ATTACHMENT A

DEFINITIONS

MISCELLANEOUS DEFINITIONS

Operable - Operability

A system, subsystem, train, component or devise shall be OPERABLE or have OPERABILITY when it is capable of performing its specified functions(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support functions(s).

In Operation

A system or component is in operation if it is performing its design function.

CEA's

All full length shutdown and regulating control rods.

Non-trippable (NT) CEA's

CEA's which are non-trippable.

Containment Integrity

Containment integrity is defined to exist when all of the following are met:

(1) All nonautomatic containment isolation valves which are not required to be open during accident conditions and blind flanges, except for valves that are open under administrative control as permitted by Specification 2.6(1)a, are closed.

(2) The equipment hatch is properly closed and sealed.

(3) ~~At least one door in~~ The personnel air lock ~~is properly sealed and closed.~~ satisfies Specification 2.6(1)b.

(4) All automatic containment isolation valves are operable, ~~or~~ locked closed, or deactivated and secured in their closed position (or isolated by locked closed valves or blind flanges as permitted by a limiting condition for operation).

(5) The uncontrolled containment leakage satisfies Specification 3.5, and

(6) The sealing mechanism associated with each penetration (e.g., welds, bellows or O-rings) is operable.

~~b.~~ c. Containment integrity shall not be violated when the reactor vessel head is removed if the boron concentration is less than refueling concentration.

~~c.~~ d. Except for testing one CEDM at a time, positive reactivity changes shall not be made by CEA motion or boron dilution unless the containment integrity is intact.

~~d. Prior to the reactor going critical after a refueling outage an administrative check will be made to confirm that all "locked closed" manual containment isolation valves are closed and locked.~~

e. The containment purge isolation valves will be locked closed unless the reactor is in a cold or refueling shutdown condition.

(2) Internal Pressure

The internal pressure shall not exceed 3 psig (except for containment leak rate tests).

(3) Hydrogen Purge System

a. Minimum Requirements

The reactor shall not be made critical unless all of the following requirements are met:

1. The containment isolation valves VA-280 and VA-289 shall be locked closed. Opening of these valves intermittently under administrative control is not allowed.

2. VA-80A and VA-80B with associated valves and piping to include VA-82 filters, are operable.

b. Modification of Minimum Requirements

After the reactor has been made critical, the minimum requirements may be modified to allow either or both of the following statements (i,ii) to be applicable at any one time. If the operability of the component(s) is not restored to meet the minimum requirements within the time specified below, the reactor shall be placed in a hot shutdown condition within six hours.

(i) One of the hydrogen purge fans, VA-80A or VA-80B, with associated valves and~~,~~ piping, may be inoperable provided the fan is restored to operable status within 30 days.

(ii) The hydrogen purge filter system, VA-82, may be inoperable provided the system is restored to operable status with 72 hours.

Basis

The reactor coolant system conditions of cold shutdown assure that no steam will be formed and, hence, there would be no pressure buildup in the containment if the reactor coolant system ruptures. The shutdown margins are selected based on the type of activities that are being carried out. The refueling boron concentration provides a shutdown margin which precludes criticality under any circumstances. Each CEDM must be tested and some have two CEA's attached.

Regarding internal pressure limitations, the containment design pressure of 60 psig would not be exceeded if the internal pressure before a major loss-of-coolant accident were as much as 3 psig.[1] ~~The containment integrity will be protected if the visual check of all "locked-closed" manual isolation valves to verify them closed is made prior to plant start-up after an extended outage where one or more valves could inadvertently be left open.~~ The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment. Operation of the purge isolation valves is prevented during normal operations due to the size of the valves (42 inches) and a concern about their ability to close against the differential pressure that could result from a LOCA or MSLB. Specification 2.6(1)a applies when both doors of the PAL are declared inoperable, or the entire air lock assembly leakage exceeds the requirements of Specification 3.5(4). Specification 2.6(1)b(ii) applies when mechanisms other than a door, such as the inner door equalizing valve, are declared inoperable.

The Hydrogen Purge System is required to be operable in order to control the quantity of combustible gases in containment in a post-LOCA condition.[2] The containment integrity will be protected by ensuring the penetration valves VA-280 and VA-289 are "locked closed" while HCV-881 and HCV-882 are normally closed during power operation. The applicable surveillance testing requirements of Table 3-5 will ensure that the system is capable of performing its design function. The blowers (VA-80A and VA-80B), associated valves, and piping are single failure proof, have been designed as a Seismic Class I System, and are redundant to the VA-82 filter header.

