

INSTRUMENTATION

INCORE DETECTORS

LIMITING CONDITION FOR OPERATION

3.3.3.2 The incore detection system shall be OPERABLE with at least one OPERABLE detector segment in each core quadrant on each of the four axial elevations containing incore detectors and as further specified below:

- a. For monitoring the AZIMUTHAL POWER TILT:  

At least two quadrant symmetric incore detector segment groups at each of the four axial elevations containing incore detectors in the outer 184 fuel assemblies with sufficient OPERABLE detector segments in these detector groups to computer at least two AZIMUTHAL POWER TILT values at each of the four axial elevations containing incore detectors.
- b. For recalibration of the incore neutron flux detector system:
  1. At least 75% of all incore detector segments,
  2. A minimum of 9 OPERABLE incore detector segments at each detector segment level, and
  3. A minimum of 2 OPERABLE detector segments in the inner 109 fuel assemblies and 2 OPERABLE segments in the outer 108 fuel assemblies at each segment level.
- c. For monitoring the UNRODDED PLANAR RADIAL PEAKING FACTOR the UNRODDED INTEGRATED RADIAL PEAKING FACTOR, or the linear heat rate:
  1. At least 75% of all incore detector segments,
  2. A minimum of 9 OPERABLE incore detector segments at each detector segment level, and
  3. A minimum of 2 OPERABLE detector segments in the inner 109 fuel assemblies and 2 OPERABLE segments in the outer 108 fuel assemblies at each segment level.

An OPERABLE incore detector segment shall consist of an OPERABLE rhodium detector constituting one of the segments in a fixed detector string.

An OPERABLE incore detector location shall consist of a string in which at least three of the four incore detector segments are OPERABLE.

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## INSTRUMENTATION

### LIMITING CONDITION FOR OPERATION (Continued)

An OPERABLE quadrant symmetric incore detector segment group shall consist of a minimum of three OPERABLE rhodium incore detector segments in 90° symmetric fuel assemblies.

**APPLICABILITY:** When the incore detection system is used for:

- a. Monitoring the AZIMUTHAL POWER TILT,
- b. Recalibration of the excore neutron flux detection system, or
- c. Monitoring the UNRODDED PLANAR RADIAL PEAKING FACTOR, the UNRODDED INTEGRATED RADIAL PEAKING FACTOR, or the linear heat rate.

### **ACTION:**

With the incore detection system inoperable, do not use the system for the above applicable monitoring or calibration functions. The provisions of specification 3.0.3 and 3.0.4 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.3.3.2 The incore detection system shall be demonstrated OPERABLE:

- a. By performance of a CHANNEL CHECK within 24 hours prior to its use and at least once per 7 days thereafter when required for:
  1. Monitoring the AZIMUTHAL POWER TILT.
  2. Recalibration of the excore neutron flux detection system.
  3. Monitoring the UNRODDED PLANAR RADIAL PEAKING FACTOR, the UNRODDED INTEGRATED RADIAL PEAKING FACTOR, or the linear heat rate.
- b. At least once per refueling interval by performance of a CHANNEL CALIBRATION operation which exempts the neutron detectors but includes all electronic components. The neutron detectors shall be calibrated prior to installation in the reactor core.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS

4.7.11.1.1 The fire suppression water system shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying the contained water supply volume.
- b. At least once per 31 days on a STAGGERED TEST BASIS by starting the electric motor driven pump and operating it for at least 15 minutes. This test shall be performed on a STAGGERED TEST BASIS with the test required by 4.7.11.1.2.a.2.
- c. At least once per 31 days by 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.
- d. At least once per 12 months by performance of a system flush of the filled portions of the system.
- e. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- f. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:
  1. Verifying that each automatic valve in the flow path actuates to its correct position,
  2. Verifying that each pump develops at least 2500 gpm at a discharge pressure of 125 psig,
  3. Verifying that each high pressure pump starts (sequentially) to maintain the fire suppression water system pressure  $\geq$  80 psig.
- g. At least once per refueling interval by: (1) performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association, and (2) performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence and cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

## PLANT SYSTEMS

### SPRAY AND/OR SPRINKLER SYSTEMS

#### LIMITING CONDITION FOR OPERATION

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3.7.11.2 The spray and/or sprinkler systems shown in Table 3.7-5 shall be OPERABLE:

APPLICABILITY: Whenever equipment in the spray/sprinkler protected areas is required to be OPERABLE.

#### ACTION:

- a. With one or more of the required spray and/or sprinkler systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant safe shutdown systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule of restoring the system to OPERABLE status.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.7.11.2 Each of the above required spray and/or sprinkler 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, not locked, sealed or otherwise secured in position, is in its correct position.
- b. At least once per 12 months by cycling each valve in the flow path through at least one complete cycle of full travel.
- c. At least once per 18 months
  1. By performing a system functional test which includes simulated automatic actuation of the system, and verifying that the automatic valves in the flow path actuate to their correct positions on a simulated test signal.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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2. By a visual inspection of the area in the vicinity of each nozzle(s) to verify the spray pattern will not be obstructed.

