05-58-90

RESIDUAL HEAT REMOVAL SYSTEM

3

1.0 PURPOSE

This procedure provides the necessary instructions for operation of the Residual Heat Removal System (RHRS). This procedure also provides instructions for filling the Reactor Coolant System (RCS) and/or the Refueling Cavity and for draining the Refueling Cavity using the RHRS. Instructions are included in the following steps:

4.1 Placing A Train Of RHR In Standby Readiness

4.2 Placing The RHRS In Service For RCS Cooldown

4.3 Establishing RHR Letdown

4.4 Shifting RHR Trains

4.5 Two Train RHR Operation During RCS Recirculation

4.6 Filling And Venting The RHRS

4.7 Filling The RCS (And The Refueling Cavity For Refueling)

4.8 Draining The Refueling Cavity

4.9 Operating RHR With One Train Of Cold Leg Discharge With Its Cold Leg Flowpath Isolated For Maintenance

2.0 PRECAUTIONS AND LIMITATIONS

2.1 PRECAUTIONS

2.1.1 To prevent overheating the Component Cooling Water System (CCWS), cooling water flow to the RHR Heat Exchanger should not be throttled.

2.1.2 To avoid thermal shock of the RCS components, the flow through the RHRS should be initiated and reduced slowly.

2.1.3 The RCS pressure and temperature should not exceed 6[illegible] psig and 350°F when the RHRS is in service.

2.1.4 Thoroughly fill and vent all applicable RHR components prior to returning them to service after maintenance. This minimizes system performance degradation and water hammer due to gas entrainment.

2.1.5 Only one RHR train should be altered at a time when changing system configuration. This helps maintain RHRS operability.

2.1.6 Whenever the RCS is at 188 feet (one foot above mid-nozzle) the RHRS flow should be limited to the lower end of a range from 3000 to 3500 gpm. This minimizes potential loss of RHR Pump suction due to gas entrainment from vortex formation.

2.1.7 Valves 1-HV-8716A and 1-HV-8716B have a vent hole drilled on the RHR Pump side of the disc. The valves are not capable of a leak tight seal when pressurized from the opposite Train RHR Pump.

2.1.8 When cooling down the RCS using one Train of RHR, the Recycle Evaporator should be shut down or supplied from the Unit 2 ACCW System. This minimizes the heat loads on the NSCW System.

2.2 LIMITATIONS

2.2.1 With the RCS Tavg greater than or equal to 350°F, the RHRS is required to be operable per Technical Specification 3.5.2.

2.2.2 With the RCS in Hot Shutdown, the RHRS is required to be operable or in operation per Technical Specification 3.4.1.3.

2.2.3 With the RCS Tavg less than 350°F, the RHRS is required to be operable per Technical Specification 3.5.3.

2.2.4 With RCS in Cold Shutdown, the RHRS is required to be operable or in operation per Technical Specification 3.4.1.4.1 and 3.4.1.4.2.

2.2.5 During refueling operations, the RHRS is required to be operable and in operation per Technical Specification 3.9.8.1 and 3.9.8.2.

2.2.6 If required for Cold Overpressure Protection, two RHR Suction Relief Valves are required operable per Technical Specification 3.4.9.3.

2.2.7 When in Mode 1, 2, or 3 1-HV-8809A/B and 2-HV-8816A/B must remain open. However, one valve at a time may be closed for surveillance testing.

2.2.8 The RHR Suctions From Hot Legs Loops 1 and 4 (1-HV-8701A, 1-HV-8701B, 1-HV-8702A, 1-HV-8702B) are separately interlocked to prevent from being opened with RCS pressure greater than 365 psig and to automatically close before RCS pressure exceeds 750 psig.

2.2.9 The RHR Suctions From Hot Legs Loops 1 and 4 cannot be opened unless the following valves are closed.

a. RHR PMP-A DISCH TO CHG PMPS SUCT 1-HV-8804A,

b. RHR TO SI PMP-B ISO VLV 1-HV-8804B,

c. RWST TO RHR PMP SUCTION 1-HV-8812A/B,

d. CNMT SUMP TO RHR PMP A(B) SUCTION 1-HV-8811A/B.

2.2.10 RHR Pump Motor start limitations:

a. Three consecutive starts from ambient temperature,

b. Two Starts from operating temperature,

c. Subsequent start permitted after 15 minutes if the motor is left running or 45 minutes if motor is left at standstill.

2.2.11 Fire event safe shutdown analysis requires 1-HV-8804A and 1-HV-8804B to be de-energized while RHR is in service.

3.0 PREREQUISITES OR INITIAL CONDITIONS

3.1 Nuclear Service Cooling Water (NSCW) is supplying cooling water to the RHR Pump Motor Coolers.

3.2 The CCWS is available and supplying cooling water to the RHR Heat Exchangers and Pump Seal Coolers. The RHR Pumps may be operated without CCW to the Seal Cooler if the system temperature is less than 150°F.

4.0 INSTRUCTIONS

4.1 PLACING A TRAIN OF RHR IN STANDBY READINESS

NOTE

This procedure is written using Train A component designations. Train B designations are shown in parentheses.

4.1.1 If the RHR Train is being placed in standby following maintenance, FILL and VENT the train per Step 4.6.

4.1.2 If the RHRS is being placed in standby, COOL DOWN the operating RHR Train(s) to below 200°F as follows:

a. CLOSE Letdown From RHR 1-HV-0128,

b. ADJUST Low Pressure Letdown Controller 1-PIC-0131 and charging flow as necessary to maintain desired pressurizer level.

MAINTAIN RCP seal injection between 8 to 13 gpm using 2-HC-0182,

c. CLOSE RHR To CVCS Letdown Isolation 1-1205-U4-021 (022),

d. Slowly CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607),

e. Slowly CLOSE RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619),

NOTE

Due to leak by of RHR Heat Exchanger Outlet and Bypass Valves flowrate to RCS may be above auto open miniflow setpoint for 1-FV-0610 (1-FV-0611).

f. If RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (1-FV-0611) does not auto open, PLACE 1-HS-0610 (1-HS-0611) to OPEN and RELEASE and ENSURE that 1-FV-0610 (1-FV-0611) OPENS,

g. MONITOR RHR Heat Exchanger Train A(B) Inlet Temperature 1-TR-0612 (0613),

NOTE

Allow pump to run for approximately one hour at less than or equal to 200°F for cooldown of piping.

h. When RHR Train A(B) is below 200°F, STOP RHR PUMP A(B).

