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August 28, 1998
NOC-AE-000281
File No.: G20.02
G21.02
10CFR50.36
STI: 30702558

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project
Unit 1
Docket No.: STN 50-498

Request for NRC Region IV Enforcement Discretion from Technical Specification 4.0.5 as It Applies to Surveillance Requirements for Containment Isolation Check Valves

Reference: Request for NRR Enforcement Discretion dated August 28, 1998, from G. L. Parkey to NRC Document Control Desk (ST-NOC-AE-000278)

STP Nuclear Operating Company (STPNOC) requests enforcement discretion from the provisions of Technical Specification 4.0.5 as it applies to inservice testing requirements of Section XI of the ASME Boiler and Pressure Vessel Code for containment isolation valves. Unit 1 containment isolation valves listed in Attachment 2 of this request have not been tested in the closed direction within the Section XI Code surveillance frequency requirements. Specifically, STPNOC requests discretion from the requirement to apply Technical Specification Surveillance Requirement 4.0.5 for 14 days to allow on-line testing of the subject valves.

This request applies to the scope of valves that can be tested with the unit at power. The referenced request to NRR addresses the valves which cannot be tested at power and which require an exigent Technical Specification change. Attachments 3, 4, and 5 provide the technical supporting information for both the NRR and Regional requests for enforcement discretion.

The attached information is provided pursuant to the Nuclear Regulatory Commission guidance for requests for enforcement discretion. If you should have any questions concerning this matter please contact either S. M. Head at (512) 972-7136 or me at (512) 972-7800.

G. L. Parkey
Plant Manager,
Unit 1

A047

KJT/

Attachments:
1. Information in Support of Requested Enforcement Discretion
2. Containment Isolation Valves for which discretion is being requested
3. Safety Function of Valves
4. Recent Local Leak Rate Test Results
5. Risk Perspective on Containment Isolation Check Valves

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Information in Support of Requested Enforcement Discretion

1) **The Technical Specification or other license conditions that will be affected.**

Technical Specification 4.0.5 requires that inservice testing of ASME Code Class 1, 2, and 3 valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR Part 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR Part 50, Section 50.55a(g)(6)(i). STPNOC has established relief to test the affected valves at a periodicity of each cold shutdown of sufficient duration or refueling outage.

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 and is consistent with the requirements of General Design Criteria 54 through 57 of Appendix A to 10 CFR Part 50.

The valves shown in Attachment 2 to this request have been declared inoperable as a result of the failure to perform the required surveillances in accordance with Technical Specification 4.0.5. This has resulted in entry into the action associated with Technical Specification 3.6.3 (Containment Isolation Valves). Conditions associated with the specific penetrations affected will result in the initiation of the shutdown of the STP Unit 1 at the end of the 24-hour allowed outage time associated with the action statements.

2) **The circumstance surrounding the situation, including root causes, the need for prompt action, and identification of any relevant historical events.**

During a review of the Inservice Test Plan, it was determined that specific containment isolation check valves (shown in Attachment 2) had not been tested in the required position for performing a specific safety function (closed) within the required testing periodicity of the Section XI ASME Code. The safety functions of these valves is indicated in Attachment 3. Relief from the ASME Code requirements to extend the test frequency to cold shutdowns of sufficient duration or a refueling outage had previously been established for the check valves.

The valves have met Section XI ASME Code requirements for testing in the open direction. These valves have been historically tested in the closed direction by performance of local leak rate testing required by Appendix J of 10CFR50. Note that the leak rates are acceptance criteria for the Appendix J test only; however, the test also adequately demonstrates valve closure. STPNOC received a license amendment to Technical Specifications in August, 1996 for allowing performance-based containment leak testing per Appendix J, Option B of 10CFR50. Leak rate performance allowed extension of the local leak rate test frequency to periodicities beyond each refueling cycle. The frequency of the appropriate plant surveillances for leak rate testing was extended for the affected valves. However, an alternate test method to test the valves in the shut direction was not developed to meet the Section XI ASME Code test frequency requirements. As a result, these check valves would only be tested in the shut direction when the local leak rate test was performed.

The cause is inadequate change management. When the change was made to implement Appendix J, Option B of 10CFR50 which allowed extension of local leak rate testing periodicities, the change process did not adequately evaluate the impact on Section XI ASME Code testing requirements.

