

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

Date _____
DSS _____

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 detect and quantify leakage from the components comprising the high head safety injection and residual heat removal systems.

- 1.1 This test is part of the Leakage Reduction and Preventive Maintenance Program required by NUREG-0578, Item 2.1.6a.
- 1.2 This test is part of the program to evaluate the integrity of post-accident recovery systems outside containment as required by Technical Specification Table 15.4.1-2(22).
- 1.3 To hydrostatically test, inspect and measure leakage from components of the RHR system including intersystem leakage as required by Technical Specification 15.4.4.IV.A.1.(a) and 15.4.4.IV.A.2.
- 1.4 Refueling frequency, quantified seat leakage testing of valves 2SI-854A, 2RH-706A, and 2SC-959 as required by ASME Boiler and Pressure Vessel Code, Section XI, "Rules for Inspection of Nuclear Power Plant Components."
- 1.5 This procedure fulfills the 40-month functional pressure test requirements for Class 2 HHSI and RHR piping in accordance with ASME Section XI and PBNP Pressure Test Program.

2.0 REFERENCES

- 2.1 EDS Nuclear Report, "Leakage Reduction and Preventive Maintenance Program at Point Beach Nuclear Plant," dated 07-24-80
- 2.2 EDS Nuclear, "High Pressure Safety Injection System Leakage Test," TMI-02, dated 12-17-80

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

2.3 P&IDs

- 2.3.1 110E035, Sheets 1 and 2 SIS
- 2.3.2 110E029, Sheet 1 Aux Coolant System

2.4 Technical Specifications:

- 2.4.1 Table 15.4.1-2, Item 22
- 2.4.2 15.4.4.IV.A.1.(a)
- 2.4.3 15.4.4.IV.A.2

2.5 OI-65, "Post-Maintenance Pressure Testing"

2.6 NUREG-0578, Item 2.1.6.a, "Leakage Reduction and Preventive Maintenance Program"

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

3.0 PRECAUTIONS

3.1 **IF THERE IS ANY PROBLEM IN PERFORMING THIS TEST, IMMEDIATELY
NOTIFY THE DUTY SHIFT SUPERINTENDENT. OPERATION OF THIS
EQUIPMENT IS A TECHNICAL SPECIFICATION REQUIREMENT.**

3.2 Liquids leaking from various components of the HHSI or RHR systems will be mildly
radioactive, and appropriate health physics practices should be observed.

3.3 Hydro pumps:

3.3.1 Hydro pump skids must be prevented from rolling (i.e; wheels chocked, brakes
locked, chained to wall, etc.) to minimize the risk of RHR piping damage in a
seismic event.

3.3.2 When a hydro pump is connected to a radioactive liquid system, maintain the
test point valve shut until hydro pump pressure is established, and shut the test
point valve before securing the hydro pump on depressurizing, to prevent
contamination of the hydro hose(s) and pump.

3.4 2PI-974, SI pump suction pressure gauge shall be isolated during this test, as it is outside
the test boundary.

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

- 3.5 LHSI pump suction pressure will be read on the installed gauges in the No. 3 lower pipeway on El. 8'.
- 3.6 If, at any time, RHR or SI pump suction pressure is less than the NPSH required, this test must be discontinued until the problem is corrected. The SI pump must not be operated without the associated RHR pump operating and the associated low head to high head crossconnect open.
- 3.7 Limit the run time of the HHSI pumps to ≤ 25 minutes when solely on mini-recirc flow. Measured mini-recirc flow is 110 gpm. Minimum total flow for continuous operation is 225 gpm.
- 3.8 Limit the run time of the LHSI pumps to ≤ 30 minutes when solely on mini-recirc flow (design flow rate of 150 gpm). Minimum total flow for continuous operation is 520 gpm.

4.0 INITIAL CONDITIONS

INITIALS

- 4.1 RHR is aligned for LHSI per CL-7A _____
- 4.2 HHSI is aligned per CL-7A. _____
- 4.3 Standby emergency power shall be available to the 4160 V safeguards buses 1A05, 1A06, 2A05, 2A06, or the component(s) to be tested is/are in the same train that is out of service. _____
- 4.4 The orifice is installed in: _____
- 4.4.1 2FE-659 of the HHSI high flow recirc line. _____
- 4.4.2 2FE-660 of the LHSI high flow recirc line. _____
- 4.5 An RWP is available, including entry into containment. _____
- 4.6 If a 40-month functional pressure test is required, then: _____
- 4.6.1 Pre-test data of Attachments F and G are completed. _____
- 4.6.2 The QTS inspector is notified of the test. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

- 4.6.3 The ANII inspector is notified of the test. _____
- 4.7 The following equipment is available:
- 4.7.1 Stopwatch _____
- 4.7.2 Graduated cylinder in ml or cc _____
- 4.7.3 Leakage collection apparatus for 3 collection points _____
- 4.7.4 Pressure test gauge for 350 psig _____
- 4.8 A PAB qualified auxiliary operator with no other duties has been assigned to assist in performing this test. _____
- 4.9 Haskal hydro pump is available on the El. 8' of the PAB with hydro hose to connect to 2RH-V1, 2P-10A suction gauge isolation, and a rule to measure reservoir water level. _____
- 4.10 A SRO has conducted a briefing with all personnel involved in this test. This briefing consists of:
- 4.10.1 The possibility of exceeding design flow of the RHR pumps since both the RHR full flow recirc line and the SI pump full flow recirc line will be in operation. _____
- 4.10.2 Exercise caution when conducting the leak check of 2SI-829A so that a spill of RWST water does not occur from vent valve 2SI-V23. _____
- 4.11 **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 _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

5.0 SEAT LEAKAGE TEST OF RHR TRAIN A VALVES

NOTE: Steps 5.1 through 5.6 may be performed concurrently.

