

LIMITING CONDITIONS FOR OPERATION

3.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability

Applies to the operational status of the core and suppression pool cooling subsystems.

Objective

To assure the operability of the core and suppression pool cooling subsystems under all conditions for which this cooling capability is an essential response to station abnormalities.

Specification

A. Core Spray and LPCI Subsystems

1. Both core spray subsystems shall be operable whenever irradiated fuel is in the vessel and prior to reactor startup from a Cold Condition, except as specified in 3.5.A.2 below.

SURVEILLANCE REQUIREMENT

4.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability

Applies to the Surveillance Requirement of the core and suppression pool cooling subsystems which are required when the corresponding limiting Condition for operation is in effect.

Objective

To verify the operability of the core and suppression pool cooling subsystems under all conditions for which this cooling capability is an essential response to station abnormalities.

Specification

A. Core Spray and LPCI Subsystems

1. Core Spray Subsystem Testing.

| <u>Item</u> | <u>Frequency</u> |
|--|----------------------|
| a. Simulated Automatic Actuation test. | Once/Operating Cycle |
| b. Pump Operability | Once/month |
| c. Motor Operated Valve Operability | Once/month |
| d. Pump flow rate. Each pump shall deliver at least 3600 gpm against a system head corresponding to a reactor vessel pressure at 104 psig. | |
| e. Core Spray Header Δp Instrumentation | |

LIMITING CONDITIONS FOR OPERATION

3.5.A Core Spray and LPCI Subsystems (Cont'd)

2. From and after the date that one of the core spray subsystems is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding seven days, provided that during such seven days all active components of the other core spray subsystem and active components of the LPCI subsystem and the diesel generators are operable.
3. The LPCI Subsystems shall be operable whenever irradiated fuel is in the reactor vessel, and prior to reactor startup from a Cold Condition, except as specified in 3.5.A.4, 3.5.A.5 and 3.5.F.5.

SURVEILLANCE REQUIREMENT

4.5.A Core Spray and LPCI Subsystems (Cont'd)

| | |
|-----------|------------------|
| Check | Once/Day |
| Calibrate | Once/3 months |
| Test | Once/3 months |

2. When it is determined that one core spray subsystem is inoperable, the operable core spray subsystem, the LPCI subsystem and the diesel generators shall be demonstrated to be operable immediately. The operable core spray subsystem shall be demonstrated to be operable daily thereafter.
3. LPCI Subsystem Testing shall be as follows:
 - a. Simulated Automatic Actuation Test Once/Operating Cycle
 - b. Pump Operability Once/month
 - c. Motor Operated Valve Operability Once/month

- d. Pump Flow Once/3 months

Three LPCI pumps shall deliver 14,400 gpm against a system head corresponding to a vessel pressure of 20 psig.

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*3.5.B Containment Cooling Subsystem

1. Except as specified in 3.5.B.2, 3.5.B.3, and 3.5.F.3 below, both containment cooling subsystem loops shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F, and prior to reactor startup from a Cold Condition.

SURVEILLANCE REQUIREMENT

4.5.B Containment Cooling Subsystem

1. Containment Cooling Subsystem Testing shall be as follows:

| <u>Item</u> | <u>Frequency</u> |
|---|---|
| a. Pump & Valve Operability | Once/3 months |
| b. Pump Capacity Test. Each RBCCW pump shall deliver 1700 gpm at 70 Ft. TDH. Each SSWS pump shall deliver 2700 gpm at 55 ft. TDH. | After pump maintenance and every 3 months |
| c. Air test on drywell and torus headers and nozzles | Once/5 years |

*Conditional relief granted from this LCO for the period October 31, 1980 through November 7, 1980.

LIMITING CONDITIONS FOR OPERATION

*3.5.B Containment Cooling Subsystem

2. From and after the date that one containment cooling subsystem loop is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless such subsystem loop is sooner made operable, provided that the other containment cooling subsystem loop, including its associated diesel generator, is operable.
3. If the requirements of 3.5.B cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown Condition within 24 hours.

C. HPCI Subsystem

1. The HPCI Subsystem shall be operable whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 104 psig, and prior to reactor startup from a Cold Condition, except as specified in 3.5.C.2 and 3.5.C.3 below.

*Conditional relief granted from this LCO for the period October 31, 1980 through November 7, 1980.

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SURVEILLANCE REQUIREMENT

4.5.B Containment Cooling Subsystem (Cont'd)

2. When one containment cooling subsystem loop becomes inoperable, the operable subsystem loop and its associated diesel generator shall be demonstrated to be operable immediately and the operable containment cooling subsystem loop daily thereafter.