4.1.3 RESTORE power to the RHR Train A (B) to CCP (SIP) suction as follows:

a. CLOSE 1ABB-05 to valve 1-HV-8804A,

b. CLOSE 1BBB-05 to valve 1-HV-8804B,

c. REMOVE tags and CLOSE the K2 link for breaker 1ABB-05 and 1BBB-05.

4.1.4 ALIGN the RHR train for standby per Checklist 2.

4.1.5 If RHR is being placed in standby for MODE 3 entry, PERFORM the following; independent verification required:

a. SHUT DOWN Inverter 1CD1I5 (1DD1I6) per 13405-1, "125V DC 1E Electrical Distribution System",

b. OPEN the K2 links for breaker 1ABE-15 (1BBE-13) and TAG per 00306-C, "Temporary Jumper And Lifted Wire Control",

c. OPEN and LOCK the power supplies to the RHR Loop 1(4) Inlet Isolations:

1ABE-15 (1BBE-13) for 1-HV-8701A (8702B),

d. At 1CD1I5N (1CD1I6N) OPEN, LOCK and TAG the disconnect for 1-HV-8701B (1-HV-8702A).

4.1.6 If depressurization of the RHR System is required, either:

a. OPEN the following:

(1) OPEN SIS CHECK VALVE TEST CNMT ISO 1-HV-8964,

(2) OPEN SIS CHECK VALVE TEST CNMT ISO 1-HV-8871,

(3) OPEN SIS RHR PMP A(B) CHECK VALVE TEST 1-HV-8890A(B),

-OR-

b. HAVE Chemistry OPEN RHR TRAIN A(B) SAMPLE VALVE 1-HV-3520(21).

4.1.7 If required, when RHR depressurization is complete, CLOSE all valves opened in Step 4.1.6; independent verification required.

4.2 PLACING THE RHRS IN SERVICE FOR RCS COOLDOWN

4.2.1 RESTORE power to both of the RHR PMP-A (B) SUCTION FROM HOT LEG LOOP 1(4) Inlet Isolations as follows; independent verification required:

a. If shut down, PLACE Inverter 1CD1I5 (1DD1I6) in service per 13405-1, "125V DC 1E Electrical Distribution System",

b. At 1CD1I5N (1CD1I6N) REMOVE tag, UNLOCK and CLOSE the disconnect for 1-HV-8701B (1-HV-8702A),

c. UNLOCK and CLOSE RHR PMP A(B) SUCTION FROM HOT LEG LOOP 1(4), 1-HV-8701A (8702B) Supply Breakers 1ABE-15 (1BBE-13),

d. REMOVE tags and CLOSE the K2 link for breaker 1ABE-15 (1BBE-13).

NOTES

a. Removing power from 1-HV-8804A/B will also affect 1-HV-8812A/B, 1-HV-8920 and 1-HV-8702B operability from the Control Room. Information tags should be installed on handswitches 1-HV-8812A/B, 1-HV-8920 and 1-HV-8702B stating that the valves can only be operated from the Remote Shutdown Panel.

b. When in Mode 1, 2 or 3 ensure that 1-HV-8809A/B are not shut simultaneously.

4.2.2 ALIGN the RHRS for shutdown cooling as follows:

a. CLOSE both of the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A and 1-HV-8716B,

b. CLOSE both of the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 and 1-HV-0607,

c. CLOSE both of the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 and 1-FV-0619,

d. CLOSE both of the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A and 1-HV-8812B,

e. ENSURE OPEN both of the RHR PMP A(B) TO COLD LEG 1&2 (3&4) ISO VLVs 1-HV-8809A and 1-HV-8809B; independent verification required,

f. OPEN both of the RHR PMP A(B) UPSTREAM SUCTION FROM HOT LEG LOOP 1(4) Valves 1-HV-8701B and 1-HV-8702B,

g. OPEN both of the RHR PMP A(B) DOWNSTREAM SUCTION FROM HOT LEG LOOP 1(4) 1-HV-8701A and 1-HV-8702A.

4.2.3 REMOVE power from the RHR to Charging and SI Pump Isolation Valves as follows:

a. OPEN the K2 links for breakers 1ABB-05 and 1BBB-05 and TAG per 00306-C, "Temporary Jumper And Lifted Wire Control",

b. OPEN breaker 1ABB-05 to valve 1-HV-8804A,

c. OPEN breaker 1BBB-05 to valve 1-HV-8804B.

4.2.4 START UP one train of RHR as follows:

a. VERIFY OPEN the RHR PMP-A (B) MINIFLOW ISO 1-FV-0610 (1-FV-0611),

b. START RHR PUMP A(B),

c. ESTABLISH RHR Letdown per Step 4.3.

4.2.5 WARM UP the RHRS as follows:

NOTE

The recommended RHR to RCS temperature difference for the completion of RHR warmup is 25°F; however, the Unit Shift Supervisor (USS) may allow a greater temperature difference at his discretion.

a. ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

b. MONITOR RHR Heat Exchanger Train A(B) Inlet Temperature 1-TR-0612 (0613) and Wide Range RCS Hot Leg Temperatures 1-TI-0413A, 1-TI-0423A, 1-TI-0433A, and 1-TI-0443A.

4.2.6 When RHR warmup is completed, INITIATE full flow to the RCS as follows:

a. THROTTLE OPEN the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) to establish a minimum flow rate of 3000 gpm,

b. VERIFY the RHR PMP-A(B) MINIFLOW ISO VLV 1-FV-0610 (0611) CLOSES,

CAUTION

The RHR Heat Exchanger Train A(B) Bypass Flow Controller Potentiometer should be set for a minimum flow of 3000 gpm prior to placing controller in AUTO. The potentiometer setting is approximately equal to $(\text{Desired Flow}/5000)^2$.

c. PLACE the RHR HEAT EXCH BYPASS for Train A (B) Flow Controller 1-FIC-0618A (0619A) in AUTO if desired,

d. ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

e. Slowly THROTTLE OPEN RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607) to establish desired RCS cooling.