5.1 Alignment of Primary Sampling System

NOTE: Notify U2 Control Operator and Chemistry of intent to secure the failed fuel monitor (2RE-109) for the duration of Section 5.0.

5.1.1 Isolate the hot leg sampling system by shutting 2SC-955, 966C and 956C. _____

5.1.2 Shut 2SC-968, common sample return isolation. _____

5.1.3 Verify shut 2SC-951, 953, 966A and 966B, pressurizer sample valves. _____

5.1.4 Verify shut 2SC-959 and 990, RHR sample valves. _____

5.1.5 Verify open 2SC-958A, RHR root sample valve. _____

5.1.6 Shut 2SC-938, HX-14C, RC hot leg out to high rad sample system. _____

5.1.7 Open 2SC-965C and 971 to provide a valve leak-off path to the sample sink. _____

5.1.8 Notify Chemistry that the primary sample system is aligned for a leak test and must not be altered without the test directors permission. _____

5.2 Alignment of RHR Letdown System

5.2.1 Verify shut 2SF-821A and 2RH-715D, refueling cavity purification system cross-connects. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

- 5.2.2 Attach a Tygon tube to 2RH-D13 and route the tube to an elevation greater than the highest point within the boundary of 2RH-715C, 715D and 2CV-369A. Secure the Tygon in place to act as a system overflow vent. _____
- 5.2.3 With 2RH-715C open, crack open 2RH-D13 to fill/prime the leak detection hose until it overflows into a container, then shut 2RH-715C firmly. _____
- 5.2.4 Measure background leakage from 2RH-715C then shut 2RH-D13. Baseline leakage = _____ sccm _____
- 5.3 Alignment of Local RHR Sample System
- 5.3.1 Verify shut 2RH-705, 705A and 712, local sample valves. _____
- 5.3.2 Verify the sample tubing is open to the local sample sink to act as leak-off collection point for seat leakage of 2RH-705, 705A and 712. _____
- 5.4 Alignment of RHR High Flow Test Line
- 5.4.1 Verify 2RH-706A&B, test line isolation valves, are shut firmly. _____
- 5.4.2 Attach a Tygon tube to 2RH-V16 and route the tube to an elevation greater than the highest point within the boundary of 2RH-706A&B and 742. Secure the Tygon in place to act as a system overflow vent. _____
- NOTE:** *This procedure assumes that the 2FE-660 orifice is installed and the blank is removed. Otherwise the fill and vent of the test line will need to be modified by filling through 2RH-706A or B.*
- 5.4.3 With all test line vents and drains shut, partially open 2RH-742 and 742B. _____
- 5.4.4 Crack open 2RH-V16 to fill/prime the test line and leak detection hose until it overflows into a container, then shut 2RH-742 and 742B firmly. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

5.4.5 Fully open 2RH-V16. Measure and record a stabilized baseline
leak rate, if any, at 2RH-V16.
Baseline leakage = _____ sccm

5.4.6 Shut 2RH-V16.

5.5 Alignment of Spray system

5.5.1 Attach a Tygon tube to the Swagelock tee at 2SI-848J and
route the tube to an elevation greater than the highest point
within the boundary of 2SI-870A, 871A, 860A and 860B.
Secure the Tygon in place to act as a system overflow vent.

5.5.2 Crack open 2SI-848J to prime the leak detection hose until it
overflows into a container, then shut 2SI-848J.

5.6 Venting RHR to HHSI Piping

5.6.1 Route tubing to floor drain from 2RH-V5, RHR Train A test
line high point vent.

5.6.2 Crack open 2RH-V5 and vent piping until a steady stream of
water is apparent then shut 2RH-V5.

5.6.3 Install the digital pressure gauge at 2RH-V5 and open 2RH-V5.

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

CAUTION AS RHR SYSTEM PRESSURE IS INCREASED TO TEST PRESSURE, THE LEAK-OFF POINTS AT 2RH-D13 AND 2RH-V16 MUST BE MONITORED TO PREVENT LEAK-OFF CONTAINER OVERFILLING.

CAUTION IF A UNIT 2 SAFEGUARDS OR REACTOR PROTECTION ACTUATION OCCURS AT ANY TIME DURING PERFORMANCE OF THE REMAINDER OF THIS PROCEDURE SECTION:

- 1) VERIFY OPEN 2SI-856A AND 2SI-870A.
- 2) VERIFY 2P-10A AND 2P-14A CONTROL SWITCHES TO AUTO.
- 3) IF 2ICP-666A IS IN PROGRESS, DIRECT I&C PERSONNEL TO RESTORE 2RH-624 TO FULLY OPERATIONAL STATUS AND INFORM CONTROL ROOM WHEN COMPLETE.
- 4) SHUT 2RH-V1 AND SECURE THE HYDRO PUMP.

5.7 Enter LCO for Train A RHR, if required, and notify I&C that 2ICP-666A may commence.

5.8 Place the 2P-10A RHR pump control switch in PULLOUT.

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

5.9 Verify the following valves shut, to isolate the test volume:

5.9.1 Outside Containment

2SI-851A	2P-10A sump "B" suction MOV	_____
2SI-856A	2P-10A RWST suction MOV	_____
2SI-852A	LHSI Core Deluge MOV	_____
2SI-871A	RHR to 2P-14A suction MOV	_____
2RH-720	RHR Return to RCS MOV	_____
2RH-823A	2P-10A suction drain	_____
2RH-713A	2HX-11A/B inlet crossconnect	_____
2RH-716D	2HX-11A/B outlet crossconnect	_____
2SI-857A	RHR to 2P-15A suction manual isol	_____
2RH-704A	2P-10A loop suction manual isolation	_____

CAUTION WHEN 2RH-703 IS SHUT, THERE IS NO THERMAL RELIEF PROTECTION FOR TRAIN A OF RHR UNTIL THE HYDRO PUMP IS VALVED IN AT 2RH-V1. THE HYDRO PUMP OPERATOR SHOULD QUICKLY PROCEED WITH STEPS 5.10 THROUGH 5.12 AFTER 2RH-703 IS SHUT.