C. HPCI Subsystem

1. HPCI Subsystem testing shall be performed as follows:

- | | | |
|----|------------------------------------|----------------------|
| a. | Simulated Automatic Actuation Test | Once/operating cycle |
| b. | Pump Operability | Once/month |
| c. | Motor Operated Valve Operability | Once/month |
| d. | Flow Rate at 1000 psig | Once/3 months |
| e. | Flow Rate at 150 psig | Once/operating cycle |

LIMITING CONDITIONS FOR OPERATION

3.5.C HPCI Subsystem (Cont'd)

2. From and after the date that the HPCI Subsystem is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless such subsystem is sooner made operable, providing that during such seven days all active components of the ADS subsystem, the RCIC system, the LPCI subsystem and both core spray subsystems are operable.
3. If the requirements of 3.5.C cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to or below 104 psig within 24 hours.

3.5.D Reactor Core Isolation Cooling (RCIC) Subsystem

1. The RCIC Subsystem shall be operable whenever there is irradiated fuel in the reactor vessel, the reactor pressure is greater than 104 psig, and prior to reactor startup from a Cold Condition, except as specified in 3.5.D.2 below.

SURVEILLANCE REQUIREMENT

4.5.C HPCI Subsystem (Cont'd)

The HPCI pump shall deliver at least 4250 gpm for a system head corresponding to a reactor pressure of 1000 to 150 psig.

2. When it is determined that the HPCI Subsystem is inoperable the RCIC, the LPCI subsystem, both core spray subsystems, and the ADS subsystem actuation logic shall be demonstrated to be operable immediately. The RCIC system and ADS subsystem logic shall be demonstrated to be operable daily thereafter.

4.5.D Reactor Core Isolation Cooling (RCIC) Subsystem

1. The RCIC Subsystem testing shall be performed as follows:
 - a. Simulated Automatic Actuation Test Once/operating cycle
 - b. Pump Operability Once/month
 - c. Motor Operated Valve Operability Once/month

LIMITING CONDITIONS FOR OPERATION

3.5.D Reactor Core Isolation Cooling (RCIC) Subsystem (Cont'd)

2. From and after the date that the RCICS is made or found to be inoperable for any reason, continued reactor power operation is permissible only during the succeeding seven days provided that during such seven days the HPCIS is operable.
3. If the requirements of 3.5.D cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to or below 104 psig within 24 hours.

3.5.E Automatic Depressurization System (ADS)

1. The Automatic Depressurization Subsystem shall be operable whenever there is irradiated fuel in the reactor vessel and the reactor pressure is greater than 104 psig and prior to a startup from a Cold Condition, except as specified in 3.5.E.2 below.

SURVEILLANCE REQUIREMENT

4.5.D Reactor Core Isolation Cooling (RCIC) Subsystem (Cont'd)

- d. Flow Rate Once/3 months
at 1000
psig
- e. Flow Rate Once/operating
at 150 cycle
psig

The RCIC pump shall deliver at least 400 gpm for a system head corresponding to a reactor pressure of 1000 to 150 psig.

2. When it is determined that the RCIC subsystem is inoperable, the HPCIS shall be demonstrated to be operable immediately and weekly thereafter.

4.5.E Automatic Depressurization System (ADS)

1. During each operating cycle the following tests shall be performed on the ADS:
 - a. A simulated automatic actuation test shall be performed prior to startup after each refueling outage.
 - b. With the reactor at pressure, each relief valve shall be manually opened until a corresponding change in reactor pressure or main turbine bypass valve positions indicate that steam is flowing from the valve.

3.9 AUXILIARY ELECTRICAL SYSTEMApplicability:

Applies to the auxiliary electrical power system.

Objective:

To assure an adequate supply of electrical power for operation of those systems required for safety.

Specification:A. Auxiliary Electrical Equipment

The reactor shall not be made critical unless all of the following conditions are satisfied.

1. At least one offsite transmission line and the startup transformer are available and capable of automatically supplying auxiliary power to the emergency buses.
2. An additional source of offsite power consisting of one of the following:
 - a. A transmission line and shutdown transformer capable of supplying power to the emergency 4160 volt buses.
 - b. The main transformer and unit auxiliary transformer available and capable of supplying power to the emergency 4160 volt buses.
3. Both diesel generators shall be operable. Each diesel generator shall have a minimum of 19,800 gallons of diesel fuel on site.

