OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION: SALEM

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

TASK NUMBER: 1140730402

JPM NUMBER: 19-01 NRC Sim-b

ALTERNATE PATH: [X]

K/A NUMBER: 005 A2.03

IMPORTANCE FACTOR:	**RO**	**SRO**
	2.9	3.1

APPLICABILITY:
EO [ ] **RO** [X] **STA** [ ] **SRO** [X]

EVALUATION SETTING/METHOD: Simulator / Perform

REFERENCES: S2.OP-AB.RHR-0001, Rev. 21 (checked 1-13-20)

TOOLS AND EQUIPMENT: None

VALIDATED JPM COMPLETION TIME: 25 min

TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS: N/A

Developed By: **R. Chan** **Instructor** **Date: 1-13-20**

Validated By: **Moore / Klein** **SME or Instructor** **Date: 1-13-20**

Approved By: **N/A** **Training Department** **Date:**

Approved By: **N/A** **Operations Department** **Date:**

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY: _____

GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE
REVISION HISTORY

JPM NUMBER: 19-01 NRC Sim-b

Rev #	Date	Description	Validation Required
00	9-17-19	**MODIFIED JPM** for a loss of both RHR pumps. 005 K/A A2.03: Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: RHR pump/motor malfunction	Yes

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

SIMULATOR SETUP INSTRUCTIONS

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

TASK NUMBER: 1140730402

SIMULATOR IC: IC-202

MALFUNCTIONS:

1. Reset the simulator to the above IC #.
2. Verify the following events on the Summary/ET Trigger Lists:

MALF ID #	Description	Delay Time	Initial Value	Ramp Time	Trigger	Severity
01	21 RHR Pump trips	N/A	N/A	N/A		
02	22 RHR pump trips	00:00:03	N/A	N/A	ET-1	

3. These malfunctions will simulate 21 RHR Pump tripping on electrical fault. 22 RHR pump will start then trip for unknown reasons. (Alternate Path) With the RCS depressurized and vented, the Operator will perform Attachment 8 COLD LEG Injection by transferring Charging Pump suction to RWST, opening the BIT Isolation valves, and closing the charging discharge valves (2CV68 or 2CV69).

OVERRIDES / REMOTES:

ID #	Description	Delay Time	Initial Value	Ramp Time	Trigger	Condition/ Severity
01						

EVENT TRIGGERS:

ET#	Description	Command
1	QAA03PRN, 22 RHR start bezel light	
2		
3		
4		

SPECIAL INSTRUCTIONS:

- **Ensure** RHR process diagram on P250
- **Ensure** bezel tags for 21 & 22 SI Pumps and 22 CV Pump being C/T
- Additional instructor to assist in silencing alarms following reactor trip.

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

TASK NUMBER: 1140730402

INITIAL CONDITIONS:

- Unit 2 is in Mode 5 following a 30 day refueling outage.
- The RCS is depressurized **AND** vented using 2PS59 as the approved vent path.
- The Containment Equipment Hatch is CLOSED.
- The crew is performing S2.OP-IO.ZZ-0002, Cold Shutdown to Hot Standby.

Plant conditions are as follows:

- PZR level is 30%
- 21 Charging Pump in service
- 21 and 22 SI Pumps are C/T
- 22 Charging Pump is C/T
- RHR Letdown Booster Pump in service with 2CV8 throttled
- RCS temperature is 149 °F at the RHR Inlet.
- 22 RHR Pump is aligned for Shutdown Cooling

INITIATING CUE:

- You are the Reactor Operator.
- The in-service RHR pump (21 RHR Pump) providing shutdown cooling has just tripped due to an electrical fault on the motor.
- **INITIATE** S2.OP-AB.RHR-0001, Loss of RHR.

Successful Completion Criteria:

1. All critical steps completed.
2. All sequential steps completed in order.
3. All time-critical steps completed within allotted time.
4. JPM completed within validated time. Completion time may exceed the validated time if satisfactory progress is being made (and NRC concurrence is obtained).