A thorough review has been performed and it has been confirmed that this particular request for discretion is limited to the valves shown in Attachment 2. Since these valves were determined to be inoperable because of the missed surveillance, the ACTION requirements of Technical Specification 3.6.3 for containment isolation valves was entered for each valve at 1830 hours on August 26, 1998. If the valves are not returned to operable status within 24 hours, the specific action statement will result in shutdown of the unit.

Prompt action is requested to approve the enforcement discretion to allow the discretion from Technical Specification 4.0.5 for 14 days, which will provide adequate time to test the subject valves. This will allow the station to exit the requirements of Technical Specification 3.6.3. STPNOC is not aware of any other relevant historical events.

3) **The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action.**

The purpose 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. The valves for which discretion is being requested tested satisfactorily in the closed position in accordance with ASME Code requirements the last time the test was performed.

Performance-based local leak rate testing results have demonstrated the leak tightness of these valves such that leak rate testing periodicities have been extended beyond the periodicity of a normal refueling cycle. Maintenance history has demonstrated reliable performance of these valves. A summary of recent local leak rate test results is included in Attachment 4.

As noted above, the subject valves have exhibited a history of satisfactory operation. Based on their performance history, it is believed that the current PSA modeling of the failure rates for these valves is still accurate. Irrespective of the failure rate modeling, the current STP PSA model indicates that the potential failure of these valves to close has no impact on core damage frequency. In addition, the impact of these valves [assuming complete failure] from a Large Early Release standpoint is minimal. Details of the PSA modeling aspects for the subject valves is included in Attachment 5.

Based on the above, it is evident that in the event that containment isolation is necessary, the subject valves will have a high probability of performing their intended safety function. Therefore, STPNOC believes that safety significance and potential consequences of the proposed plan of action is extremely small.

4) **The basis for the conclusion that the enforcement discretion is not a potential detriment to the public health and safety and that neither an unreviewed safety question nor a significant hazard considerations is involved.**

Determination of No Unreviewed Safety Question

1. **Does the change involve an increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report?**

   No.

   The proposed change would relieve the requirement to apply Surveillance 4.0.5 to the subject check valves. Specifically, STPNOC would not have to perform the ASME Section XI exercise of the valves. Neither the valves nor the systems of which they are a part are accident initiators. The proposed change is a deferral of a surveillance test interval which has no potential effect on accident initiation. Therefore, there is no increase in the probability of occurrence of an accident previously evaluated in the Safety Analysis Report.

   Previous testing of the valves has demonstrated that they are capable of performing their design function. Therefore, the systems of which they are a part would be

expected to perform accident mitigation and safe shutdown functions as designed. There is no effect on safety analysis assumptions from the proposed discretion. Consequently, there is no increase in the consequences of an accident or equipment malfunction previously evaluated in the Safety Analysis Report.

There is no increase in the probability of malfunction of equipment important to safety previously evaluated in the Safety Analysis Report because past leak testing of the subject check valves has shown the valves to be able to close and seal as required. The extended surveillance test interval involves no challenge to the function of the valves.

2. **Does the change create the possibility of an accident or malfunction of a different type than any evaluated previously evaluated in the Safety Analysis Report?**

No.

The effect of the proposed change is to extend the surveillance test interval. This extension has no effect on the way the subject systems are operated, nor does it affect the configuration of the station. It does not introduce the potential for any new failure modes. Therefore, the change does not involve a possibility of an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report.

3. **Does this change involve a reduction in the margin of safety as defined in the basis for any Technical Specification?**

No.

The effect of the proposed change is to extend the surveillance test interval. This extension will not affect a margin of safety for any Technical Specification because there is no change in the design functions or performance of any of the subject systems. All design margins remain unchanged from the existing design basis.

Based on the above evaluation, no Unreviewed Safety Question exists.

Determination of No Significant Hazard Considerations

South Texas Project has considered the criteria for assessing the potential of creating an unreviewed safety question or a significant hazards consideration with the exercising of enforcement discretion. In evaluating if discretion in enforcement constitutes a significant hazard the criteria of 10CFR50.92(c) is discussed below:

1. **Does the change involve a significant increase in the probability or consequence of an accident previously evaluated?**

   No.

   This question is addressed in the response to Question 1 of the Unreviewed Safety Question Evaluation above.

2. **Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?**

   No.

   This question is addressed in the response to Question 2 of the Unreviewed Safety Question Evaluation above.

