Attachment 1

Duke Power Company
Oconee Nuclear Station

Proposed Technical Specification Revision

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3.6 REACTOR BUILDING

Applicability

Applies to the containment when the reactor is in conditions other than refueling shutdown.

Objective

To assure containment integrity during shutdown (other than refueling shutdown), startup and operation.

Specification

3.6.1 Containment integrity shall be maintained whenever all three (3) of the following conditions exist:

a. Reactor coolant pressure is 300 psig or greater
b. Reactor coolant temperature is 200°F or greater
c. Nuclear fuel is in the core

3.6.2 Containment integrity shall be maintained whenever the reactor is subcritical by less than 1% $\Delta k/k$ or whenever positive reactivity insertions are being made which would result in the reactor being subcritical by less than 1% $\Delta k/k$.

3.6.3 Exceptions to 3.6.1 and 3.6.2 shall be as follows:

a. If either the personnel or emergency hatches become inoperable, except as a result of an inoperable door gasket, the hatch shall be restored to an operable status within 24 hours, or the reactor shall be in cold shutdown within the next 36 hours.

If a hatch is inoperable due to an inoperable door gasket:

1. The remaining door of the affected hatch shall be closed and sealed. If the inner door gasket is inoperable, momentary passage (not to exceed 10 minutes for each opening) is permitted through the outer door for repair or test of the inner door, provided that the outer door gasket is leak tested within 24 hours after opening of the outer door.

2. The hatch shall be restored to operable status within seven days or the reactor shall be in cold shutdown within the next 36 hours.

b. The Reactor Building purge supply and exhaust isolation valves shall be closed except as allowed by Specification 3.6.3.b.1 and 3.6.3.b.2.

1. The Reactor Building purge system may be operated, with the supply and exhaust isolation valves open, when the Reactor Coolant System temperature is below 250°F and pressure is below 350 psig.

2. For plant conditions when the Reactor Coolant System temperature is above 250°F and pressure is above 350 psig but the reactor is at or below hot shutdown, one Reactor Building Purge isolation valve on each penetration may be open for testing and/or maintenance per Specification 4.4.4.1 and 3.6.6.

3. For plant conditions other than contained in Specification 3.6.3.b.1, .2 above, with one or more Reactor Building purge valves open, the open valves shall be closed within one hour, or the plant shall be in hot shutdown within 12 hours and within an additional 24 hours, Reactor Coolant System temperature below 250°F and pressure below 350 psig.

c. A containment isolation valve, other than a Reactor Building Purge isolation valve, may be inoperable provided either:

1. The inoperable valve is restored to operable status within four hours.

2. The affected penetration is isolated within four hours by the use of a deactivated automatic valve secured and locked in the isolated position.

3. The affected penetration is isolated within four hours by the use of a closed manual valve or blind flange.

4. The reactor is in the hot shutdown condition within 12 hours and cold shutdown within 24 hours.

3.6.4 The reactor building internal pressure shall not exceed 1.5 psig or five inches of Hg if the reactor is critical.

3.6.5 Prior to criticality following refueling shutdown, a check shall be made to confirm that all manual containment isolation valves which should be closed are closed and tagged.

3.6.6 The combined leakage rate for all penetrations and valves shall be determined in accordance with Specification 4.4.1.2. If, based on the most recent surveillance testing results the combined leakage rate exceeds the specified value and containment integrity is required then,

1) corrective action of Specification 3.6.3.c is met, or

2) repairs shall be initiated immediately and conformance with specified value shall be demonstrated within 48 hours or the reactor shall be in cold shutdown within an additional 36 hours.

Bases

The Reactor Coolant System conditions of cold shutdown assure that no steam will be formed and hence no pressure buildup in the containment if the Reactor Coolant System ruptures.

The selected shutdown conditions are based on the type of activities that are being carried out and will preclude criticality in any occurrence.

The reactor building is designed for an internal pressure of 59 psig and an external pressure 3.0 psi greater than the internal pressure. The design external pressure of 3.0 psi corresponds to a margin of 0.5 psi above the differential pressure that could be developed if the building is sealed with an internal temperature of 120°F with a barometric pressure of 29.0 inches of Hg and the building is subsequently cooled to an internal temperature of 80°F with a concurrent rise in barometric pressure to 31.0 inches of Hg. The weather conditions assumed here are conservative since an evaluation of National Weather Service records for this area indicates that from 1918 to 1970 the lowest barometric pressure recorded is 29.05 inches of Hg and the highest of 30.85 inches of Hg.

