

BEFORE THE UNITED STATES NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON)	
COMPANY and SAN DIEGO GAS & ELECTRIC COMPANY)	DOCKET NO. 50-206
for a Class 104(b) License to Acquire,)	
Possess, and Use a Utilization Facility as)	Amendment No. 170
Part of Unit No. 1 of the San Onofre Nuclear)	
Generating Station)	

SOUTHERN CALIFORNIA EDISON COMPANY and SAN DIEGO GAS & ELECTRIC COMPANY, pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 170.

This amendment consists of Proposed Change No. 211 to Provisional Operating License No. DPR-13. Proposed Change No. 211 modifies the Technical Specifications incorporated in Provisional Operating License No. DPR-13 as Appendix A.

Proposed Change No. 211 is a request to revise Technical Specifications to incorporate leak testing acceptance criteria for active and passive containment ventilation valves and the personnel air locks. This proposed change also incorporates Limiting Conditions for Operation and Surveillance requirements into the technical specifications for these components consistent with the Westinghouse Standard Technical Specifications.

In the event of conflict, the information in Amendment Application No. 170 supersedes the information previously submitted.

Based on the significant hazards analysis provided in the Description and Significant Hazards Consideration Analysis of Proposed Change No. 211, it is concluded that (1) the proposed change does not involve a significant hazards consideration as defined in 10 CFR 50.92, and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change.

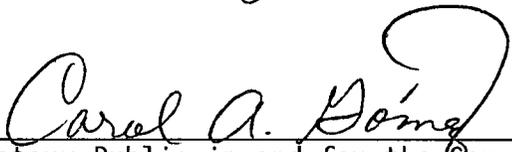
Subscribed on this 7th day of June, 1989.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: 
L. T. Papay
Senior Vice President

Subscribed and sworn to before me this
7th day of June, 1989.


Notary Public in and for the County of
Los Angeles, State of California



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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of SOUTHERN CALIFORNIA)
EDISON COMPANY and SAN DIEGO GAS &)
ELECTRIC COMPANY (San Onofre Nuclear)
Generating Station, Unit No. 1))

Docket No. 50-206

CERTIFICATE OF SERVICE

I hereby certify that a copy of Amendment Application No. 170 was served on the following by deposit in the United States Mail, postage prepaid, on the 7th day of June, 1989.

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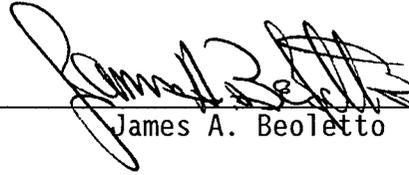
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DESCRIPTION AND SIGNIFICANT HAZARDS CONSIDERATION ANALYSIS
OF PROPOSED CHANGE NO. 211 TO THE TECHNICAL SPECIFICATIONS
PROPOSED OPERATING LICENSE NO. DPR-13

This is a request to Revise Section 3.6.2, "Containment Isolation Valves," and 4.3.1, "Containment Testing" and to incorporate two new Sections, 3.6.4, "Containment Air Locks," and 3.6.5, "Containment Ventilation System" into the Appendix A Technical Specifications for the San Onofre Nuclear Generating Station, Unit 1 (SONGS 1).

DESCRIPTION OF CHANGES

In resolution to multi-plant action B-24, "Containment Venting and Purging," SCE committed to provide technical specification changes to incorporate the limitation on the opening angle of the containment vent valves, and incorporate leak testing acceptance criteria for containment ventilation isolation valves and the containment airlocks. Proposed Change No. 211 (PCN 211) provides changes to incorporate these requirements into the technical specifications. In addition, Limiting Conditions for Operation and Action statements are proposed for the personnel air locks and the containment ventilation isolation valves consistent with the Westinghouse Standard Technical Specifications (WSTS). The SONGS 1 Technical Specifications do not currently contain these requirements.