4.2.7 If RCS cooling using both RHR trains is desired, PLACE the second train in service as follows:

a. VERIFY the applicable RHR Train aligned per Step 4.2.2,

b. VERIFY OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (1-FV-0611),

c. START RHR PUMP A(B).

NOTE

The recommended RHR to RCS temperature difference for the completion of RHR warmup is 25°F; however, the USS may allow a greater temperature difference at his discretion.

4.2.8 When RHR warmup is completed, INITIATE full flow to the RCS as follows:

a. THROTTLE OPEN the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) to establish a minimum flow rate of 3000 gpm,

b. VERIFY the RHR PMP-A (B) MINIFLOW ISO 1-FV-0610 (0611) CLOSES,

CAUTION

The RHR Heat Exchanger Train A(B) Bypass Flow Controller Potentiometer should be set for a minimum flow of 3000 gpm prior to placing controller in AUTO. The potentiometer setting is approximately equal to $(\text{Desired Flow}/5000)^2$.

c. PLACE the RHR Train A(B) Heat Exchanger Bypass Flow Controller 1-FIC-0618A (0619A) in AUTO if desired,

d. ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

e. Slowly THROTTLE OPEN RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607) to establish desired RCS cooling.

4.2.9 ESTABLISH RCS Cooldown per 12006-C, "Unit Cooldown To Cold Shutdown".

4.3 ESTABLISHING RHR LETDOWN

4.3.1 CLOSE the LETDOWN FROM RHR Control Valve 1-HV-0128.

NOTE

Only one train of RHR should be aligned for letdown operation to prevent pressurizing the suction of an idle RHR Pump from the operating RHR train.

4.3.2 OPEN the RHR to CVCS Letdown Isolation of the operating RHR train that will be used for letdown; independent verification required:

a. 1-1205-U4-021 if Train A <u>will</u> be used for RHR letdown,

b. 1-1205-U4-022 if Train B <u>will</u> be used for RHR letdown.

4.3.3 If CVCS letdown is <u>not</u> in service, CLOSE LOW PRESSURE LETDOWN Control Valve 1-PV-0131.

NOTES

a. Design maximum letdown flow is 120 gpm.

b. The Low Pressure Letdown Relief Valve lifts at 600 psig.

4.3.4 <u>Slowly</u> OPEN the LETDOWN FROM RHR 1-HV-0128.

4.3.5 ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and the LETDOWN FROM RHR Control Valve 1-HV-0128 as required to obtain the desired Letdown Flow 1-FI-0132C.

4.4 SHIFTING RHR TRAINS

4.4.1 VERIFY the lineup on the idle RHR Train as follows:

a. CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B),

b. OPEN the RHR PMP-A (B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B),

c. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED,

d. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B),

e. CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607),

f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611),

CAUTION

Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping.

g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 (3 & 4) ISO VLV 1-HV-8809A (8809B).

4.4.2 START the RHR PUMP A(B).

4.4.3 SHIFT RHR letdown to the train which is operating on minimum flow as follows:

a. MONITOR Letdown Flow 1-FI-0132C while shifting letdown and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

b. OPEN the RHR To CVCS Letdown Isolation of the RHR train which is operating on minimum flow; independent verification required:

(1) 1-1205-U4-021 if Train A is operating on minimum flow,

(2) 1-1205-U4-022 if Train B is operating on minimum flow.

c. CLOSE the RHR To CVCS Letdown Isolation of the opposite train; independent verification required.

4.4.4 SHIFT flow to the RHR train that was just started as follows:

a. ENSURE OPEN the RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV, 1-HV-8809A (8809B),

b. MONITOR RHR Train A and Train B Flow 1-FI-0618A and 1-FI-0619A and MAINTAIN total RHR flow between 3000 and 3500 gpm throughout the remainder of this step,

c. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) of the train being removed from service is in MAN,

d. MONITOR Letdown Flow 1-FI-0132C while shifting RHR flow and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

e. Slowly THROTTLE the RHR HEAT EXCH A(B) OUTLET 1-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat Exchanger Bypass of the train being placed in service OPEN while maintaining total RHR flow between 3000 and 3500 gpm,

f. If RHR PMP-A(B) MINIFLOW ISO VLV 1-FV-0610 (1-FV-0611) does not auto open, if required, PLACE 1-HS-0610 (1-HS-0611) to OPEN and RELEASE and ENSURE that 1-FV-0610 (1-FV-0611) opens,

g. When the Heat Exchanger Outlet and Bypass of the RHR train being removed from service are both fully closed, MONITOR RHR Heat Exchanger Inlet Temperature 1-TR-0612 (0613),

h. When the RHR train has cooled to below 200°F, STOP the RHR Pump,

i. ADJUST Heat Exchanger Bypass Flow Controller 1-FIC-0618A (0619A) as required to obtain approximately 3000 gpm, then PLACE it in AUTO if desired.

4.4.5 Slowly THROTTLE OPEN the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607) to establish desired RCS cooling.

4.4.6 ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) maintains a minimum total RHR flow of 3000 gpm.

4.4.7 If required, PLACE the idle train in standby per Step 4.1.

4.5 TWO TRAIN RHR OPERATION DURING RCS RECIRCULATION

4.5.1 VERIFY the lineup on the idle RHR Train as follows:

a. CLOSE the RWST TO RHR PUMP A(B) SUCTION 1-HV-8812A (8812B),

b. OPEN the RHR PMP A(B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) and 1-HV-8701B (8702B),

c. CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B),

d. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MAN and CLOSED,

e. CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607),

f. ENSURE OPEN the RHR PMP-A (B) MINIFLOW ISO VLV 1-FV-0610 (0611),

CAUTION

Starting an RHR Pump at RCS water level below 216 foot elevation and with 1-HV-8809A (B) closed will cause water hammer in the discharge piping.

g. ENSURE OPEN RHR PUMP A (B) TO COLD LEG 1 & 2 (3 & 4) ISO VLV 1-HV-8809A (8809B).

