NRC INSPECTION MANUAL

INSPECTION PROCEDURE 72504

HEATUP PHASE PROCEDURES REVIEW

PROGRAM APPLICABILITY:

72504-01 INSPECTION OBJECTIVES

Ascertain whether selected procedures to be used for heatup phase testing are consistent with FSAR commitments, regulatory requirements, technical specification requirements, regulatory guidance, and applicable codes and standards.

72504-02 INSPECTION REQUIREMENTS

BWR Heat-Up Phase Procedure Review. The inspector shall review 2 of the following 3 procedures:

02.01 The final leak test of the reactor coolant system. The Inspector shall:

a. Review the FSAR, DL Safety Evaluation Report, and docketed letters from the licensee and verify that the testing commitments have been included.

b. Verify standard procedure review requirements are met as defined in Procedure 72300.

c. Confirm that acceptance criteria include:

1. Reactor system coolant leaks shall be within technical specification limits.

2. Reactor Coolant System pressure shall be within code and technical specification requirements.

d. Confirm that initial conditions include:

1. Head installed

2. System pressure and temperature defined for test performance.

e. Verify that test methods include:

1. Visual survey of plant systems and sump levels to assure reactor coolant system integrity.

02.02 Control Rod Drive Systems. The Inspector shall:

a. Review the FSAR, DL Safety Evaluation Report, and docketed letters from the licensee and verify that the testing commitments have been included.

b. Verify standard procedure review requirements are met as defined in Procedure 72300.

c. Review acceptance criteria to assure:

1. Rod withdrawal speed within technical specification limits

2. Mean scram time for all rods and individual rod scram times within technical specification limits.

3. Mean scram time - three fastest rods in a 2 x 2 array

4. CRD friction tests within specified values

d. Review initial conditions to verify that the test requires:

1. Data from previous pre-ops tests are at hand

2. Rod indicating system is operating properly

3. Each CRD is proven to be coupled

4. Reactor water level is above the upper grid plate

e. Assure that test conditions include the following tests:

1. Scram tests sufficient to satisfy Regulatory Guide 1.68 guidance and technical specification surveillance test requirements.

2. CRD friction tests

02.03 MSIV Testing. The inspector shall:

a. Review the FSAR, RL Safety Evaluation Report, and docketed letters from the licensee and verify that the testing commitments have been met.

b. Verify standard Procedure review requirements are met as defined in Procedure 72300.

c. Assure that acceptance criteria include:

1. MSIV closure time limits

d. Verify that the procedure defines the initial condition as steady state condition for the reactor at rated temperature and pressure (Hot Standby).

e. Confirm that test conditions include:

1. Fast closure, all valves tested individually, manual actuation

2. Slow closure to 90%-open all valves tested each singly, manual actuation

3. Fast closure, all valves actuated by isolation system trip.

72504-03 INSPECTION GUIDANCE

03.01 Final Leak Test

c.2 Maximum allowable pressure is defined in technical specifications.

d.2 Pressurization must not proceed until NDTT limits are satisfied. Pressurization should be within 100 psi of normal operating pressure.

e.1 The Procedure should define areas to be inspected and prescribe areas where leakage is expected. Tolerable leakage rates must be pre-defined for expected leakage. Checklists should be included to control the inspection.

03.02 CRD Tests

e.1 Normally these tests include the following:

(a) At 600 and 800 psi reactor coolant pressure, (core flow not significant) selected rods are scrammed to assure lack of pressure dependence.

(b) At full pressure (950-1050 psi) all rods are scrammed both at full flow and at no flow.

(c) Selected rods are scrammed with the reactor at rated pressure, but with zero CRD accumulator pressure.

(d) Provisions for subsequent testing if out of limit results are encountered.

03.03 MSIV Testing

c.1 Closure limits are normally specified in technical specifications.

END