Included with the above changes is a request to reduce the test pressure for the low pressure personnel air lock leak test from 10 psig to 3 psig. This change was previously requested in Amendment Application No. 139 submitted by letter dated March 20, 1987. In review of this previous request, the NRC identified the need for comparative test data to support this change. Because of the time required to generate this test data, the requested change was deferred. The test data has now been obtained and is provided in Attachment A.

EXISTING TECHNICAL SPECIFICATIONS

See Enclosure 1.

PROPOSED TECHNICAL SPECIFICATIONS

See Enclosure 2.

SIGNIFICANT HAZARDS CONSIDERATION ANALYSIS

As required by 10 CFR 50.91(a)(1), this analysis is provided to demonstrate that the proposed license amendment to implement technical specifications associated with containment isolation valve and airlock leak testing at SONGS 1 represents a no significant hazards consideration. In accordance with the three factor test of 10 CFR 50.92(c), implementation of the proposed license amendment was analyzed using the following standards and found not to: 1) involve a significant increase in the probability or consequences for an accident previously evaluated; or 2) create the possibility of a new or different kind of accident from any accident previously evaluated; or 3) involve a significant reduction in a margin of safety.

PCN 211 is being submitted to resolve several items relating to multi-plant action (MPA) B-24, "Containment Purging and Venting." One of the items in MPA B-24 was to limit the opening angle on the containment vent valves. The intent of limiting the opening was to reduce valve travel during a design basis LOCA when the valves would experience large differential pressures across the valve seats. As part of limiting the opening, the NRC requested the maximum opening angle of the valves be included in the technical specifications. By letter dated March 27, 1984, SCE described the installation of devices which limit the degree of opening of the containment vent valves. These devices were installed to ensure valve closure under the ascending differential pressures generated during design basis LOCA inside containment. The devices were intended to limit the valve openings to no more than 50 degrees (90 degrees being full open). Upon installation, valve stroke testing indicated the inboard valve, CV-116, opened to 47 degrees and the outboard valve, CV-10, opened to 53.5 degrees. As described in our March 27, 1984 submittal, the valve manufacture, Fisher Controls, has provided information on valve performance which assures the additional 3.5 degrees opening on CV-10 will not prevent valve closure under design basis LOCA conditions. Based on this, the proposed specification requires valve openings to be no greater than 53.5 degrees.

PCN 211 also proposes leakage limits for penetrations subject to Local Leak Rate Testing (LLRT) at intervals less than two years.

The following leakage limits are proposed for these penetrations:

<u>Penetration</u>	<u>Leakage Limit</u>
1. Containment Purge Supply Line	0.012 wt%/24 hrs
2. Containment Purge Return Line	0.012 wt%/24 hrs
3. Containment Vent Line	0.012 wt%/24 hrs
4. Containment Personnel Hatch	
a) Pa LLRT	0.012 wt%/24 hrs
b) 3 Psig Seal Test	0.0024 wt%/24 hrs
5. Containment Escape Hatch	
a) Pa LLRT	0.012 wt%/24 hrs
b) 3 psig Seal Test	0.0024 wt%/24 hrs

The leakage limits established for these penetrations are based on actual leakage data measured with the penetrations in usual good operating condition and include an allowance for minor degradation. The leakage limits will ensure that any significant degradation of function is detected and corrected in a timely manner. It is noted that the existing Technical Specifications include a provision for limiting the combined overall leakage of all penetrations subject to Type B testing and containment isolation valves subject to Type C testing. This requirement has ensured that overall containment leakage has been maintained within acceptable limits. PCN 211 will not change this existing requirement.

PCN 211 requests to reduce the magnitude of the personnel air lock lower pressure leak test from 10 psig to 3 psig. This change was previously requested as part of Amendment Application No. 139 submitted by letter dated March 20, 1987. As discussed in the application, performance of the leak test at 10 psig induces unnecessary stresses on the air lock door. A lower pressure test (at 3 psig) will provide sufficient indication of sealing capability while minimizing stresses on the door. The NRC requested quantitative justification to assure sufficient leakage detection capability exists at the lower pressure. SCE deferred this change pending performance of leak testing at various pressures to demonstrate adequate sensitivity of detection instrumentation. The results of this testing are provided in Attachment A. The data provides sufficient evidence that a 3 psig seal test will detect air lock seal degradation prior to exceeding 0.012 wt%/24 hrs leakage at a test pressure of 49.4 psig.

