

Preliminary

17

TEST RESULTS REPORT

PROCEDURE NO. 91HF-1SI01

PROCEDURE TITLE PRECORE SAFETY INJECTION CHECK VALVE TEST

REVISION AT THE COMMENCEMENT OF TESTING 0 DATE 6/1/83

REVISION AT COMPLETION OF TESTING 0 DATE 6/1/83

LATEST TEST CHANGE NOTICE NO. TCN 004 DATE 6/2/83

DATES OF TEST PERFORMANCE JUNE 2, 1983

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Review and  
Approval of Test Results

PREPARED BY: [Signature] DATE 9/8/83

TECHNICAL REVIEW: [Signature] DATE 9/8/83

GROUP SUPERVISOR REVIEW: [Signature] DATE 9/14/83

TEST WORKING GROUP MEETING NUMBER: \_\_\_\_\_ DATE \_\_\_\_\_

PLANT REVIEW BOARD MEETING NUMBER: \_\_\_\_\_ DATE \_\_\_\_\_

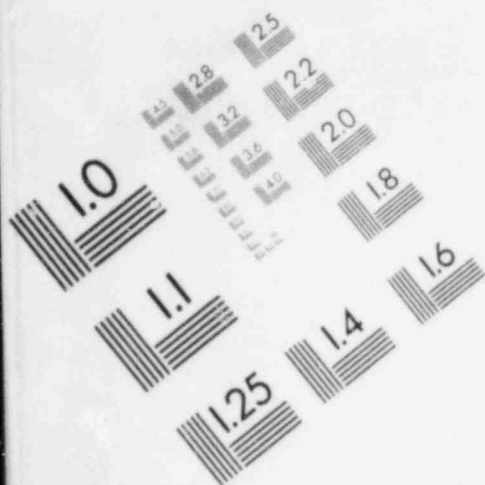
QUALITY ASSURANCE REVIEW: \_\_\_\_\_ DATE \_\_\_\_\_  
(Required for Test Results Reports not reviewed by TWG)

