

NUCLEAR POWER BUSINESS UNIT
OPERATIONS REFUELING TESTS

ORT 60
MINOR
Revision 19
January 31, 1997

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

Date _____
DSS _____

RECORD

PROCEDURE VERIFIED CURRENT AND CHECKED FOR TEMPORARY CHANGES. IF FIELD COPIES REQUIRED, USE PBF-0026; IAW NP 1.2.4 AND DO NOT COMPLETE THIS BLOCK.

BY: _____ DATE: _____

1.0 PURPOSE

To perform a refueling shutdown sea. leakage test of valves 1SI-862B, 862H, 864B and 868B as required by Appendix J.

2.0 REFERENCES

IR 96-006, NRC Inspection Report, NRC Commitment for Operations procedure PMT/QC reviews.

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Locate the Volumetrics tester in an area which will limit personal exposure.
- 3.2 Do not allow liquids to enter the Volumetrics tester or damage may occur.
- 3.3 All liquids must be drained from piping subsystem prior to attaching the test rig.
- 3.4 During the test, the SI test line is removed from service. The SI pump control switches must be in the pull-out position, but one SI pump may be operable for reduced inventory operation or boration flow path. With the associated SI pump mini-recirc shut, a pump discharge flow path must be established prior to manually starting the pump.

4.0 INITIAL CONDITIONS

INITIALS

- 4.1 The RCS is in a cold or refueling shutdown and containment integrity is not required.

4.2 **Permission to Perform Test**

The conditions required by this test are consistent with required plant conditions including equipment operability. Permission is granted to perform this test.

DSS _____ Time _____ Date _____

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

INITIALS

5.0 ISOLATE AND DRAIN SYSTEM FOR TESTING

- 5.1 Shut 1SI-870B, 1P-14B RWST suction MOV. _____
- 5.2 Verify shut 1SI-871B, Train B RHR/Spray X-conn MOV. _____
- 5.3 Position and red tag: _____

NOTE: *Tagging shut 1SI-868B satisfies "Containment Closure" requirements throughout this test.*

POSITION

1SI-868B Train B spray CIV	Shut	_____
1B52-14A, 1P-14A bkr on 1B-03	Rack out	_____
1B52-19A, 1P-14B bkr on 1B-04	Rack out	_____
*1A52-59, 1P-15A bkr on 1A-05	Rack out	_____
*1A52-85, 1P-15B bkr on 1A-06	Rack out	_____
1B52-423J, 1SI-870B bkr on 1B-42	Open	_____
1B52-423M, 1SI-871B bkr on 1B-42	Open	_____
1SI-870B, 1P-14B RWST suction MOV handwheel	Shut	_____
1SI-871B, 1P-14B/RHR X-conn MOV handwheel	Shut	_____
1SI-874B, NaOH supply to eductor	Shut	_____
1SI-864C, 1F-14B 3/4" recirc	Shut	_____
1SI-873B, 1P-14B 2" recirc	Shut	_____
1SI-831D, Spray additive test line isolation	Shut	_____

- * One SI pump breaker may be racked in with the respective pump control switch in "Pull-out," if required for reduced inventory operation.

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UNIT 1

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RECORD

PROCEDURE VERIFIED CURRENT AND CHECKED FOR TEMPORARY CHANGES. IF FIELD COPIES REQUIRED, USE PBF-0026; LAW NP 1.2.4 AND DO NOT COMPLETE THIS BLOCK.

BY: _____ DATE: _____

1.0 PURPOSE

To perform a refueling shutdown seat leakage test of valves 1SI-862B, 862H, 864B and 868B as required by Appendix J.

2.0 REFERENCES

IR 96-006, NRC Inspection Report, NRC Commitment for Operations procedure PMT/QC reviews.

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Locate the Volumetrics tester in an area which will limit personal exposure.
- 3.2 Do not allow liquids to enter the Volumetrics tester or damage may occur.
- 3.3 All liquids must be drained from piping subsystem prior to attaching the test rig.
- 3.4 During the test, the SI test line is removed from service. The SI pump control switches must be in the pull-out position, but one SI pump may be operable for reduced inventory operation or boration flow path. With the associated SI pump mini-recirc shut, a pump discharge flow path must be established prior to manually starting the pump.