5.9.2 Inside Containment

2RH-703	RHR to letdown manual isolation	_____
2CV-133(fail air)	RHR to letdown HCV	_____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

- 5.10 Shut 2RH-V1, then disconnect the suction gauge tubing at 2RH-V1 and connect the hydro hose to the welded reducer at 2RH-V1. _____
- 5.11 With 2RH-V1 shut, operate the hydro pump per appropriate part of OI-65 to raise discharge pressure to 100 psig. _____
- 5.12 Open 2RH-V1 and raise test volume pressure per OI-65 to 350 (+25, -0) psig as indicated on 2PI-628, and record pressure on digital pressure indicator. _____ psig _____

NOTE: *To save time, the following leakage measurements should be determined concurrently.*

- 5.13 Maintain a stable test pressure for 10 minutes, then quantify the following:

- 5.13.1 Walkdown piping and components, and record leakage to atmosphere on Attachment B. _____

NOTE: *RHR system pressure should indicate approximately the same pressure as step 5.12 as read on digital pressure indicator prior to taking ΔH and ΔT readings.*

- 5.13.2 Total input pumping rate in sccm by accurately measuring the pump reservoir draw down over a suitable period of time. Minimum run time for measurement is 15 minutes unless a high pumping rate (>1 "/minute) is experienced. Measure the change in inches (ΔH) in reservoir level over a corresponding time interval (ΔT) in minutes and record.

ΔH = _____ inches
 ΔT = _____ minutes
1PI-628 = _____ psig _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

5.13.3 2SC-959 leak rate determination

- a. Measure the base line leak rate at 2SC-971, if any.

Base line leakage _____ sccm

- b. Open 2SC-990 and measure 2SC-959 leakage at valve
2SC-971 = _____ sccm

- c. When leak rate measurement of 2SC-959 is complete, shut
2SC-990, 965C and 971.

5.13.4 2RH-715C leak rate determination

- a. Open 2RH-D13 and record 2RH-715C leak rate at
2RH-D13 = _____ sccm

above leakage - (Step 5.2.4 leakage) = 2RH-715C leakage

_____ - _____ = _____

- b. When leak rate measurement of 2RH-715C is complete,
shut 2RH-D13.

5.13.5 2RH-706A leak rate determination

- a. Open 2RH-V16 and record leak rate through 2RH-706A at
2RH-V16 = _____ sccm

- b. When leak rate measurement for 2RH-706A is complete,
shut 2RH-V16.

5.13.6 Quantify the following leakage rates:

- a. 2P-10A seal leakage = _____ sccm

- b. 2RH-705/705A/712 leakage at
Local Sample Sink = _____ sccm

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

- 5.14 Calculate the boundary valve leak rate as follows:

____ (5.13.3b) sccm - ____ (5.13.3a) sccm = ____ 2SC-959 sccm

(5.13.4a) ____ 2RH-715C sccm

____ (5.13.5a) sccm - ____ (5.4.5) sccm = ____ 2RH-706A sccm

(5.13.6a) ____ 2P-10A Seal sccm

(5.13.6b) ____ 2RH-705/712 sccm

Boundary total (sum of above leak rates) ____ sccm

- 5.15 Calculate the leak rate attributable to 2SI-856A and 2RH-823A using the following:

5.15.1

$$946 \frac{cc}{in} \times \frac{\Delta H}{\Delta T} = 946 \times \frac{\Delta H}{\Delta T} = \text{____}$$

(from 5.13.2)

- 5.15.2 (5.15.1) total leakage - (5.14) Boundary Total Leakage =
2SI-823A/856A Valve Leakage

____ - ____ = ____

- 5.16 Boundary Valve Leakage to Atmosphere

5.16.1 Verify 2RH-V14 shut, then uncap the test connection for
2PI-657 to protect gauge 2PI-657 from overpressurization.

5.16.2 Open 2RH-715D.

5.16.3 Slowly open 2RH-715C to pressurize the piping up to
2SF-821A and 2CV-369A.

5.16.4 Open 2SC-959 to pressurize piping up to 2SC-990.

5.16.5 Record leakage to atmosphere for components listed on
Attachment C.

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

- 5.16.6 If 40-month pressure test is required, notify QTS/ANI to begin inspection, and record data required by Attachment G. _____
- 5.17 2SI-871A Seat Leakage Test
- 5.17.1 Enter the LCO for Train A Spray system, if required. _____
- 5.17.2 Place the 2P-14A control switch in PULLOUT. _____
- 5.17.3 Shut 2SI-870A. _____
- 5.17.4 Open 2SI-848J and measure 2SI-871A leak rate at
2SI-848J = _____ sccm. _____
- 5.17.5 Shut 2SI-848J. _____
- 5.18 When inspection/data collection per Attachments B, C and G (if required) is complete, evaluate Train A RHR Tech Spec leakage, and if >1.5 gal/hr (95 sccm), perform Attachment H troubleshooting. _____
- NOTE:** RHR system pressure should indicate approximately the same pressure as step 5.12, as read on the digital pressure indicator prior to taking ΔH and ΔT readings.
- NOTE:** Although the target test pressure is 350 psig for seat leakage measurement of 2SI-854A, the minimum acceptable pressure is 100 psig as indicated by 2PI-628. If 2PI-628 pressure stabilizes at <100psig after opening 2SI-856A, then record the maximum achievable hydro pump data per Step 19 and in addition, perform the special test of Attachment A.
- 5.19 Electrically open 2SI-856A, then operate the hydro pump to restore test volume pressure to 350 (+25, -0) psig and record as in Step 5.12.2.