Task Standard for Successful Completion:
1. Initiates COLD LEG Injection by transferring Charging Pump suction to RWST, opening BIT Isolation valves and closing Charging discharge valve IAW S2.OP-AB.RHR-0001, Attachment 8.

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	CUE:	Fill in the JPM Start Time when the student acknowledges the Initiating Cue. **START TIME**:_____	Note: • 21 and 22 SI Pumps are C/T • 22 Charging Pump is C/T • 21 Charging Pump in service • CET 160 °F • Equipment Hatch is CLOSED		
	3.1	**INITIATE** Attachment 1, Continuous Action Summary	**CUE**: CRS will initiate the CAS, CONTINUE on with procedure.		
	3.2	IF the RCS is vented to the Containment atmosphere with the Containment Equipment hatch OPEN AND at least two RCS loops are filled with associated SG's available, THEN **CLOSE** the vent path prior to Core Boil. (Refer to ORAM report or Attachment 4)	N/A. Operator determines from the Cue Sheet that Equipment Hatch is CLOSED.		
*	NOTE	0% Pressurizer Level Cold Cal. indication corresponds to 108.92 ft. elevation, when the RCS is filled and vented.			
*	3.3	Is RCS aligned for operation <101 ft. elevation (Reduced Inventory)?	No		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.5	Is the loss of RHR due to a mechanical failure or loss of electrical power to the in-service RHR Pump?	Yes		
	3.6	**GO TO** Step 3.50			
	3.50	Is a heat sink available for Residual Heat Removal? ___ Component Cooling to RHR System ___ Service Water to Component Cooling System	Yes		
	3.51	Is an RHR Loop available?	Yes (22 RHR is available aligned for shutdown cooling)		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.52	**PLACE** the alternate RHR Loop in service: ___IF alternate RHR Loop is aligned for ECCS, THEN **PERFORM** Attachment 2, Aligning RHR Loop From ECCS To Shutdown Cooling. OR ___IF alternate RHR Loop is aligned for Shutdown Cooling, THEN **PERFORM** Attachment 3, Aligning RHR Loop For Shutdown Cooling.	Performs Attachment 3 to start 22 RHR Pump. **Operator performs the following actions in Attachment 3:** • **Closes 21RH18** • **Closes 21CC16** • **Opens 22CC16** • **Starts 22 RHR Pump** **Possible CUE: *If 2CC131 closes, then state, Extra Operator will address this continue on with procedure.***		
		ALTERNATE PATH STARTS HERE:	**22 RHR Pump Trips**		
		Examiner's Note: The Operator may return to the procedure step in effect (**Step 3.52, Page 11**) **OR** can **re-enter** the AB procedure (**Next Page**)			

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	RE-ENTER AB	**IF** Operator **re-enters** the procedure, THEN the following steps will be performed here:	Operator performs the following steps: 3.1 – **CUE:** Attachment 1 is being performed by extra operator. 3.2 – N/A 3.3 – No 3.5 – Yes 3.6 – GO TO Step 3.50 3.50 – Yes 3.51 – Return to Step 3.31 3.31 – Continue 3.32 – Initiate Attachment 8, Cold Leg Injection		
	ATT 8	Attachment 8 COLD LEG INJECTION (preferred method if RCS < 200 F)			
	1.0	MAKEUP to the RCS as follows:			
	1.A	IF the BIT flowpath AND a Charging Pump is available, THEN ALIGN feed path to the RCS as follows:	YES		

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	1.A.1	1. OPEN RWST outlet to Charging Pumps: ___ 2SJ1 ___ 2SJ2	**Operator depresses the OPEN pushbuttons for 2SJ1 or 2SJ2.**		
*	1.A.2	2. CLOSE VCT outlet to Charging Pumps: ___ 2CV40 ___ 2CV41	**Operator depresses the CLOSED pushbuttons for 2CV40 or 2CV41.**		
	1.A.3	IF both Centrifugal Charging Pumps are tagged out, THEN SEND Operator to release breaker for one Centrifugal Charging Pump.	N/A. 21 Charging Pump is in service.		
	NOTE	**CAUTION** When the PS26 is the vent path, maximum flow of < 300 gpm is required when steam generator nozzle dams are installed. This may be controller by throttling the pump discharge valve.	Operator reads Caution and continues on with procedure. CUE: ***IF asked about the nozzle dams, then state: nozzle dams are not installed.***		