4.5.2 START the RHR PUMP A(B),

4.5.3 If desired, SHIFT RHR letdown to the alternate train as follows:

a. MONITOR Letdown Flow 1-FI-0132C while shifting letdown and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

b. OPEN the RHR To CVCS Letdown Isolation of the RHR train which is to be used for letdown; independent verification required:

(1) 1-1205-U4-021 if Train A is operating on minimum flow,

(2) 1-1205-U4-022 if Train B is operating on minimum flow.

c. CLOSE the RHR To CVCS Letdown Isolation of the opposite train; independent verification required.

4.5.4 THROTTLE OPEN RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) until a minimum flowrate of 3000 gpm is established.

4.5.5 VERIFY RHR PMP A (B) MINIFLOW ISO VLV 1-FV-0610 (0611) closes.

CAUTION

The RHR Heat Exchanger Train A(B) Bypass Flow Controller Potentiometer should be set for a flow of 3000 gpm prior to placing controller in AUTO. Potentiometer setting is approximately equal to $(\text{desired flow}/5000)^2$.

4.5.6 PLACE RHR HEAT EXCH BYPASS for Train A (B) Flow Controller 1-FIC-0618A (0619A) in AUTO if desired.

4.5.7 Slowly THROTTLE OPEN RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607) to establish desired RCS cooling.

4.5.8 When two train RHR operation is no longer desired, SHUT DOWN one train of RHR as follows:

a. If the train being removed from service is providing RHR letdown, SHIFT RHR letdown to the alternate train per 4.5.3,

b. Slowly THROTTLE CLOSED the RHR HEAT EXCH OUTLET 1-HV-0606 (0607) and RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) of the train being removed from service,

c. STOP RHR PUMP A(B),

d. If required, PLACE the idle train in standby per Step 4.1.

4.6 FILLING AND VENTING THE RHRS

CAUTION

All vented effluent should be handled as potentially contaminated fluid.

NOTE

The 1-HV-8812A(B) valve should be opened using motor operator simultaneously with the System Vents open, as detailed below to achieve a successful vent of the RHR Hx.

4.6.1 INSTALL Tygon hoses at the following vent points:

a. RHR To CCP (SI Pump) Suction Header Vent, 1-1205-X4-141(124),

b. RHR Train A(B) Cold Leg Injection Vent, 1-1205-X4-013(030),

c. RHR Hot Leg Injection Crossover Vent, 1-1205-X4-120,

d. RHR Pump Suction Flush Connection Vent, 1-1205-X4-196(400),

e. RHR Pump Seal Water Vent, 1-1205-U4-235(236).

4.6.2 ROUTE the Tygon hoses to contain the potentially contaminated vented effluent.

4.6.3 If power has been removed from the RHR Loop Inlet Isolations, PERFORM the following; independent verification required:

a. If shut down, PLACE Inverter 1CD1I5 (1DD1I6) in service per 13405-1, "125V DC 1E Electrical Distribution System",

b. At 1CD1I5N (1CD1I6N) REMOVE tag, UNLOCK and CLOSE the disconnect for 1-HV-8701B (1-HV-8702A),

c. UNLOCK and CLOSE RHR Loop 1(4) Inlet Isolation 1-HV-8701A (8702B) Supply Breakers 1ABE-15-1 (1BBE-13-1) and 1ABE-15-2 (1BBE-13-2),

d. REMOVE tags and CLOSE the links for the K2 Relay for breaker 1ABE-15-1, 1ABE-15-2, 1BBE-13-1 and 1BBE-13-2.

4.6.4 ALIGN the RHR train remote-operated components for filling and venting per Checklist 1.

4.6.5 If required, ALIGN the RHR train for filling and venting per 11011-1, "Residual Heat Removal System Alignment".

4.6.6 CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISOs of the opposite train:

a. 1-HV-8716A if train A is the opposite train,

b. 1-HV-8716B if train B is the opposite train.

4.6.7 OPEN the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B).

4.6.8 OPEN the RHR HEAT EXCH OUTLET 1-HV-0606 for Train A (B) (0607).

4.6.9 CLOSE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619).

CAUTIONS

a. If vent 1-HV-10465 is not closed when venting is complete, venting RHR Train A will result in overflowing contaminated water from the Vent Valve Room down into the Auxiliary Building vestibule R-C131 (Level C).

b. If vent 1-HV-10466 is not closed when venting is complete, venting RHR Train B will result in contaminated water on the floor of the room containing the Train B vent, and actuation of the room sump level switch light on Panel QPCP.

NOTE

RHR Suction Vent Valves 1-HV-10465 (10466) are in sealed rooms and therefore cannot be visually observed as vented. Personnel at these locations should stand outside the knockout wall and verify adequate venting by listening for a change in the sound indicating that the air is vented.

4.6.10 Prior to opening RHR Suction Vent Valves 1-HV-10465 (10466), NOTIFY Health Physics Department to monitor Room R-C131 (R-B08) in Auxiliary Building to contain spillage and minimize room contamination.

4.6.11 STATION personnel at the following valve locations and OPEN the valves:

a. RHR TO CCP (SI PUMP) Suction Header Vent, 1-1205-X4-141(124),

b. RHR TRAIN A(B) Cold Leg Injection Vent, 1-1205-X4-013(030),

c. RHR Hot Leg Injection Crossover Vent, 1-1205-X4-120,

d. RHR SUCT VENT LINE TRN-A (B), 1-HV-10465(10466).

4.6.12 **VERIFY** CLOSED the RHR PMP A(B) UPSTREAM SUCTION FROM **HOT** LEG 1(4) 1-HV-8701B (8702B).

4.6.13 **OPEN** the RHR PMP A(B) DOWNSTREAM SUCTION FROM HOT LEG LOOP 1(4) 1-HV-8701A (8702A).

4.6.14 CLOSE and HOLD CLOSED handswitch for RHR Pump 1(2) Miniflow Isolation Valve 1-FV-0610 (0611). RELEASE the handswitch approximately 10 seconds after performing Step 4.6.15.