VA-80A or VA-80B with the associated valves and piping may be inoperable for 30 days. The redundancy of the blowers allows one blower with associated valves and piping to be removed from operation while the other train has the capability to provide 100% hydrogen control.

References

(1) USAR, Section 14.16; Figure 14.16-2
(2) Regulatory Guide 1.7 (1971)
(3) USAR, Section 14.17
(4) Engineering Study 86-10, Calculation 53

3.0 SURVEILLANCE REQUIREMENTS

3.5 Containment Test

Applicability

Applies to containment leakage and structural integrity.

Objective

To verify that the:

(1) Locked closed manual containment isolation valves are closed and locked,
~~(1)~~ (2) potential leakage from containment is within acceptable limits, and
~~(2)~~ (3) structural performance of all important components in the containment prestressing system is acceptable.

Specifications

(1) Prior to the reactor going critical after a refueling outage, and at least once per 31 days thereafter, an administrative check will be made to confirm that all "locked closed" manual containment isolation valves, except for valves that are open under administrative control as permitted by Specification 2.6(1)a, are closed and locked. Valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed or otherwise secured in the closed position shall be verified closed during each cold shutdown except that such verification need not be performed more often than once per 92 days.

~~(1)~~ (2) Containment Building Leak Rate Tests

Tests shall be conducted to assure that leakage of the primary reactor containment and associated systems is maintained within allowable leakage rate limits. Periodic surveillance shall be performed to assure proper maintenance and leak repair of the containment structure and penetrations during the plant's operating life.

Definitions of terms used in the leak rate testing specifications:

Leakage Rate - for test purposes is that leakage of containment air which occurs in a unit of time. Stated as a percentage of weight of the original content of containment air at the leakage rate test pressure that escapes to the outside atmosphere during a 24 hour test period.

Maximum Allowable Leakage Rate (L_a) - the design basis leakage rate of 0.1% by weight of the containment atmosphere per 24 hours at a pressure of 60 psig.

Overall Integrated Leakage Rate - that leakage rate which is obtained from a summation of leakage through all potential leakage paths including containment welds, valves, fittings, and components which penetrate containment.

Acceptable Criteria - the standard against which test results are to be compared for establishing the functional acceptability of the containment as a leakage limiting boundary.

DEFINITIONS

MISCELLANEOUS DEFINITIONS

Operable - Operability

A system, subsystem, train, component or devise shall be OPERABLE or have OPERABILITY when it is capable of performing its specified functions(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support functions(s).

In Operation

A system or component is in operation if it is performing its design function.

CEA's

All full length shutdown and regulating control rods.

Non-trippable (NT) CEA's

CEA's which are non-trippable.

Containment Integrity

Containment integrity is defined to exist when all of the following are met:

(1) All nonautomatic containment isolation valves which are not required to be open during accident conditions and blind flanges, except for valves that are open under administrative control as permitted by Specification 2.6(1)a, are closed.

(2) The equipment hatch is properly closed and sealed.

(3) The personnel air lock satisfies Specification 2.6(1)b.

(4) All automatic containment isolation valves are operable, locked closed, or deactivated and secured in their closed position (or isolated by locked closed valves or blind flanges as permitted by a limiting condition for operation).

(5) The uncontrolled containment leakage satisfies Specification 3.5, and

(6) The sealing mechanism associated with each penetration (e.g., welds, bellows or O-rings) is operable.

c. Containment integrity shall not be violated when the reactor vessel head is removed if the boron concentration is less than refueling concentration.

d. Except for testing one CEDM at a time, positive reactivity changes shall not be made by CEA motion or boron dilution unless the containment integrity is intact.

e. The containment purge isolation valves will be locked closed unless the reactor is in a cold or refueling shutdown condition.

(2) Internal Pressure

The internal pressure shall not exceed 3 psig (except for containment leak rate tests).

(3) Hydrogen Purge System

a. Minimum Requirements

The reactor shall not be made critical unless all of the following requirements are met:

1. The containment isolation valves VA-280 and VA-289 shall be locked closed. Opening of these valves intermittently under administrative control is not allowed.

2. VA-80A and VA-80B with associated valves and piping to include VA-82 filters, are operable.

b. Modification of Minimum Requirements

After the reactor has been made critical, the minimum requirements may be modified to allow either or both of the following statements (i,ii) to be applicable at any one time. If the operability of the component(s) is not restored to meet the minimum requirements within the time specified below, the reactor shall be placed in a hot shutdown condition within six hours.

(i) One of the hydrogen purge fans, VA-80A or VA-80B, with associated valves and piping, may be inoperable provided the fan is restored to operable status within 30 days.

(ii) The hydrogen purge filter system, VA-82, may be inoperable provided the system is restored to operable status with 72 hours.