ΔH = _____ inches
 ΔT = _____ minutes
2PI-628 = _____ psig

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

CAUTION THERE IS NO THERMAL RELIEF PROTECTION FOR
TRAIN A RHR WHILE 2RH-703 AND 2CV-133 ARE
SHUT. SO POSITION 2RH-703 AND 2CV-133 PER
STEPS 5.30.7 AND 5.30.8 AT THIS TIME, WHILE
PROCEEDING WITH THE FOLLOWING STEPS.

5.20 Shut 2RH-V1

5.20.1 Secure and disconnect hydro pump per OI-65.

5.20.2 Depressurize test volume to RWST by opening 2RH-706A and
2RH-742A per OI-65.

5.20.3 Shut 2RH-706A

5.20.4 Shut 2RH-742A

PMT

5.21 Reconnect the suction gauge tubing at 2RH-V1 and leak check by
momentarily opening 2RH-V1.

5.22 Determine baseline leak rate for 2SI-871A by opening 2SI-848J and
measuring leak rate at 2SI-848J = _____ sccm

5.23 Shut 2SI-848J.

5.24 Open 2SI-870A.

5.25 Place 2P-14A control switch to AUT.

5.26 End LCO for Train A Spray.

5.27 Verify open 2SI-856A.

5.28 Place 2P-10A control switch to AUTO.

5.29 Verify 2ICP-666A is complete and end LCO for Train A RHR, if required.

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

			<u>INITIALS</u>
5.30	Position the following:		
5.30.1	2SC-968	OPEN	_____
5.30.2	2SC-966C	OPEN	_____
5.30.3	2SC-955	OPEN	_____
5.30.4	2SC-959	SHUT	_____
5.30.5	2RH-715D	SHUT	_____
5.30.6	2RH-715C	SHUT	_____
5.30.7	2CV-133	SHUT (AIR ON)	_____/____
5.30.8	2RH-703	LOCKED OPEN	_____/____
5.30.9	2RH-V5	SHUT/CAPPED	_____
5.30.10	2PI-657 Test connection	CAPPED	_____
5.31	Notify U2 Control Operator and Chemistry that the failed fuel monitor (2RE-109) is realigned for operation.		_____
5.32	Complete the test data sheet section for seat leakage rates of 2P-10A suction valves.		_____
5.33	Remove all tygon tubing installed for this test and reinstall caps at all connection points.		_____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

6.0 TRAIN A LHSI/HHSI "PIGGYBACK" TEST

6.1 Pre-Test System Alignment/Verification

6.1.1 Verify the valve position of the following: POSITION

2SI-897A	SI test line isolation AOV	Gag Open	_____
2SI-897B	SI test line isolation AOV	Gag Open	_____
2RH-742A	RHR to RWST low flow	Shut	_____
2SI-828	U2 blender to U2 RWST	Shut	_____
2SF-811	P-33 to U2 RWST	Shut	_____
2WL-1729	RCDT pump to U2 RWST	Shut	_____
2SI-876A	2P-15A mini-recirc	Open	_____

6.1.2 Verify oil level in 2P-15A at or above one-half sightglass.
Contact the DSS for the type of oil required. _____

6.1.3 Verify proper oil level in the thrust bearing housing of 2P-10A.
Contact the DSS for the type of oil required. _____

6.1.4 Verify a primed solid condition of the HHSI high flow test line:

- Verify 2SI-829A, B, and D shut. _____
- Open 2SI-V23, test line high at vent, to a container and observe no leakage of 2SI-C, B, and D at static head. _____
- Crack open 2SI-829C&D to fill the test line until a solid stream is observed at 2SI-V23, then shut firmly 2SI-829C&D. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

- d. If leakage persists at 2SI-V23, then verify shut
2SI-829A&B. _____
- e. Record background leak rate at 2SI-V23, if any.
_____ SCCM _____
- f. Shut 2SI-V23. _____

6.2 HHSI Train A Leakage Test

CAUTION IF A SAFEGUARDS ACTUATION OR A
REACTOR PROTECTION SYSTEM
ACTUATION SHOULD OCCUR ON UNIT 2
WHILE PERFORMING THIS TEST, THEN
IMMEDIATELY PROCEED TO STEP 6.2.25 .
RECOVER SYSTEMS PER STEPS 6.2.25
THROUGH 6.2.35, THEN TERMINATE THIS
TEST.

- 6.2.1 Unlock and open 2RH-742, high flow test line RWST isolation. _____
- 6.2.2 Position 2RH-742B, high flow test line FCV, to 32% open
position (~1000 gpm) _____
- 6.2.3 If 2FE-660 blank was removed and orifice installed for this test,
then fill and vent the high flow test line until water issues at
2RH-V16 and V17 high point vents. Otherwise N/A this step. _____
- 6.2.4 Enter LCO for Train A RHR, if required. _____
- 6.2.5 Place 2P-10A control switch to PULLOUT. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

NOTE: Steps 6.2.6 and 6.2.7 provide a second barrier to leakage of letdown water to an unmonitored RWST should 2CV-133 and/or 2RH-702 leak by the seat during the test.

