the recirculation pump circuit breaker trip coil shall be measured at least once per 60 months.

TABLE 3.3.4.2-1

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

<u>TRIP FUNCTION</u>	<u>MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM*</u>
1. Turbine Stop Valve - Closure	2**
2. Turbine Control Valve-Fast Closure	2**

* A trip system may be placed in an inoperable status for up to 6 hours for required surveillance provided that the other trip system is OPERABLE.

** This function shall be automatically bypassed when turbine first stage pressure is equivalent to THERMAL POWER LESS than 30% of RATED THERMAL POWER.

TABLE 4.3.4.2.1-1

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM SURVEILLANCE REQUIREMENTS

<u>TRIP FUNCTION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Turbine Stop Valve-Closure	Q*	R
2. Turbine Control Valve-Fast Closure	Q*	R

* Including trip system logic testing.

INSTRUMENTATION

3/4.3.5 REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.5 The reactor core isolation cooling (RCIC) system actuation instrumentation channels shown in Table 3.3.5-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.5-2.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3 with reactor steam dome pressure greater than 150 psig.

ACTION:

- a. With a RCIC system actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.5-2, 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 RCIC system actuation instrumentation channels inoperable, take the ACTION required by Table 3.3.5-1.

SURVEILLANCE REQUIREMENTS

4.3.5.1 Each RCIC system actuation instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.5.1-1.

4.3.5.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

TABLE 4.3.7.2-1

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
1. Triaxial Time-History Accelerographs (T/A's)			
a. Sensors			
1) XE-VA-102 Primary Containment Foundation (Loc. 109-R15-177)	N.A.	SA	R
2) XE-VA-103 Containment Structure (Diaphragm Slab)	N.A.	SA	R
3) XE-VA-104 Reactor Enclosure Foundation (Loc. 111-R11-177)	N.A.	SA	R
4) XE-VA-105 Reactor Piping Support (Mn. Stm. Line 'D,' El 313', in containment)	N.A.	SA	R
5) XE-VA-106 Outside Containment on Seismic Category I Equipment, (RHR Heat Exchanger, Loc. 102-R15-177)	N.A.	SA	R
6) XRSB-VA-107* Foundation of an Independent Seismic Category I Structure (Spray Pond Pump House, El 237')	N.A.	SA	R
b. Recorders (Panel 00C693)			
1) XR-VA-102 for XE-VA-102	N.A.	SA	R
2) XR-VA-103 for XE-VA-103	N.A.	SA	R
3) XR-VA-104 for XE-VA-104	N.A.	SA	R
4) XR-VA-105 for XE-VA-105	N.A.	SA	R
5) XR-VA-106 for XE-VA-106	N.A.	SA	R

*Includes sensor, trigger, recorder, and backup power supply.

TABLE 4.3.7.2-1 (Continued)

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENTS AND SENSOR LOCATIONS</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL CALIBRATION</u>
c. Triaxial Seismic Trigger (S/T)			
1) XSH-VA-001 (Activates Items 1.b.1) thru 5) above)	N.A.	SA	R
2. Triaxial Peak Recording Accelerograph (P/A's)			
a. XR-VA-151 Reactor Equipment (Top of reactor vessel head)	N.A.	N.A.	R
b. XR-VA-152 Reactor Piping (Mn. Stm. Line 'D,' El 313', in containment)	N.A.	N.A.	R
c. XR-VA-153 Reactor Equipment Outside Containment (RHR Heat Exchanger, Loc. 203-R15-201)	N.A.	N.A.	R
3. Triaxial Seismic Switches			
a. XSHH-VA-001 Primary Containment Foundation (Loc. 118-R16-177)	N.A.	SA	R
4. Triaxial Response Spectrum Analyzer (RSA)	N.A.	SA	R

INSTRUMENTATION

REMOTE SHUTDOWN SYSTEM INSTRUMENTATION AND CONTROLS

LIMITING CONDITION FOR OPERATION

3.3.7.4 The remote shutdown system instrumentation and controls shown in Table 3.3.7.4-1 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With the number of OPERABLE remote shutdown system instrumentation channels less than required by Table 3.3.7.4-1, restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
- b. With the number of OPERABLE remote shutdown system controls less than required in Table 3.3.7.4-1, restore the inoperable control(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.4.1 Each of the above required remote shutdown monitoring instrumentation channels shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.7.4-1.

4.3.7.4.2 Each of the above remote shutdown control switch(es) and control circuits shall be demonstrated OPERABLE by verifying its capability to perform its intended function(s) at least once per 24 months.

TABLE 4.3.7.5-1

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>
1. Reactor Vessel Pressure	M	R
2. Reactor Vessel Water Level	M	R
3. Suppression Chamber Water Level	M	R
4. Suppression Chamber Water Temperature	M	R
5. Suppression Chamber Air Temperature	M	R
6. Primary Containment Pressure	M	R
7. Drywell Air Temperature	M	R
8. Drywell Oxygen Concentration Analyzer	M	Q [#]
9. Drywell Hydrogen Concentration Analyzer	M	Q*
10. Safety/Relief Valve Position Indicators	M	R
11. Primary Containment Post LOCA Radiation Monitors	M	R**
12. North Stack Wide Range Accident Monitor***	M	R
13. Neutron Flux	M	R

*Using calibration gas containing:

- Zero volume percent hydrogen, balance nitrogen.
- Five volume percent hydrogen, balance nitrogen.

**CHANNEL CALIBRATION shall consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/h and a one point calibration check of the detector below 10 R/h with an installed or portable gamma source.

***High range noble gas monitors.

#Using calibration gas containing:

- Zero volume percent oxygen, balance nitrogen.
- Five volume percent oxygen, balance nitrogen.

INSTRUMENTATION

SOURCE RANGE MONITORS

LIMITING CONDITION FOR OPERATION

3.3.7.6 At least the following source range monitor channels shall be OPERABLE:

- a. In OPERATIONAL CONDITION 2*, three.
- b. In OPERATIONAL CONDITION 3 and 4, two.

APPLICABILITY: OPERATIONAL CONDITIONS 2*#, 3, and 4.

ACTION:

- a. In OPERATIONAL CONDITION 2* with one of the above required source range monitor channels inoperable, restore at least three source range monitor channels to OPERABLE status within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours.
- b. In OPERATIONAL CONDITION 3 or 4 with one or more of the above required source range monitor channels inoperable, verify all insertable control rods to be inserted in the core and lock the reactor mode switch in the Shutdown position within 1 hour.

SURVEILLANCE REQUIREMENTS

4.3.7.6 Each of the above required source range monitor channels shall be demonstrated OPERABLE by:

- a. Performance of a:
 1. CHANNEL CHECK at least once per:
 - a) 12 hours in CONDITION 2*, and
 - b) 24 hours in CONDITION 3 or 4.
 2. CHANNEL CALIBRATION** at least once per 24 months.
- b. Performance of a CHANNEL FUNCTIONAL TEST:
 1. Within 24 hours prior to moving the reactor mode switch from the Shutdown position, if not performed within the previous 7 days, and
 2. At least once per 31 days.
- c. Verifying, prior to withdrawal of control rods, that the SRM count rate is at least 3.0 cps*** with the detector fully inserted.#

*With IRM's on range 2 or below.

**Neutron detectors may be excluded from CHANNEL CALIBRATION.

***May be reduced, provided the source range monitor has an observed count rate and signal-to-noise ratio on or above the curve shown in Figure 3.3.6-1.

#During initial startup test program, SRM detectors may be partially withdrawn prior to IRM on-scale indication provided that the SRM channels remain on scale above 100 cps and respond to changes in the neutron flux.

INSTRUMENTATION

TRAVERSING IN-CORE PROBE SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.7 The traversing in-core probe system shall be OPERABLE with:

- a. Five movable detectors, drives and readout equipment to map the core, and
- b. Indexing equipment to allow all five detectors to be calibrated in a common location.

APPLICABILITY: When the traversing in-core probe is used for:

- a. Recalibration of the LPRM detectors, and
- b.* Monitoring the APLHGR, LHGR, MCPR, or MFLPD.

ACTION:

With the traversing in-core probe system inoperable, suspend use of the system for the above applicable monitoring or calibration functions. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.7 The traversing in-core probe system shall be demonstrated OPERABLE by normalizing each of the above required detector outputs within 72 hours prior to use for the LPRM calibration function.

*Only the detector(s) in the required measurement location(s) are required to be OPERABLE.

INSTRUMENTATION

CHLORINE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8.1 Two independent chlorine detection system subsystems shall be OPERABLE with their alarm and trip setpoints adjusted to actuate at a chlorine concentration of less than or equal to 0.5 ppm

APPLICABILITY: All OPERATIONAL CONDITIONS.

ACTION:

- a. With one chlorine detection subsystem inoperable, restore the inoperable detection system to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.
- b. With both chlorine detection subsystems inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.1 Each of the above required chlorine detection system subsystems shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 12 hours,
- b. CHANNEL FUNCTIONAL TEST at least once per 92 days, and
- c. CHANNEL CALIBRATION at least once per 24 months.

INSTRUMENTATION

TOXIC GAS DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.8.2 Two independent toxic gas detection system subsystems shall be OPERABLE with their alarm setpoints adjusted to actuate at a toxic gas concentration of less than or equal to:

<u>CHEMICAL</u>	<u>MONITOR SET POINT (ppm)</u>
Ammonia	25
Ethylene Oxide	50
Formaldehyde	5
Vinyl Chloride	10
Phosgene	0.4

APPLICABILITY: ALL OPERATIONAL CONDITIONS.

ACTION:

- a. With one toxic gas detection subsystem inoperable, restore the inoperable detection system to OPERABLE status within 7 days or, within the next 6 hours, initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.
- b. With both toxic gas detection subsystems inoperable, within 1 hour initiate and maintain operation of at least one control room emergency filtration system subsystem in the chlorine isolation mode of operation.

SURVEILLANCE REQUIREMENTS

4.3.7.8.2 Each of the above required toxic gas detection system subsystems shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 12 hours,
- b. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- c. CHANNEL CALIBRATION at least once per 24 months.

INSTRUMENTATION

FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.7.9 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3.7.9-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

ACTION:

- a. With the number of OPERABLE fire detection instruments in one or more zones:
 1. Less than, but more than one-half of, the Total Number of Instruments shown in Table 3.3.7.9-1 for Function A, restore the inoperable Function A instrument(s) to OPERABLE status within 14 days or within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside an inaccessible zone, then inspect the area surrounding the inaccessible zone at least once per hour.
 2. One less than the Total Number of Instruments shown in Table 3.3.7.9-1 for Function B, or one-half or less of the Total Number of Instruments shown in Table 3.3.7.9-1 for Function A, or with any two or more adjacent instruments inoperable, within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside an inaccessible zone, then inspect the area surrounding the inaccessible zone at least once per hour.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.9.1 The above required fire detection instruments which are accessible during unit operation shall be demonstrated OPERABLE:

- a. For smoke detectors, at least once per 12 months by performance of a CHANNEL FUNCTIONAL TEST.
- b. For heat detectors, at least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST on one or more detectors in each signal-initiation circuit. Detectors shall be selected such that different detectors are tested in each test. All detectors shall be tested at least once per 5 years.

INSTRUMENTATION

LOOSE-PART DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.7.10 The loose-part detection system shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

- a. With one or more loose-part detection system channels inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.10 Each channel of the loose-part detection system shall be demonstrated OPERABLE by performance of a:

- a. CHANNEL CHECK at least once per 24 hours,
- b. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- c. CHANNEL CALIBRATION at least once per 24 months.

Section 3.3.7.11 (Deleted)

THE INFORMATION FROM THIS TECHNICAL
SPECIFICATIONS SECTION HAS BEEN
RELOCATED TO THE ODCM. TECHNICAL
SPECIFICATIONS PAGES 3/4 3-99 THROUGH
3/4 3-102 OF THIS SECTION HAVE
BEEN INTENTIONALLY OMITTED.

INSTRUMENTATION

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 31 days by:
 - 1. Cycling each of the following valves through at least one complete cycle from the running position:
 - a) For the overspeed protection control system;
 - 1) Four high pressure turbine control valves
 - b) For the electrical overspeed trip system and the mechanical overspeed trip system;
 - 1) Four high pressure turbine control valves
- c. At least once per 24 months by performance of a CHANNEL CALIBRATION of the turbine overspeed protection instrumentation.
- d. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of all valve seats, disks and stems and verifying no unacceptable flaws or excessive corrosion. If unacceptable flaws or excessive corrosion are found, all other valves of that type shall be inspected.

INSTRUMENTATION

3/4.3.9 FEEDWATER/MAIN TURBINE TRIP SYSTEM ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.9 The feedwater/main turbine trip system actuation instrumentation channels shown in the Table 3.3.9-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.9-2.

APPLICABILITY: As shown in Table 3.3.9-1.

ACTION:

- a. With a feedwater/main turbine trip system actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.9-2, declare the channel inoperable and either place the inoperable channel in the tripped condition until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value, or declare the associated system inoperable.
- b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels requirement, restore the inoperable channel to OPERABLE status within 7 days or be in at least STARTUP within the next 6 hours.
- c. With the number of OPERABLE channels two less than required by the Minimum OPERABLE Channels requirement, restore at least one of the inoperable channels to OPERABLE status within 72 hours or be in at least STARTUP within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.3.9.1 Each feedwater/main turbine trip system 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 4.3.9.1-1.