3. **Does this change involve a significant reduction in a margin of safety?**

   No.

   This question is addressed in the response to Question 3 of the Unreviewed Safety Question Evaluation above.

Based on the above evaluation, no Significant Hazard exists.

Since there is no Unreviewed Safety Question or Significant Hazard associated with the missed surveillance, there is no potential detriment to the public health and safety as a result of this request.

5) **The basis for the conclusion that the enforcement discretion will not involve adverse consequences to the environment.**

The South Texas Project has reviewed the proposed Enforcement Discretion request and the Nuclear Regulatory Commission Final Environmental Assessment for the South Texas Project Units 1 and 2 and has concluded that pursuant to 10CFR51, there are no significant radiological or non-radiological impacts associated with the proposed Enforcement Discretion request.

This proposed Enforcement Discretion has been evaluated against the criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with 10CFR51.21. It has been determined that the proposed changes meet the criteria for categorical exclusion as provided for under 10CFR51.22(c)(9). The following is a discussion of how the proposed Enforcement Discretion meets the criteria for categorical exclusion.

10CFR51.22(c)(9): Although the proposed change involves one-time changes to testing frequency requirements of specific containment isolation valves;

(i) the proposed change involves no Significant Hazards Consideration (refer to the No Significant Hazards Consideration section of this Enforcement Discretion Request),

(ii) there is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite since the proposed changes do not affect the generation of any radioactive effluent nor do they affect any of the permitted release paths, and

(iii) there is no significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10CFR51.22(c)(9). Based on the aforementioned and pursuant to 10CFR51.22(b) no environmental assessment or environmental impact statement need be prepared.

6) **Any proposed compensatory actions.**

The specific valves in which discretion is being requested were not tested in the closed direction within the periodicity requirements of the Section XI ASME Code. These valves did test satisfactorily the last time they were tested and demonstrated satisfactory leak tightness. Maintenance history has demonstrated reliable performance of these valves. It is the position of STPNOC that these valves will perform their intended safety function of containment isolation. Therefore, no compensatory actions are considered necessary.

7) **The justification for the duration of the enforcement discretion.**

The duration of the request is 14 days. Fourteen (14) days is twice the allowed outage time of Component Cooling Water and provides adequate time to plan and perform the testing in a safe, orderly manner.

This duration is consistent with the position that the valves are fully capable of performing their design function so that there is little or no safety significance from the missed surveillance and the fact that the subject check valves are themselves not risk-significant components.

8) **A statement that the request has been approved by the Plant Operations Review Committee**

The South Texas Project Plant Operations Review Committee has reviewed the proposed Enforcement Discretion request and concurs with the content of this request.

9) **Discussion of How the Applicable Notice of Enforcement Discretion Criterion for the Appropriate Plant Condition Specified in Section B is Satisfied**

This request for enforcement discretion is consistent with B.1.a.. The applicable Notice of Enforcement Discretion criteria for the subject request is to avoid undesirable transients as a result of compliance with the license condition. Should discretion not be approved, the station will be required to shutdown in accordance with the action requirements of Specification 3.6.3. Performing the testing on the subject valves is fully expected to demonstrate that they will close as required. Shutting the plant down would serve no purpose and is of no value to public safety.

10) **Follow-up License Amendment Required**

No follow-up amendment is required for testing these check valves.

11) **Statement that prior adoption of approved line-item improvements to the Technical Specification or the Improved Technical Specification would not have Obviated the Need For the Notice of Enforcement Discretion Request**

The proposed Improved Technical Specifications for the South Texas Project have been submitted; however, review and implementation activity has been deferred until 2001. For this condition, the Improved Technical Specifications have similar requirements to the South Texas Project current Technical Specifications.

STPNOC is not aware of any line item improvements that would have provided relief from the condition.

12) **Any other information the NRC staff deems necessary before making a decision to exercise enforcement discretion.**

Considering the assessment performed in Items 3, 4, and 9, STPNOC believes the proposed enforcement discretion is consistent with protecting the public health and safety.