PCN 211 proposes Technical Specifications for the personnel air lock that do not currently exist for SONGS 1. The existing technical specifications contain provisions for surveillance testing of the personnel air locks. However, no Limiting Conditions for Operation or ACTION statements are provided. Therefore, inoperability of the air lock could result in unnecessary shutdown of the plant. For this reason, PCN 211

proposes to incorporate these requirements consistent with the WSTS into the SONGS 1 Technical Specifications.

Consistent with incorporation of Surveillance Requirements for the sphere purge and vent valve leak testing, PCN 211 proposes limiting Conditions for Operation and an ACTION statement in the event that the leakage acceptance criteria is exceeded. The proposed specification is consistent with the WSTS.

ANALYSIS

Conformance of the proposed changes to the standards for a determination of no significant hazard as defined in 10 CFR 50.92 (three factor test) is shown in the following:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

PCN 211 will establish technical specification requirements for airlock and isolation valve leak testing acceptance criteria that are not currently in the specifications. The acceptance criteria will ensure that these penetrations can withstand the post accident containment pressure with minimal leakage and that degradation of leakage integrity is detected in a timely manner. PCN 211 will also establish opening limits for the containment vent valves. Provisions to limit the valve openings are currently in place in accordance with NRC requirements. These provisions will minimize the force required to close the valves during a design basis LOCA thus providing additional assurance of the isolation function of these valves. The proposed change will establish requirements to ensure the valve opening limitations are maintained. PCN 211 will incorporate LCO's and ACTION statements for the personnel air locks consistent with the WSTS into the Technical Specifications. Finally, PCN 211 will reduce the lower test pressure for the personnel airlock from 10 psig to 3 psig. This change will enhance the reliability of the airlock by limiting unnecessary stresses placed on airlock components during testing at 10 psig. Accident consequences or probability will not be increased since containment pressure during design basis LOCA will seal the inner door. Based on the foregoing, operation of the facility in accordance with the proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will operation of the facility in accordance with the proposed change create the possibility of a new or different kind or accident from any accident previously evaluated?

Response: No

The changes proposed by PCN 211 establish new technical specification requirements for the containment purge and vent valves and the personnel airlocks. These new requirements are intended to enhance the reliability of the components in their post accident function. Reducing the lower test pressure on the personnel airlock from 10 psig to 3 psig is proposed to minimize stresses placed on the airlock during testing while maintaining a test pressure sufficient to detect degradation of components. Incorporation of LCO's and ACTION statements not currently in the technical specifications may result in avoiding unnecessary plant shutdowns. Therefore, none of the changes proposed by PCN 211 will create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

The margin of safety for the containment purge and vent valves and the personnel airlock is defined by the sealing capability in the event of a reactor transient. The changes proposed by PCN 211 are intended to ensure that the sealing capability of these components is maintained and any degradation is detected in a timely manner. Reduction of the lower test pressure for the air lock from 10 psig to 3 psig does not affect the margin of safety since the direction of the test pressure is opposite that which the door would experience during an accident. Testing at 3 psig reduces stresses placed on the door and has been demonstrated to have adequate sensitivity to detect leakage and degradation of components. It is also noted that PCN 211 does not impact the semi-annual air lock testing requirement performed at a test pressure of 49.4 psig. Accordingly, operation of the facility in accordance with this proposed change will not involve a significant reduction in a margin of safety.

SAFETY AND SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Based on the Safety Evaluation, it is concluded that: (1) Proposed Change No. 211 does not involve a significant hazards consideration as defined by 10 CFR 50.92; and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change.