Operation with a personnel or emergency hatch inoperable does not impair containment integrity since either door meets the design specifications for structural integrity and leak rate. Momentary passage through the outer door is necessary should the inner door gasket be inoperative to install or remove auxiliary restraint beams on the inner door to allow testing of the hatch. The time limits imposed permit completion of maintenance action and the performance of a local leak rate test when required or the orderly shutdown and cooldown of the reactor. Timely corrective action for an inoperable containment isolation valve is also specified.

When containment integrity is established, the limits of 10CFR100 will not be exceeded should the maximum hypothetical accident occur.

The Reactor Building purge system was designed to allow cleanup of the Reactor Building atmosphere. It is normally operated during a unit shutdown which will require entry into the Reactor Building. It is used to purge the Reactor Building with fresh air to reduce the contaminant levels within the Building atmosphere, thus reducing overall personnel exposure. At times, certain safety related functions necessitate entry into the Reactor Building prior to cold shutdown conditions. These include isolation of leaking primary coolant system valves and visual inspections following outages. Use of the purge system tends to minimize any personnel exposure while not significantly contributing to overall plant risk.

The Reactor Building Purge System is required to be isolated whenever the RCS temperature is above 250°F and pressure is above 350 psig. The maximum pressure limit of 350 psig is based on the Oconee Unit 1 NPSH curve for RC pump operation. This will give a reasonable operating margin for the pumps while operating the purge. The LCO allows one isolation valve to be open on each penetration at or below hot shutdown for testing/or maintenance.

REFERENCES

FSAR, Section 3.8

4.4.4 Reactor Building Purge System

Applicability

Applies to the Reactor Building Purge System.

Objective

To verify that the Reactor Building Purge System is operable.

Specification

4.4.4.1 Each shutdown, when the purge valves have been operated, leakage integrity tests shall be performed on the containment purge isolation valves after final closing and prior to going above hot shutdown. If the purge valves have not been operated, leakage integrity tests shall be performed prior to going above hot shutdown unless such tests have been conducted within the proceeding six months. If the acceptance criteria of Specification 4.4.1.2.3 are not met, Specification 3.6.6 shall apply. Unit shutdown to conduct the test and/or effect repairs is specifically not required.

4.4.4.2 Monthly, when the unit is above 250°F and 350 psig, the containment purge isolation valves shall be verified closed.

4.4.4.3 Each refueling the valve seals of the containment purge isolation valves shall be visually inspected and adjusted or replaced as appropriate.

4.4.4.4 Prior to use of the purge system at conditions between cold shutdown and 250°F and 350 psig, the isolation valves shall be exercise tested in accordance with the requirements (except test frequency) of the applicable edition of the ASME Boiler and Pressure Vessel Code, Section XI.

4.4.4.5 The pneumatically operated purge isolation valves shall be verified to close in response to a control signal from RIA-45 when the system is tested prior to refueling operations per Specification 3.8.10.

Bases

Leakage integrity tests of the purge supply and isolation valves are conducted in order to identify excessive degradation of the resilient seals. Excessive leakage past resilient seals is typically caused by severe environmental conditions and/or wear due to frequent use.

The pneumatically operated purge isolation valves are tested prior to refueling operations because the only automatic isolation system in service at refueling is through RIA-45, which only closes the pneumatic isolation valves.

Attachment 2

Duke Power Company
Oconee Nuclear Station

Proposed License Amendment
Technical Bases

Duke Power Company
Oconee Nuclear Station

Technical Bases

The proposed Technical Specifications related to the Reactor Building (RB) Purge System are based on guidance provided by NRC Letter dated July 7, 1981. Specification 3.6.3 is revised to reflect a new LCO for the RB Purge System. The RB Purge System is required to be isolated whenever the RCS is above 250°F and pressure is above 350 psig. The values of temperature and pressure were provided as 250°F and 300 psig, respectively, in a letter dated May 10, 1983 to NRC which originally proposed such administrative limits on operation of the RB Purge System. Subsequent review has revealed that the maximum pressure limit should be revised to 350 psig based on the Oconee Unit 1 NPSH curve for RC pump operation. This will give a reasonable operating margin for the pumps while operating the purge. The proposed LCO allows one isolation valve to be open on each penetration at or below hot shutdown for testing and/or maintenance. An action statement which requires timely plant shutdown, consistent with existing action statements, is also included. New specification 4.4.4 is added to reflect the RB Purge System surveillance requirements and the purge valve seal inspection recommendations provided by the NRC.