4.3.9.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 24 months.

* A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the trip system in the tripped condition.

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

2. With 6 hours:

Reduce the average power range monitor (APRM) scram and rod block, and rod block monitor Trip Setpoints and Allowable Values, to those applicable for single recirculation loop operation per Specifications 2.2.1, 3.2.2, and 3.3.6, or declare the associated channel(s) inoperable and take the actions required by the referenced specifications, and,
 3. The provisions of Specification 3.0.4 are not applicable.
 4. Otherwise be in at least HOT SHUTDOWN within the next 12 hours.
- b. With no reactor coolant system recirculation loops in operation, immediately initiate action to reduce THERMAL POWER such that it is not within the restricted zone of Figure 3.4.1.1-1 within 2 hours, and initiate measures to place the unit in at least STARTUP within 6 hours and in HOT SHUTDOWN within the next 6 hours.
 - c. With one or two reactor coolant system recirculation loops in operation and total core flow less than 45% but greater than 39% of rated core flow and THERMAL POWER within the restricted zone of Figure 3.4.1.1-1:
 1. Determine the APRM and LPRM** noise levels (Surveillance 4.4.1.1.3):
 - a. At least once per 8 hours, and
 - b. Within 30 minutes after the completion of a THERMAL POWER increase of at least 5% of RATED THERMAL POWER.
 2. With the APRM or LPRM** neutron flux noise levels greater than three times their established baseline noise levels, within 15 minutes initiate corrective action to restore the noise levels within the required limits within 2 hours by increasing core flow or by reducing THERMAL POWER.
 - d. With one or two reactor coolant system recirculation loops in operation and total core flow less than or equal to 39% and THERMAL POWER within the restricted zone of Figure 3.4.1.1-1, within 15 minutes initiate corrective action to reduce THERMAL POWER to within the unrestricted zone of Figure 3.4.1.1-1 or increase core flow to greater than 39% within 4 hours.

**Detector levels A and C of one LPRM string per core octant plus detectors A and C of one LPRM string in the center of the core should be monitored.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.1.1.1 Each pump discharge valve shall be demonstrated OPERABLE by cycling each valve through at least one complete cycle of full travel during each startup* prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER.

4.4.1.1.2 Each pump MG set scoop tube mechanical and electrical stop shall be demonstrated OPERABLE with overspeed setpoints less than or equal to 109% and 107%, respectively, of rated core flow, at least once per 24 months.

4.4.1.1.3 Establish a baseline APRM and LPRM** neutron flux noise value within the regions for which monitoring is required (Specification 3.4.1.1, ACTION c) within 2 hours of entering the region for which monitoring is required unless baselining has previously been performed in the region since the last refueling outage.

4.4.1.1.4 With one reactor coolant system recirculation loop not in operation, at least once per 12 hours verify that:

- a. Reactor THERMAL POWER is \leq 70% of RATED THERMAL POWER,
- b. The recirculation flow control system is in the Local Manual mode, and
- c. The speed of the operating recirculation pump is \leq 90% of rated pump speed.
- d. Core flow is greater than 39% when THERMAL POWER is within the restricted zone of Figure 3.4.1.1-1.

4.4.1.1.5 With one reactor coolant system recirculation loop not in operation, within 15 minutes prior to either THERMAL POWER increase or recirculation loop flow increase, verify that the following differential temperature requirements are met if THERMAL POWER is \leq 30% of RATED THERMAL POWER or the recirculation loop flow in the operating recirculation loop is \leq 50% of rated loop flow:

- a. \leq 145°F between reactor vessel steam space coolant and bottom head drain line coolant,
- b. \leq 50°F between the reactor coolant within the loop not in operation and the coolant in the reactor pressure vessel, and
- c. \leq 50°F between the reactor coolant within the loop not in operation and the operating loop.

The differential temperature requirements of Specification 4.4.1.1.5b. and c. do not apply when the loop not in operation is isolated from the reactor pressure vessel.

*If not performed within the previous 31 days.

**Detector levels A and C of one LPRM string per core octant plus detectors A and C of one LPRM string in the center of the core should be monitored.

REACTOR COOLANT SYSTEM

3/4.4.2 SAFETY/RELIEF VALVES

LIMITING CONDITION FOR OPERATION

3.4.2 The safety valve function of at least 11 of the following reactor coolant system safety/relief valves shall be OPERABLE with the specified code safety valve function lift settings:*

- 4 safety/relief valves @ 1130 psig \pm 1%
- 5 safety/relief valves @ 1140 psig \pm 1%
- 5 safety/relief valves @ 1150 psig \pm 1%

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With the safety valve function of one or more of the above required safety/relief valves inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- b. With one or more safety/relief valves stuck open, provided that suppression pool average water temperature is less than 105°F, close the stuck open safety/relief valve(s); if unable to close the stuck open valve(s) within 2 minutes or if suppression pool average water temperature is 110°F or greater, place the reactor mode switch in the Shutdown position.
- c. With one or more safety/relief valve acoustic monitors inoperable, restore the inoperable acoustic monitors to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.2.1 The acoustic monitor for each safety/relief valve shall be demonstrated OPERABLE with the setpoint verified to be 0.20 of the full open noise level** by performance of a:

- a. CHANNEL FUNCTIONAL TEST at least once per 92 days, and a
- b. CHANNEL CALIBRATION at least once per 24 months**.

4.4.2.2 At least 1/2 of the safety relief valves shall be removed, set pressure tested and reinstalled or replaced with spares that have been previously set pressure tested and stored in accordance with manufacturer's recommendations at least once per 24 months, and they shall be rotated such that all 14 safety relief valves are removed, set pressure tested and reinstalled or replaced with spares that have been previously set pressure tested and stored in accordance with manufacturer's recommendations at least once per 54 months.

* The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures.

** The provisions of Specification 4.0.4 are not applicable provided the Surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test.

Up to 2 inoperable valves may be replaced with spare OPERABLE valves with lower setpoints until the next refueling.

Initial setting shall be in accordance with the manufacturer's recommendation. Adjustment to the valve full open noise level shall be accomplished during the startup test program.

REACTOR COOLANT SYSTEM

3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.3.1 The following reactor coolant system leakage detection systems shall be OPERABLE:

- a. The primary containment atmosphere gaseous radioactivity monitoring system,
- b. The drywell floor drain sump and drywell equipment drain tank flow monitoring system,
- c. The drywell unit coolers condensate flow rate monitoring system, and
- d. The primary containment pressure and temperature monitoring system.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.*

ACTION:

With only three of the above required leakage detection systems OPERABLE, operation may be continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours when the required gaseous radioactive monitoring system, primary containment pressure and temperature monitoring system and/or the drywell unit coolers condensate flow rate monitoring system is inoperable; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.3.1 The reactor coolant system leakage detection systems shall be demonstrated operable by:

- a. Primary containment atmosphere gaseous radioactivity monitoring systems-performance of a CHANNEL CHECK at least once per 12 hours, a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 24 months.
- b. The primary containment pressure shall be monitored at least once per 12 hours and the primary containment temperature shall be monitored at least once per 24 hours.
- c. Drywell floor drain sump and Drywell equipment drain tank flow monitoring system-performance of a CHANNEL FUNCTIONAL TEST, at least once per 31 days and a CHANNEL CALIBRATION TEST at least once per 24 months.
- D. Drywell unit coolers condensate flow rate monitoring system-performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 24 months.

*The primary containment atmosphere gaseous radioactivity monitor is not required to be OPERABLE until OPERATIONAL CONDITION 2.

OPERATIONAL LEAKAGE

LIMITING CONDITION FOR OPERATION

3.4.3.2 Reactor coolant system leakage shall be limited to:

- a. No PRESSURE BOUNDARY LEAKAGE.
- b. 5 gpm UNIDENTIFIED LEAKAGE.
- c. 30 gpm total leakage.
- d. 25 gpm total leakage averaged over any 24-hour period.
- e. 1 gpm leakage at a reactor coolant system pressure of 950 +10 psig from any reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1.
- f. 2 gpm increase in UNIDENTIFIED LEAKAGE over a 24-hour period.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
- b. With any reactor coolant system leakage greater than the limits in b, c and/or d above, reduce the leakage rate to within the limits within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- c. With any reactor coolant system pressure isolation valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least one other closed manual, deactivated automatic, or check* valves, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- d. With one or more of the high/low pressure interface valve leakage pressure monitors shown in Table 3.4.3.2-1 inoperable, restore the inoperable monitor(s) to OPERABLE status within 7 days or verify the pressure to be less than the alarm setpoint at least once per 12 hours; restore the inoperable monitor(s) to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- e. With any reactor coolant system leakage greater than the limit in f above, identify the source of leakage within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

* Which have been verified not to exceed the allowable leakage limit at the last refueling outage or after the last time the valve was disturbed, whichever is more recent.

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

4.4.3.2.1 The reactor coolant system leakage shall be demonstrated to be within each of the above limits by:

- a. Monitoring the primary containment atmospheric gaseous radioactivity at least once per 12 hours (not a means of quantifying leakage),
- b. Monitoring the drywell floor drain sump and drywell equipment drain tank flow rate at least once per eight (8) hours,
- c. Monitoring the drywell unit coolers condensate flow rate at least once per 12 hours,
- d. Monitoring the primary containment pressure at least once per 12 hours (not a means of quantifying leakage),
- e. Monitoring the reactor vessel head flange leak detection system at least once per 24 hours, and
- f. Monitoring the primary containment temperature at least once per 24 hours (not a means of quantifying leakage).

4.4.3.2.2 Each reactor coolant system pressure isolation valve specified in Table 3.4.3.2-1 shall be demonstrated OPERABLE by leak testing pursuant to Specification 4.0.5 and verifying the leakage of each valve to be within the specified limit:

- a. At least once per 24 months, and
- b. Prior to returning the valve to service following maintenance, repair or replacement work on the valve which could affect its leakage rate.

The provisions of Specification 4.0.4 are not applicable for entry into OPERATIONAL CONDITION 3.

4.4.3.2.3 The high/low pressure interface valve leakage pressure monitors shall be demonstrated OPERABLE with alarm setpoints set less than the allowable values in Table 3.4.3.2-1 by performance of a:

- a. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
- b. CHANNEL CALIBRATION at least once per 24 months.

EMERGENCY CORE COOLING SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- d. For the ADS:
 - 1. With one of the above required ADS valves inoperable, provided the HPCI system, the CSS and the LPCI system are OPERABLE, restore the inoperable ADS valve to OPERABLE status within 14 days or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to ≤ 100 psig within the next 24 hours.
 - 2. With two or more of the above required ADS valves inoperable, be in at least HOT SHUTDOWN within 12 hours and reduce reactor steam dome pressure to ≤ 100 psig within the next 24 hours.
- e. With a CSS and/or LPCI header ΔP instrumentation channel inoperable, restore the inoperable channel to OPERABLE status within 72 hours or determine the ECCS header ΔP locally at least once per 12 hours; otherwise, declare the associated CSS and/or LPCI, as applicable, inoperable.
- f. In the event an ECCS system is actuated and injects water into the reactor coolant system, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date. The current value of the usage factor for each affected safety injection nozzle shall be provided in this Special Report whenever its value exceeds 0.70.

EMERGENCY CORE COOLING SYSTEMS
SURVEILLANCE REQUIREMENTS

4.5.1 The emergency core cooling systems shall be demonstrated OPERABLE by:

- a. At least once per 31 days:
 1. For the CSS, the LPCI system, and the HPCI system:
 - a) Verifying by venting at the high point vents that the system piping from the pump discharge valve to the system isolation valve is filled with water.
 - b) Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct* position.
 2. For the LPCI system, verifying that both LPCI system subsystem cross-tie valves (HV-51-282 A, B) are closed with power removed from the valve operators.
 3. For the HPCI system, verifying that the HPCI pump flow controller is in the correct position.
 4. For the CSS and LPCI system, performance of a CHANNEL FUNCTIONAL TEST of the injection header ΔP instrumentation.
- b. Verifying that, when tested pursuant to Specification 4.0.5:
 1. Each CSS pump in each subsystem develops a flow of at least 3175 gpm against a test line pressure corresponding to a reactor vessel to primary containment differential pressure of ≥ 105 psid plus head and line losses.
 2. Each LPCI pump in each subsystem develops a flow of at least 10,000 gpm against a test line pressure corresponding to a reactor vessel to primary containment differential pressure of ≥ 20 psid plus head and line losses.
 3. The HPCI pump develops a flow of at least 5600 gpm against a test line pressure which corresponds to a reactor vessel pressure of 1000 psig plus head and line losses when steam is being supplied to the turbine at 1000, +20, -80 psig.**
- c. At least once per 24 months:
 1. For the CSS, the LPCI system, and the HPCI system, performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded from this test.

*Except that an automatic valve capable of automatic return to its ECCS position when an ECCS signal is present may be in position for another mode of operation.

**The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test. If OPERABILITY is not successfully demonstrated within the 12-hour period, reduce reactor steam dome pressure to less than 200 psig within the following 72-hours.