4.6.15 COMMENCE RHR Fill by opening RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B).

4.6.16 When a solid stream of water issues from the Vent Valves listed in Step 4.6.11, CLOSE the associated Vent Valve.

4.6.17 REOPEN all of the Vent Valves that are listed in Step 4.6.1.

4.6.18 When a solid stream of water issues from the vent, CLOSE the associated Vent Valve.

4.6.19 CLOSE 1-HV-8701A (8702A).

4.6.20 When all venting is completed, ENSURE the vent points are in the condition listed below; independent verification required:

a. RHR To CCP (SIP) Suction Header Vent 1-1205-X4-141 (124) CLOSED and vent line capped,

b. RHR Train A(B) Cold Leg Injection Vent 1-1205-X4-013 (030) CLOSED and vent line capped,

c. RHR Hot Leg Injection Crossover Vent 1-1205-X4-120 CLOSED with vent line capped,

d. RHR Pump Suction Vent 1-HV-10465 (10466) CLOSED,

e. RHR Pump Suction Flush Connection Vent 1-1205-X4-196 (400) CLOSED and vent line capped,

f. RHR Pump Seal Water Vent 1-1205-U4-235 (236) CLOSED with vent line capped,

NOTE

The following Step is to be performed if in the judgment of the USS the line may be airbound.

4.6.21 VENT the Containment A Suction Line back to the Containment Sump as follows:

4.6.21.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1ABD29W in MCC1ABD to enable CNMT SUMP TO RHR PMP-A 1-HV-8811A to open with RWST TO RHR PMP-A SUCTION 1-HV-8812A open, per 00306-C, "Temporary Jumper And Lifted Wire Control".

4.6.21.2 OPEN CNMT SUMP TO RHR PMP-A 1-HV-8811A.

4.6.21.3 OPEN RHR BYPASS FROM CNMT EMERG SUMPS 1-1205-U4-120 to Bypass Check Valve 1-1205-U4-122.

4.6.21.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line.

4.6.21.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811A.

4.6.21.6 CLOSE 1-1205-U4-120.

4.6.21.7 HAVE the Electrical Department remove the jumper placed in Step 4.6.21.1 per 00306-C, "Temporary Jumper And Lifted Wire Control".

NOTE

The following Step is to be performed if in the judgment of the USS the line may be airbound.

4.6.22 VENT the Containment B Suction Line back to the Containment Sump as follows:

4.6.22.1 HAVE the Electrical Department connect a jumper from Terminal C6 to C7, 1BBD29W in MCC1BBD to enable CNMT SUMP TO RHR PMP-B 1-HV-8811B to open with RWST TO RHR PMP-B SUCTION 1-HV-8812B open, per 00306-C, "Temporary Jumper And Lifted Wire Control".

4.6.22.2 OPEN CNMT SUMP TO RHR PMP-B 1-HV-8811B.

4.6.22.3 OPEN RHR BYPASS FROM CNMT EMERG SUMPS 1-1205-U4-121 to Bypass Check Valve 1-1205-U4-123.

4.6.22.4 OBSERVE the Containment Sump for water entering from the Containment Suction Line.

4.6.22.5 When water is observed entering the Containment Sump, CLOSE 1-HV-8811B.

4.6.22.6 CLOSE 1-1205-U4-121.

4.6.22.7 HAVE the Electrical Department remove the jumper placed in Step 4.6.22.1 per 00306-C, "Temporary Jumper And Lifted Wire Control".

4.6.23 PLACE the RHR train in a configuration appropriate to plant conditions as follows:

a. If RCS temperature is greater than or equal to 350°F, PERFORM the following:

(1) ENSURE OPEN the RHR TRAIN A (B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B) of the opposite train,

(2) PERFORM Step 4.1 starting at Step 4.1.3 to place the train in standby.

b. If RCS temperature is less than 350°F, ALIGN the RHR train for RCS circulation as follows:

(1) CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B),

(2) OPEN the RHR PMP A(B) DOWNSTREAM SUCTION FROM HOT LEG 1(4) 1-HV-8701A (8702A),

(3) OPEN the RHR PMP A(B) UPSTREAM SUCTION FROM HOT LEG 1(4) 1-HV-8701B (8702B),

(4) CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B),

(5) OPEN the RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV 1-HV-8809A (8809B); independent verification required.

4.7 FILLING THE RCS (AND THE REFUELING CAVITY FOR REFUELING)

CAUTIONS

a. Maintain seal injection flow whenever RCS level is at or above the level of the a RCP Seals (elevation 190 feet). This prevents crud infiltration into the seal chambers.

b. Airborne activity should be monitored when filling the Refueling Cavity from RHR until the level is above the Reactor Vessel Flange.

NOTES

a. With the water level in the Refueling Cavity less than 217 feet 0 inches elevation (23 feet above the vessel flange), both trains of the RHRS are required to be operable with one train in operation.

b. Performance of this step assumes use of the RHR train that is operable but not operating.

c. To minimize airborne activity, it is preferred to fill the Refueling Cavity by gravity to the Reactor Vessel Flange prior to starting an RHR Pump.

4.7.1 ESTABLISH RCS or Refueling Cavity level monitoring as applicable.

4.7.2 CLOSE the RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV 1-HV-8809A (8809B).

4.7.3 ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MANUAL and CLOSED.

4.7.4 CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607).

4.7.5 CLOSE the RHR PMP A(B) SUCTION FROM HOT LEG 1(4) 1-HV-8701A (8702A) and 1-HV-8701B (8702B).

4.7.6 OPEN the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B).

4.7.7 VERIFY OPEN the RHR PMP A(B) MINIFLOW ISO VLV 1-FV-0610 (0611).

4.7.8 OPEN the RHR PUMP A(B) TO COLD LEG ISO VLV 1-HV-8809A (8809B) to start gravity fill from the RWST.

4.7.9 If desired, START RHR PUMP A(B).

NOTE

Fill the Refueling Cavity slowly to the 200 foot elevation to prevent airborne activity and to maintain water clarity.

4.7.10 Slowly THROTTLE OPEN the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607) to obtain the desired flow rate.