## PLANT SYSTEMS

### FIRE HOSE STATIONS

#### LIMITING CONDITION FOR OPERATION

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3.7.11.4 The fire hose stations shown in Table 3.7-6 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 inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an **OPERABLE** hose station within 1 hour. Restore the fire hose station(s) to **OPERABLE** status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the fire hose station(s) to **OPERABLE** status.
- b. The provision of Specification 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.7.11.4 Each of the fire hose stations shown in Table 3.7-6 shall be demonstrated **OPERABLE**;

- a. At least once per 31 days by visual inspection of the station to assure all required equipment is at the station. Hose stations located in the containment shall be visually inspected on each scheduled reactor shutdown, but not more frequently than every 31 days.
- b. At least once per 18 months for hose stations located outside the containment and once per refueling interval for hose stations inside the containment by:
  1. Removing the hose for inspection and re-racking, and
  2. Replacement of all degraded gaskets in couplings.
- c. At least once per 3 years for hose stations located outside the containment and once per refueling interval for hose stations inside the containment 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 at least 50 psig greater than the maximum pressure available at that hose station or replacement with a new hose.

## INSTRUMENTATION

### LIMITING CONDITION FOR OPERATION

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An OPERABLE quadrant symmetric incore detector segment group shall consist of a minimum of three OPERABLE rhodium incore detector segments in 90° symmetric fuel assemblies.

APPLICABILITY: When the incore detection system is used for:

- a. Monitoring the AZIMUTHAL POWER TILT,
- b. Recalibration of the excore neutron flux detection system, or
- c. Monitoring the UNRODDED PLANAR RADIAL PEAKING FACTOR, the UNRODDED INTEGRATED RADIAL PEAKING FACTOR, or the linear heat rate.

### ACTION:

With the incore detection system inoperable, do not use the system for the above applicable monitoring or calibration functions. The provisions of specification 3.0.3 and 3.0.4 are not applicable.

### SURVEILLANCE REQUIREMENTS

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4.3.3.2 The incore detection system shall be demonstrated OPERABLE:

- a. By performance of a CHANNEL CHECK within 24 hours prior to its use and at least once per 7 days thereafter when required for:
  1. Monitoring the AZIMUTHAL POWER TILT.
  2. Recalibration of the excore neutron flux detection system.
  3. Monitoring the UNRODDED PLANAR RADIAL PEAKING FACTOR, the UNRODDED INTEGRATED RADIAL PEAKING FACTOR, or the linear heat rate.
- b. At least once per 18 months by performance of a CHANNEL CALIBRATION operation which exempts the neutron detectors but includes all electronic components. The neutron detectors shall be calibrated prior to installation in the reactor core.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS

4.7.11.1.1 The fire suppression water system shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying the contained water supply volume.
- b. At least once per 31 days on a STAGGERED TEST BASIS by starting the electric motor driven pump and operating it for at least 15 minutes. This test shall be performed on a STAGGERED TEST BASIS with the test required by 4.7.11.1.2.a.2.
- c. At least once per 31 days by 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.
- d. At least once per 12 months by performance of a system flush of the filled portions of the system.
- e. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- f. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:
  1. Verifying that each automatic valve in the flow path actuates to its correct position,
  2. Verifying that each pump develops at least 2500 gpm at a discharge pressure of 125 psig,
  3. Verifying that each high pressure pump starts (sequentially) to maintain the fire suppression water system pressure  $\geq$  80 psig.
- g. At least once per refueling interval by: (1) performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association, and (2) performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence and cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

## PLANT SYSTEMS

### SPRAY AND/OR SPRINKLER SYSTEMS

#### LIMITING CONDITION FOR OPERATION

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3.7.11.2 The spray and/or sprinkler systems shown in Table 3.7-5 shall be OPERABLE:

APPLICABILITY: Whenever equipment in the spray/sprinkler protected areas is required to be OPERABLE.

ACTION:

- a. With one or more of the required spray and/or sprinkler systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant safe shutdown systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule of restoring the system to OPERABLE status.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.7.11.2 Each of the above required spray and/or sprinkler 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, not locked, sealed or otherwise secured in position, is in its correct position.
- b. At least once per 12 months by cycling each valve in the flow path through at least one complete cycle of full travel.
- c. At least once per 18 months
  1. By performing a system functional test which includes simulated automatic actuation of the system, and verifying that the automatic valves in the flow path actuate to their correct positions on a simulated test signal.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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2. By a visual inspection of the area in the vicinity of each nozzle(s) to verify the spray pattern will not be obstructed.