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. For the HPCI system, verifying that:
 - a) The system develops a flow of at least 5600 gpm against a test line pressure corresponding to a reactor vessel pressure of ≥ 200 psig plus head and line losses, when steam is being supplied to the turbine at $200 + 15, - 0$ psig.**
 - b) The suction is automatically transferred from the condensate storage tank to the suppression chamber on a condensate storage tank water level - low signal and on a suppression chamber water level - high signal.
 3. Performing a CHANNEL CALIBRATION of the CSS, LPCI, and HPCI system discharge line "keep filled" alarm instrumentation.
 4. Performing a CHANNEL CALIBRATION of the CSS header ΔP instrumentation and verifying the setpoint to be \leq the allowable value of 4.4 psid.
 5. Performing a CHANNEL CALIBRATION of the LPCI header ΔP instrumentation and verifying the setpoint to be \leq the allowable value of 3.0 psid.
- d. For the ADS:
1. At least once per 31 days, performing a CHANNEL FUNCTIONAL TEST of the accumulator backup compressed gas system low pressure alarm system.
 2. At least once per 24 months:
 - a) Performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence, but excluding actual valve actuation.
 - b) Manually opening each ADS valve when the reactor steam dome pressure is greater than or equal to 100 psig** and observing that either:
 - 1) The control valve or bypass valve position responds accordingly, or
 - 2) There is a corresponding change in the measured steam flow.
 - c) Performing a CHANNEL CALIBRATION of the accumulator backup compressed gas system low pressure alarm system and verifying an alarm setpoint of 90 ± 2 psig on decreasing pressure.

** The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test. If ADS or HPCI OPERABILITY is not successfully demonstrated within the 12-hour period, reduce reactor steam dome pressure to less than 100 psig or 200 psig, respectfully, within the following 72 hours.

EMERGENCY CORE COOLING SYSTEMS

3/4 5.2 ECCS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.5.2 At least two of the following shall be OPERABLE:

- a. Core spray system (CSS) subsystems with a subsystem comprised of:
 1. Two OPERABLE CSS pumps, and
 2. An OPERABLE flow path capable of taking suction from at least one of the following water sources and transferring the water through the spray sparger to the reactor vessel:
 - a) From the suppression chamber, or
 - b) When the suppression chamber water level is less than the limit or is drained, from the condensate storage tank containing at least 135,000 available gallons of water, equivalent to a level of 29 feet.
- b. Low pressure coolant injection (LPCI) system subsystems with a subsystem comprised of:
 1. One OPERABLE LPCI pump, and
 2. An OPERABLE flow path capable of taking suction from the suppression chamber and transferring the water to the reactor vessel.

APPLICABILITY: OPERATIONAL CONDITIONS 4 and 5*.

ACTION:

- a. With one of the above required subsystems inoperable, restore at least two subsystems to OPERABLE status within 4 hours or suspend all operations with a potential for draining the reactor vessel.
- b. With both of the above required subsystems inoperable, suspend CORE ALTERATIONS and all operations with a potential for draining the reactor vessel. Restore at least one subsystem to OPERABLE status within 4 hours or establish SECONDARY CONTAINMENT INTEGRITY within the next 8 hours.

*The ECCS is not required to be OPERABLE provided that the reactor vessel head is removed, the cavity is flooded, the spent fuel pool gates are removed, and water level is maintained within the limits of Specifications 3.9.8 and 3.9.9.

CONTAINMENT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

- b. The combined leakage rate for all penetrations and all valves listed in Table 3.6.3-1, except for main steam line isolation valves* and valves which are hydrostatically tested per Table 3.6.3-1, subject to Type B and C tests to less than or equal to $0.60 L_a$, and
- c. The leakage rate to less than or equal to 11.5 scf per hour for any one main steam line through the isolation valves, and
- d. The combined leakage rate for all containment isolation valves in hydrostatically tested lines which penetrate the primary containment to less than or equal to 1 gpm times the total number of such valves, prior to increasing reactor coolant system temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.1.2 The primary containment leakage rates shall be demonstrated at the following test schedule and shall be determined in conformance with the criteria specified in Appendix J of 10 CFR Part 50 using the methods and provisions of ANSI 45.4-1972 and BN-TOP-1 and verifying the result by the Mass Point Methodology described in ANSI N56.8-1981:

- a. Three Type A Overall Integrated Containment Leakage Rate tests shall be conducted at 40 ± 10 month intervals during shutdown at P_a , 44.0 psig, during each 10-year service period. The third test of each set shall be conducted during the shutdown for the 10-year plant inservice inspection.
- b. If any periodic Type A test fails to meet $0.75 L_a$, the test schedule for subsequent Type A tests shall be reviewed and approved by the Commission. If two consecutive Type A tests fail to meet $0.75 L_a$, a Type A test shall be performed at least every 18 months until two consecutive Type A tests meet $0.75 L_a$, at which time the above test schedule may be resumed.
- c. The accuracy of each Type A test shall be verified by a supplemental test which:
 1. Confirms the accuracy of the test by verifying that the difference between the supplemental data and the Type A test data is within $0.25 L_a$. The formula to be used is: $[L_o + L_{am} - 0.25 L_a] \leq L_c \leq [L_o + L_{am} + 0.25 L_a]$ where L_c = supplemental test result; L_o = superimposed leakage; L_{am} = measured Type A leakage.
 2. Has duration sufficient to establish accurately the change in leakage rate between the Type A test and the supplemental test.
 3. Requires the quantity of gas injected into the containment or bled from the containment during the supplemental test to be between $0.75 L_a$ and $1.25 L_a$.

*Exemption to Appendix "J" to 10 CFR Part 50.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. Type B and C tests shall be conducted with gas at P_a , 44.0 psig*, at intervals no greater than 24 months except for tests involving:
 - 1. Air locks,
 - 2. Main steam line isolation valves,
 - 3. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment, and
- e. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.6.1.3.
- f. Main steam line isolation valves shall be leak tested at least once per 24 months, not to exceed the requirements of 10CFR50, Appendix J.
- g. Containment isolation valves in hydrostatically tested lines which penetrate the primary containment shall be leak tested at least once per 24 months, not to exceed the requirements of 10CFR50, Appendix J.
- h. The provisions of Specification 4.0.2 are not applicable to Specifications 4.6.1.2a., 4.6.1.2b., 4.6.1.2c., 4.6.1.2d., and 4.6.1.2e.

*Unless a hydrostatic test is required per Table 3.6.3-1.

CONTAINMENT SYSTEMS

MSIV LEAKAGE CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.4 Two independent MSIV leakage control system (LCS) subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With one MSIV leakage control system subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.4 Each MSIV leakage control system subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Starting the blower(s) from the control room and operating the blower(s) for at least 15 minutes.
 2. Energizing the heaters and verifying a temperature rise indicating heater operation on downstream piping.
- b. During each COLD SHUTDOWN, if not performed within the previous 92 days, by cycling each motor operated valve through at least one complete cycle of full travel.
- c. At least once per 24 months by:
 1. Performance of a functional test which includes simulated actuation of the subsystem throughout its operating sequence, and verifying that each interlock and timer operates as designed, each automatic valve actuates to its correct position and the blower starts.
 2. Verifying that the blower(s) develops at least the below required vacuum at the rated capacity:
 - a) Inboard valves, 15" H₂O at 100 scfm.
 - b) Outboard valves, 15" H₂O at 200 scfm.
- d. By verifying the operating instrumentation to be OPERABLE by performance of a:
 1. CHANNEL CHECK at least once per 24 hours,
 2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
 3. CHANNEL CALIBRATION at least once per 24 months.

CONTAINMENT SYSTEMS

PRIMARY CONTAINMENT STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.5 The structural integrity of the primary containment shall be maintained at a level consistent with the acceptance criteria in Specification 4.6.1.5.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With the structural integrity of the primary containment not conforming to the above requirements, restore the structural integrity to within the limits within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5.1 The structural integrity of the exposed accessible interior and exterior surfaces of the primary containment, including the liner plate, shall be determined during the shutdown for each Type A containment leakage rate test by a visual inspection of those surfaces. This inspection shall be performed prior to the Type A containment leakage rate test to verify no apparent changes in appearance or other abnormal degradation.

4.6.1.5.2 Reports Any abnormal degradation of the primary containment structure detected during the above required inspections shall be reported in a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days. This report shall include a description of the condition of the liner and concrete, the inspection procedure, the tolerances on cracking, and the corrective actions taken.

CONTAINMENT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

3. With the suppression chamber average water temperature greater than 120°F, depressurize the reactor pressure vessel to less than 200 psig within 12 hours.
- c. With only one suppression chamber water level indicator OPERABLE and/or with less than eight suppression pool water temperature indicators, one in each of the eight locations OPERABLE, restore the inoperable indicator(s) to OPERABLE status within 7 days or verify suppression chamber water level and/or temperature to be within the limits at least once per 12 hours.
- d. With no suppression chamber water level indicators OPERABLE and/or with less than seven suppression pool water temperature indicators covering at least seven locations OPERABLE, restore at least one water level indicator and at least seven water temperature indicators to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- e. With the drywell-to-suppression chamber bypass leakage in excess of the limit, restore the bypass leakage to within the limit prior to increasing reactor coolant temperature above 200°F.

SURVEILLANCE REQUIREMENTS

4.6.2.1 The suppression chamber shall be demonstrated OPERABLE:

- a. By verifying the suppression chamber water volume to be within the limits at least once per 24 hours.
- b. At least once per 24 hours by verifying the suppression chamber average water temperature to be less than or equal to 95°F, except:
 1. At least once per 5 minutes during testing which adds heat to the suppression chamber, by verifying the suppression chamber average water temperature less than or equal to 105°F.
 2. At least once per hour when suppression chamber average water temperature is greater than or equal to 95°F, by verifying:
 - a) Suppression chamber average water temperature to be less than or equal to 110°F, and
 - b) THERMAL POWER to be less than or equal to 1% of RATED THERMAL POWER 12 hours after suppression chamber average water temperature has exceeded 95°F for more than 24 hours.
 3. At least once per 30 minutes following a scram with suppression chamber average water temperature greater than or equal to 95°F, by verifying suppression chamber average water temperature less than or equal to 120°F.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. By verifying at least 8 suppression pool water temperature indicators in at least 8 locations, OPERABLE by performance of a:
1. CHANNEL CHECK at least once per 24 hours.
 2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and
 3. CHANNEL CALIBRATION at least once per 24 months,

with the temperature alarm setpoint for:

1. High water temperature:
 - a) First setpoint $\leq 95^{\circ}\text{F}$
 - b) Second setpoint $\leq 105^{\circ}\text{F}$
 - c) Third setpoint $\leq 110^{\circ}\text{F}$
 - d) Fourth setpoint $\leq 120^{\circ}\text{F}$
- d. By verifying at least two suppression chamber water level indicators OPERABLE by performance of a:
1. CHANNEL CHECK at least once per 24 hours,
 2. CHANNEL FUNCTIONAL TEST at least once per 92 days, and
 3. CHANNEL CALIBRATION at least once per 24* months,

with the water level alarm setpoint for high water level $\leq 24'1\text{-}1/2''$

- e. Drywell-to-suppression chamber bypass leak tests shall be conducted at 40 +/- 10 month intervals to coincide with the ILRT at an initial differential pressure of 4 psi and verifying that the A/\sqrt{k} calculated from the measured leakage is within the specified limit. If any drywell-to-suppression chamber bypass leak test fails to meet the specified limit, the test schedule for subsequent tests shall be reviewed and approved by the Commission. If two consecutive tests fail to meet the specified limit, a test shall be performed at least every 24 months until two consecutive tests meet the specified limit, at which time the test schedule may be resumed.
- f. By conducting a leakage test on the drywell-to-suppression chamber vacuum breakers at a differential pressure of at least 4.0 psi and verifying that the total leakage area A/\sqrt{k} contributed by all vacuum breakers is less than or equal to 24% of the specified limit and the leakage area for an individual set of vacuum breakers is less than or equal to 12% of the specified limit. The vacuum breaker leakage test shall be conducted during each refueling outage for which the drywell-to-suppression chamber bypass leak test in Specification 4.6.2.1.d is not conducted.

* The CHANNEL CALIBRATION for level transmitters LT-55-2N062B, -2N062F shall be performed at least once per 18 months.

CONTAINMENT SYSTEMS

3/4.6.3 PRIMARY CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 The primary containment isolation valves and the instrumentation line excess flow check valves shown in Table 3.6.3-1 shall be OPERABLE with isolation times less than or equal to those shown in Table 3.6.3-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one or more of the primary containment isolation valves shown in Table 3.6.3-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 4 hours either:
 1. Restore the inoperable valve(s) to OPERABLE status, or
 2. Isolate each affected penetration by use of at least one deactivated automatic valve secured in the isolated position,* or
 3. Isolate each affected penetration by use of at least one closed manual valve or blind flange.*
 4. The provisions of Specification 3.0.4 are not applicable provided that within 4 hours the affected penetration is isolated in accordance with ACTION a.2. or a.3. above, and provided that the associated system, if applicable, is declared inoperable and the appropriate ACTION statements for that system are performed.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- b. With one or more of the instrumentation line excess flow check valves shown in Table 3.6.3-1 inoperable, operation may continue and the provisions of Specifications 3.0.3 and 3.0.4 are not applicable provided that within 4 hours either:
 1. The inoperable valve is returned to OPERABLE status, or
 2. The instrument line is isolated and the associated instrument is declared inoperable.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*Isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under administrative control.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.3.1 Each primary containment isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.

4.6.3.2 Each primary containment automatic isolation valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that on a containment isolation test signal each automatic isolation valve actuates to its isolation position.

4.6.3.3 The isolation time of each primary containment power operated or automatic valve shown in Table 3.6.3-1 shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

4.6.3.4 Each instrumentation line excess flow check valve shown in Table 3.6.3-1 shall be demonstrated OPERABLE at least once per 24 months by verifying that the valve checks flow.