- | | | |
|---|---|-------|
| 6.2.6 | Shut the following valves: | |
| | a. 2RH-716A, 2HX-11A outlet isolation | _____ |
| | b. 2RH-714A, bypass FCV outlet isolation | _____ |
| | c. 2RH-733A, 2P-10A mini-recirc isolation | _____ |
| 6.2.7 | Verify shut 2SC-958, RHR sample isolation. | _____ |
| 6.2.8 | Unlock and open 2RH-706A, high flow test line inlet isolation. | _____ |
| 6.2.9 | Verify open 2SI-856A, 2P-10A RWST suction MOV. | _____ |
| 6.2.10 | Verify 2P-10A discharge pressure at <50 psig per 2PI-628. | _____ |
| 6.2.11 | Align 2PI-653A, 2P-10A suction pressure gauge, for service: | |
| | a. Shut 2RH-V1A, 2PI-653A vent. | _____ |
| | b. Open 2RH-V1, suction gauge root isolation. | _____ |
| | c. Open 2RH-V1B, 2PI-653A inlet isolation. | _____ |
| 6.2.12 | Start 2P-10A. | _____ |
|
CAUTION MONITOR AND VERIFY 2P-10A SUCTION PRESSURE IS >0 PSIG PER 2PI-653A ANYTIME FLOW IS CHANGED. | | |
| 6.2.13 | Verify 2P-10A suction pressure is >0 psig. | _____ |
| 6.2.14 | Position 2RH-742B for a test line flow of 600 ±50 gpm per 2FIT-660. | _____ |

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

NOTE: *Identify in remarks section any leakage observed from the pump or mechanical seals. Also include amount (seals wet, drops per minute, etc.), color, and any other comments.*

- 6.2.15 Check the pump and mechanical seals for leakage, unusual noise, and evidence of overheating. _____
- 6.2.16 Enter LCO for Train A HHSI, if required. _____
- 6.2.17 Place 2P-15A control switch to PULLOUT. _____
- 6.2.18 Shut 2SI-896A, 2P-15A suction MOV. _____
- 6.2.19 Slowly open 2SI-857A, low head to high head crossconnect, to full open. _____
- 6.2.20 Visually inspect the shaft seals of 2P-15A. Collect, measure, and time any observed leakage. Record required data of Attachment D, Section 1.0. _____

CAUTION DO NOT SECURE 2P-10A WITHOUT FIRST SECURING 2P-15A OR A TOTAL LOSS OF 2P-15A SUCTION MAY OCCUR, RESULTING IN PUMP DAMAGE. IF 2P-10A POWER IS LOST FOR ANY REASON, THEN IMMEDIATELY SECURE 2P-15A.

NOTE: *Reference P&L 3.6.*

- 6.2.21 Start 2P-15A. _____
- 6.2.22 Open 2SI-V23 to a container and when a stable leak rate, if any, is observed, quantify the leakage over time and record the required data of Attachment D, Section 2.0. Then shut and cap 2SI-V23. _____
- 6.2.23 With 2SI-829A shut, collect and record 2SI-829A leakage to atmosphere on Attachment E. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

NOTE: *The 2P-15A SI pump must run 10 minutes at test pressure prior to start of inspection for Attachment F.*

- 6.2.24 For a 40-month test, perform the following substeps. Otherwise N/A this step.
- a. Open 2SI-829A, open and backseat 2SI-829D, HHSI high flow test line isolation valves. _____
 - b. Adjust 2SI-829C for a test line flow of 250 ± 25 gpm per 2FIT-659. _____
 - c. Unlock and shut 2SI-876A, 2P-15A mini-recirc isolation valve. _____
 - d. Record pressure achieved and inspection start data on Attachment F. _____
- 6.2.25 Visually inspect the shaft seals of 2P-15A. Collect, measure, and time any observed leakage. Record required data of Attachment D, Section 3.0. _____
- 6.2.26 Visually inspect the piping system and components: valve stems and body to bonnet joints, pipe flanges/orifices, vent and drain plugs/caps, instrument line fittings/gauges listed on Attachment E. Collect, measure, time, and record observed leakage. Record data on Attachment E. _____
- 6.2.27 When all data is completed, including Attachment F for 40-month tests, secure 2P-15A and place control switch to PULLOUT. _____
- 6.2.28 Secure 2P-10A and place control switch to PULLOUT. _____
- 6.2.29 Red lock open 2SI-876A. Lock No. _____ / _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

- | | | |
|--------|--|---------------|
| 6.2.30 | Red lock shut: | |
| | a. 2SI-829A Lock No. _____ | _____ / _____ |
| | b. 2SI-829D Lock No. _____ | _____ / _____ |
| | c. 2RH-742 Lock No. _____ | _____ / _____ |
| 6.2.31 | Shut 2SI-857A. | _____ / _____ |
| 6.2.32 | Open 2SI-896A, 2P-15A suction MOV. | _____ / _____ |
| 6.2.33 | Place 2P-15A control switch to AUTO. | _____ / _____ |
| 6.2.34 | Exit LCO for Train A HHSI, if required. | _____ |
| 6.2.35 | Remove 2P-10A suction gauges from service: | |
| | a. Shut 2RH-V1. | _____ |
| | b. Open 2RH-V1A. | _____ |
| | c. Shut 2RH-V1B. | _____ |
| 6.2.36 | Position the following: | |
| | a. Red lock shut 2RH-706A. Lock No. _____ | _____ / _____ |
| | b. Red lock open 2RH-733A. Lock No. _____ | _____ / _____ |
| | c. Red lock open 2RH-716A. Lock No. _____ | _____ / _____ |
| | d. Open 2RH-714A. | _____ / _____ |
| 6.2.37 | Place 2P-10A control switch to AUTO. | _____ / _____ |

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

6.2.38 Exit LCO for Train A RHR, if required.

7.0 ACCEPTANCE CRITERIA

Leakage criteria of the Leakage Reduction and Preventive Maintenance Program are used to evaluate the leakage from safety injection system components to atmosphere. Total leakage from all post-accident system (not just safety injection system) components, located in a specific area of the plant, is limited by Criterion 1 or Criterion 2. Total post-accident system leakage from all areas of the plant is limited by Criterion 3. Thus, acceptance of these test results require their evaluation together with the results of the other post-accident system leakage tests.