Containment Isolation Valves for which Discretion is being Requested

Unit 1

CC-0058, CC-0138 and CC-0198	-	Component Cooling Water to Reactor Containment Fan Cooler Inside Containment Isolation Check Valves
CC-0013, CC-0123 and CC-0183	-	Component Cooling Water Supply Inside Reactor Containment Check Valves
CV-0158	-	Chemical & Volume Control System Low Pressure Letdown Inside Reactor Containment Isolation Check Valve
DW-0502	-	Inside Containment Demineralized Water to the Reactor Containment Building Check Valve
SI-0058	-	Inside Containment Accumulator Common Nitrogen Supply Check Valve

SAFETY FUNCTION OF VALVES

CC-13, 123, 183
(Penetration No. M33, 35, 37)

TPNS NO.: 2R201(2)T **CC0013** DESCRIPTION: (ICIV) TRAIN A CCW TO RHR, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Open to provide flow path for CCW through RHR pump 1(2)A seal cooler and RHR 1(2)A heat exchanger (4906 gpm required per DBD Table T-7, Minimum or Maximum Safeguards).

2. Close and leak tight (CAT A) in accordance with UFSAR commitment (Section 6.2.6.3 and Figure 6.2.4-1, Sheet 35) to provide containment integrity.

REQUIRED TESTS:

1. Exercise open to meet Safety Function 1.

2. Exercise close to meet Safety Function 2.

3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 2.

TPNS NO.: 2R201(2)T **CC0123** DESCRIPTION: (ICIV) TRAIN B CCW, SUPPLY TO RHR CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Open to provide flow path for CCW through RHR pump 1(2)B seal cooler and RHR 1(2)B heat exchanger (4906 gpm required per DBD Table T-7, Minimum or Maximum Safeguards).

2. Close and leak tight (CAT A) in accordance with UFSAR commitment (Section 6.2.6.3 and Figure 6.2.4-1, Sheet 37) to provide containment integrity.

REQUIRED TESTS:

1. Exercise open to meet Safety Function 1.

2. Exercise close to meet Safety Function 2.

3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 2.

TPNS NO.: 2R201(2)T **CC0183** DESCRIPTION: (ICIV) TRAIN C CCW SUPPLY TO RHR, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Open to provide flow path for CCW through RHR pump 1(2)C seal cooler and RHR 1(2)C heat exchanger (4906 gpm required per DBD Table T-7, Minimum or Maximum Safeguards).

2. Close and leak tight (CAT A) in accordance with UFSAR commitment (Section 6.2.6.3 and Figure 6.2.4-1, Sheet 39) to provide containment integrity.

REQUIRED TESTS:

1. Exercise open to meet Safety Function 1.

2. Exercise close to meet Safety Function 2.

3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 2.

CC-58, 138, 198
(Penetration No. M25, 27, 24)

TPNS NO.: 2R201(2)T **CC0058** DESCRIPTION: (ICIV) TRAIN A CCW TO RCFCS, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Open to provide cooling water to the Reactor Containment Fan Coolers (RCFC) in the event of a Safety Injection signal or Loss of Offsite Power (LOOP) (3600 gpm per DBD Table T-7, Safety Injection, Minimum or Maximum Safeguards, or Recirculation).

2. Close and leak tight (CAT A) in accordance with UFSAR commitment (Section 6.2.6.3 and Figure 6.2.4-1, Sheet 26) to provide containment integrity.

REQUIRED TESTS:

1. Exercise open to meet Safety Function 1.

2. Exercise close to meet Safety Function 2.

3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 2.

TPNS NO.: 2R201(2)T **CC0138** DESCRIPTION: (ICIV) TRAIN B CCW SUPPLY TO RCFCS, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Open to provide cooling water to the Reactor Containment Fan Coolers (RCFC) in the event of a Safety Injection signal or Loss of Offsite Power (LOOP) (3600 gpm per DBD Table T-7, Safety Injection, Minimum or Maximum Safeguards, or Recirculation).

2. Close and leak tight (CAT A) in accordance with UFSAR commitment (Section 6.2.6.3 and Figure 6.2.4-1, Sheet 28) to provide containment integrity.

REQUIRED TESTS:

1. Exercise open to meet Safety Function 1.

2. Exercise close to meet Safety Function 2.

3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 2.

TPNS NO.: 2R201(2)T **CC0198** DESCRIPTION: (ICIV) TRAIN C CCW SUPPLY TO RCFCS, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Open to provide cooling water to the Reactor Containment Fan Coolers (RCFC) in the event of a Safety Injection signal or Loss of Offsite Power (LOOP) (3600 gpm per DBD Table T-7, Safety Injection, Minimum or Maximum Safeguards, or Recirculation).