Basis

The reactor coolant system conditions of cold shutdown assure that no steam will be formed and, hence, there would be no pressure buildup in the containment if the reactor coolant system ruptures. The shutdown margins are selected based on the type of activities that are being carried out. The refueling boron concentration provides a shutdown margin which precludes criticality under any circumstances. Each CEDM must be tested and some have two CEA's attached.

Regarding internal pressure limitations, the containment design pressure of 60 psig would not be exceeded if the internal pressure before a major loss-of-coolant accident were as much as 3 psig.[1] The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment. Operation of the purge isolation valves is prevented during normal operations due to the size of the valves (42 inches) and a concern about their ability to close against the differential pressure that could result from a LOCA or MSLB. Specification 2.6(1)a applies when both doors of the PAL are declared inoperable, or the entire air lock assembly leakage exceeds the requirements of Specification 3.5(4). Specification 2.6(1)b(ii) applies when mechanisms other than a door, such as the inner door equalizing valve, are declared inoperable.

The Hydrogen Purge System is required to be operable in order to control the quantity of combustible gases in containment in a post-LOCA condition.[2] The containment integrity will be protected by ensuring the penetration valves VA-280 and VA-289 are "locked closed" while HCV-881 and HCV-882 are normally closed during power operation. The applicable surveillance testing requirements of Table 3-5 will ensure that the system is capable of performing its design function. The blowers (VA-80A and VA-80B), associated valves, and piping are single failure proof, have been designed as a Seismic Class I System, and are redundant to the VA-82 filter header.

VA-80A or VA-80B with the associated valves and piping may be inoperable for 30 days. The redundancy of the blowers allows one blower with associated valves and piping to be removed from operation while the other train has the capability to provide 100% hydrogen control.

References

(1) USAR, Section 14.16; Figure 14.16-2
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3.0 SURVEILLANCE REQUIREMENTS

3.5 Containment Test

Applicability

Applies to containment leakage and structural integrity.

Objective

To verify that the:

(1) Locked closed manual containment isolation valves are closed and locked,
(2) potential leakage from containment is within acceptable limits, and
(3) structural performance of all important components in the containment prestressing system is acceptable.

Specifications

(1) Prior to the reactor going critical after a refueling outage, and at least once per 31 days thereafter, an administrative check will be made to confirm that all "locked closed" manual containment isolation valves, except for valves that are open under administrative control as permitted by Specification 2.6(1)a, are closed and locked. Valves, blind flanges, and deactivated automatic valves which are located inside the containment and are locked, sealed or otherwise secured in the closed position shall be verified closed during each cold shutdown except that such verification need not be performed more often than once per 92 days.

(2) Containment Building Leak Rate Tests

Tests shall be conducted to assure that leakage of the primary reactor containment and associated systems is maintained within allowable leakage rate limits. Periodic surveillance shall be performed to assure proper maintenance and leak repair of the containment structure and penetrations during the plant's operating life.

Definitions of terms used in the leak rate testing specifications:

Leakage Rate - for test purposes is that leakage of containment air which occurs in a unit of time. Stated as a percentage of weight of the original content of containment air at the leakage rate test pressure that escapes to the outside atmosphere during a 24 hour test period.

Maximum Allowable Leakage Rate (L_a) - the design basis leakage rate of 0.1% by weight of the containment atmosphere per 24 hours at a pressure of 60 psig.

Overall Integrated Leakage Rate - that leakage rate which is obtained from a summation of leakage through all potential leakage paths including containment welds, valves, fittings, and components which penetrate containment.

Acceptable Criteria - the standard against which test results are to be compared for establishing the functional acceptability of the containment as a leakage limiting boundary.

ATTACHMENT B

DISCUSSION, JUSTIFICATION AND NO SIGNIFICANT HAZARDS CONSIDERATIONS

DISCUSSION AND JUSTIFICATION

The Omaha Public Power District proposes to revise the Fort Calhoun Station Unit No. 1 Specification 2.6 "Containment System," and the definition of Containment Integrity to reflect the Combustion Engineering Standard Technical Specifications (TS) 3/4.6.1.1 and 3/4.6.1.3.

Currently Specification 2.6(1) on containment integrity requires that if containment integrity cannot be met, that Specification 2.0.1 be invoked which requires an immediate plant shutdown and declaration of an Unusual Event. Fort Calhoun does not have a specification addressing inoperability of the Personnel Air Lock (PAL); therefore, if minor seal leakage occurs it requires invoking Specification 2.0.1. Implementation of these proposed changes will prevent unnecessary challenges to plant equipment.