STARTUP MANAGER APPROVAL: \_\_\_\_\_ DATE \_\_\_\_\_

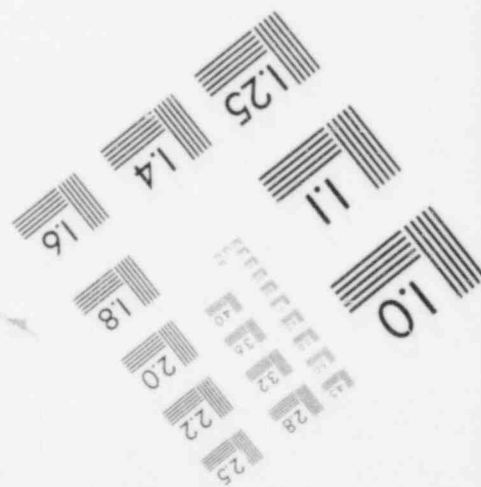
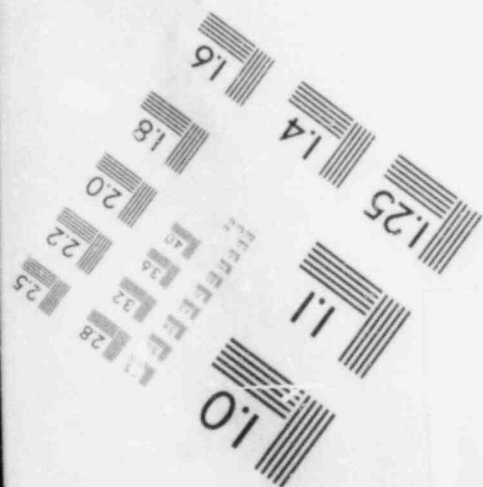
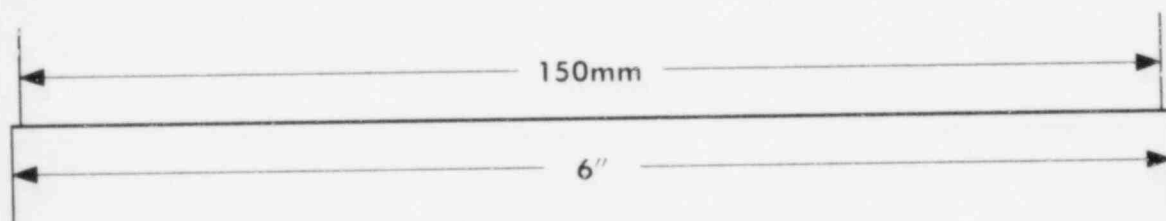
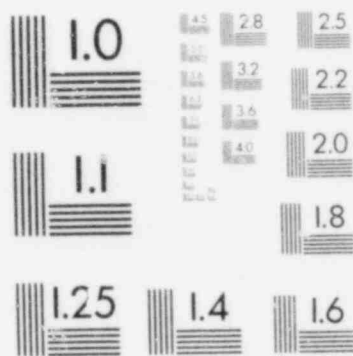
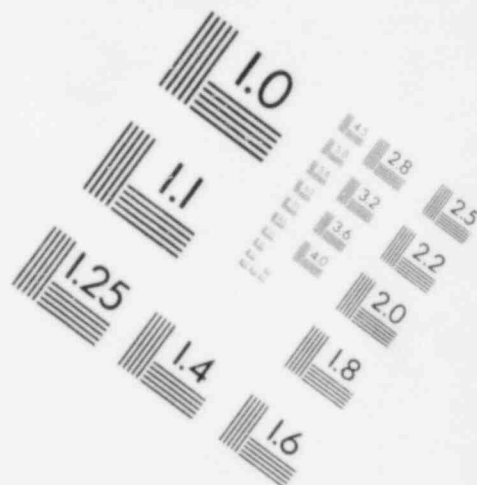
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# IMAGE EVALUATION TEST TARGET (MT-3)



A. TEST PURPOSE AND SCOPE

This test was conducted to ensure the following:

1. To verify that the Safety Injection Tank (SIT) discharge check valves, (SIA-V235, SIA-V245, SIB-V215, SIB-V225) will pass flow with the RCS at normal operating pressure and temperature.
2. To verify that the Safety Injection loop check valves (SIB-V217, SIB-V227, SIA-V237, SIA-V247) will pass flow with the RCS at normal operating pressure and temperature.
3. To verify that the RCS loop hot leg check valves (SIB-V532, SIA-V522) will pass flow with the RCS at normal operating pressure and temperature.

B. COMPLEMENTARY TESTS

This precore hot functional test satisfied the following licensing commitments:

1. Verified flow through the safety injection loop check valves by lining up to the CVCS charging pumps to discharge into the safety injection discharge header. (Source Document CESSAR 14.2.12.2.12)
2. Demonstrated the operability of emergency core cooling system to show the operability of the check valves along the safety injection discharge path at operating temperatures. (Source Document ASME X XI, IWV-3520)
3. Demonstrated the operability of the check valves for the high pressure safety injection system hot operating condition flow test. (Source Document Reg. Guide 1.79, Rev. 0, C.3.A(2))

The preoperational test 91PE-1SI01 satisfied the licensing commitment to verify flow through each safety injection check valve by flowing back to the Refueling Water Tank. (Source Document CESSAR 14.2.12.2.12)

C. TEST DESCRIPTION

The four RCS Loop Check Valves (SIA-V237, SIA-V247, SIB-V217, SIB-V227) were tested as follows:

1. Maintained RCS at normal operating temperature and pressure.
2. Two charging pumps were used to maintain an 88 gpm output.
3. Maintained RCP seal injection flow at greater than 40 gpm through the seal injection line.
4. Established conditions for a parallel flow path through the HPSI header.
5. Established flow through the RCS Loop Check Valve via the HPSI header by jogging open the associated HPSI Header Control Valve (SIA UV-637, -647, -617, and -627). Recorded the RCS pressure, HPSI Header Pressure, and Charging Header flow upon opening and closing the HPSI Header Control Valve.
6. Verified flow through the loop check valves when charging flow decreased and HPSI Header Pressure increased to greater than RCS pressure.
7. Depressurized the HPSI line to equalize it with the Safety Injection Tank. Recorded both SIT pressure and HPSI pressure.