4.6.3.5 Each traversing in-core probe system explosive isolation valve shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying the continuity of the explosive charge.
- b. At least once per 24 months by removing the explosive squib from the explosive valve, such that each explosive squib in each explosive valve will be tested at least once per 120 months, and initiating the explosive squib. The replacement charge for the exploded squib shall be from the same manufactured batch as the one fired or from another batch which has been certified by having at least one of that batch successfully fired. No squib shall remain in use beyond the expiration of its shelf-life and/or operating life, as applicable.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each suppression chamber - drywell vacuum breaker shall be:

- a. Verified closed at least once per 7 days.
- b. Demonstrated OPERABLE:
 1. At least once per 31 days and within 2 hours after any discharge of steam to the suppression chamber from the safety/relief valves, by cycling each vacuum breaker through at least one complete cycle of full travel.
 2. At least once per 31 days by verifying both position indicators OPERABLE by observing expected valve movement during the cycling test.
 3. At least once per 24 months by:
 - a) Verifying each valve's opening setpoint, from the closed position, to be 0.5 psid \pm 5%, and
 - b) Verifying both position indicators OPERABLE by performance of a CHANNEL CALIBRATION.
 - c) Verifying that each outboard valve's position indicator is capable of detecting disk displacement \geq 0.050", and each inboard valve's position indicator is capable of detecting disk displacement \geq 0.120".

CONTAINMENT SYSTEMS
3/4.6.5 SECONDARY CONTAINMENT

REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.5.1.1 REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

Without REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY, restore REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY within 4 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.1.1 REACTOR ENCLOSURE SECONDARY CONTAINMENT INTEGRITY shall be demonstrated by:

- a. Verifying at least once per 24 hours that the pressure within the reactor enclosure secondary containment is greater than or equal to 0.25 inch of vacuum water gauge.
- b. Verifying at least once per 31 days that:
 1. All reactor enclosure secondary containment equipment hatches and blowout panels are closed and sealed.
 2. At least one door in each access to the reactor enclosure secondary containment is closed.
 3. All reactor enclosure secondary containment penetrations not capable of being closed by OPERABLE secondary containment automatic isolation dampers/valves and required to be closed during accident conditions are closed by valves, blind flanges, slide gate dampers or deactivated automatic dampers/valves secured in position.
- c. At least once per 24 months:
 1. Verifying that one standby gas treatment subsystem will draw down the reactor enclosure secondary containment to greater than or equal to 0.25 inch of vacuum water gauge in less than or equal to 121 seconds with the reactor enclosure recirc system operation, and
 2. Operating one standby gas treatment subsystem for one hour and maintaining greater than or equal to 0.25 inch of vacuum water gauge in the reactor enclosure secondary containment at a flow rate not exceeding 1250 cfm with wind speeds of ≤ 7.0 mph as measured on the wind instrument on Tower 1, elevation 30' or, if that instrument is unavailable, Tower 2, elevation 159'.

CONTAINMENT SYSTEMS

3/4.6.5 SECONDARY CONTAINMENT

REFUELING AREA SECONDARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.5.1.2 REFUELING AREA SECONDARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITION *.

ACTION:

Without REFUELING AREA SECONDARY CONTAINMENT INTEGRITY, suspend handling of irradiated fuel in the secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.5.1.2 REFUELING AREA SECONDARY CONTAINMENT INTEGRITY shall be demonstrated by:

- a. Verifying at least once per 24 hours that the pressure within the refueling area secondary containment is greater than or equal to 0.25 inch of vacuum water gauge.
- b. Verifying at least once per 31 days that:
 1. All refueling area secondary containment equipment hatches and blowout panels are closed and sealed.
 2. At least one door in each access to the refueling area secondary containment is closed.
 3. All refueling area secondary containment penetrations not capable of being closed by OPERABLE secondary containment automatic isolation dampers/valves and required to be closed during accident conditions are closed by valves, blind flanges, slide gate dampers or deactivated automatic dampers/valves secured in position.
- c. At least once per 24 months:

Operating one standby gas treatment subsystem for one hour and maintaining greater than or equal to 0.25 inch of vacuum water gauge in the refueling area secondary containment at a flow rate not exceeding 764 cfm.

*Required when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

CONTAINMENT SYSTEMS

REACTOR ENCLOSURE SECONDARY CONTAINMENT AUTOMATIC ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.5.2.1 The reactor enclosure secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.1-1 shall be OPERABLE with isolation times less than or equal to the times shown in Table 3.6.5.2.1-1.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

With one or more of the reactor secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.1-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 8 hours either:

- a. Restore the inoperable valves to OPERABLE status, or
- b. Isolate each affected penetration by use of at least one deactivated valve secured in the isolation position, or
- c. Isolate each affected penetration by use of at least one closed manual valve, blind flange or slide gate damper.

Otherwise, in OPERATIONAL CONDITION 1, 2, or 3, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.2.1 Each reactor enclosure secondary containment ventilation system automatic isolation valve shown in Table 3.6.5.2.1-1 shall be demonstrated OPERABLE:

- a. Prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.
- b. At least once per 24 months by verifying that on a containment isolation test signal each isolation valve actuates to its isolation position.
- c. By verifying the isolation time to be within its limit at least once per 92 days.

TABLE 3.6.5.2.1-1
REACTOR ENCLOSURE SECONDARY CONTAINMENT VENTILATION SYSTEM
AUTOMATIC ISOLATION VALVES

<u>REACTOR ENCLOSURE (ZONE II)</u> <u>VALVE FUNCTION</u>	<u>MAXIMUM ISOLATION TIME (Seconds)</u>	<u>ISOLATION SIGNALS^(a)</u>
1. Reactor Enclosure Ventilation Supply Valve HV-76-207	5	B,H,S,U
2. Reactor Enclosure Ventilation Supply Valve HV-76-208	5	B,H,S,U
3. Reactor Enclosure Ventilation Exhaust Valve HV-76-257	5	B,H,S,U
4. Reactor Enclosure Ventilation Exhaust Valve HV-76-258	5	B,H,S,U
5. Reactor Enclosure Equipment Compartment Exhaust Valve HV-76-241	5	B,H,S,U
6. Reactor Enclosure Equipment Compartment Exhaust Valve HV-76-242	5	B,H,S,U
7. Drywell Purge Exhaust Valve HV-76-030	5	B,H,S,U,R,T
8. Drywell Purge Exhaust Valve HV-76-031	5	B,H,S,U,R,T
9. Drywell Purge Exhaust Inboard Valve HV-57-114 (Unit 1)	5	B,H,S,U,W,R,T
10. Drywell Purge Exhaust Outboard Valve HV-57-115 (Unit 1)	6	B,H,S,U,W,R,T
11. Suppression Pool Purge Exhaust Inboard Valve HV-57-104 (Unit 1)	5	B,H,S,U,W,R,T
12. Suppression Pool Purge Exhaust Outboard Valve HV-57-112 (Unit 1)	6	B,H,S,U,W,R,T

(a) See Specification 3.3.2, Table 3.3.2-1, for isolation signals that operate each automatic valve.

CONTAINMENT SYSTEMS

REFUELING AREA SECONDARY CONTAINMENT AUTOMATIC ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.5.2.2 The refueling area secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.2-1 shall be OPERABLE with isolation times less than or equal to the times shown in Table 3.6.5.2.2-1.

APPLICABILITY: OPERATIONAL CONDITION *.

ACTION:

With one or more of the refueling area secondary containment ventilation system automatic isolation valves shown in Table 3.6.5.2.2-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and within 8 hours either:

- a. Restore the inoperable valves to OPERABLE status, or
- b. Isolate each affected penetration by use of at least one deactivated valve secured in the isolation position, or
- c. Isolate each affected penetration by use of at least one closed manual valve, blind flange or slide gate damper.

Otherwise, in OPERATIONAL CONDITION *, suspend handling of irradiated fuel in the refueling area secondary containment, CORE ALTERATIONS and operations with a potential for draining the reactor vessel. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.5.2.2 Each refueling area secondary containment ventilation system automatic isolation valve shown in Table 3.6.5.2.2-1 shall be demonstrated OPERABLE:

- a. Prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by cycling the valve through at least one complete cycle of full travel and verifying the specified isolation time.
- b. At least once per 24 months by verifying that on a containment isolation test signal each isolation valve actuates to its isolation position.
- c. By verifying the isolation time to be within its limit at least once per 92 days.

*Required when (1) irradiated fuel is being handled in the refueling area secondary containment, or (2) during CORE ALTERATIONS, or (3) during operations with a potential for draining the reactor vessel with the vessel head removed and fuel in the vessel.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 24* months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the subsystem by:
1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 3000 cfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%; and
 3. Verify that when the fan is running the subsystem flowrate is 2800 cfm minimum from each reactor enclosure (Zones I and II) and 2200 cfm minimum from the refueling area (Zone III) when tested in accordance with ANSI N510-1980.
 4. Verify that the pressure drop across the refueling area to SGTS prefilter is less than 0.25 inches water gage while operating at a flow rate of 2400 cfm \pm 10%.
- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 0.175%.
- d. At least once per 24 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 9.1 inches water gauge while operating the filter train at a flow rate of 8400 cfm \pm 10%.

*Surveillance interval is an exception to the guidance provided in Regulatory Guide 1.52, Revision 2, March 1978.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying that the fan starts and isolation valves necessary to draw a suction from the refueling area or the reactor enclosure recirculation discharge open on each of the following test signals:
 - a) Manual initiation from the control room, and
 - b) Simulated automatic initiation signal.
3. Verifying that the temperature differential across each heater is $\geq 15^{\circ}\text{F}$ when tested in accordance with ANSI N510-1980.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 3000 cfm \pm 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 3000 cfm \pm 10%.
- g. After any major system alteration:
 1. Verify that when the SGTS fan is running the subsystem flowrate is 2800 cfm minimum from each reactor enclosure (Zones I and II) and 2200 cfm minimum from the refueling area (Zone III).
 2. Verify that one standby gas treatment subsystem will drawdown reactor enclosure Zone II secondary containment to greater than or equal to 0.25 inch of vacuum water gauge in less than or equal to 121 seconds with the reactor enclosure recirculation system in operation and the adjacent reactor enclosure and refueling area zones are in their isolation modes.

CONTAINMENT SYSTEMS

REACTOR ENCLOSURE RECIRCULATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.5.4 Two independent reactor enclosure recirculation subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one reactor enclosure recirculation subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. With both reactor enclosure recirculation subsystems inoperable, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.5.4 Each reactor enclosure recirculation subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates properly.
- b. At least once per 24* months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the subsystem by:
 1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 60,000 cfm \pm 10%.
 2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and
 3. Verifying a subsystem flow rate of 60,000 cfm \pm 10% during system operation when tested in accordance with ANSI N510-1980.

*Surveillance interval is an exception to the guidance provided in Regulatory Guide 1.52 Revision 2, March 1978.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%.
- d. At least once per 24 months by:
 - 1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the filter train at a flow rate of 60,000 cfm \pm 10%, verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.
 - 2. Verifying that the filter train starts and the isolation valves which take suction on and return to the reactor enclosure open on each of the following test signals:
 - a. Manual initiation from the control room, and
 - b. Simulated automatic initiation signal.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 60,000 cfm \pm 10%.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the in-place penetration and leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 60,000 cfm \pm 10%.

CONTAINMENT SYSTEMS

3/4.6.6 PRIMARY CONTAINMENT ATMOSPHERE CONTROL

PRIMARY CONTAINMENT HYDROGEN RECOMBINER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.6.6.1 Two independent primary containment hydrogen recombiner systems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With one primary containment hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.1 Each primary containment hydrogen recombiner system shall be demonstrated OPERABLE:

- a. At least once per 6 months by performance of:
 1. A CHANNEL CHECK of all Control Room Recombiner Instrumentation.
 2. A Trickle Heat Circuit check.
 3. A Heater Coil Check.
 4. A verification of valve operation by stroking all the valves to their proper positions.
- b. At least once per 24 months by:
 1. Performing a CHANNEL CALIBRATION of all control room recombiner instrumentation and control circuits.
 2. Verifying the integrity of all heater electrical circuits by performing a resistance to ground test within 30 minutes following the below required functional test. The resistance to ground for any heater phase shall be greater than or equal to one (1) megohm.
 3. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure; i.e., loose wiring or structural connections, deposits of foreign materials, etc.
 4. Verifying during a recombiner system functional test that the minimum heater outlet gas temperature increases to greater than or equal to 1150°F within 120 minutes and maintained for at least one hour.
- c. By measuring the system leakage rate:
 1. As a part of the overall integrated leakage rate test required by Specification 3.6.1.2, or
 2. By measuring the leakage rate of the system outside of the containment isolation valves at P_a , 44.0 psig, on the schedule required by Specification 4.6.1.2, and including the measured leakage as a part of the leakage determined in accordance with Specification 4.6.1.2.

CONTAINMENT SYSTEMS

DRYWELL HYDROGEN MIXING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.6.2 Four independent drywell unit cooler hydrogen mixing subsystems (2AV212, 2BV212, 2GV212, 2HV212) shall be OPERABLE with each subsystem consisting of one unit cooler fan.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2.