DEFINITION OF CONTAINMENT INTEGRITY

The definition of containment integrity is being revised to reference operability requirements of the proposed Specification 2.6(1)b. The proposed change would require that both doors of the PAL be operable to consider the PAL operable, currently only one door is required to be operable. This proposed change implements additional restrictions on the PAL and is consistent with the CE Standard TS definition.

SPECIFICATION 2.6(1) "CONTAINMENT SYSTEM"

Specification 2.6(1)a. is being revised to reflect CE Standard Technical Specification 3.6.1.1. The action statement differs from the Standard TS to take into account the differences in mode definitions and to reflect the allowed outage time provided in Fort Calhoun Specification 2.0.1(1). CE Standard TS Surveillance Requirement 4.6.1.1.a requires that all penetrations required to be closed during accident conditions which are not capable of being closed by automatic isolation valves be verified operable each month except as provided in Standard TS 3.6.4. As this proposed change will not implement Standard TS 3.6.4 with its various exceptions, it is proposed to implement an additional requirement to only verify locked closed valves once per 31 days and relocate this requirement to the surveillance section as Specification 3.5(1). The statement contained in the basis of Specification 2.6 concerning visual checks of locked closed valves is being deleted as the requirement will be relocated to Specification 3.5.

A note is added which allows intermittent opening of locked or sealed containment isolation valves (except for the 42 inch purge valves). Not listing the specific components which would be comparable to the CE Standard Technical Specification is consistent with Generic Letter 91-08 "Removal of Component Lists from Technical Specifications."

As stated in Generic Letter 91-08, the opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment. The containment purge valves are not allowed to be opened under administrative controls due to the size (42-inch) of the valves, the fact that these valves exhaust directly from the containment atmosphere to the environment, and the possibility that the valves may not close against the differential pressure created by an accident situation if the valves were opened. These changes are also consistent with draft NUREG 1432 Specification 3.6.3.

A requirement is being added to Specification 2.6(3) stating that valves VA-280 and VA-289 cannot be opened under administrative controls. Valves VA-280 and VA-289 are not included in Specification 2.6(1) due to differences in the applicable operating modes. It is not forseen that there would ever be a reason for these valves to be opened while the reactor is critical.

Specification 2.6(1)b. is being added to address inoperability of the Personnel Air Lock. The required actions follow the actions of CE Standard Technical Specification 3.6.1.3. A note is being added to specifically address entry and exit with a PAL door inoperable. Fort Calhoun Station has only one Personnel Air Lock. If the outer door of the PAL is inoperable, then it may be easily accessed to repair. However, if the inner door is inoperable, containment integrity must be violated to repair the door, since the outer door must be opened to enter the PAL or containment to perform repairs. Specification 2.6(1) currently requires containment integrity at all times when not in the cold shutdown condition.

Performing repairs to the inner door currently requires a forced plant shutdown or a temporary waiver of compliance from the Technical Specifications (as received from the NRC on January 31, 1992 and December 24, 1992). The ability to open the operable door, even if it means the containment boundary is temporarily not intact, is acceptable because of the low probability of an event that could pressurize the containment during the short time in which the operable door is expected to be open. After each entry and exit, the operable door must be immediately closed. Implementation of a one hour allowed outage time to reestablish containment integrity, consistent with the CE Standard

Technical Specification (NUREG-212 Rev 2) 3.6.1.1, is not sufficient in itself to resolve this concern, as it would still require the purposeful violation of one specification (containment integrity) to perform the required c .ions of another specification (PAL door inoperability). This note is consistent with that provided in draft NUREG 1432 Specification 3.6.2.

The allowed air leakage rate references Specification 3.5(4) for acceptance criteria as opposed to restating the actual values in the Standard TS. Current Specification 3.5(3)d. implements the requirements to conduct leakage testing of Standard TS surveillance requirement 4.6.1.3, therefore no changes are proposed to the surveillance requirements.

BASIS OF SPECIFICATION 2.6

The basis of Specification 2.6 is being revised to include statements concerning administratively opening locked or seal closed valves consistent with Generic Letter 91-08.

SPECIFICATION 3.5 "CONTAINMENT TEST"

Specification 3.5(4) "Containment Isolation Valves Leak Rate Tests (Type C Tests)" is being revised to include valves IA-9032, IA-9033, and IA-9034 to the Type C testing program. As discussed in LER-91-031 dated January 15, 1992, these valves are permanently installed valves in the Personnel Air Lock to allow leak testing of the PAL with both of the PAL doors closed.

ADMINISTRATIVE CHANGES

Specifications 3.5(1) through 3.5(7) have been renumbered to reflect the relocation of Specification 2.6(1)d.