4.0 INITIAL CONDITIONS

INITIALS

- 4.1 The RCS is in a cold or refueling shutdown and containment integrity is not required.

4.2 **Permission to Perform Test**

The conditions required by this test are consistent with required plant conditions including equipment operability. Permission is granted to perform this test.

DSS _____ Time _____ Date _____

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

INITIALS

5.0 ISOLATE AND DRAIN SYSTEM FOR TESTING

5.1 Shut 1SI-870B, 1P-14B RWST suction MOV.

5.2 Verify shut 1SI-871B, Train B RHR/Spray X-conn MOV.

5.3 Position and red tag:

NOTE: Tagging shut 1SI-868B satisfies "Containment Closure" requirements throughout this test.

POSITION

1SI-868B Train B spray CIV.....	Shut	_____
1B52-14A, 1P-14A bkr on 1B-03.....	Rack out	_____
1B52-19A, 1P-14B bkr on 1B-04.....	Rack out	_____
*1A52-59, 1P-15A bkr on 1A-05.....	Rack out	_____
*1A52-85, 1P-15B bkr on 1A-06.....	Rack out	_____
1B52-423J, 1SI-870B bkr on 1B-42.....	Open	_____
1B52-423M, 1SI-871B bkr on 1B-42.....	Open	_____
1SI-870B, 1P-14B RWST suction MOV handwheel.....	Shut	_____
1SI-871B, 1P-14B/RHR X-conn MOV handwheel.....	Shut	_____
1SI-874B, NaOH supply to eductor.....	Shut	_____
1SI-864C, 1P-14B 3/4" recirc.....	Shut	_____
1SI-873B, 1P-14B 2" recirc.....	Shut	_____
1SI-831D, Spray additive test line isolation.....	Shut	_____

- * One SI pump breaker may be racked in with the respective pump control switch in "Pull-out," if required for reduced inventory operation.

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

INITIALS

- 5.4 Shut the following valves:

1SI-862E, 1FT-963 sensing line isolation
1SI-862F, 1FT-963 sensing line isolation
1SI-864A, 1P-14A test line isolation
1SI-864D, 1P-14A 3/4" recirc
1SI-873A, 1P-14A 2" recirc
1SI-879B, containment SI test line
1SI-897B, test line AOV

***CAUTION* IF AN SI PUMP BREAKER IS RACKED IN, THE
CONTROL ROOM OPERATOR SHALL BE
INFORMED WHEN THE ASSOCIATED 1P-15A
OR B MINI-RECIRC IS SHUT.**

1SI-876A, 1P-15A mini-recirc
1SI-876B, 1P-15B mini-recirc

- 5.5 Attach drain hoses from 1SI-883, 1SI-D25 and 1SI-D31 to a floor drain.

- 5.6 Open the following valves to drain system:

1SI-860C, 1P-14B discharge MOV
1SI-860D, 1P-14B discharge MOV
1SI-884, test line manual isolation
1SI-883, test line sample/drain
1SI-864B, 1P-14B test line isolation
1SI-D12, 1P-14B casing drain
1SI-D25, 1P-14B discharge check valve bonnet drain
1SI-D31, high flow recirc orifice drain
1SI-862H, high flow recirc manual isolation
1SI-869B, Train B air test conn/vent

- 5.7 Remove 1/2" pipe plug from the 2" pipe tee in the eductor line above the
eductor to facilitate draining at 1SI-D12 and 1SI-D25.

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

INITIALS

NOTE: *If post-maintenance or operability testing of 1SI-862B, 862H, or 864E is not required, then N/A all of Section 6.0.*

