

## 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:  
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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 compute at least two AZIMUTHAL POWER TILT values at ~~each~~ of the four axial elevations containing incore detectors. three

- b. For recalibration of the excore neutron flux detection system:

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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:

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1. At least 75% of all incore detector locations,
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.

## 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 specifications 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 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.