Attachment A - Personnel Airlock Test Data
Enclosure 1 - Existing Technical Specifications
Enclosure 2 - Proposed Technical Specifications

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ATTACHMENT A

Local Leakage Rate Tests (LLRT) were conducted on the Unit 1 personnel air lock to provide data for comparison of testing at Pa, 10, and 3 PSIG. The testing methodology consisted of pressure drop tests, in accordance with the provisions of ANSI/ANS 56.8 - 1981, "Containment System Leakage Testing Requirements." Measured Leakage is the value that was obtained as a result of the test data. Error Leakage is associated with the instrument accuracies used for the test. The Recorded Leakage is the sum of Measured and Error Leakages in the conservative direction. The following is a listing of the airlock test data and results:

TEST SEQUENCE #1

Pa Test - Test duration was 240 minutes. Test volume was 827 cubic feet.

Start Press. (PSIG)	End Press. (PSIG)	Start Temp. (F)	End Temp. (F)	Measured Leakage (SCCM)	Error Leakage (SCCM)	Recorded Leakage (SCCM)
49.63	49.20	66.0	65.6	2542	577	3119

10# Test - Test duration was 240 minutes. Test volume was 827 cubic feet.

Start Press. (PSIG)	End Press. (PSIG)	Start Temp. (F)	End Temp. (F)	Measured Leakage (SCCM)	Error Leakage (SCCM)	Recorded Leakage (SCCM)
8.85	8.78	66.6	63.3	0	568	568

3# Test - Test duration was 240 minutes. Test volume was 827 cubic feet.

Start Press. (PSIG)	End Press. (PSIG)	Start Temp. (F)	End Temp. (F)	Measured Leakage (SCCM)	Error Leakage (SCCM)	Recorded Leakage (SCCM)
3.60	3.68	70.1	66.5	0	145	145

TEST SEQUENCE #2

Pa Test - Test duration was 240 minutes. Test volume was 827 cubic feet.

Start Press. (PSIG)	End Press. (PSIG)	Start Temp. (F)	End Temp. (F)	Measured Leakage (SCCM)	Error Leakage (SCCM)	Recorded Leakage (SCCM)
49.90	49.80	63.0	68.0	4767	578	5345

10# Test - Test duration was 240 minutes. Test volume was 827 cubic feet.

Start Press. (PSIG)	End Press. (PSIG)	Start Temp. (F)	End Temp. (F)	Measured Leakage (SCCM)	Error Leakage (SCCM)	Recorded Leakage (SCCM)
9.68	9.43	60.5	63.2	2523	149	2672

3# Test - Test duration was 240 minutes. Test volume was 827 cubic feet.

Start Press. (PSIG)	End Press. (PSIG)	Start Temp. (F)	End Temp. (F)	Measured Leakage (SCCM)	Error Recorded Leakage (SCCM)	Leakage (SCCM)
3.00	2.96	61.8	62.6	450	146	596

In summation, the tests correlate reasonably well within instrument error limits. It should be noted, that the seal test for the Unit 1 airlocks does not consist solely of pressurizing the hatch seals; but, pressurizes the entire airlock. This data provides sufficient evidence that a 3 PSIG seal test will detect airlock seal degradation prior to exceeding 0.1 La leakage at a test pressure of Pa.

Enclosure 1
Existing Technical Specifications

3.6.2 CONTAINMENT ISOLATION VALVES

APPLICABILITY: MODES 1, 2, 3 and 4.

OBJECTIVE: To provide assurance that the containment isolation valves listed in Table 3.6.2-1 will function when initiated by appropriate sensors.

SPECIFICATION: The containment isolation valves specified in Table 3.6.2-1 shall be OPERABLE.