The Safety Injection Tank Discharge Check Valves (SIB-V215 and -V225, and SIA-V235 and -V245) were tested as follows:

1. Maintained RCS at normal operating temperature and pressure.
2. Recorded SIT level and pressure.
3. Maintained HPSI header pressure of less than 620 psig.
4. Established valve lineup to allow depressurization to the Reactor Drain Tank, as per TCN 003.
5. Opened the discharge header drain valve and monitored the SIT level for decrease. Closed the valve when a level decrease was observed.
6. Recorded the SIT level and pressure. A decrease in both parameters indicated that the check valve passed flow.

The two RCS Loop Hot Leg Check Valves (SIA-V522 and SIB-V532) were tested as follows:

1. Maintained RCS at normal operating temperature and pressure.
2. Recorded RCS Pressure, HPSI Header pressure, and Charging Header Flow.
3. Opened HP Long Path Recirculation valve (SIA-HV-640 or SIB-HV-509).
4. Jogged Open HPSI Header Control Valve (SIC-HV-321 or SID-HV-331) to pressurize the line to the check valve being tested.
5. Closed HPSI Header Control Valve (SIC-HV-321 or SID-HV-331).
6. Recorded RCS pressure, HPSI Header Pressure and Charging Header flow.
7. Verified flow through check valve (SIA-V522 or SIB-V532) by observing a decrease in charging flow and an increase in HPSI header pressure to slightly greater than RCS pressure.
8. Closed HP long path recirculation valve (SIA-HV-604 or SIB-HV-509).

9. Closed Charging Pump Discharge Isolation Valve upon completion of testing the second valve.

D. TEST EVENTS

All testing was conducted on June 2, 1983. All check valves tested passed flow in accordance with the test requirements. No TER's were issued against this procedure.

E. TEST RESULTS

The RCS loop 1A check valve SIA-V237 was tested in Section 8.1.5 and met the requirements of the Acceptance Criteria in Section 2.1.1.

The RCS loop 1B check valve SIA-V247 was tested in Section 8.1.6 and met the requirements of the Acceptance Criteria in Section 2.1.2.

The RCS loop 2A check valve SIB-V217 was tested in Section 9.1.7 and met the requirements of the Acceptance Criteria in Section 2.1.3.

RCS loop 2B check valve SIB-V227 was tested in Section 8.1.8 and met the requirements of the Acceptance Criteria in Section 2.1.4.

RCS loop 1 Hot leg check valve SIA-V522 was tested in Section 8.1.9 and met the requirements of the Acceptance Criteria in Section 2.1.5.

RCS loop 2 Hot leg check valve SIB-V532 was tested in Section 8.1.10 and met the requirements of the Acceptance Criteria in Section 2.1.6.

Safety Injection Tank 2A Discharge Check Valve SIB-V215 was tested in Section 8.2.5 and met the requirements of the Acceptance Criteria in Section 2.2.1.

Safety Injection Tank 2B Discharge Check Valve SIB-V225 was tested in

Section 8.2.6 and met the requirements of the Acceptance Criteria in Section 2.2.2.

Safety Injection Tank 1A Discharge Check Valve SIA-V235 was tested in Section 8.2.7 and met the requirements of the Acceptance Criteria in Section 2.2.3.

Safety Injection Tank 1B Discharge Check Valve SIA-V245 was tested in Section 8.2.8 and met the requirements of the Acceptance Criteria in Section 2.2.4.

F. CONCLUSION

The test results have demonstrated that the Safety Injection Check Valves tested in this procedure successfully pass flow according to the design requirements.

G. RECOMMENDATIONS

It is recommended that 91HF-1SI01, Precore Safety Injection Check Valves, be accepted as complete by TWG.