8.0 ANALYSIS

TO BE COMPLETED BY THE OPERATIONS MANAGER OR HIS
REPRESENTATIVE.

8.1 Comparison with allowable ranges of test values and analysis of deviations complete.

8.2 Any requirements for corrective action?

Yes _____ No _____

If yes, give details in the remarks section and MWR No. _____

8.3 Data analyzed. By _____

Date _____

Remarks:

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

TEST DATA SHEET

1.0 Valve Seat Leakage

NOTE: All leak rates are in sccm.

NOTE: Column A data is information only.

*Column B data is applicable to Technical Specifications and
NUREG 0578.*

	<u>Col. A</u>	<u>Col. B</u>
1.1 2SI-856A and 2RH-823A (Reference Step 5.15)		_____
1.2 2SI-854A (Reference Step 5.19 and Attachment A)		
$946 \frac{\text{cc}}{\text{in}} \times \frac{\Delta H}{\Delta T} = 946 \times \text{_____} = \text{_____} \text{ sccm}$		
minus Boundary leakage (Step 5.14) =		
or Attachment A = _____ gpm		
1.3 2SC-959 (Reference Step 5.14) =		_____
1.4 2RH-715C (Reference Step 5.14) =		_____
1.5 2RH-705, 705A and 712 (Reference Step 5.14) =		_____
1.6 2RH-706A (Reference Step 5.14) =		_____
1.7 2SI-871A (Reference Steps 5.17 and 5.22)		
(Step 5.17) sccm - (Step 5.22) sccm = _____ - _____ = _____		

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ATTACHMENT A

Seat Leakage Test of 2SI-854A Using P-33

NOTE: *This test is required when the seat leakage of 2SI-854A exceeds the pumping rate of the hydro pump and test system pressure per 2PI-628 is <100 psig per Step 5.19.*

INITIALS

- 1.0 Shut 2RH-V1, then secure the hydro pump. _____
- 2.0 Secure SFP recirc or Unit 1 RWST recirc (Refer to U1 PC-25A, Part 1), if in operation. _____
- 3.0 Align P-33 for Unit 2 RWST recirc (Refer to U2 PC-25) at 20 gpm per FI-636 by throttling with 2SF-811. _____
- 4.0 Verify 2RH-701 shut, then open 2SF-819 and verify FI-636 flow remains at 20 gpm. _____
- 5.0 Shut 2RH-709A and 733A. _____
- 6.0 Open 2RH-704A to ~25% open and allow flow at FI-636 to stabilize. _____
- 7.0 Record the following data:
P-33 flow per FI-636 _____ gpm
P-33 pressure per PI-651 _____ psig
Test volume pressure per 2PI-628 _____ psig

- 8.0 Shut 2SF-819 and 2RH-704A. _____
- 9.0 When P-33 flow has stabilized, record the following data:
P-33 flow per FI-636 _____ gpm
P-33 pressure per PI-651 _____ psig
Test volume pressure per 2PI-628 _____ psig

- 10.0 Open 2RH-733A and 709A, then return P-33 to previous status or as directed by the DSS when the testing is complete. _____

NUCLEAR POWER BUSINESS UNIT
INSERVICE TESTS

IT 535A
MAJOR
Revision 2
January 31, 1997

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

Attachment A

INITIALS

11.0 Calculate 2SI-854A seat leakage as P-33 flow in Step 7.0 minus P-33 flow in
Step 9.0 = _____ gpm. Record this leakage on the test data sheet, Step 1.2. _____

12.0 Return to procedure step 5.20. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ATTACHMENT B

<u>Component ID</u>	<u>Component Description</u>	<u>Leakage Rate (sccm)</u>
<u>2P-10A RHR Pump Cubicle</u>		
2RH-823A	2P-10A suction low point drain	_____
2RH-V10	2P-10A seal supply vent	_____
2RH-V11	2P-10A seal heat exchanger inlet vent	_____
Flange	2P-10A seal RO flange	_____
2RH-711A	2PT-628 root valve	_____
2P-10A	Pump seals	_____
<u>PAB General Area</u>		
<u>South, El. -19'</u>		
2PT-628	2P-10A discharge pressure transmitter	_____
<u>Unit 2 RHR Pipeway</u>		
2RH-710A	2P-10A discharge check valve	_____
2RH-709A	2P-10A discharge isolation	_____
2RH-713A	2P-10A discharge cross-connect	_____
2SI-851A	2P-10A "B" sump suction MOV	_____
2SI-851C	Pressure equalizer for 2SI-851A	_____
2RH-715A	2HX-11A inlet isolation	_____
2RH-D2	2HX-11A interpass drain	_____
2RH-D3	2HX-11A interpass drain	_____
2RH-D4	2HX-11A interpass drain	_____
2RH-D1	2P-10A&B discharge crossconnect	_____
<u>PAB General Area South, El. -5'</u>		
2RH-624	2HX-11A discharge TCV	_____
2RH-716A	2HX-11A outlet isolation	_____
2RH-716D	2HX-11A outlet cross-connect	_____
2RH-D8	2HX-11A outlet drain	_____
2RH-V6	Train A RHR to SI and spray suction line vent	_____
2RH-D11	Train A RHR to SI and spray suction line drain	_____
2RH-V5	Train A RHR to SI and spray suction line vent	_____
<u>PAB General Area South, El. 8'0"</u>		
2RH-705	RHR local sample isolation	_____
2RH-711C	2P-10A seal water supply	_____
2FT-626	Train "A" RHR flow transmitter	_____