ACTION:

A. With one or more of the isolation valve(s) specified in Table 3.6.2-1 inoperable, for each affected penetration that is provided with two isolation valves and is open maintain at least one valve OPERABLE, and for all affected penetrations with either one or two isolation valves, one of the following Actions shall be taken:

1. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or
2. Isolate each affected penetration within 4 hours by use of at least one deactivated* power operated valve secured in the isolation position, or
3. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange, or
4. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

B. The provisions of Specification 3.0.4 are not applicable provided that within 4 hours the affected penetration is isolated in accordance with Action A.2 or A.3 above, and provided that the associated system, if applicable, is declared inoperable and the appropriate ACTION statements for that system are taken.

BASIS: The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

* Valve may be temporarily activated for valve position verification and testing. While the valve is activated by this note, Action A.1 shall be applied and any system(s) declared inoperable pursuant to Action B shall not be declared OPERABLE.

The isolation valves of the Sphere Purge Air Supply (POV-9) and Air Outlet (POV-10) lines have not been demonstrated capable of closure under the differential pressures generated by a design basis accident. For this reason, containment isolation in these lines shall be maintained. This configuration shall be accomplished by locking closed manual isolation valves CVS-301 and CVS-313 of these lines. These valves shall remain locked closed during MODES 1, 2, 3 and 4 until POV-9 and POV-10 can be demonstrated capable of performing their containment isolation function under post accident conditions.

Temporary activation of a secured closed containment isolation valve permits position indication of certain types of valves and allows maintenance testing of isolation valves.

- References:
1. NRC letter dated July 2, 1980, from D. G. Eisenhut to all pressurized water reactor licensees.

TABLE 3.6.2-1

REMOTE MANUAL (RM) OR AUTOMATIC CONTAINMENT ISOLATION VALVE SUMMARY

<u>DESCRIPTION</u>	<u>INSIDE SPHERE</u>	<u>OUTSIDE SPHERE</u>
1. Sphere Sump Discharge	CV-102	CV-103
2. RCS Or Tk Discharge	CV-104	CV-105
3. RCS Or Tk Vent	CV-106	CV-107
4. N ₂ to RCS Drain Tank and PRT	CV-536	CV-535
5. ORMS 1211/1212 Sphere Sample Supply	CV-147	SV-1212-9
6. ORMS 1211/1212 Sphere Sample Return	CV-146	SV-1212-8
7. A Stm. Gen. Stm. Sample	-	SV-119
8. B Stm. Gen. Stm. Sample	-	SV-120
9. C Stm. Gen. Stm. Sample	-	SV-121
10. A Stm. Gen. Blowdown Sample	-	SV-123
11. B Stm. Gen. Blowdown Sample	-	SV-122
12. C Stm. Gen. Blowdown Sample	-	SV-124
13. Service Water to Sphere	CV-537	CV-115
14. Service Air to Sphere	Check Valve	SV-125
15. SI Loop C Vent	SV-702B	SV-702A
16. SI Loop B Vent	SV-702D	SV-702C
17. H2 Calibration Gas	SV-3004	SV-2004
18. RC Loop Sample	(CV-955, CV-956, CV-962) RM	CV-957 SV-3302
19. Pressurizer Sample	(CV-951, CV-953) RM	CV-992
20. Sphere Purge Air Supply*	-	POV-9
21. Sphere Purge Air Outlet*	-	POV-10
22. Sphere Equalizing/Vent Inst. Air Vent	CV-116 CV-40	CV-10
23. Primary Makeup to PRT	CV-533	CV-534
24. Cont. Cooling Out	-	CV-515 RM
25. Cont. Cooling In	-	CV-516 RM
26. N2 Supply to PORV	Check Valve	CV-532 RM
27. Letdown	CV-525 RM	CV-526 RM
28. Seal Water Return	CV-527 RM	CV-528 RM
29. RC Loop Sample Return	Check Valve	SV-3303
30. PRT Gas Sample	CV-948 RM	CV-949

* Manual valves CVS-301 and CVS-313 of the Sphere Purge Air Supply and Air Outlet lines, respectively, shall be locked closed during MODES 1, 2, 3 and 4.