4.9 AUXILIARY ELECTRICAL SYSTEMApplicability:

Applies to the periodic testing requirements of the auxiliary electrical systems.

Objective:

Verify the operability of the auxiliary electrical system.

Specification:A. Auxiliary Electrical Equipment Surveillance

1. Diesel Generators

- a. Each diesel generator shall be manually started and loaded once each month to demonstrate operational readiness. The test shall continue for at least a one hour period at rated load.

During the monthly generator test the diesel generator starting air compressor shall be checked for operation and its ability to recharge air receivers. The operation of the diesel fuel oil transfer pumps shall be demonstrated, and the diesel starting time to reach rated voltage and frequency shall be logged.

- b. Once per operating cycle the condition under which the diesel generator is required will be simulated and a test conducted to demonstrate that it will start and accept the emergency load within the specified time sequence. The results shall be logged.

3.12G Alternate Shutdown Panels

1. Alternate shutdown panels for the systems listed below shall be OPERABLE at all times that the system is required to be operable except as specified in 3.12G.2.
 - a. Core Spray
 - b. RHR
 - c. RBCCW
 - d. Salt Service Water
 - e. HPCI
 - f. RCIC
 - g. Automatic Depressurization
 - h. Diesel Generators
2. With any of the alternate shutdown panels inoperable, immediately verify that fire detection with automatic fire suppression for the Cable Spreading Room is OPERABLE. If fire detection with automatic fire suppression cannot be determined operable, take appropriate action as described in Section 3.12.D of the Tech. Specs.

4.12G Alternate Shutdown Panels

1. Components listed below shall be operated from the alternate shutdown panels once/cycle.

Core Spray

Motor operated valves.

RHR

Motor operated valves utilizing the MCC B-17 alternate power source.

SSWS

Pumps.

RBCCWS

Pumps and motor operated valves.

2. Alternate shutdown panel capability for the systems listed below shall be verified to be operable once/cycle.

RCICHPCI

3. The systems listed below shall be tested as follows:

AUTOMATIC DEPRESSURIZATION SYSTEM (ADS)

Perform a test from the alternate shutdown panel to verify that the relief valve solenoids actuate. Test shall be performed after each refueling outage prior to startup

DIESEL GENERATORS

Once/refueling outage the diesel generator control circuits shall be isolated from the Cable Spreading Room and the diesel generator started and loaded.

3.12G Alternate Shutdown Panels

The alternate shutdown system, independent of cabling and equipment in the Cable Spreading Room is provided to effect safe shutdown of Pilgrim in the event of a fire in the Cable Spreading Room. This is accomplished by installing isolation switches for safety-related equipment that will provide the capability for the plant operators to reach a safe shutdown condition. These switches will isolate their associated equipment from the CSR cables, thus transfer control from the Control Room to the local emergency shutdown stations outside the CSR. These isolation switches are located in alternate shutdown panels and are located as close as practical to the equipment or switchgear they serve.

The operability of the fire suppression and detection system in the Cable Spreading Room in conjunction with the passive element of cable coating ensures that adequate fire protection/detection/suppression capability is available to quickly detect, confine and extinguish fires occurring in any portion of the room where safety-related equipment is located. The fire detection/suppression system consists of an independent smoke detection system, an automatic Halon 1301 Fire Suppression system and fire hose stations available outside the doorways to the Cable Spreading Room. The collective capability of passive protection and detection with either manual or automatic suppression is adequate to minimize potential damage to safety-related equipment and is a major element in the facility fire protection program.

An emergency shutdown procedure, which is compatible with the design modifications and plant operator availability, provides step-by-step actions to initiate safe shutdown operation. Operator actions to isolate safety-related cables passing through the CSR is initiated as soon as a fire which is not immediately extinguishable is detected and confirmed in the CSR.

Alternate shutdown panels are provided for the following systems:

- a. Core Spray
- b. RHR
- c. RBCCW
- d. Salt Service Water
- e. HPCI
- f. RCIC
- g. Automatic Depressurization System
- h. Diesel Generators

Inoperability of the above listed systems does not require entry into LCO action statements for the alternate shutdown panels.

A surveillance frequency of once per cycle is considered prudent and more frequent testing not warranted. The frequency of once per refueling outage for testing the diesel generators prevents unnecessarily rendering them inoperable during normal power operation. The frequency of once per refueling outage for the Automatic Depressurization System is consistent with the existing surveillance frequency for this system. Requiring this surveillance to be performed during a refueling outage will also assure that plant conditions will allow for safe access to the ADS solenoids.