NUCLEAR POWER BUSINESS UNIT
INSERVICE TESTS

IT 535A
MAJOR
Revision 2
January 31, 1997

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

Attachment B

<u>Component ID</u>	<u>Component Description</u>	<u>Leakage Rate (sccm)</u>
<u>Lower Pipeway #3</u>		
2RH-V1B	2PI-653A root valve	_____
2RH-V1A	2PI-653A bleed-off for seat leakage of 2RH-V1B	_____
2RH-V1C	2PI-654A root valve	_____
2PI-654A	2P-10A RHR suction pressure indication	_____
2SI-856A	2P-10A RWST suction MOV	_____
2SI-854A	2P-10A RWST suction check	_____
2RH-712	RHR local sample isolation	_____
2SC-958	RHR sample system isolation	_____
2RH-714A	RHR heat exchanger bypass isolation	_____
2RH-714B	RHR heat exchanger bypass isolation	_____
2RH-626	RHR heat exchanger bypass FCV	_____
2SC-958A	RHR pump discharge sample isolation	_____
2RH-V1	2PI-653A and 654A root valve	_____
2RH-704A	2P-10A RCS loop suction isolation	_____
2RH-717A	2FT-626 high pressure root valve	_____
2RH-717B	2FT-626 low pressure root valve	_____
2FE-626	Train "A" RHR flow orifice	_____
2RH-733A	2P-10A mini-recirc isolation	_____
2RH-706A	2P-10A high flow test line isolation	_____
2RH-706B	2P-10B high flow test line isolation	_____
2RH-D14	High flow test line drain	_____
2RH-V16	High flow test line vent	_____
2RH-V17	High flow test line downstream vent	_____
2RH-D15	High flow test line drain	_____
2RH-742B	High flow test line flow control	_____
2RH-890C	RH-742 RHR return thermal release	_____
2FE-660	High flow test line orifice flange	_____
2RH-662A	2FIT-660 high side root	_____
2RH-662B	2FIT-660 low side root	_____
2FIT-660	High flow test line flow indicator transmitter	_____
P8	Train "A" RHR discharge containment penetration	_____
<u>Containment Spray and SI Pump Area</u>		
2SI-871A	Train "A" RHR/CS cross-connect MOV	_____
2SI-857A	Train "A" RHR/SI cross-connect isolation	_____
Other miscellaneous system components		

NUCLEAR POWER BUSINESS UNIT
INSERVICE TESTS

IT 535A
MAJOR
Revision 2
January 31, 1997

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ATTACHMENT C

<u>Component ID</u>	<u>Component Description</u>	<u>Leakage Rate (sccm)</u>
<u>Lower Pipeway #3</u>		
*2SC-959	RHR sample system AOV	_____
*2RH-715C	RHR letdown isolation	_____
*2RH-D13	RHR letdown drain	_____
*2CV-369A	RHR letdown isolation	_____
*2RH-715D	Refueling cavity purification isolation	_____
*2RH-V14	2PI-657 isolation valve	_____
<u>Unit 2 Sample Room</u>		
*2SC-960A	RHR sample check valve	_____
*2SC-990	RHR sample sink isolation	_____
<u>PAB General Area</u>		
<u>South, El. -5'</u>		
*2SF-821A	P-33 cavity purification discharge isolation	_____
Other miscellaneous system components		_____
Total Leak Rate		_____

*Inspect and record leakage after system is pressurized, i.e. Step 5.16.