4.3 CONTAINMENT SYSTEMS

4.3.1 CONTAINMENT TESTING

APPLICABILITY: Applies to containment leakage.

OBJECTIVE: To verify that leakage from the containment sphere is maintained within specified values.

SPECIFICATION: 1. Integrated Leakage Rate Tests, Type A

A. Test Pressure

In order to verify leakage from the containment sphere, a Type A test shall be performed. Type A tests shall consist of a peak pressure test or a reduced pressure test.

Peak pressure tests are conducted at a test pressure greater than or equal to 49.4 psig, and reduced pressure tests are conducted at a test pressure greater than or equal to 24.7 psig.

B. Acceptance Criteria

For the peak pressure test program the containment sphere leakage rate measured is less than 0.090 wt%/24 hours of the initial content of the containment air at the calculated peak pressure of 49.4 psig. For the reduced pressure test program to be conducted at 24.7 psig, the measured leakage rate shall be less than 0.064 wt%/24 hours of the initial content of the containment atmosphere at the calculated peak pressure of 49.4 psig.

The accuracy of each Type A test is verified by a supplemental test which (1) confirms the accuracy of the Type A test by verifying that the difference between supplemental and Type A test data is within 25% of 0.12 wt%/24 hours for the peak pressure test or 0.085 wt%/24 hours for the reduced pressure test, and (2) requires the quantity of air bled from or injected into the containment during the supplemental test to be equivalent to at least 75 percent of the total allowable leakage rate at 49.4 psig.

C. Frequency

A set of 3 periodic Type A tests are performed at 40 ± 10 month intervals during each 10-year service period. The third test of each set is performed when the plant is shut down for the 10-year plant inservice inspection. The permissible period for Type A testing shall be limited to periods when the plant facility is nonoperational and secured in the shutdown condition.

If any periodic Type A test fails to meet the acceptance criteria above, the test schedule applicable to subsequent Type A tests shall be submitted to the NRC for review and approval. If two consecutive periodic Type A tests fail to meet the above acceptance criteria, a Type A test is performed at each plant shutdown for refueling or approximately every 18 months, whichever occurs first, until two consecutive Type A tests meet the acceptance criteria, after which time the normal test schedule may be resumed.

II. Containment Penetration Leakage Rate Tests (Type B)

A. Test Pressure

Type B tests are conducted at a test pressure at or above 49.4 psig. Personnel airlocks are tested every six months at or above 49.4 psig. In addition, a lower pressure test at or above 10 psig is performed on the personnel airlocks as required by Section II.C.

B. Acceptance Criteria

The combined leakage rate of all penetrations subject to Type B tests and all containment isolation valves subject to Type C tests is less than 0.072 wt%/24 hours of the initial content of the containment atmosphere at the calculated peak pressure of 49.4 psig.

C. Test Schedule

Type B tests, except for airlocks, are performed during every reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than two years.

Airlock volumes between the doors are tested:

- (1) at least every six months at 49.4 psig,

- (2) within 72 hours following each closing, except when the airlock is being used for multiple entries, then at least once per 72 hours, at or above 10 psig test pressure, and
- (3) prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the airlock that could affect the airlock sealing capability at 49.4 psig.*

III. Containment Isolation Valve Leakage Rate Tests (Type C)

A. Test Pressure

Type C tests are conducted in accordance with the criteria specified in Appendix J of 10 CFR 50.

These Type C tests are conducted at a test pressure at or above 49.4 psig.

B. Acceptance Criteria (Maximum acceptable value)

The combined leakage rate of all penetrations subject to Type B tests and all containment isolation valves subject to Type C tests is less than .072 wt%/24 hours of the initial content of the containment atmosphere at the calculated peak pressure of 49.4 psig.

C. Test Schedule

Type C tests are performed during each reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than two years.

Seal tests conducted on active containment ventilation isolation valves shall be performed every three months.

Seal tests conducted on passive containment ventilation isolation valves shall be performed every six months.