2. Close and leak tight (CAT A) in accordance with UFSAR commitment (Section 6.2.6.3 and Figure 6.2.4-1, Sheet 25) to provide containment integrity.

REQUIRED TESTS:

1. Exercise open to meet Safety Function 1.

2. Exercise close to meet Safety Function 2.

3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 2.

CC-319
(Penetration No. M39)

TPNS NO.: 2R201(2)T **CC0319** DESCRIPTION: (ICIV) CCW SUPPLY TO RCP'S, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT A) to provide containment integrity.

REQUIRED TESTS:

1. Exercise close to meet Safety Function 1.

2. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

CV-26
(Penetration No. M48)

TPNS NO.: 2R171(2)X **CV0026** DESCRIPTION: (ICIV) CHARGING LINE, INSIDE THE RCB CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT A) to maintain containment integrity.

2. Open to provide 30 gpm for RCS boron and water inventory (charging) control for safe shutdown per Technical Requirements Manual 4.1.2.2 d or Technical Specification 4.1.1.1.1.

REQUIRED TESTS:

1. Exercise close to meet Safety Function 1.

2. Exercise open to meet Safety Function 2.

3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

CV-34A, B, C, D
(Penetration No. M51A, 51B, 52C, 52D)

TPNS NO.: 2R171(2)T **CV0034A** DESCRIPTION: (ICIV) SEAL INJECTION TO RCP A, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT) to maintain containment integrity.
2. Close to provide isolation in the event of a seal line rupture.
3. Open to provide 8 gpm of alternate RCS boration for safe shutdown (CVC DBD 3.2.2.1 4).

REQUIRED TESTS:

1. Exercise close to meet Safety Functions 1 and 2.
2. Exercise open to meet Safety Function 3.
3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

TPNS NO.: 2R171(2)T **CV0034B** DESCRIPTION: (ICIV) SEAL INJECTION TO RCP B, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT A) to maintain containment integrity.
2. Close to provide isolation in the event of a seal line rupture.
3. Open to provide 8 gpm of alternate RCS boration for safe shutdown (CVC DBD 3.2.2.1 4).

REQUIRED TESTS:

1. Exercise close to meet Safety Functions 1 and 2.
2. Exercise open to meet Safety Function 3.
3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

TPNS NO.: 2R171(2)T **CV0034C** DESCRIPTION: (ICIV) SEAL INJECTION TO RCP C, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT A) to maintain containment integrity.
2. Close to provide isolation in the event of a seal line rupture.
3. Open to provide 8 gpm of alternate RCS boration for safe shutdown (CVC DBD 3.2.2.1 4)

REQUIRED TESTS:

1. Exercise close to meet Safety Functions 1 and 2.
2. Exercise open to meet Safety Function 3.
3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

TPNS NO.: 2R171(2)T **CV0034D** DESCRIPTION: (ICIV) SEAL INJECTION TO RCP D, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT A) to maintain containment integrity.
2. Close to provide isolation in the event of a seal line rupture.
3. Open to provide 8 gpm of alternate RCS boration for safe shutdown (CVC DBD 3.2.2.1 4).

REQUIRED TESTS:

1. Exercise close to meet Safety Functions 1 and 2.
2. Exercise open to meet Safety Function 3.
3. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

CV-158
(Penetration No. M53)

TPNS NO.: 2R171(2)X **CV0158** DESCRIPTION: (ICIV) RC FILTERS OUT TO RHR TRAIN A, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Leak tight (CAT A) to maintain containment integrity

REQUIRED TESTS:

1. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

DW-502
(Penetration No. M61)

TPNS NO.: 2S191(2)T **DW0502** DESCRIPTION: (ICIV) DEMINERALIZED WATER TO THE RCB, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Remain close to maintain containment integrity.

REQUIRED TESTS:

1. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1

FP-0943
(Penetration No. M77)

TPNS NO.: 2Q271(2)T **FP0943** DESCRIPTION: (ICIV) FIRE PROTECTION TO THE RCB, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close to maintain containment integrity.

REQUIRED TESTS:

1. Exercise close to satisfy Safety Function 1.

2. Leak test in accordance with 10 CFR 50 Appendix J to satisfy Safety Function 1.

IA-0541
(Penetration No. M58)

TPNS NO.: 2Q111(2)T **IA0541** DESCRIPTION: (ICIV) INSTRUMENT AIR TO THE RCB, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close to maintain containment integrity.