ACTION:

With one drywell unit cooler hydrogen mixing subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.6.2 Each drywell unit cooler hydrogen mixing subsystem shall be demonstrated OPERABLE at least once per 92 days by:

- a. Starting the system from the control room, and
- b. Verifying that the system operates for at least 15 minutes.

EMERGENCY SERVICE WATER SYSTEM - COMMON SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least the following independent emergency service water system loops, with each loop comprised of:

- a. Two OPERABLE emergency service water pumps, and
- b. An OPERABLE flow path capable of taking suction from the emergency service water pumps wet pits which are supplied from the spray pond or the cooling tower basin and transferring the water to the associated Unit 2 and common safety-related equipment,

shall be OPERABLE:

- a. In OPERATIONAL CONDITIONS 1, 2, and 3, two loops.
- b. In OPERATIONAL CONDITIONS 4, 5, and *, one loop.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, and *.

ACTION:

- a. In OPERATIONAL CONDITION 1, 2, or 3:
 1. With one emergency service water pump inoperable, restore the inoperable pump to OPERABLE status within 45 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 2. With one emergency service water pump in each loop inoperable, restore at least one inoperable pump to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 3. With one emergency service water system loop otherwise inoperable, declare all equipment aligned to the inoperable loop inoperable**#, restore the inoperable loop to OPERABLE status with at least one OPERABLE pump within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*When handling irradiated fuel in the secondary containment.

**The diesel generators may be aligned to the OPERABLE emergency service water system loop provided confirmatory flow testing has been performed. Those diesel generators not aligned to the OPERABLE emergency service water system loop shall be declared inoperable and the actions of 3.8.1.1 taken.

- The performance of a repair on the common ESW system during the Unit 1 Fourth Refueling Outage will require that the "B" Loop of ESW be inoperable for a period of time no longer than 72 hours to facilitate completion of the repair. During the time that the "B" Loop is inoperable, the associated equipment aligned to the "B" Loop will also be declared inoperable. However, the required TS ACTIONS associated with the affected inoperable ECCS equipment will not be required to be taken for 72 hours. Otherwise, the TS ACTIONS associated with the affected inoperable equipment aligned to the "B" Loop will be followed.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

4. With three ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
 5. With four ESW pump/diesel generator pairs** inoperable, restore at least one inoperable ESW pump/diesel generator pair** to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 4 or 5:
1. With only one emergency service water pump and its associated flow path OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or declare the associated safety related equipment inoperable and take the ACTION required by Specifications 3.5.2 and 3.8.1.2.
- c. In OPERATIONAL CONDITION *
1. With only one emergency service water pump and its associated flow path OPERABLE, restore at least two pumps with at least one flow path to OPERABLE status within 72 hours or verify adequate cooling remains available for the diesel generators required to be OPERABLE or declare the associated diesel generator(s) inoperable and take the ACTION required by Specification 3.8.1.2. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENT

4.7.1.2 At least the above required emergency service water system loop(s) shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. At least once per 24 months by verifying that:
 1. Each automatic valve actuates to its correct position on its appropriate ESW pump start signal.
 2. Each pump starts automatically when its associated diesel generator starts.

* When handling irradiated fuel in the secondary containment.

** An ESW pump/diesel generator pair consists of an ESW pump and its associated diesel generator. If either an ESW pump or its associated diesel generator becomes inoperable, then the ESW pump/diesel generator pair is inoperable.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.7.2 Each control room emergency fresh air supply subsystem shall be demonstrated OPERABLE:

- a. At least once per 12 hours by verifying the control room air temperature to be less than or equal to 85°F effective temperature.
- b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the subsystem operates with the heaters OPERABLE.
- c. At least once per 24* months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the subsystem by:
 1. Verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 3000 cfm \pm 10%.

* Surveillance interval is an exception to the guidance provided in Regulatory Guide 1.52, Revision 2, March 1978.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%; and
 3. Verifying a subsystem flow rate of 3000 cfm \pm 10% during subsystem operation when tested in accordance with ANSI N510-1980.
- d. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, for a methyl iodide penetration of less than 1%.
- e. At least once per 24 months by:
1. Verifying that the pressure drop across the combined prefilter, upstream and downstream HEPA filters, and charcoal adsorber banks is less than 6 inches water gauge while operating the subsystem at a flow rate of 3000 cfm \pm 10%; verifying that the prefilter pressure drop is less than 0.8 inch water gauge and that the pressure drop across each HEPA is less than 2 inches water gauge.
 2. Verifying that on each of the below chlorine isolation mode actuation test signals, the subsystem automatically switches to the chlorine isolation mode of operation and the isolation valves close within 5 seconds:
 - a) Outside air intake high chlorine, and
 - b) Manual initiation from the control room.
 3. Verifying that on each of the below radiation isolation mode actuation test signals, the subsystem automatically switches to the radiation isolation mode of operation and the control room is maintained at a positive pressure of at least 1/8 inch water gauge relative to the turbine enclosure and auxiliary equipment room and outside atmosphere during subsystem operation with an outdoor air flow rate less than or equal to 525 cfm:
 - a) Outside air intake high radiation, and
 - b) Manual initiation from control room.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 3000 cfm \pm 10%.
- g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorber bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 3000 cfm \pm 10%.

PLANT SYSTEMS

3/4.7.3 REACTOR CORE ISOLATION COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.3 The reactor core isolation cooling (RCIC) system shall be OPERABLE with an OPERABLE flow path capable of automatically taking suction from the suppression pool and transferring the water to the reactor pressure vessel.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3 with reactor steam dome pressure greater than 150 psig.

ACTION:

- a. With the RCIC system inoperable, operation may continue provided the HPCI system is OPERABLE; restore the RCIC system to OPERABLE status within 14 days. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 150 psig within the following 24 hours.
- b. In the event the RCIC system is actuated and injects water into the reactor coolant system, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.7.3 The RCIC system shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Verifying by venting at the high point vents that the system piping from the pump discharge valve to the system isolation valve is filled with water.
 2. Verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
 3. Verifying that the pump flow controller is in the correct position.
- b. At least once per 92 days by verifying that the RCIC pump develops a flow of greater than or equal to 600 gpm in the test flow path with a system head corresponding to reactor vessel operating pressure when steam is being supplied to the turbine at $1000 \pm 20, - 80$ psig.*

*The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test. If OPERABILITY is not successfully demonstrated within the 12-hour period, reduce reactor steam dome pressure to less than 150 psig within the following 72 hours.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. At least once per 24 months by:
1. Performing a system functional test which includes simulated automatic actuation and restart and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded.
 2. Verifying that the system will develop a flow of greater than or equal to 600 gpm in the test flow path when steam is supplied to the turbine at a pressure of 150 + 15, - 0 psig.*
 3. Verifying that the suction for the RCIC system is automatically transferred from the condensate storage tank to the suppression pool on a condensate storage tank water level-low signal.
 4. Performing a CHANNEL CALIBRATION of the RCIC system discharge line "keep filled" level alarm instrumentation.

*The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the tests. If OPERABILITY is not successfully demonstrated within the 12 hour period, reduce reactor steam dome pressure to less than 150 psig within the following 72 hours.

PLANT SYSTEMS

HALON SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.6.4 The following Halon systems shall be OPERABLE with the storage tanks having at least 95% of full charge weight and 90% of full charge pressure:

- a. Remote Shutdown Panel Area 540, EL 289' (Raised Floor), and
- b. Auxiliary Equipment Room 542, EL 289' (Raised Floor).

APPLICABILITY: When equipment protected by the Halon systems is required to be OPERABLE.

ACTION:

- a. With one or more of the above required Halon systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6.4 Each of the above required Halon systems shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position.
- b. At least once per 6 months by verifying Halon storage tank weight and pressure.
- c. At least once per 18 months by:
 1. Performance of a functional test of the general alarm circuit and associated alarm and interlock devices.
- d. At least once per 24 months by:
 1. Performance of a system flow test to assure no blockage.

PLANT SYSTEMS

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.6.5 The fire hose stations shown in Table 3.7.6.5-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE.

ACTION:

- a. With one or more of the fire hose stations shown in Table 3.7.6.5-1 inoperable, provide gated wye(s) on the nearest OPERABLE hose station(s). One outlet of the wye shall be connected to the standard length of hose provided at the hose station. The second outlet of the wye shall be connected to a length of hose sufficient to provide coverage for the area left unprotected by the inoperable hose station. Where it can be demonstrated that the physical routing of the fire hose would result in a recognizable hazard to operating technicians, plant equipment, or the hose itself, the fire hose shall be stored in a roll at the outlet of the OPERABLE hose station. Signs shall be mounted above the gated wye(s) to identify the proper hose to use. The above ACTION shall be accomplished within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise route the additional-hose within 24 hours.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6.5 Each of the fire hose stations shown in Table 3.7.6.5-1 shall be demonstrated OPERABLE:

- a. At least once per 31 days by a visual inspection of the fire hose stations accessible during plant operation to assure all required equipment is at the station.
- b. At least once per 18 months by:
 1. Visual inspection of the fire hose stations not accessible during plant operation to assure all required equipment is at the station.
 2. Removing the hose for inspection and reracking, and
 3. Inspecting all gaskets and replacing any degraded gaskets in the couplings.
- c. At least once per 3 years by:
 1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.
 2. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above the maximum fire main operating pressure, whichever is greater.

PLANT SYSTEMS

3/4.7.7 FIRE RATED ASSEMBLIES

LIMITING CONDITION FOR OPERATION

3.7.7 All fire rated assemblies, including walls, floor/ceilings, cable tray enclosures and other fire barriers, separating safe shutdown fire areas or separating portions of redundant systems important to safe shutdown within a fire area, and all sealing devices in fire rated assembly penetrations, including fire doors, fire windows, fire dampers, cable, piping and ventilation duct penetration seals and ventilation seals, shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

- a. With one or more of the above required fire rated assemblies and/or sealing devices inoperable, within 1 hour establish a continuous fire watch on at least one side of the affected assembly(s) and/or sealing device(s) or verify the OPERABILITY of fire detectors on at least one side of the inoperable assembly(s) and sealing device(s) and establish an hourly fire watch patrol.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.7.1 Each of the above required fire rated assemblies and penetration sealing devices shall be verified OPERABLE at least once per 24 months by performing a visual inspection of:

- a. The exposed surfaces of each fire rated assembly.
- b. Each fire window, fire damper, and associated hardware.
- c. At least 12.5% of each type of sealed penetration, except internal conduit seals. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 12.5% of each type of sealed penetration shall be made. This inspection process shall continue until a 12.5% sample with no apparent changes in appearance or abnormal degradation is found. Samples shall be selected such that each penetration seal will be inspected at least once per 16 years.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.7.7.2 Each of the above required fire doors which are not electrically supervised shall be verified OPERABLE by inspecting the closing mechanism and latches at least once per 6 months, and by verifying:

- a. That each locked-closed fire door is closed at least once per 7 days.
- b. That each unlocked fire door without electrical supervision is closed at least once per 24 hours.

4.7.7.3 Each of the above required fire doors which are electrically supervised shall be verified OPERABLE:

- a. By verifying that each locked-closed fire door is closed at least once per 7 days.
- b. By verifying the OPERABILITY of the fire door supervision system for each electrically supervised fire door by performing a CHANNEL FUNCTIONAL TEST at least once per 31 days.
- c. By inspecting the closing mechanism and latches at least once per 6 months.

PLANT SYSTEMS

3/4.7.8 MAIN TURBINE BYPASS SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.8 The main turbine bypass system shall be OPERABLE as determined by the number of operable main turbine bypass valves being greater than or equal to that specified in the CORE OPERATING LIMITS REPORT.

APPLICABILITY: OPERATIONAL CONDITION 1, when THERMAL POWER is greater than or equal to 25% of RATED THERMAL POWER.

ACTION: With the main turbine bypass system inoperable, restore the system to OPERABLE status within 1 hour or take the ACTION required by Specification 3.2.3.c.

SURVEILLANCE REQUIREMENTS

4.7.8 The main turbine bypass system shall be demonstrated OPERABLE at least once per:

- a. 31 days by cycling each turbine bypass valve through at least one complete cycle of full travel,
- b. 24 months by performing a system functional test which includes simulated automatic actuation, and by verifying that each automatic valve actuates to its correct position, and
- c. 24 months by determining TURBINE BYPASS SYSTEM RESPONSE TIME to be less than or equal to the value specified in the CORE OPERATING LIMITS REPORT.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability, and
- b. Demonstrated OPERABLE at least once per 24 months by transferring, manually and automatically, unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each of the above required diesel generators shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8.1.1.2-1 on a STAGGERED TEST BASIS by:
 1. Verifying the fuel level in the day fuel tank.
 2. Verifying the fuel level in the fuel storage tank.
 3. Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day fuel tank.
 4. Verify that the diesel can start* and gradually accelerate to synchronous speed with generator voltage and frequency at 4285 ± 420 volts and 60 ± 1.2 Hz.
 5. Verify diesel is synchronized, gradually loaded* to an indicated 2700-2800 kW** and operates with this load for at least 60 minutes.
 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
 7. Verifying the pressure in all diesel generator air start receivers to be greater than or equal to 225 psig.

* This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading and shutdown recommendations.