IV. Recirculation System

A. Test Pressure

Leak tests shall be performed on portions of the Safety Injection System used for recirculation at a pressure equal to or greater than the operating pressure under accident conditions. The test fluid shall be water.

*Exemption to Appendix J of 10 CFR 50

B. Acceptance Criteria

Visual inspection for leakage shall be made and if leakage can be detected, measurements of such leakage shall be made. The maximum effective leakage shall be maintained in accordance with Section 3.3.1.A(4) of Appendix A Technical Specifications.

C. Test Schedule

Visual inspections of the recirculation loop outside containment (including the Containment Spray System)) shall be made at intervals not to exceed the normal plant refueling interval. In addition, pumps and valves of the recirculation loop outside containment which are used during normal operation, shall be visually inspected for leakage at intervals not to exceed once every six months.

V. Test Result Report

The results of Type A, B, and C leakage rate tests are submitted to the NRC in a summary technical report approximately three months after the conduct of the Type A tests. This report contains an analysis and interpretation of the Type A test results and a summary of periodic Type B and C tests performed since the last Type A test. Leakage rate test results from Type A tests that fail to meet the acceptance criteria specified in Section I.B above are reported in a separate attached summary report that includes an analysis of the test data, an instrumentation error analysis, and the structural conditions of the containment or components, if any, which contributed to failure in meeting the acceptance criteria. Results and analysis of the supplemental verification test used to demonstrate the validity of the Type A test measurements are included.

VI. Containment Modification

Any major modification or replacement of a component that is part of the containment boundary is followed by Type A, B, or C tests as applicable. The results of such tests are included in the test result report described above and meet the respective acceptance criteria. Minor modifications or replacements performed directly prior to the conduct of a scheduled Type A test do not require a separate test.

Bases:

The containment system is one of the major engineered safety features and is a consequence-limiting system, it represents the final physical barrier that, in the event of a loss-of-coolant accident (LOCA), protects against the inadvertent release of fission products.

I. Leakage Rate Testing

Periodic containment integrated leakage rate tests are performed at or above 49.4 psig or at or above 24.7 psig for the reduced pressure test program. The leak rate will be calculated using the formulas of Reference 2 (Total Time) and Reference 3 (Mass Point).

Test schedules and the acceptance criteria specified herein are established based on the requirements of 10 CFR 50, Appendix J.⁽¹⁾ A containment leakage rate of 0.12 wt% of the initial content of containment atmosphere at 49.4 psig/24 hours maintains public exposure well below 10 CFR 100 values in the event of a hypothetical LOCA.⁽⁴⁾ This leakage rate also limits public exposure to 10 CFR 100 values even if a complete core meltdown is postulated.

The acceptance criteria for

- (1) Type A test is 75% of the containment leakage rate specified above
- (2) Type B and Type C tests combined is 60% of the containment leakage rate specified above.

to allow for possible deterioration of the containment boundary between tests.

II. Recirculation System Testing

The portion of the Recirculation system outside the containment sphere is effectively an extension of the boundary of the containment.

Leakage from this system shall be maintained at as low as practical levels. The effective leakage of this system shall be maintained in accordance with the maximum leakage limitations established in Section 3.3.1.A(4) of Appendix A Technical Specifications.

The piping configurations of the recirculation and containment spray lines assure that leakage within Technical Specification limits will not deplete the isolation valve seal water system fluid inventory for at least 30 days at a pressure of 1.10 Pa. Therefore,

leakage from the isolation valves and containment penetrations for these systems is not added to the combined leakage rate for all penetrations and valves subject to Type B and C tests.

The containment penetrations encompassed by the recirculation and containment spray systems include penetrations for one containment spray line, three reactor coolant pump seal water injection lines, and the recirculation pump discharge line to the recirculation heat exchanger.

References

- (1) 10 CFR 50, Appendix J.
- (2) ANSI N45.4-1972
- (3) ANSI/ANS 56.8-1981
- (4) Final Engineering Report and Safety Analysis, Paragraph 5.3