TABLE 3.7-5  
FIPE PROTECTION SPRINKLERS  
UNIT 2

<u>SPRINKLER LOCATION</u>	<u>CONTROL VALVE ELEVATION</u>
Unit 2 Aux Feed Pump Room 605*	12'-0"
Unit 2 East Piping Area Room 408*	45'-0"
Unit 2 East Elec Pen Room 409*	45'-0"
Unit 2 West Elec Pen Room 414*	45'-0"
Cable Chase 2A*	45'-0"
Cable Chase 2B*	45'-0"
Unit 2 Main Steam Piping Room 309*	45'-0"
Unit 2 Component Cooling Pp Room 201	5'-0"
Unit 2 East Piping Area 203*	5'-0"
Unit 2 Rad Exh Vent Equip Room 204*	5'-0"
Unit 2 Service Water Pp Room 205*	5'-0"
Unit 2 Boric Acid Tk and Pp Room 215*	5'-0"
Unit 2 Reactor Coolant Makeup Pump Room 216A*	5'-0"
Unit 2 Charging Pump Room 105*	(-)10'-0"
Unit 2 Misc Waste Monitor Tk Room 106*	(-)10'-0"
Unit 2 ECCS Pump Room 101*	(-)15'-0"
21 Diesel Generator	45'-0"
Unit 2 East Pipe Pen Room 206/310*	5'-0"

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\* Sprinklers required to ensure the OPERABILITY of redundant safe shutdown equipment.

## PLANT SYSTEMS

### FIRE HOSE STATIONS

#### LIMITING CONDITION FOR OPERATION

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3.7.11.4 The fire hose stations shown in Table 3.7-6 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 inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an OPERABLE hose station within 1 hour. Restore the fire hose station(s) to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the fire hose station(s) to OPERABLE status.
- b. The provision of Specification 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.7.11.4 Each of the fire hose stations shown in Table 3.7-6 shall be demonstrated OPERABLE;

- a. At least once per 31 days by visual inspection of the station to assure all required equipment is at the station. Hose stations located in the containment shall be visually inspected on each scheduled reactor shutdown, but not more frequently than every 31 days.
- b. At least once per 18 months for hose stations located outside the containment and once per refueling interval for hose stations inside the containment by:
  1. Removing the hose for inspection and re-racking, and
  2. Replacement of all degraded gaskets in couplings.
- c. At least once per 3 years for hose stations located outside the containment and once per refueling interval for hose stations inside the containment 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 at least 50 psig greater than the maximum pressure available at that hose station or replacement with a new hose.

## REACTIVITY CONTROL SYSTEMS

### CEA DROP TIME

#### LIMITING CONDITION FOR OPERATION

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3.1.3.4 The individual full length (shutdown and control) CEA drop time, from a fully withdrawn position, shall be  $\leq 3.1$  seconds from when the electrical power is interrupted to the CEA drive mechanism until the CEA reaches its 90 percent insertion position with:

- a.  $T_{avg} \geq 515^{\circ}\text{F}$ , and
- b. All reactor coolant pumps operating.

APPLICABILITY: **MODES 1 and 2.**

#### ACTION:

- a. With the drop time of any full length CEA determined to exceed the above limit, restore the CEA drop time to within the above limit prior to proceeding to **MODE 1 or 2.**
- b. With the CEA drop times within limits but determined at less than full reactor coolant flow, operation may proceed provided **THERMAL POWER** is restricted to less than or equal to the maximum **THERMAL POWER** level allowable for the reactor coolant pump combination operating at the time of CEA drop time determination.

#### SURVEILLANCE REQUIREMENTS

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4.1.3.4 The CEA drop time of full length CEAs shall be demonstrated through measurement prior to reactor criticality:

- a. For all CEAs following each removal of the reactor vessel head,
- b. For specifically affected individual CEAs following any maintenance on or modification to the CEA drive system which could affect the drop time of those specific CEAs, and
- c. At least once per refueling interval.

## REFUELING OPERATIONS

### CONTAINMENT PENETRATIONS

#### LIMITING CONDITION FOR OPERATION

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- 3.9.4 The containment penetrations shall be in the following status:
- a. The equipment door closed and held in place by a minimum of four bolts,
  - b. A minimum of one door in each airlock is closed\*, and
  - c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:
    1. Closed by an isolation valve, blind flange, or manual valve, or
    2. Be capable of being closed by an OPERABLE automatic containment purge valve.

**APPLICABILITY:** During CORE ALTERATIONS or movement of irradiated fuel within the containment.

#### **ACTION:**

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.9.4.1 Each of the above required containment penetrations shall be determined to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment purge valve within 72 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment by:

- a. Verifying the penetrations are in their closed/isolated condition, or
- b. Demonstrating that the containment purge valves are OPERABLE by:
  1. Verifying that on each Containment Radiation - High Channel A or Channel B test signal, both required containment purge valves actuate to their isolation position, and
  2. Verifying that containment purge valve isolation occurs on manual initiation.

4.9.4.2 The isolation time of each containment purge valve shall be determined to be  $\leq 7$  seconds when tested pursuant to Technical Specification 4.0.5

4.9.4.3 The containment purge valves shall be demonstrated OPERABLE prior to returning the valves to automatic service after maintenance, repair, or replacement work is performed on the purge valve or its associated actuator, control, or power circuit by performance of a cycling test and verification of isolation time.

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\* The emergency escape hatch temporary closure device is an acceptable replacement for that airlock door.