6.0 SEAT LEAKAGE TEST OF 1SI-862B, 862H AND 864B

- 6.1 When drainage ceases at 1SI-D31, then shut 1SI-862H and 1SI-D31. _____
- 6.2 Open 1SI-V21 as a vent path for 1SI-862H. _____
- 6.3 When drainage ceases at 1SI-D12, then reinstall the 1/2" pipe plug at the eductor 2" suction line tee and shut 1SI-D12. _____
- 6.4 Attach SA to the test connection for 1PI-933B and pressurize slightly (<10 psig) to blow water downstream of 1SI-860C&D out the 1SI-D25 drain connection. _____
- 6.5 When drainage ceases at 1SI-D25, then remove the SA connection from 1PI-933B. Shut and cap the 1PI-933B test connection. _____
- 6.6 Attach the Volumetrics test rig to 1SI-869B. _____
- 6.7 Shut 1SI-D25. _____
- 6.8 Verify valve alignment per Dwg. B-IVLT-55P. _____
- 6.9 Pressurize the system to 65 ⁺⁵/₀ psig, then crack open 1SI-D25 and verify that there is no water on the seat of 1SI-862B. Reshut 1SI-D25 and cap. _____
- 6.10 Test the system per OI-58 and record data on the data sheet. _____
- 6.11 If total system leakage is >1500 sccm, then quantify individual valve leakage as follows:
- 6.11.1 To measure 1SI-862B leakage, connect an Omega rotameter at 1SI-D12 and record flow.

_____ sccm

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

INITIALS

- 6.11.2 To measure 1SI-862H leakage, connect an Omega rotameter at 1SI-V21 and record flow.

_____ sccm

- 6.11.3 To measure 1SI-864B leakage, connect an Omega rotameter at 1SI-883 and record flow.

_____ sccm

- 6.11.4 To quantify 1SI-868B leakage, total the previous three rotameter readings and subtract from the Volumetrics rig value.

Record _____ sccm

- 6.12 When the test is complete, shut 1SI-869B and detach the test rig.

- 6.13 Open 1SI-869B and vent the test volume to atmospheric pressure.

- 6.14 Perform post-test valve alignment:

POSITION

1SI-884, test line manual isolation	Shut	_____
1SI-883, test line sample/drain	Shut	_____
1SI-D12, 1P-14B casing drain	Shut	_____
1SI-V21, high flow recirc line vent	Shut	_____
1SI-869B, header air test connection	Shut	_____
1SI-862E, 1FT-963 sensing line	Open	_____
1SI-862F, 1FT-963 sensing line	Open	_____
1SI-860C, 1P-14B discharge MOV	Shut	_____
1SI-860D, 1P-14B discharge MOV	Shut	_____
1SI-864D, 1P-14A 3/4" recirc	LO	_____
1SI-876A, 1P-15A mini-recirc	LO	_____
1SI-876B, 1P-15B mini-recirc	LO	_____
1SI-897B, test line AOV	Gag Open	_____

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

INITIALS

NOTE: *If post-maintenance or operability testing of 1SI-868B is not required, then N/A all of Section 7.0.*

7.0 SEAT LEAKAGE TEST OF 1SI-868B

7.1 Verify 1SI-868B is tagged shut for "Containment Closure." _____

NOTE: *Attaching to and opening 1SI-868D does not violate "Containment Closure."*

7.2 Attach the Volumetrics test rig to the stem leak-off test connection of 1SI-868B. _____

7.3 Open 1SI-869B as a vent path. _____

7.4 Pressurize to 65^{+5}_{-0} psig. _____

7.5 Open 1SI-868D and test per OI-58. Record test data on the data sheet. _____

7.6 When the test is complete, depressurize and disconnect the test rig. _____

7.7 Shut and red lock 1SI-868D. _____ /

7.8 Cap or plug the 1SI-868B stem leak off test connection. _____ /

7.9 Shut and cap 1SI-869B. _____

8.0 RESTORATION OF SPRAY SYSTEM, TRAIN B

NOTE: *CL-7B will be performed as a final verification of system alignment for criticality.*

8.1 Clear the ORT 60 red tag series and align the tagged components per the DSS. _____

8.2 Lock open 1SI-868B. Lock No. _____

8.3 Fill and vent 1P-14B. If 1P-14B can not be filled and vented at this time, then leave a turnover note with the DSS and DOS to fill and vent prior to operation of 1P-14B. _____

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

INITIALS

PMT

- 8.4 Leak check the 1/2" pipe plug at the educator 2" suction line tee when system is filled.

9.0 EVALUATION

TO BE COMPLETED BY OPERATIONS MANAGER OR HIS REPRESENTATIVE.

- 9.1 Individual leakages compared to allowable value and included in tabulation of total leak rate.