4.7.11 At the desired level, CLOSE the RHR HEAT EXCH OUTLET 1-HV-0606 (0607).

4.7.12 CLOSE the RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV 1-HV-8809A (8809B).

4.7.13 If running, STOP RHR PUMP A(B).

4.7.14 CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B).

4.7.15 OPEN the RHR PMP A(B) SUCTION FROM HOT LEGs 1-HV-8701A (8702A) and 1-HV-8701B (8702B),

4.7.16 OPEN the RHR PUMP A(B) TO COLD LEG Isolation 1-HV-8809A (8809B); independent verification required.

4.8 DRAINING THE REFUELING CAVITY

CAUTION

Excessive flowrate during pumpdown with Upper Internals Assembly installed could lead to void formation in RHR Pump suction. Trend RHR Pump parameters on ERF for early detection of possible RHR Pump degradation due to vortexing.

NOTES

a. With the water level in the Refueling Cavity less than 217 feet 0 inches elevation (23 feet above the vessel flange), both trains of the RHRS are required to be operable with one train operating.

b. Performance of this step assumes use of the RHR train that is operable but not operating.

4.8.1 ENSURE OPEN the RHR Pump A(B) TO COLD LEG 1&2 (3&4) ISO VLV 1-HV-8809A (8809B).

4.8.2 CLOSE the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO of the operating RHR Train:

a. 1-HV-8716A if Train A is operating,

b. 1-HV-8716B if Train B is operating.

4.8.3 ENSURE CLOSED the RHR TO HI ISO VLV 1-HV-8840.

4.8.4 ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) is in MANUAL and CLOSED.

4.8.5 CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607).

4.8.6 UNLOCK and OPEN RHR Test Recirculation To RWST 1-1205-U6-027 and 1-1205-U4-226; independent verification required.

4.8.7 CLOSE the RWST TO RHR PMP A(B) SUCTION 1-HV-8812A (8812B).

4.8.8 OPEN the RHR PMP A(B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG Isolations 1-HV-8701A (8702A) and 1-HV-8701B (8702B).

4.8.9 VERIFY OPEN the RHR PMP A(B) MINIFLOW ISO VLV 1-FV-0610 (0611).

4.8.10 START the RHR PUMP A(B).

4.8.11 CLOSE the RHR PUMP A (B) TO COLD LEG 1 & 2 (3 & 4) ISO VLV 1-HV-8809A (8809B).

4.8.12 OPEN the RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO 1-HV-8716A (8716B) for the RHR Loop to be used for pumping.

4.8.13 Slowly OPEN the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607) to obtain the desired flow rate.

4.8.14 At the desired level in the Refueling Cavity, CLOSE the RHR HEAT EXCH OUTLET for Train A (B) 1-HV-0606 (0607).

4.8.15 STOP the RHR PUMP A(B).

4.8.16 OPEN the RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV 1-HV-8809A (8809B); independent verification required.

4.8.17 CLOSE and LOCK RHR Test Recirculation RWST 1-1205-U6-027 and 1-1205-U4-226; independent verification required.

4.9 OPERATING RHR WITH ONE TRAIN OF COLD LEG DISCHARGE WITH ITS COLD LEG FLOWPATH ISOLATED FOR MAINTENANCE

4.9.1 ENSURE both RHR trains are lined up for recirculation per Step 4.5.

4.9.2 ENSURE opposite RHR PMP-A (B) TO COLD LEG 1 & 2 (3 & 4) ISO VLV 1-HV-8809A(B) OPEN; independent verification required.

4.9.3 OPEN RHR TRAIN A (B) TO HOT LEG CROSSOVER ISO Valves 1-HV-8716A and 1-HV-8716B; independent verification required.

4.9.4 OPEN breakers for RHR X-TIE Valves; independent verification required:

	Valve	Breaker
a.	1-HV-8716A	1ABD-20,
b.	1-HV-8716B	1BBD-20.

4.9.5 **OPEN** breaker for cold leg discharge path in service; independent verification required:

	Valve	Breaker
a.	1-HV-8809A	1ABB-14,
b.	1-HV-8809B	1BBB-14.

4.9.6 CLOSE valve and OPEN breaker for train to be isolated for maintenance; independent verification required:

	Valve	Breaker
a.	1-HV-8809A	1ABB-14,
b.	1-HV-8809B	1BBB-14.

4.9.7 MAINTAIN the running RHR Pump in service and OPERATE the system as necessary to maintain the desired flow rate.

4.9.8 When RHR System Cross-tie operation is no longer desired and maintenance is completed, PERFORM the following; independent verification required:

4.9.8.1 CLOSE the following breakers; independent verification required:

	Breaker	Valve
a.	1ABB-14	1-HV-8809A,
b.	1BBB-14	1-HV-8809B,
c.	1ABD-20	1-HV-8716A,
d.	1BBD-20	1-HV-8716B.

4.9.8.2 ENSURE the idle RHR Train is aligned as follows:

a.	RWST TO RHR A (B) SUCTION 1-HV-8812A (8812B)	CLOSED
b.	RHR PMP A (B) DOWNSTREAM AND UPSTREAM SUCTION FROM HOT LEG 1-HV-8701A (8702A) AND 1-HV-8701B (8702B)	OPEN
c.	RHR HEAT EXCH BYPASS FOR TRAIN A (B) 1-FV-0618 (0619)	CLOSED IN MANUAL
d.	RHR HEAT EXCH OUTLET FOR TRAIN A (B) 1-HV-0606 (0607)	CLOSED
e.	RHR PMP A (B) MINIFLOW ISO VLV 1-FV-0610 (0611)	OPEN

4.9.8.3 START RHR Pump A (B).

4.9.8.4 If required, SHIFT RHR letdown to the train which is to be maintained on cold leg recirculation as follows:

a. MONITOR Letdown Flow 1-FI-0132C while shifting letdown and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

b. OPEN the RHR To CVCS Letdown Isolation of the RHR train which is operating on minimum flow; independent verification required:

(1) 1-1205-U4-021 if Train A is operating on minimum flow,

(2) 1-1205-U4-022 if Train B is operating on minimum flow.

c. CLOSE the RHR To CVCS Letdown Isolation of the opposite train; independent verification required.