REQUIRED TESTS:

1. Exercise close to meet Safety Function 1.

2. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

RC-0046
(Penetration No. M45)

TPNS NO.: 2R141(2)X **RC0046** DESCRIPTION: (ICIV) RMW SUPPLY TO THE PRT, CHECK VALVE

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT A) to provide containment integrity.

REQUIRED TESTS:

1. Exercise close to meet Safety Function 1.

2. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

SA-0505
(Penetration No. M57)

TPNS NO.: 2Q101(2)T **SA0505** DESCRIPTION: (ICIV) SERVICE AIR ISOLATION TO THE RCB, CHECK VLV

SAFETY FUNCTION AND BASES:

1. Close to maintain containment integrity.

REQUIRED TESTS:

1. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

SI-0058
(Penetration No. M68A)

TPNS NO.: 2N121(2)T **SI0058** DESCRIPTION: (ICIV) ACCUMULATOR COMMON NITROGEN SUPPLY CHECK

SAFETY FUNCTION AND BASES:

1. Close and leak tight (CAT A) to maintain containment integrity.

REQUIRED TESTS:

1. Exercise close to meet Safety Function 1.

2. Leak test in accordance with 10 CFR 50 Appendix J to meet Safety Function 1.

Recent Local Leak Rate Test Results

The ability of these valves to act as a containment isolation boundary is demonstrated by the 10 CFR 50 Appendix J Program. The valve stroke exercise as identified in IWV-3522 is to identify valve degradation. A review of historical valve performance was performed for the past 3 local leakage tests in both units. The results of these tests are as follows:

PENE #	VALVE #	VALVE TYPE	DATE	LEAK RATE (SCCM)	GUIDELINE VALUE (SCCM)
UNIT 1 VALVES					
M24	CC0198	ICIV	11/08/93	6	7644
M24	CC0198	ICIV	03/15/95	33	7644
M24	CC0198	ICIV	09/24/96	20	7644
M25	CC0058	ICIV	10/23/92	4102	7644
M25	CC0058	ICIV	09/16/93	35	7644
M25	CC0058	ICIV	03/15/95	300	7644
M25	CC0058	ICIV	12/02/96	3503	7644
M27	CC0138	ICIV	10/07/93	9	7644
M27	CC0138	ICIV	03/20/95	1010	7644
M27	CC0138	ICIV	08/19/96	11	7644
M33	CC0013	ICIV	09/12/93	279	8736
M33	CC0013	ICIV	03/12/95	407	8736
M33	CC0013	ICIV	12/03/96	820	8736
M35	CC0123	ICIV	1[illegible]/04/93	6	8736
M35	CC0123	ICIV	03/20/95	12	8736
M35	CC0123	ICIV	08/19/96	22	8736
M37	CC0183	ICIV	11/09/93	1486	8736
M37	CC0183	ICIV	03/16/95	199	8736
M37	CC0183	ICIV	09/23/96	114	8736
M39	CC0319	ICIV	09/27/93	7	6552
M39	CC0319	ICIV	03/16/95	20	6552
M39	CC0319	ICIV	05/26/96	85	6552
M48	CV0026	ICIV	10/18/93	1473	2184
M48	CV0026	ICIV	03/17/95	1472	2184
M48	CV0026	ICIV	05/27/96	802	2184