- 9.2 Results acceptable, no limits exceeded.

Yes _____ No _____ *

* (If no, give details in the remarks section and notify the Regulatory Services manager to determine reportability).

- 9.3 Data Analyzed By: _____

Date: _____

Remarks:

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1

LEAK TEST DATA

1SI-862B, 862H, 864B

<u>Time</u>	<u>Pressure (psig)</u>	<u>Leak Rate (sccm)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Test Instrument ID _____ Range: Lo, Med, Hi (circle one)

1SI-868B

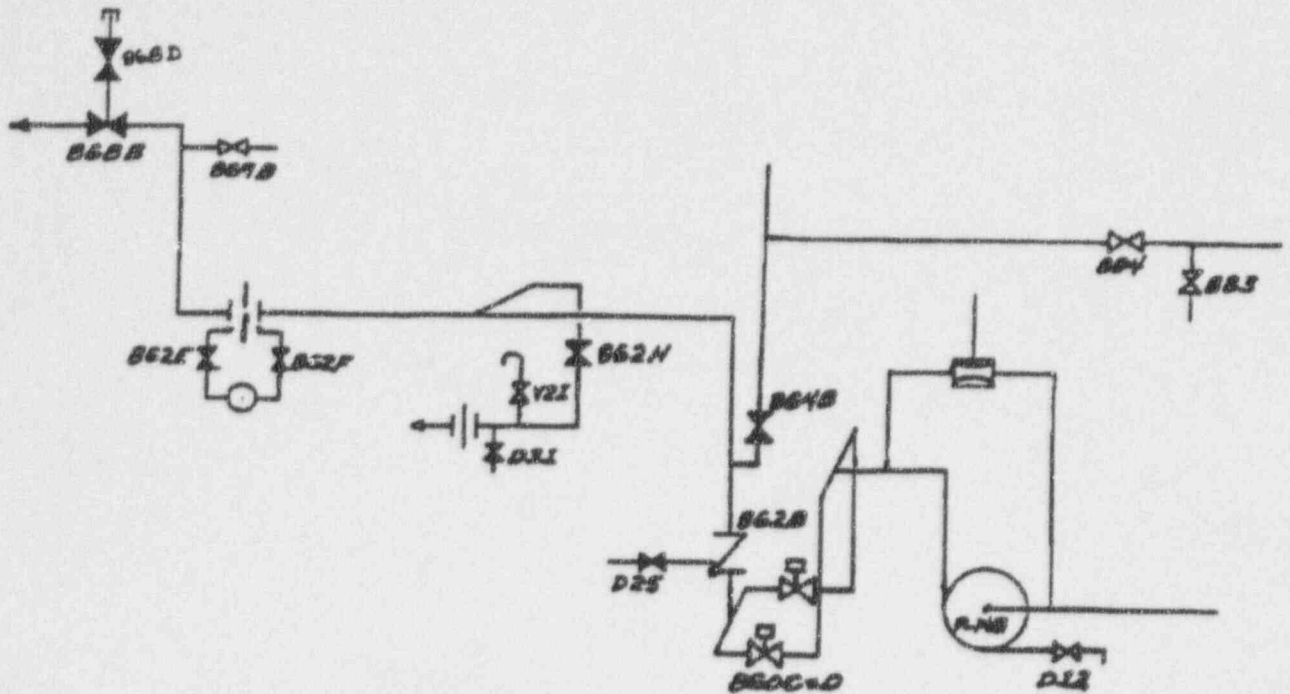
<u>Time</u>	<u>Pressure (psig)</u>	<u>Leak Rate (sccm)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

Test Instrument ID _____ Range: Lo, Med, Hi (circle one)

Comments: _____

Test Operator _____ Date _____

TRAIN B SPRAY SYSTEM CIV LEAKAGE TEST
UNIT 1



TO TEST 1SI-862B, 862H AND 864B

INITIALS

SHUT: 1SI-868B
1SI-862E
1SI-862F
1SI-862H
1SI-864B
1SI-D25

OPEN: 1SI-V21
1SI-860C
1SI-860D
1SI-D12
1SI-884
1SI-883
1SI-869B

Dwg. V-IVLT-55P