4.9.8.5 **SHIFT** flow to the RHR train that was just started as follows:

a. MONITOR RHR Train A and Train B Flow 1-FI-0618A and 1-FI-0619A and MAINTAIN total RHR flow between 3000 and 3500 gpm throughout the remainder of this step,

b. ENSURE the RHR HEAT EXCH BYPASS for Train A (B) 1-FV-0618 (0619) of the train being removed from service is in MAN,

c. MONITOR Letdown Flow 1-FI-0132C while shifting RHR flow and ADJUST the LOW PRESSURE LETDOWN Controller 1-PIC-0131 and/or LETDOWN FROM RHR Control Valve 1-HV-0128 as required to maintain desired letdown flow,

d. Slowly THROTTLE the RHR HEAT EXCH A(B) OUTLET 1-HV-0606 (0607) and Bypass of the train being removed from service CLOSED and the RHR Heat Exchanger Bypass of the train being placed in service OPEN while maintaining total RHR flow between 3000 and 3500 gpm,

e. If RHR PMP-A(B) MINIFLOW ISO VLV 1-FV-0610 (1-FV-0611) does not auto open, if required, PLACE 1-HS-0610 (1-HS-0611) to OPEN and RELEASE and ENSURE that 1-FV-0610 (1-FV-0611) opens,

f. When the Heat Exchanger Outlet and Bypass of the RHR train being removed from service are both fully closed, MONITOR RHR Heat Exchanger Inlet Temperature 1-TR-0612 (0613),

g. When the RHR train has cooled to below 200°F, STOP the RHR Pump,

h. ADJUST Heat Exchanger Bypass Flow Controller 1-FIC-0618A (0619A) as required to obtain approximately 3000 gpm, then PLACE it in AUTO if desired.

4.9.8.6 CLOSE the RHR TRAIN A (B) TO HOT LEG CROSSOVER ISO VALVES 1-HV-8716A and 1-HV-8716B.

NOTE

The following steps will slowly refill the downstream section of the RHR loop that was drained.

4.9.8.7 CLOSE 1-HV-8701A (8702A) and 1-HV-8701B (8702B) for the idle train.

4.9.8.8 OPEN 1-HV-8812A (B) for the idle train.

4.9.8.9 Manually OPEN 1-HV-8809A (8809B) for the train that was drained; independent verification required.

4.9.8.10 OPEN SIS CHECK VALVE TEST CNMT ISO VALVES 1-HV-8871 and 1-HV-8964.

4.9.8.11 OPEN RHR PMP A (B) CHECK VALVE TEST VALVE 1-HV-8890A (8890B).

4.9.8.12 OPEN ACCUM-1 (3) CHECK VLV TEST 1-HV-8879A (8879C).

4.9.8.13 OPEN ACCUM-2 (4) CHECK VLV TEST 1-HV-8879B (8879D).

4.9.8.14 When venting is completed, CLOSE the following:

	Train A	Train B
a.	1-HV-8890A	1-HV-8890B,
b.	1-HV-8879A	1-HV-8879C,
c.	1-HV-8879B	1-HV-8879D.

4.9.8.15 CLOSE 1-HV-8871 and 1-HV-8964.

4.9.8.16 CLOSE 1-HV-8812A (8812B).

4.9.8.17 OPEN 1-HV-8701A (8702A) and 1-HV-8701B (8702B).

5.0 REFERENCES

5.1 P&ID's

5.1.1	1X4DB121	Safety Injection System	
5.1.2	1X4DB122	Residual Heat Removal System	

5.2 ELEMENTARY DIAGRAMS

5.2.1	1X3D-BD-D02L	1-HV-8804A	Safety Injection System
5.2.2	1X3D-BD-D02M	1-HV-8804B	Safety Injection System
5.2.3	1X3D-BD-D02V	1-HV-8809A	Safety Injection System
5.2.4	1X3D-BD-D02W	1-HV-8809B	Safety Injection System
5.2.5	1X3D-BD-D03J	1-HV-8840	Safety Injection System
5.2.6	1X3D-BD-E01A	RHR Pump 001-M01	
5.2.7	1X3D-BD-E01B	RHR Pump 002-M01	
5.2.8	1X3D-BD-E02C	1-FV-0610	Residual Heat Removal System
5.2.9	1X3D-BD-E02D	1-FV-0611	Residual Heat Removal System
5.2.10	1X3D-BD-E02E	1-HV-8812A	Residual Heat Removal System
5.2.11	1X3D-BD-E02F	1-HV-8812B	Residual Heat Removal System
5.2.12	1X3D-BD-E02G	1-HV-8701A	Residual Heat Removal System
5.2.13	1X3D-BD-E02H	1-HV-8701B	Residual Heat Removal System
5.2.14	1X3D-BD-E02J	1-HV-8702A	Residual Heat Removal System
5.2.15	1X3D-BD-E02K	1-HV-8702B	Residual Heat Removal System
5.2.16	1X3D-BD-E02L	1-HV-8986A	Residual Heat Removal System
5.2.17	1X3D-BD-E02M	1-HV-8986B	Residual Heat Removal System

5.2.18	1X3D-BD-E02N	1-HV-8716A	Residual Heat Removal System
5.2.19	1X3D-BD-E02P	1-HV-8716B	Residual Heat Removal System
5.2.20	1X3D-BD-E03F	1-HV-8811A	Residual Heat Removal System
5.2.21	1X3D-BD-E03G	1-HV-8811B	Residual Heat Removal System
5.2.22	1X3D-BD-E03H	1-HV-10465/ 10466	Residual Heat Removal System

5.3	PROCEDURES	
5.3.1	11011-1	"Residual Heat Removal System Alignment"
5.3.2	13405-1	"125V DC 1E Electrical Distribution System"
5.3.3	13427-1	"4160V AC 1E Electrical Distribution System"
5.3.4	13429-1	"480V AC 1E Electrical Distribution System"
5.3.5	13711-1	"Instrument Air System"
5.3.6	13715-1	"Component Cooling Water System"
5.3.7	13150-1	"Nuclear Service Cooling Water"
5.4	CORRESPONDENCE	
5.4.1	GP-12615	RHRS Open Permissive Setpoint
5.4.2	PFEO-01628	Operation Of The Recycle Evaporator During Single Train Cooldown
5.4.3	PFEO-805	Fire Induced Opening Of HV-8804A And HV-8804B
5.4.4	BW-4979	Fire Induced Opening Of HV-8804A And HV-8804B