** This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring by the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. By removing accumulated water:
 - 1) From the day tank at least once per 31 days and after each occasion when the diesel is operated for greater than 1 hour, and
 - 2) From the storage tank at least once per 31 days.
- c. By sampling new fuel oil in accordance with ASTM D4057-81 prior to addition to the storage tanks and:
 - 1) By verifying in accordance with the tests specified in ASTM D975-81 prior to addition to the storage tanks that the sample has:
 - a) An API Gravity of within 0.3 degrees at 60°F or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity at 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees.
 - b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if gravity was not determined by comparison with the supplier's certification.
 - c) A flash point equal to or greater than 125°F, and
 - d) A clear and bright appearance with proper color when tested in accordance with ASTM D4176-82.
 - 2) By verifying within 31 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are met when tested in accordance with ASTM D975-81 except that the analysis for sulfur may be performed in accordance with ASTM D1552-79 or ASTM D2622-82.
- d. At least once every 31 days by obtaining a sample of fuel oil from the storage tanks in accordance with ASTM D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM D2276-78, Method A, except that the filters specified in ASTM D2276-78, Sections 5.1.6 and 5.1.7, may have a nominal pore size of up to three (3) microns.
- e. At the following frequency by:
 - 1. Every 18 months subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
 - 2. Every 24 months verifying the diesel generator capability to reject a load of greater than or equal to that of the RHR Pump Motor (992 kW) for each diesel generator while maintaining voltage at 4285 ± 420 volts and frequency at 60 ± 1.2 Hz.

SURVEILLANCE REQUIREMENTS (Continued)

3. Every 24 months verifying the diesel generator capability to reject a load of 2850 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection.
4. Every 24 months simulating a loss-of-offsite power by itself, and:
 - a) Verifying deenergization of the emergency buses and load shedding from the emergency buses.
 - b) Verifying the diesel generator starts* on the auto-start signal, energizes the emergency buses within 10 seconds, energizes the auto-connected loads through the individual load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady-state voltage and frequency of the emergency buses shall be maintained at 4285 ± 420 volts and 60 ± 1.2 Hz during this test.
5. Every 24 months verifying that on an ECCS actuation test signal, without loss-of-offsite power, the diesel generator starts* on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall reach 4285 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.
6. Every 24 months simulating a loss-of-offsite power in conjunction with an ECCS actuation test signal, and:
 - a) Verifying deenergization of the emergency buses and load shedding from the emergency buses.
 - b) Verifying the diesel generator starts* on the auto-start signal, energizes the emergency buses within 10 seconds, energizes the auto-connected shutdown loads through the individual load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady-state voltage and frequency of the emergency buses shall be maintained at 4285 ± 420 volts and 60 ± 1.2 Hz during this test.
7. Every 24 months verifying that all automatic diesel generator trips, except engine overspeed and generator differential over-current are automatically bypassed upon an ECCS actuation signal.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warm up procedures, and as applicable regarding loading and shutdown recommendations.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

8. Every 18 months verifying the diesel generator operates* for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to an indicated 2950-3050 kW** and during the remaining 22 hours of this test, the diesel generator shall be loaded to an indicated 2700-2800 kW**. Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement 4.8.1.1.2e.4.b***.
9. Every 24 months verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 3100 kW.
10. Every 24 months verifying the diesel generator's capability to:
 - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,
 - b) Transfer its loads to the offsite power source, and
 - c) Be restored to its standby status.
11. Every 24 months verifying that with the diesel generator operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning the diesel generator to standby operation, and (2) automatically energizes the emergency loads with offsite power.
12. Every 24 months verifying that the automatic load sequence timers are OPERABLE with the interval between each load block within $\pm 10\%$ of its design interval.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading and shutdown recommendations.

**This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band for special testing under direct monitoring by the manufacturer or momentary variations due to changing bus loads shall not invalidate the test.

***If Surveillance Requirement 4.8.1.1.2e.4.b is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead, the diesel generator may be operated at 2700-2800 kW for 1 hour or until operating temperature has stabilized.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

13. Every 24 months verifying that the following diesel generator lockout features prevent diesel generator starting only when required:
 - a) Control Room Switch In Pull-To-Lock (With Local/Remote Switch in Remote)
 - b) Local/Remote Switch in Local.
 - c) Emergency Stop
- f. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting* all four diesel generators simultaneously, during shutdown, and verifying that all four diesel generators accelerate to at least 882 rpm in less than or equal to 10 seconds.
- g. At least once per 10 years by:
 1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and
 2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section XI Article IWD-5000.

*This test shall be conducted in accordance with the manufacturer's recommendations regarding engine prelube and warmup procedures, and as applicable regarding loading and shutdown recommendations.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 105 volts or battery overcharge with battery terminal voltage above 150 volts, by verifying that:
 - 1. The parameters in Table 4.8.2.1-1 meet the Category B limits,
 - 2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and
 - 3. The average electrolyte temperature of each sixth cell is $\geq 60^{\circ}\text{F}$.
- c. At least once per 24 months by verifying that:
 - 1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,
 - 2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anticorrosion material,
 - 3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm excluding cable intercell connections, and
 - 4. The battery chargers will supply the currents listed below at a minimum of 132 volts for at least 8 hours:

<u>Charger</u>	<u>Current (Amperes)</u>
2BCA1	300
2BCA2	300
2BCB1	300
2BCB2	300
2BCC	75
2BCD	75

- d. At least once per 24 months by verifying that either:
 - 1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design duty cycle when the battery is subjected to a battery service test, or
 - 2. The battery capacity is adequate to supply a dummy load of the following profile while maintaining the battery terminal voltage greater than or equal to 105 volts for the nominal 125-volt batteries and 210 volts for the nominal 125/250-volt batteries:

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

<u>Division</u>	<u>Battery</u>	<u>LOAD CYCLE (amps)</u>		
		<u>0-1 Min.</u>	<u>1-239 Min.</u>	<u>239-240 Min.</u>
I	2A1	546	168	187
	2A2	449	129	147
II	2B1	889	158	321
	2B2	823	119	282
III	2C	193	31	31
IV	2D	169	21	21

Each 125/250-volt battery is rated at 1500 ampere-hours at an 8-hour discharge rate, based on a terminal voltage of 1.75 volts-per-cell at 77°F.

Each 125-volt battery is rated at 250 ampere-hours at an 8-hour discharge rate, based on a terminal voltage of 1.75 volts-per-cell at 77°F.

- e. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. At this once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test (Specification 4.8.2.1.d).
- f. At least once per 24 months performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

PRIMARY CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES LIMITING CONDITION FOR OPERATION

3.8.4.1 All primary containment penetration conductor overcurrent protective devices shown in Table 3.8.4.1-1 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- a. With one or more of the above required containment penetration conductor overcurrent devices shown in Table 3.8.4.1-1 inoperable:
 1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping and locking, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and
 2. Declare the affected system or component inoperable, and
 3. Verify at least once per 7 days thereafter the alternate device is tripped and locked, racked out, or removed, or the inoperable device is racked out or removed.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

- b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 Each of the primary containment penetration conductor overcurrent protective devices shown in Table 3.8.4.1-1 shall be demonstrated OPERABLE:

- a. At least once per 24 months:
 1. By verifying that the medium voltage 4.16 kV circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers and performing:
 - a) A CHANNEL CALIBRATION of the associated protective relays, and
 - b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and overcurrent control circuits function as designed.
 - c) For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.

SURVEILLANCE REQUIREMENTS (Continued)

2. By selecting and functionally testing a representative sample of at least 10% of each type of the 480 VAC circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the long time delay trip element and 150% of the pickup of the short time delay trip element, and verifying that the circuit breaker operates within the time delay bandwidth for that current specified by the manufacturer. The instantaneous element shall be tested by injecting a current equal to +20% of the pickup value of the element and verifying that the circuit breaker trips instantaneously with no intentional time delay. Molded case circuit breaker testing shall also follow this procedure except that generally no more than two trip elements, time delay and instantaneous, will be involved; and for instantaneous magnetic only breakers the instantaneous element will be tested by injecting a current equal to -20%/+40% of the pickup value of the element. Circuit breakers found inoperable during functional testing shall be restored to OPERABLE status prior to resuming operation. For each circuit breaker found inoperable during these functional tests, an additional representative sample of at least 10% of all the circuit breakers of the inoperable type shall also be functionally tested until no more failures are found or all circuit breakers of that type have been functionally tested.
-
- b. At least once per 60 months by subjecting each circuit breaker to an inspection and preventive maintenance in accordance with procedures prepared in conjunction with its manufacturer's recommendations.

ELECTRICAL POWER SYSTEMS

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION

LIMITING CONDITION FOR OPERATION

3.8.4.2 The thermal overload protection of all Class 1E motor operated valves shall be either:

- a. Continuously bypassed for all valves with maintained position control switches; or,
- b. Bypassed only under accident conditions for all valves with spring-return-to-normal control switches.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE.

ACTION:

With the thermal overload protection for one or more of the above required valves not bypassed continuously or only under accident conditions, as applicable, restore the thermal overload bypass within 8 hours or declare the affected valve(s) inoperable and apply the appropriate ACTION statement(s) for the affected system(s).

SURVEILLANCE REQUIREMENTS

4.8.4.2.1 The thermal overload protection for the above required valves which are continuously bypassed and temporarily placed in force only when the valve motor is undergoing periodic or maintenance testing shall be verified to be bypassed following periodic or maintenance testing during which the thermal overload protection was temporarily placed in force.

4.8.4.2.2 At least once per 24 months, a CHANNEL FUNCTIONAL TEST of all those valves which are bypassed only under accident conditions (valves with spring-return-to-normal control switches) shall be performed to verify that the thermal overload protection will be bypassed under accident conditions.

ELECTRICAL POWER SYSTEMS

REACTOR PROTECTION SYSTEM ELECTRICAL POWER MONITORING

LIMITING CONDITION FOR OPERATION

3.8.4.3 Two reactor protection system (RPS) electric power monitoring channels for each inservice RPS Inverter or alternate power supply shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

- a. With one RPS electric power monitoring channel for an inservice RPS Inverter or alternate power supply inoperable, restore the inoperable power monitoring channel to OPERABLE status within 72 hours or remove the associated RPS Inverter or alternate power supply from service.
- b. With both RPS electric power monitoring channels for an inservice RPS Inverter or alternate power supply inoperable, restore at least one electric power monitoring channel to OPERABLE status within 24 hours or remove the associated RPS Inverter or alternate power supply from service.

SURVEILLANCE REQUIREMENTS

4.8.4.3 The above specified RPS electric power monitoring channels shall be determined OPERABLE:

- a. At least once per six months by performance of a CHANNEL FUNCTIONAL TEST.
- b. At least once per 24 months by demonstrating the OPERABILITY of overvoltage, undervoltage, and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic, and output circuit breakers and verifying the following setpoints.
 1. Overvoltage \leq 132 VAC,
 2. Undervoltage \geq 109 VAC,
 3. Underfrequency \geq 57 Hz.

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The same principle applies with regard to the allowable outage time limits of the ACTION requirements, if compliance with the ACTION requirements for one specification results in entry into an OPERATIONAL CONDITION or condition of operation for another specification in which the requirements of the Limiting Condition for Operation are not met. If the new specification becomes applicable in less time than specified, the difference may be added to the allowable outage time limits of the second specification. However, the allowable outage time of ACTION requirements for a higher CONDITION of operation may not be used to extend the allowable outage time that is applicable when a Limiting Condition for Operation is not met in a lower CONDITION of operation.

The shutdown requirements of Specification 3.0.3 do not apply in CONDITIONS 4 and 5, because the ACTION requirements of individual specifications define the remedial measures to be taken.

Specification 3.0.4 establishes limitations on a change in OPERATIONAL CONDITIONS when a Limiting Condition for Operation is not met. It precludes placing the facility in a higher CONDITION of operation when the requirements for a Limiting Condition for Operation are not met and continued noncompliance to these conditions would result in a shutdown to comply with the ACTION requirements if a change in CONDITIONS were permitted. The purpose of this specification is to ensure that facility operation is not initiated or that higher CONDITIONS of operation are not entered when corrective action is being taken to obtain compliance with a specification by restoring equipment to OPERABLE status or parameters to specified limits. Compliance with ACTION requirements that permit continued operation of the facility for an unlimited period of time provides an acceptable level of safety for continued operation without regard to the status of the plant before or after a change in OPERATIONAL CONDITIONS. Therefore, in this case, entry into an OPERATIONAL CONDITION or other specified condition may be made in accordance with the provisions of the ACTION requirements. The provisions of this specification should not, however, be interpreted as endorsing the failure to exercise good practice in restoring systems or components to OPERABLE status before plant startup.

When a shutdown is required to comply with ACTION requirements, the provisions of Specification 3.0.4 do not apply because they would delay placing the facility in a lower CONDITION of operation.

Specification 4.0.1 through 4.0.5 establish the general requirements applicable to Surveillance Requirements. These requirements are based on the Surveillance Requirements stated in the Code of Federal Regulations 10 CFR 50.36(c)(3):

"Surveillance requirements are requirements relating to test, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions of operation will be met."

Specification 4.0.1 establishes the requirement that surveillances must be performed during the OPERATIONAL CONDITIONS or other conditions for which the requirements of the Limiting Conditions for Operation apply unless otherwise stated in an individual Surveillance Requirement. The purpose of this specification is to ensure that surveillances are performed to verify the

APPLICABILITY
BASES

operational status of systems and components and that parameters are within specified limits to ensure safe operation of the facility when the plant is in an OPERATIONAL CONDITION or other specified condition for which the individual Limiting Conditions for Operation are applicable. Surveillance Requirements do not have to be performed when the facility is in an OPERATIONAL CONDITION for which the requirements of the associated Limiting Condition for Operation do not apply unless otherwise specified. The Surveillance Requirements associated with a Special Test Exception are only applicable when the Special Test Exception is used as an allowable exception to the requirements of a specification.