PENE #	VALVE #	VALVE TYPE	DATE	LEAK RATE (SCCM)	GUIDELINE VALUE (SCCM)
UNIT 1 VALVES (Continued)					
M51A	CV0034A	ICIV	09/24/93	258	1092
M51A	CV0034A	ICIV	03/18/95	27	1092
M51A	CV0034A	ICIV	05/23/96	162	1092
M51B	CV0034B	ICIV	09/24/93	21	1092
M51B	CV0034B	ICIV	03/18/95	0	1092
M51B	CV0034B	ICIV	05/23/96	0	1092
M52C	CV0034C	ICIV	10/11/93	6	1092
M52C	CV0034C	ICIV	03/18/95	30	1092
M52C	CV0034C	ICIV	05/24/96	0	1092
M52D	CV0034D	ICIV	10/04/93	0	1092
M52D	CV0034D	ICIV	03/18/95	5	1092
M52D	CV0034D	ICIV	05/24/96	0	1092
M53	CV0158	ICIV	09/24/93	11	2184
M53	CV0158	ICIV	03/18/95	14	2184
M53	CV0158	ICIV	05/27/96	13	2184
M58	IA0541	ICIV	09/12/93	43	1092
M58	IA0541	ICIV	03/21/95	229	1092
M58	IA0541	ICIV	05/19/96	31	1092
M61	DW0502	ICIV	09/22/93	25	1092
M61	DW0502	ICIV	03/21/95	30	1092
M61	DW0502	ICIV	05/27/96	8	1092
M68A	SI0058	ICIV	08/24/93	13	546
M68A	SI0058	ICIV	03/13/95	16	546
M68A	SI0058	ICIV	05/20/96	49	546
M77	FP0943	ICIV	12/16/93	3333(*)	3276
M77	FP0943	ICIV	03/18/95	162	3276
M77	FP0943	ICIV	05/23/96	1024	3276

*Test performed without slipblind installed on the boundary valves.

Risk Perspective on Containment Isolation Check Valves

The containment isolation function is designed to limit the leakage of radioactive materials through lines penetrating the reactor containment building (RCB) so that the site boundary dose guidelines specified in 10CFR100 are not exceeded following a loss-of-coolant accident (LOCA) or other design basis accident. Upon receipt of the appropriate signals, isolation of the RCB is accomplished by automatic isolation of all non-essential fluid systems, which penetrate the RCB.

The plant-specific Probabilistic Risk Assessment (PRA) analyzes containment isolation for mitigating releases to the environment. The index of interest is the Large, Early Release Frequency (LERF). This measures the frequency of an event that will exceed 10CFR100 in a short period of time. This function is documented in the *STPEGS Probabilistic Safety Assessment Containment Isolation Function Package*.

Failure of containment penetrations less than 3" in diameter does not contribute to LERF in the South Texas Project PRA. The containment isolation functions discussed below have little risk impact on LERF at the South Texas Project. A PRA risk ranking sensitivity study demonstrates the low risk importance for the containment isolation function. Failure of the containment isolation function does not affect core damage frequency. Note: The Phase A Containment Isolation signal is initiated by the safety injection and automatically isolates all nonessential process lines which penetrate Containment. The Phase B Containment Isolation signal is initiated by the Containment HI-3 pressure signal and initiates closure of the remaining process lines. Process lines do not include ESF lines.

The following describes how each of the valves in this submittal are modeled in the plant-specific PRA:

1-CV-0034A/B/C/D (IRC) Reactor Coolant Pump (RCP) Seal Injection Line Check Valves

The check valves provide a second barrier to normally open motor operated valves (MOVs) MOV033A, B, C and D. RCP seal injection is isolated upon receipt of a Phase A Containment Isolation signal concurrent with a charging header low-pressure signal. Since continued seal injection to the RCPs is highly desirable in order to prevent an RCP seal LOCA, the isolation valves are permitted to remain open as long as seal injection is actually occurring (i.e., the charging system is providing seal injection). The seal injection lines are less than 3" in diameter and therefore do not contribute to LERF.

1-CC-0058, 2-CC-0058, 1-CC-0138, 1-CC-0198, 2-CC-0198 CCW to RCFC's ICIV Check Valves and 1-CC-0013, 2-CC-0013, 1-CC-0123, 1-CC-0183, and 2-CC-0183 RHR heat exchanger CCW Supply IRC Check Valves

Continued CCW supply to the reactor containment fan coolers (RCFCs) is required to provide long-term containment heat removal in the South Texas Project PRA. CC-0058, 0138, and 0198

Continued CCW supply to the reactor containment fan coolers (RCFCs) is required to provide long-term containment heat removal in the South Texas Project PRA. CC-0058, 0138, and 0198 are required to open and remain open for success of this function. Because CCW to the RCFCs is a closed system inside containment, and the PRA function requires the valves remain open, these check valves are not included in the analysis of the containment isolation function. These lines are not automatically isolated.

CCW flow to the residual heat removal (RHR) heat exchangers is required for long-term decay heat removal after a design basis initiating event. CCW-0013, 0123 and 0183 are required to open and remain open to provide this function. In the unlikely event of a tube rupture in one of the RHR heat exchangers, radioactive materials would be entrained in the CCW system. The operator in the control room would be made aware of this condition by the CCW radiation monitor. Additional indications of this condition would be given by the CCW flow indications, the high and low flow alarms, surge tank level indications, and tank high level alarms. The isolation valves in this system are designed to be operated remote-manually from the control room.