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ATTACHMENT D

2P-15A PUMP SEAL LEAKAGE & 2SI-829A SEAT LEAKAGE

1.0 SEAL LEAK RATE WITH 2P-15A SECURED

2P-10A Discharge Pressure Per 2PI-628 = _____ psig

_____ cc/collected _____ seconds

Leak Rate = (cc collected/sec) (60 sec/min) = _____ SCCM

2.0 2SI-829A SEAT LEAK RATE

2P-15A Discharge Pressure per 2PI-923 = _____ psig

_____ cc/collected _____ seconds

Leak Rate = (cc collected/sec)(60 sec/min) = _____ SCCM

Background Leak Rate (Step 6.1.4.e) = _____ SCCM

3.0 SEAL LEAK RATE WITH 2P-15A OPERATING

2P-10A Discharge Pressure Per 2PI-628 = _____ psig

2P-15A Discharge Pressure Per 2PI-923 = _____ psig

_____ cc collected _____ seconds

Leak Rate = (cc collected/sec) (60 sec/min) = _____ SCCM

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ATTACHMENT E

TRAIN A ATMOSPHERIC LEAKAGE

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>LEAKAGE RATE (SCCM)</u>
<u>Components Located in Containment Spray/SI Pump Area</u>		
2SI-857A	RHR/SI crossconnect	_____
2SI-896A	2P-15A suction MOV	_____
Flange	2P-15A suction flange	_____
2SI-D10	2P-15A discharge line drain	_____
Flange	2P-15A discharge flange	_____
2SI-881A	2PT-923 root valve	_____
2PT-923	2P-15A discharge pressure transmitter	_____
2SI-803A	2PI-913A root valve	_____
2SI-889A	2P-15A discharge check valve	_____
2SI-888A	2P-15A discharge isolation	_____
2SI-829A	2P-15A&B SI pumps discharge crossconnect	_____
2SI-891A	2P-15A mini-recirc check valve	_____
2SI-829B	2P-15A&B SI pumps discharge crossconnect	_____
2SI-V23	HHSI high flow test line vent	_____
2SI-D32	HHSI high flow test line drain	_____
2FI-659	HHSI high flow test line orifice flange	_____
2SI-663B	2FI-659 high side isolation	_____
2FI-659	High side sensing line	_____
MISC	Other miscellaneous system components	_____
2SI-663A	2FI-659 low side isolation	_____
2SI-V22	HHSI high flow test line vent	_____
2SI-D28	HHSI high flow test line drain	_____
<u>Components Located in Pipeway No. 4</u>		
2SI-D13	SI Train A discharge line drain	_____
2SI-848A	2FI-925 LP root valve	_____
2SI-848B	2FI-925 HP root valve	_____
2FE-925	SI Train A flow orifice	_____
2FT-925	SI Train A flow transmitter	_____
2SI-866A	SI Train A discharge MOV	_____
MISC	Other miscellaneous system components	_____
2P-10A discharge pressure, 2PI-628 _____ psig		
2P-15A discharge pressure, 2PI-923 _____ psig		

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ATTACHMENT F

HHSI 40-MONTH INSERVICE PRESSURE TEST

PRE-TEST DATA

Record calibration dates for:

2PI-923 _____

2PI-940 _____

Record RWST Level per 2LI-972 _____ %

2T-34A Accumulator Level per 2LI-938 _____ %

TEST DATA

Train A

Test pressure achieved:

2PI-923 _____ psig Time _____

10-minute hold/Inspection started:

2PI-923 _____ psig Time _____

Inspection completed:

2PI-923 _____ psig Time _____

2T-34A SI ACCUMULATOR

Inspection started:

2PI-940 _____ psig Time _____

Inspection completed:

2PI-940 _____ psig Time _____

NUCLEAR POWER BUSINESS UNIT
INSERVICE TESTS

IT 535A
MAJOR
Revision 2
January 31, 1997

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ACCEPTANCE CRITERIA

The test is considered acceptable if the pressure retaining piping and components within the test boundary withstand the test pressure without loss of structural integrity.

The test is considered acceptable if there is no leakage from the system other than controlled leakage or leakage through boundary valves.

Test Director

/_____
Date

QTS Reference Report Number: _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

ATTACHMENT G

RHR TRAIN A 40-MONTH FUNCTIONAL PRESSURE TEST

PRE-TEST DATA

Record calibration dates for:

2PI-628 _____

TEST DATA

Test pressure achieved

2PI-628 _____ psig Time _____

10-minute hold/Inspection started

2PI-628 _____ psig Time _____

Inspection completed

2PI-628 _____ psig Time _____

ACCEPTANCE CRITERIA

The functional pressure test is considered acceptable if the pressure retaining piping and components withstand the test pressure without loss of structural integrity.

Additionally, the test is considered acceptable if there is no leakage from the system other than controlled leakage or leakage through boundary valves.

Test Director

Date

QTS Reference Report Number: _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

INITIALS

ATTACHMENT H

TROUBLESHOOTING TRAIN A RHR LEAKAGE >1.5 gal/hr

- 1.0 Firmly SHUT the following valves:
- 2RH-713A, 2HX-11A/B Inlet Crossconnect _____
- 2RH-713B, 2HX-11A/B Inlet Crossconnect _____
- 2RH-716C, 2HX-11A/B Outlet Crossconnect _____
- 2RH-716D, 2HX-11A/B Outlet Crossconnect _____
- 2RH-823A, 2P-10A Suction Drain _____
- 2SI-857A, 2P-15A Suction from RHR _____
- 2SI-851C, Interdisc thermal release isol for 2SI-851A _____
- 2.0 Station a dedicated operator whose duties will be to shut 2RH-V2 and secure the Train B hydro pump in the event of a Unit 2 reactor protection or safeguards actuation. _____
- 3.0 Shut 2RH-V2, disconnect the suction pressure gauge tubing at 2RH-V2 and connect a Haskal hydro pump at 2RH-V2. _____
- 4.0 With 2RH-V2 shut, operate the second hydro pump per OI-65 to raise discharge pressure to 100 psig. _____
- 5.0 Open 2RH-V2 and raise Train B RHR pressure to between 325 and 350 psig, not to exceed 350 psig, as read at 2PI-629. _____
- 6.0 Adjust Unit 2 letdown pressure to between 325 and 350 psig, not to exceed 350 psig, as read at 2PI-135. _____

LEAKAGE REDUCTION AND PREVENTIVE
MAINTENANCE PROGRAM TEST OF THE TRAIN
A HHSI AND RHR SYSTEMS (REFUELING)
UNIT 2

Attachment H
INITIALS

NOTE: *Ensure measurements are taken on the Train A hydro pump.*

7.0 Measure and record total Train A RHR input pumping rate (as in step 5.13.2)

ΔH = _____ inches

ΔT = _____ minutes

2PI-628 = _____ psig

$$\text{Total input} = 946 \times \frac{\Delta H}{\Delta T} = 946 \times \text{_____} = \text{_____} \text{ sccm}$$

8.0 Restore Unit 2 letdown pressure to normal per DSS. _____

9.0 Shut 2RH-V2 and secure the Train B hydro pump. _____

10.0 Reconnect the suction pressure gauge tubing and leak check by momentarily opening 2RH-V2. (The dedicated operator may be released at this point.) _____

11.0 Depressurize Train B RHR:

a. Open 2RH-V2 and crack open 2RH-V2B. _____

b. When Train B RHR is depressurized, as indicated on 2PI-629, shut 2RH-V2 and 2RH-V2B. _____

12.0 Open 2SI-851C and return to procedure step 5.19. _____