END OF PROCEDURE TEXT

Sheet 1 of 1

CHECKLIST 1

RHR ALIGNMENT FOR FILLING AND VENTING

CONTROL SWITCH/ VALVE NUMBER	DESCRIPTION	POSITION
1-HS-0620(0621)	RHR PMP A(B)	PULL-TO-LOCK
1-HV-8701A(8702A)	RHR PMP A(B) DOWNSTREAM SUCTION FROM HOT LEG LOOP 1(4)	CLOSED
1-HV-8701B(8702B)	RHR PMP A(B) UPSTREAM SUCTION FROM HOT LEG LOOP 1(4)	CLOSED
1-HV-10465(10466)	RHR SUCT VENT LINE TRN A(B)	CLOSED
1-HV-8812A(8812B)	RWST TO RHR PUMP A(B) SUCTION	CLOSED
1-HV-8811A(8811B)	CNMT SUMP TO RHR PMP A(B) SUCTION	CLOSED
1-HV-8809A(8809B)	RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV	CLOSED
1-HV-8804A(8804B)	RHR PMP A DISCH TO CHG PMPS SUCT (RHR TO SI PMP B ISO VLV)	CLOSED
1-HV-8716A(8716B)	RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO	CLOSED
1-HV-8840	RHR TO HL ISO VLV	CLOSED

Sheet 1 of 1

CHECKLIST 2

RHR ALIGNMENT FOR STANDBY READINESS

CONTROL SWITCH/ VALVE NUMBER	DESCRIPTION	POSITION	POSITIONED BY	I/V
1-HS-0620(0621)	RHR PMP A(B)	AUTO	_____	_____
1-HV-8701A(8702A)	RHR PMP A(B) DOWNSTREAM SUCTION FROM HOT LEG LOOP 1(4)	CLOSED	_____	_____
1-HV-8701B(8702B)	RHR PMP A(B) UPSTREAM SUCTION FROM HOT LEG LOOP 1(4)	CLOSED	_____	_____
1-HV-10465(10466)	RHR SUCT VENT LINE TRN A(B)	CLOSED	_____	_____
1-HV-8812A(8812B)	RWST TO RHR PUMP A(B) SUCTION	OPEN	_____	_____
1-HV-8811A(8811B)	CNMT SUMP TO RHR PMP A(B) SUCTION	CLOSED	_____	_____
1-HV-8809A(8809B)	RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV	OPEN	_____	_____
1-HS-8809C(8809D)	RHR PUMP A(B) TO COLD LEG 1&2 (3&4) ISO VLV	OFF	_____	_____
1-HV-8804A(8804B)	RHR PMP A DISCH TO CHG PMPS SUCT (RHR TO SI PMP B ISO VLV)	CLOSED	_____	_____
1-HV-8716A(8716B)	RHR TRAIN A(B) TO HOT LEG CROSSOVER ISO	OPEN	_____	_____
1-HV-8840	RHR TO HL ISO VLV	CLOSED	_____	_____
1-HS-8840A	RHR TO HL ISO VLV	OFF	_____	_____
1-HV-0606(0607)	RHR HEAT EXCHANGER TRAIN A(B) OUTLET	OPEN	_____	_____
1-FV-0618(0619)	RHR HEAT EXCHANGER TRAIN A(B) BYPASS	MAN & CLOSED	_____	_____

REVIEWED BY /DATE

05-17-90

Procedure No	Revision	Page No
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DATA SHEET 1

EXAMPLE

VOGTLE NUCLEAR STATION

VEHICLE ACCESS REQUEST

NON-DESIGNATED

DRIVER INFORMATION

NAME: Donnie Williams

BADGE #: S.G. 205 / 1405

DEPT: Equip.

STATION CONTACT: 3361

VEHICLE DESCRIPTION

MAKE: G.M.C. Service Truck

MODEL: 8000

COLOR: Blue

TAG #: P.G. 8785

VEH #: 023-49-003

VEHICLE INFORMATION

COMPANY NAME: G P C.

CITY/STATE: Waynesboro Ga

PURPOSE

STATE REASON VEHICLE REQUIRES PROTECTED AREA ACCESS: Fueling Equipment

AUTHORIZATION

Date of Authorization: TIME: From: 0905 TIME: To: 1800 3-20-90

Approval Date: 3-20-90 Approved by: CL Coursey

VAR OFFICER: Woodrow Shaw BADGE #'S 0763

VEHICLE ESCORT: Richard Berry BADGE #'S 2912

Sheet 1 of 1

DATA SHEET 2

VEHICLE LOG

DATE: 3-20-90

GATE OFFICER: Kelly

GATE: 4

VEHICLES CLASSIFICATIONS: *DESIGNATED: D

NON DESIGNATED ND

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*VEHICLE #	CLASS	DRIVER'S NAME AND BADGE NUMBER	TIME OF ENTRY	ESCORT OFFICER	TIME OF EXIT	ESCORT OFFICER
032	D	Jackson Mack NO313 / 2363		N/A	0744	N/A
136	D	Clark Wood SR1669 / 2926		N/A	0744	N/A
023-49-053	ND	Willhite Ronnie SR2051 NOT	0917	Riley B.		
134	D	Lynch Robert SR3178 / 0993	1420	N/A	0920	N/A
128	D	Harriel Jones SR1977 / 3113	0923	N/A		N/A
137	D	Bennett Virgil SR4204 / 2422	1527	N/A	0944	N/A
045	D	Jackson C SD-004 / 0053	1031	"	1035	"
110	D	Chestnut P SD-007 / 2953		"	1035	

(*USE VEHICLE STICKER NUMBER FOR DESIGNATED VEHICLES)

Close vehicle log at midnight each night. Any vehicles still within the PA will be carried over to next day's log.

VOGTLE NUCLEAR STATION
VEHICLES LOG
EXAMPLE