

### 1.5.5 Heat Balance Check

A heat balance check is a comparison of the indicated neutron power and core thermal power.

### 1.5.6 Heat Balance Calibration

An adjustment of the power range channel amplifiers output to agree with the core thermal power as determined by a heat balance on the secondary side of the steam generator considering all heat losses and additions.

## 1.6 POWER DISTRIBUTION

### 1.6.1 Quadrant Power Tilt

Quadrant power tilt is defined by the following equation and is expressed in percent.

$$100 \left( \frac{\text{Power in any core quadrant}}{\text{Average power of all quadrants}} - 1 \right)$$

### 1.6.2 Reactor Power Imbalance

Reactor power imbalance is the power in the top half of the core minus the power in the bottom half of the core expressed as a percentage of rated power. Imbalance is monitored continuously by the RPS using input from the power range channels. Imbalance limits are defined in Specification 2.1 and imbalance setpoints are defined in Specification 2.3.

## 1.7 CONTAINMENT INTEGRITY

Containment integrity exists when the following conditions are satisfied:

- a. The equipment hatch is closed and sealed and both doors of the personnel hatch and emergency hatch are closed and sealed except as in b below.
- b. At least one door of the personnel hatch and the emergency hatch is closed and sealed during refueling or during personnel passage through these hatches.
- c. All non-automatic containment isolation valves and blind flanges are closed as required.
- d. All automatic containment isolation valves are operable or locked closed.
- e. The containment leakage determined at the last testing interval satisfies Specification 4.4.1.

### 3.5.4 Incore Instrumentation

#### Applicability

Applies to the operability of the incore instrumentation system

#### Objective

To specify the functional and operational requirements of the incore instrumentation system.

#### Specification

3.5.4.1 At or above 80 percent of the power allowable for the existing reactor coolant pump operating combination, incore detectors shall be operable as necessary to meet the following:

a. For axial imbalance measurements:

At least three detectors in each of at least three strings shall lie in the same axial plane, with one plane in each axial core half. The axial planes in each core half shall be symmetrical about the core mid-plane. The detector strings shall not have radial symmetry.

b. For quadrant power tilt measurements:

At least two sets of at least four detectors shall lie in each axial core half. Each set of detectors shall lie in the same axial plane. The two sets in the same core half may lie in the same axial plane. Detectors in the same plane shall have quarter core radial symmetry.

3.5.4.2 If requirements of 3.5.4.1 are not met, power shall be reduced below 80 percent of the power allowable for the existing reactor coolant pump combination within eight hours and incore detector measurements shall not be used to determine axial imbalance or quadrant power tilt.

#### Bases

The operability of the incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. See Figures 3.5.4-1, 3.5.4-2, and 3.5.4-3 for satisfactory incore detector arrangements.

The safety of reactor operation at or below 80 percent of the power allowable for the reactor coolant pump combination<sup>(1)</sup> without the axial imbalance trip system has been determined by extensive 3-D calculations, and was verified during the physics startup testing program.

(1) FSAR, Section 4.1.1.3