Specification 4.0.2 establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillances that are performed at each refueling outage and are specified with an 24-month surveillance interval. It is not intended that this provision be used repeatedly as a convenience to extend the surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. Likewise, it is not the intent that REFUELING INTERVAL surveillances be performed during power operation unless it is consistent with safe plant operation. The limitation of Specification 4.0.2 is based on engineering judgment and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

Specification 4.0.3 establishes the failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by the provisions of Specification 4.0.2, as a condition that constitutes a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation. Under the provisions of this specification, systems and components are assumed to be OPERABLE when Surveillance Requirements have been satisfactorily performed within the specified time interval. However, nothing in this provision is to be construed as implying that systems or components are OPERABLE when they are found or known to be inoperable although still meeting the Surveillance Requirements. This specification also clarifies that the ACTION requirements are applicable when Surveillance Requirements have not been completed within the allowed surveillance interval and that the time limits of the ACTION requirements apply from the point in time identified that a surveillance has not been performed and not at the time that the allowed surveillance interval was exceeded. Completion of the Surveillance Requirement within the allowable outage time limits of the ACTION requirements restores compliance with the requirements of Specification 4.0.3. However, this does not negate the fact that the failure to have performed the surveillance within the allowed surveillance interval, defined by the provisions of Specification 4.0.2, was violation of the OPERABILITY requirements of a Limiting Condition for Operation that is subject to enforcement action. Further, the failure to perform a surveillance within the provisions of Specification 4.0.2 constitutes a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation and any reports required by 10 CFR 50.73 shall be determined based on the length of time the surveillance interval has been exceeded, and the corresponding Limiting Conditions for Operation ACTION time requirements.

CONTAINMENT SYSTEMS

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3/4.6.5 SECONDARY CONTAINMENT

Secondary containment is designed to minimize any ground level release of radioactive material which may result from an accident. The Reactor Enclosure and associated structures provide secondary containment during normal operation when the drywell is sealed and in service. At other times the drywell may be open and, when required, secondary containment integrity is specified.

Establishing and maintaining a vacuum in the reactor enclosure secondary containment with the standby gas treatment system once per 24 months, along with the surveillance of the doors, hatches, dampers and valves, is adequate to ensure that there are no violations of the integrity of the secondary containment.

The OPERABILITY of the reactor enclosure recirculation system and the standby gas treatment systems ensures that sufficient iodine removal capability will be available in the event of a LOCA or refueling accident (SGTS only). The reduction in containment iodine inventory reduces the resulting SITE BOUNDARY radiation doses associated with containment leakage. The operation of this system and resultant iodine removal capacity are consistent with the assumptions used in the LOCA and refueling accident analyses. Provisions have been made to continuously purge the filter plenums with instrument air when the filters are not in use to prevent buildup of moisture on the adsorbers and the HEPA filters.

Although the safety analyses assumes that the reactor enclosure secondary containment draw down time will take 135 seconds, these surveillance requirements specify a draw down time of 121 seconds. This 14 second difference is due to the diesel generator starting and sequence loading delays which is not part of this surveillance requirement.

The reactor enclosure secondary containment draw down time analyses assumes a starting point of 0.25 inch of vacuum water gauge and worst case SGTS dirty filter flow rate of 2800 cfm. The surveillance requirements satisfy this assumption by starting the drawdown from ambient conditions and connecting the adjacent reactor enclosure and refueling area to the SGTS to split the exhaust flow between the three zones and verifying a minimum flow rate of 2800 cfm from the test zone. This simulates the worst case flow alignment and verifies adequate flow is available to drawdown the test zone within the required time. The Technical Specification Surveillance Requirement 4.6.5.3.b.3 is intended to be a multi-zone air balance verification without isolating any test zone.

The SGTS is common to Unit 1 and 2 and consists of two independent subsystems. The power supplies for the common portions of the subsystems are from Unit 1 safeguard busses, therefore the inoperability of these Unit 1 supplies are addressed in the SGTS ACTION statements in order to ensure adequate onsite power sources to SGTS for its Unit 2 function during a loss of offsite power event. The allowable out of service times are consistent with those in the Unit 1 Technical Specifications for SGTS and AC electrical power supply out of service condition combinations.

CONTAINMENT SYSTEMS

BASES

SECONDARY CONTAINMENT (Continued)

The SGTS fans are sized for three zones and therefore, when aligned to a single zone or two zones, will have excess capacity to more quickly drawdown the affected zones. There is no maximum flow limit to individual zones or pairs of zones and the air balance and drawdown time are verified when all three zones are connected to the SGTS.

The three zone air balance verification and drawdown test will be done after any major system alteration, which is any modification which will have an effect on the SGTS flowrate such that the ability of the SGTS to drawdown the reactor enclosure to greater than or equal to 0.25 inch of vacuum water gage in less than or equal to 121 seconds could be affected.

The field tests for bypass leakage across the SGTS charcoal adsorber and HEPA filter banks are performed at a flow rate of $3000 \pm 10\%$ cfm. This flow rate corresponds to the maximum overall three zone inleakage rate of 3264 cfm.

The SGTS filter train pressure drop is a function of air flow rate and filter conditions. Surveillance testing is performed using either the SGTS or drywell purge fans to provide operating convenience.

Each reactor enclosure secondary containment zone and refueling area secondary containment zone is tested independently to verify the design leak tightness. A design leak tightness of 1250 cfm or less for each reactor enclosure and 764 cfm or less for the refueling area at a 0.25 inch of vacuum water gage will ensure that containment integrity is maintained at an acceptable level if all zones are connected to the SGTS at the same time.

The post-LOCA offsite dose analysis assumes a reactor enclosure secondary containment post-draw down leakage rate of 1250 cfm and certain post-accident X/Q values. While the post-accident X/Q values represent a statistical interpretation of historical meteorological data, the highest ground level wind speed which can be associated with these values is 7 mph (Pasquill-Gifford stability Class G for a ground level release). Therefore, the surveillance requirement assures that the reactor enclosure secondary containment is verified under meteorological conditions consistent with the assumptions utilized in the design basis analysis. Reactor Enclosure Secondary Containment leakage tests that are successfully performed at wind speeds in excess of 7 mph would also satisfy the leak rate surveillance requirements, since it shows compliance with more conservative test conditions.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2, and 3/4.8.3 A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for (1) the safe shutdown of the facility and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least two of the onsite A.C. and the corresponding D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. or D.C. source. At least two onsite A.C. and their corresponding D.C. power sources and distribution systems providing power for at least two ECCS divisions (1 Core Spray loop, 1 LPCI pump and 1 RHR pump in suppression pool cooling) are required for design basis accident mitigation as discussed in FSAR Table 6.3-3. Onsite A.C. operability requirements for common systems such as CREFAS, SGTS, RHRSW and ESW are addressed in the appropriate system specification action statements.

The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one or more diesel generators are inoperable, there is an additional ACTION requirement to verify that all remaining required systems, subsystems, trains, components, and devices, that depend on the OPERABLE diesel generators as a source of emergency power, are also OPERABLE. The LPCI mode of the RHR system is considered a four train system, of which only two trains are required. The verification for LPCI is not required until two diesel generators are inoperable. This requirement is intended to provide assurance that a loss-of-offsite power event will not result in a complete loss of safety function of critical systems during the period when one or more of the diesel generators are inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

• The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that (1) the facility can be maintained in the shutdown or refueling condition for extended time periods and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power

ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Supplies," March 10, 1971, Regulatory Guide 1.137 "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979 and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, except for paragraphs C.2.a(3), C.2.c(1), C.2.c(2), C.2.d(3) and C.2.d(4), and the periodic testing will be performed at least once per 24 months. The exceptions to Regulatory Guide 1.108 allow for gradual loading of diesel generators during testing and decreased surveillance test frequencies (in response to Generic Letter 84-15).

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978 and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations," except the test will be performed at least once every 24 months.

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.1-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to 7 days. During this 7-day period: (1) the allowable value for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 71 AND 34 TO FACILITY OPERATING
LICENSE NOS. NPF-39 AND NPF-85
PHILADELPHIA ELECTRIC COMPANY
LIMERICK GENERATING STATION, UNITS 1 AND 2
DOCKET NOS. 50-352 AND 50-353

1.0 INTRODUCTION

By letters dated September 1, 1992, and October 15, 1992, as supplemented by letters dated October 30, 1992, March 16, 1993, June 10, 1993, July 28, 1993, September 10, 1993, April 29, 1994, June 2, 1994, June 9, 1994, and June 15, 1994, the Philadelphia Electric Company (PECo, the licensee) submitted a request for changes to the Limerick Generating Station (LGS), Units 1 and 2 Technical Specifications (TS). The September 1, 1992 submittal addresses the proposed changes to the TS surveillance intervals for the non-instrumentation TS line items (e.g., pump, valve, and flow testing, logic system functional testing, and response time testing). The October 15, 1992, submittal addresses the proposed changes to the TS surveillance intervals for the instrument calibration and other remaining TS line items to support the 24-month refueling cycles. The supplemental letters provide clarifying information that did not change the initial proposed no significant hazards consideration determination.

Amendments 56 and 21 to Facility Operating Licenses NPF-39 and NPF-85, issued on August 20, 1992, approved revisions to the channel calibration frequency for the peak acceleration seismic monitoring recorder mounted on the reactor vessel head flange, and for the frequency of the surveillance testing of the main steam safety valves from 18 to 24 months.

The requested changes extend the interval for certain TS surveillance requirements to 24 months with an additional 25-percent grace period. The 24-month refueling cycle results in changes from the current 18-month TS surveillance testing interval (i.e., a maximum of 22.5 months accounting for the allowable grace period) to a 24-month testing interval (i.e., a maximum of 30 months accounting for the allowable grace period). The proposed TS changes were submitted in response to Generic Letter Number 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle."

Generic Letter 91-04 provides generic guidance to support the development of TS revisions to allow a 24-month fuel cycle and includes requirements for the evaluation of the effects on safety resulting from the increase in surveillance intervals that accommodate a 24-month fuel cycle. It states that

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the evaluation should conclude that the net effect on safety is small, that historical plant maintenance and surveillance data support the proposed extended surveillance interval, and that the assumptions of the plant licensing basis are still bounding with the incorporation of a 24-month surveillance interval.

The licensee has concluded that the assumptions of the plant licensing basis are not impacted by the proposed changes. The details of the licensee's conclusion and bases and the impact of the proposed changes on system availability and safety are discussed in the evaluation.

The proposed extension of the interval was accomplished for some surveillances by explicitly embedding the term 24 months in the particular line item requirement. For other surveillances, the proposed extension was accomplished by changing the TS Section 1.0 definition of operating cycle or refueling cycle to a maximum of 731 days. A 25-percent grace period beyond the 731 days is still allowed. For some surveillances, the licensee stated that it was not possible to demonstrate the acceptability of extending the surveillance interval beyond 18 months, plus the grace period. For some of these surveillances, the wording of the specific TS has been revised, but the actual surveillance interval (18 months, plus grace period) remains unchanged.

2.0 EVALUATION

Improved reactor fuels allow licensees to consider an increase in the duration of the fuel cycle for their facilities. A longer fuel cycle requires consideration of whether corresponding increases of the time interval between performance of TS surveillance requirements can be justified. GL 91-04 provides generic guidance to support the development of TS revisions to allow 24-month surveillance intervals and includes requirements to evaluate the impact on safety for an increased surveillance interval. The licensee evaluation has concluded that the net effect on safety is small, that historical plant maintenance and surveillance data support the proposed extended surveillance interval, and that the assumptions of the plant licensing basis are still bounding with the incorporation of a 24-month surveillance interval.

2.1 INSTRUMENTATION

In order for a licensee to use the provisions of GL 91-04, the staff has required the licensee to address the issue of instrumentation errors/setpoint methodology assumptions when proposing an extended instrumentation surveillance interval. Specifically, the licensee must evaluate the effects of an increased calibration interval on instrument uncertainties, equipment qualification, and vendor maintenance requirements to ensure that an extended surveillance interval does not result in exceeding the assumptions stated in the safety analysis.

GL 91-04 allows for either vendor drift data or plant-specific drift data to be utilized in determining a 24- (30- with grace period) month instrument

drift term. Vendor information and/or licensee operating experience can provide sufficient data to evaluate long-term instrument performance to support an extended surveillance interval of 24 months. The basis for the extended vendor drift term should reflect a compatible setpoint methodology to that used in the plant setpoint methodology. Additionally, GL 91-04 requires a plant-specific program to monitor and assess the long-term effects of instrument drift and provide continuing data to evaluate extended 24-month instrumentation surveillance intervals.

GL 91-04 required licensees to address a number of issues to justify an increase in calibration interval for instruments that perform a safety function. The licensee addressed the GL 91-04 issues in its evaluation of instrument performance. The licensee evaluated plant-specific surveillance drift data to determine instrument drift over a 24-month fuel cycle. The licensee stated that the impact of extended surveillance intervals on system availability is small in that the failures detected by the 18-month surveillance are less than one percent. The licensee reviewed applicable surveillance test results and evaluated the historical as-left and as-found drift information. The maintenance and surveillance test evaluations confirmed that instrument drift has not exceeded the allowable limits except on rare occasions. Vendor maintenance requirements have been reviewed by the licensee and found to be compatible with a 24-month surveillance interval.