The CCW supply IRC check valves are included in the analysis of an Interfacing Systems LOCA. In the event of an interfacing systems LOCA, the RHR heat exchanger tubes could fail resulting in a release path through the CCW lines. The CCW supply line contains one MOV and the CCW supply check valve; the CCW return line contains two MOVs. Operator action is required to close the MOVs in the CCW supply and return lines. An analysis of the change in interfacing systems LOCA frequency was made by assuming that all three CCW check valves fail to close on demand. The contribution to LERF from interfacing systems LOCA changed from 3.0×10^{-08} per year to 7.8×10^{-08} per year which is less than the 1.0×10^{-07} per year change identified in the NRC Risk Informed Regulatory Guide.

Based on the analysis in the PRA, these valves have low safety significance for preventing an Interfacing LOCA and/or containment isolation.

1-CC-0319 Reactor Coolant Pump CCW Supply IRC Check Valves

This check valve provides a second barrier to normally open MOVs CC-0318 and CC-0291. The CCW MOVs are isolated upon receipt of a Phase B Containment Isolation signal. Since continued cooling to the RCPs is highly desirable, the isolation valves are permitted to remain open as long as cooling is actually occurring. These valves are credited in the PRA for remaining open to provide reactor coolant pump cooling during an accident.

CCW is supplied to the motor air coolers, the lube oil coolers and to the thermal barrier heat exchanger for the RCPs. Two additional check valves in the supply line to each RCP thermal barrier heat exchanger provides additional isolation capability. The supply to the motor and lube oil coolers is a closed system inside containment.

Because CCW to the RCPs is a closed system inside containment or backed up by additional check valves, and the PRA function requires the valves remain open, these check valves are not included in the analysis of the containment isolation function.

1-CV-0026 CVCS Charging IRC Containment Isolation Check Valve

This valve provides an additional barrier to normally open MOV025. The MOV is automatically closed on receipt of a Phase A Containment Isolation signal. 1-CV-0026 is credited for maintaining reactor coolant system water level (i.e., charging) by opening and remaining open. Since charging is desirable for accident mitigation, this isolation valve is credited in the PRA for remaining open.

Because the CVCS system is a high-pressure system inside containment with additional pressure isolation provided by the normal charging supply check valves CV0001 and CV0002 (or CV0004 and CV0005). this line is not analyzed in the PRA and has no risk impact for LERF.

1-CV-0158 CVCS Low Pressure Letdown IRC Containment Isolation Check Valve

This penetration is not used during power operation and the manual valve, CV-0157, is locked closed. Therefore, this valve is not analyzed in the PRA.

1-DW-0502 RCB Demineralized Water Supply Header Check Valve

This containment penetration line is not used during power operation. 1-DW-0501 is a locked-closed manual valve located inside containment. 1-DW-0502 is a check valve inside containment. For these reasons, this containment penetration is not modeled in the PRA.

1-FP-0943 Fire Protection Isolation

1-FP-0943 is a check valve in series with normally closed MOV FP-0756. The MOV receives a Phase A Containment Isolation signal. Because the line is normally isolated during power operation, this containment penetration is not modeled in the PRA.

1-IA-0541 Instrument Air Supply Isolation

1-IA-0541 backs up normally open fail closed, air-operated valve FV8565. FV8565 receives a Phase A Containment Isolation signal. The instrument air system is a closed high-pressure system, which does not communicate with the containment atmosphere; therefore this containment penetration is not modeled in the PRA.

1-SI-0058 Nitrogen Supply to Safety Injection System Accumulator Tanks Check Valve

This line is usually isolated but is used periodically for accumulator nitrogen charging. Barriers include the check valve and air-operated, fail closed valve, FV3983, outside containment. FV3983 receives a Phase A Containment Isolation signal. There is an additional solenoid-operated valve on each accumulator. Line pressure outside containment is higher than containment failure pressure. Therefore, this check valve is not modeled in the PRA.
In conclusion, from a risk perspective, the above valves have little impact on the frequency of a Large Early Release and no impact on core damage frequency. This is due, in part, to the plant design and the role the above check valves play in mitigating accidents.