The drift analysis employed by the licensee to determine the acceptability of a 24-month surveillance interval is based on the drift analysis module identified in NEDC-31336, "GE Instrument Setpoint Methodology." The GE setpoint methodology is a generic methodology that, in general, requires plant-specific calculations with plant-specific data.

The staff approved NEDC-31336 by Safety Evaluation Report (SER) dated February 9, 1993, and noted the use of independent, random and normally distributed data but expressed concern with the use of only a single sided confidence interval distribution with an undefined confidence level. The staff also expressed concern that the difference between the Allowable Value and Nominal Trip Setpoint included drift terms besides those checked during the monthly setpoint surveillance test. The staff accepted the GE drift term methodology within the limitations outlined in the SER. The GE report demonstrated that drift for the instruments included in the topical report were normally distributed. However, the staff did not accept the assumption that drift is inherently random and normally distributed and agreed with GE that each instrument should be confirmed to have random drift terms by empirical and field data. Finally, the use of a single sided test for instrument drift terms for trips or indication/recorders related to increasing or decreasing variables was found to be unacceptable by the staff. In addition, the staff believes it is good engineering practice to employ data with a two sided, 95 percent confidence interval with a 95 percent confidence level (95/95).

Subsequent to NEDC-31336, GE developed a computer model, "Instrument Trending Analysis System (GEITAS)," based on the drift determination methodology

documented in NEDC-31336A. The GE-developed instrument trending system includes the as-left and as-found drift data for numerous GE Boiling Water Reactor (BWR) instruments. GEITAS was the methodology chosen by the licensee to project a 30-month drift value for the Limerick Generating Station instrumentation. In general, the licensee elected to use plant-specific surveillance drift data for the GEITAS analysis. The GE drift analysis methodology has been previously reviewed by the staff (NEDC-31366A). The software for GEITAS was developed under a GE quality assurance program previously reviewed by the staff as documented in NEDO-11209-04, Revision 8, "GE Nuclear Energy Quality Assurance Program Description," for safety-related software.

The drift data as analyzed by the GE methodology software program compensates for the additional error terms normally associated with the as-found and as-left values (instrument accuracy, measurement and test equipment and temperature effects). The licensee chose not to compensate for the additional errors during the analysis of the Limerick Generating Station specific drift data (temperature and calibration errors). These additional error terms assumed by the licensee in the as-left and as-found data are consistent with industry practice. As a result, the 30-month drift terms calculated by the licensee may have additional conservatism with respect to the actual drift term. The drift term results were derived from plant-specific drift data, and therefore, satisfy the requirements of GL 91-04.

In situations where instrumentation was recently installed, or a limited number of data points were available, or vendor 30-month drift data was available, the licensee chose not to utilize the GE drift analysis methodology. For these cases the licensee provided a specific evaluation to justify the change.

Although GL 91-04 allows the use of vendor drift terms in the development of extended surveillance intervals the licensee should confirm that the published vendor drift satisfies the existing setpoint calculation criteria (normally 95-95, normal/random distribution, sufficient number of data points, surveillance interval, and vendor methodology is compatible with the licensee setpoint methodology requirements). Additionally, the vendor drift values must be verified by subsequent plant as-left and as-found data as required by GL 91-04 trending requirements. The licensee stated that the vendor drift terms were compatible with the present setpoint methodology used by the licensee.

The licensee determined the magnitude of instrument drift and identified the channels and TS sections affected. The 30-month drift term was compared to the procedure drift allowance for each instrument application. The licensee stated that if the 30-month instrument drift term was not bounded by the existing drift allowance then the surveillance interval was set at 18 months. Any extension of the above surveillances' calibration interval was based on additional justification. The licensee stated that in no case was the setpoint of an instrument revised to accommodate a drift error larger than previously analyzed. The licensee confirmed that the projected instrument

drift is bounded by the design basis instrument drift calculations. The safe shutdown analysis/TS (setpoint related) did not require revision to accommodate a 24-month calibration cycle.

GL 91-04 requires that the licensee verify that any revised setpoint or safety analysis is reflected in procedure acceptance criteria for channel checks, channel functional tests, and channel calibrations. Item 6 of GL 91-04 requires that plant procedures for the affected instrumentation be reviewed and verified to reflect the requirements of the setpoint methodology and safety analysis. The licensee stated that plant procedure acceptance criteria was evaluated and found to meet the requirements of the setpoint calculations and safety analysis.

The licensee established a program for monitoring and assessing the effects of increased calibration intervals on instrument drift. The purpose of this monitoring program is to provide a means to verify the assumptions made in the setpoint methodology with regards to instrument drift. The monitoring program also provides a method to determine the adequacy of a specific surveillance interval. The licensee's drift trending program commits to evaluate any calibration surveillance that fails to meet the specified procedure drift allowance for that instrument. Based on the above, the licensee's monitoring program meets the requirements of GL 91-04 for the proposed amendment and is, therefore, acceptable to the staff.

The following paragraphs in this section discuss instrumentation issues that warranted plant-specific treatment:

The licensee evaluated the drift for the main turbine control valve electro-hydraulic control pressure switch and determined that the instruments experienced significant drift. The drift exceeded the current allowable drift as specified by GE and the more conservative value currently used by Limerick Generating Station for End-of-Cycle Recirculation Pump Trip (EOC RPT).

The licensee reviewed the accident analysis and considered the potential impact of the observed drift. The licensee concluded that drift in the non-conservative direction would impact the response time of the reactor scram and EOC-RPT signal. The licensee stated that a worst-case drift of 200 psi had minimal impact on the response time (3 milliseconds) and will still be within the historical response times noted for RPS and EOC-RPT.

Additionally, modifications were performed by the licensee on the electro-hydraulic control (EHC) system to eliminate pressure oscillations and vibration of the EHC piping. The results of the calibration surveillance showed that instrument drift was within the procedure drift allowance. The licensee stated that the EHC system vibrations and pressure oscillations contributed to the excessive drift experienced by the EHC pressure instrumentation. Based on the above licensee evaluation, the staff concluded that the present 18-month calibration interval can be extended to 24-months for the main turbine control valve electro-hydraulic pressure switch.

The licensee proposed to extend the surveillance interval for the following steam leak detection loops: TS Table 4.3.2.1-1, Items 1.f, 1.g, 3.b, 3.c, 4.d, 4.e, 4.f, 5.d, 5.e, and 5.f. The original steam leak detection equipment has been replaced with GE NUMAC equipment. The NUMAC instrumentation has insufficient plant-specific drift data to evaluate and project a 30-month drift term. Based on information listed in Topical Report NEDO-30883 (SER dated September 16, 1986), both the instrument drift and the accuracy of the GE NUMAC equipment are improved with respect to the original INMAC equipment. The licensee consulted with the vendor who confirmed that a 24-month surveillance interval for the newly installed NUMAC steam leak detection equipment is acceptable. However, the 30-month drift term supplied by the vendor does not include the sensors. The licensee stated that the sensors (thermocouples) exhibit minimal drift and, therefore, the vendor supplied 30-month drift term is representative of the total drift expected for this instrumentation and is within the procedure drift allowance. Based on the data supplied by the licensee, the staff finds the proposed 24-month surveillance interval acceptable.

The licensee elected to maintain the surveillance interval for TS Table 4.3.3.1-1, Item 3.d, "Suppression Pool Water Level - High" at the current 18-month interval. The calibration interval designation will be revised to read "E". The "E" designation will be defined in Table 1.1, "Surveillance Frequency Notation," as "At least once-per-18-months (550) days." This is an administrative change and is, therefore, acceptable to the staff.

For Limerick Generating Station, Unit 2, the licensee evaluated the surveillance tests for TS Table 4.3.3.1-1 pressure switches. The number of data points were insufficient to determine a 30-month drift term. Additionally, the licensee stated that based on the existing data the switches do not operate satisfactorily over a 24-month surveillance interval (30 months with grace period). The licensee has replaced these pressure switches with switches that demonstrate acceptable drift over the proposed 24-month surveillance interval. The replacement of the above switches, with switches shown to exhibit acceptable drift over the proposed 24-month calibration surveillance interval, is acceptable to the staff.

The seismic monitoring instrumentation TS Table 4.3.7.2-1, Items 1.a, 1 through 6, 1.b, 1 through 5, 1.c.1, and 3.a. did not have adequate surveillance test data to satisfy the requirements of the GE setpoint methodology for a 30-month drift term. The licensee consulted with the manufacturer on the acceptability of a 24-month surveillance interval. The manufacturer stated that a 24-month surveillance interval (30 with grace) is acceptable. Based on the above, the staff finds the proposed 24-month surveillance interval acceptable for the above referenced seismic monitoring equipment.

The surveillance test results for the RCIC low pressure bearing oil temperature instrumentation, TS Table 4.3.7.10.c, Item 18, shows that no calibration adjustments were required for 42 and 23 months for Units 1 and 2,

respectively. Although there is not sufficient drift data to satisfy the GE setpoint program, the licensee concluded that in conjunction with the monthly functional test the available data supports extending the surveillance interval for this instrumentation to 24 months. The proposed 24-month surveillance interval for the RCIC low pressure bearing oil temperature is acceptable to the staff.

The GE NUMAC instrumentation has replaced existing radiation monitoring instrumentation associated with TS Table 4.3.1.1-1, Item 6, and TS Table 4.3.2.1-1, Item 1.b. The NUMAC instrumentation does not have sufficient historical drift data to satisfy the GE setpoint methodology. The licensee requested that the manufacturer evaluate the impact of a 24-month surveillance interval for this instrumentation. The manufacturer stated that a 24-month surveillance interval is acceptable for the NUMAC instrumentation. Based on the manufacturer's evaluation and information provided by the licensee, the staff finds the proposed 24-month calibration interval acceptable.

The existing radiation recorders for Units 1 and 2 refueling area ventilation exhaust duct radiation monitors (TS Table 4.3.2.1-1, Items 7.c.1 and 7.c.2) are to be replaced with recorders that will support a 24-month surveillance interval and bound the existing drift surveillance allowances. Based on the licensee replacement of the present recorders with instruments that satisfy the 30-month surveillance allowance, the staff finds the proposed 24-month surveillance interval acceptable.

The main turbine control valve (MTCV) EHC system pressure switches were evaluated for drift using the GE drift program. The licensee's evaluation determined that this instrumentation experienced significant drift. Closure of the turbine control valves can result in a significant addition of positive reactivity and pressure increase. The turbine stop valve fast closure scram initiates an anticipatory scram and end-of-cycle recirculation pump trip (EOC-RPT).

The licensee reviewed the impact of drift in the non-conservative direction and determined that the impact would be an increase in the response time of the reactor scram signal and EOC-RPT. The additional increase in response time (3 milliseconds) will be added to the overall response time of the trip by the licensee. The licensee noted that the increased response time is well within the observed margin and within the response time requirements stated in the TS.

The licensee has performed modifications on the EHC system to alleviate the drift experienced with the MTCV pressure switches. The limited operating experience to date has shown that the observed drift is within the surveillance test acceptance values. The licensee concluded that the surveillance interval for the above instrumentation can be increased to 24 months. Based on the evaluation presented by the licensee, the proposed 24-month surveillance is acceptable to the staff.

2.2 ELECTRICAL POWER SYSTEMS

Based on review of the information contained in licensee's submittals, the staff finds that the proposed revisions to the electrical power systems TS SR Sections 4.8.1.1.1.b, 4.8.1.1.2.e, 4.8.2.1.c, 4.8.2.1.d, 4.8.2.1.f, 4.8.4.1.a.1, 4.8.4.1.a.2, and 4.8.4.2.2 only revise the frequency of surveillance testing for certain equipment items. These sections increase the time interval between surveillance testing and this time interval increase has a small impact on system availability. Further, the licensee has documented that their review of surveillance testing history demonstrated there is no evidence of any failures which would invalidate this conclusion. In addition, the licensee has committed to propose other changes for TS SR Section 4.8.2.1.e regarding battery performance discharge testing. These changes are to reflect the modified performance discharge testing described in the 1993 draft revision of IEEE Standard 450. TS SR Section 4.8.2.1.f that addresses the frequency of performance discharge testing of degraded batteries or batteries that have reached a certain percentage of expected service life may be revised pending future licensee evaluation of the existing SR in conjunction with possible future changes to the 1993 draft revision of IEEE Standard 450. The staff finds the commitments for these areas acceptable. On the bases of the above, the staff concludes that the licensee's proposed TS SR revisions are consistent with Generic Letter 91-04, are technically adequate, and are acceptable.

2.3 OTHER TS LINE ITEMS

Finally, the licensee has evaluated the effect of the increase in the surveillance intervals on safety for the other 18-month surveillances and has concluded that the effect is small. The licensee has confirmed that historical plant maintenance and surveillance data do not invalidate this conclusion. The licensee also confirmed that the increase in surveillance intervals to accommodate a 24-month fuel cycle does not invalidate any assumption in the plant licensing basis. The staff reviewed this information and finds that the proposed TS changes do not have a significant effect on safety and are, therefore, acceptable.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change the 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 (57 FR 42778 and 57 FR 48823). 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.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: F. Rinaldi, PDI-2
S. Dembek, PDI-2
C. Douth, HICB
D. Nguyen, EELB
F. Ashe, EELB

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