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
*	1.A.4	START the designated available Charging Pump AND FEED at maximum rate by aligning the following valves in the Cold Leg Injection flow path: ___ OPEN BIT INLET: 2SJ4 or 2SJ5 ___ OPEN BIT OUTLET: 2SJ12 or 2SJ13 ___ CLOSE Charging Discharge Isolation Valves: 2CV68 or 2CV69	**21 Charging Pump already running.** **Operator depresses the OPEN pushbutton for BIT valves 2SJ4 or 2SJ5 AND 2SJ12 or 2SJ13.** **Operator CLOSES 2CV68 or 2CV69 by depressing the associated CLOSED pushbutton.** **JPM is Complete**		
	CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN RECORD the STOP TIME. STOP TIME:_____	**Terminate JPM when 2CV68 or 2CV69 is closed.**		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	Return to Step 3.52	**Steps start here if operator returns to the step PRIOR to performing Attachment 3:**	Operator determines that Step 3.5.2 cannot be performed and continues on to Step 3.53.		
	3.53	Is RHR in service?	No. 22 RHR Pump tripped. RETURNS to STEP 3.7		
	3.7	**CHECK** RHR cooling availability as follows: A. Is any RHR pump running?	 No		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.9	**PERFORM** the following: ___ **STOP** 2 RHR Letdown Booster Pump ___ **ISOLATE** Sampling activities ___ **ISOLATE** Normal Letdown to CVCS ___ **ISOLATE** Excess Letdown ___ **ISOLATE** RHR Letdown to CVCS ___ **TERMINATE** any known maintenance or testing in progress	Performs actions as follows" Depresses stop PB for L/D Booster Pump **CUE**: No sampling is in progress Verifies Normal L/D not in service Verifies Excess Letdown not in service Depresses CLOSED PB for 2CV8 **CUE**: CRS will terminate any maintenance or testing in progress.		
	3.10	**DETERMINE** time to core boiling using Attachment 4, Time To Reach Boiling After Loss of RHR or Attachment 5, Heatup Rate For Loss Of RHR Cooling, as applicable, if not already done in the daily ORAM report.	**CUE: *Extra operator will determine time to core boiling***.		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.11	Is RCS level >97.5 ft elevation and stable or rising consistent with current RCS makeup (Charging, SI) and no excessive indication of RCS Leakage?	Yes		
	3.12	Does the time to core boiling allow adequate time for normal restoration AND local venting of RHR System?	No **CUE**: ***CRS has determined insufficient time is available to restore RHR system. Continue on with procedure***.		
	3.20	**CONTINUE**	Operator continues on with procedure		
	3.21	IS RCS level >101 ft.?	Yes		
	3.22	**SEND** an Operator to locally monitor RHR Pump while starting.	Operator recognizes no RHR pumps available and continues on. **CUE**: If asked about status of RHR Pumps state the following: ***both RHR Pumps are being investigated***.		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.23	**START** one RHR Pump at full flow as follows: ___IF alternate RHR Loop is aligned for ECCS, THEN **PERFORM** Attachment 2, Aligning RHR Loop From ECCS To Shutdown Cooling. OR ___IF alternate RHR Loop is aligned for Shutdown Cooling, THEN **PERFORM** Attachment 3, Aligning RHR Loop For Shutdown Cooling.	Operator recognizes No RHR Pumps available and continues on with procedure.		
	3.24	**NOTIFY** local Operator to perform observation at RHR Pumps: ___ No abnormal noise ___ No seal damage ___ No RHR suction pressure oscillations	Operator determines this step is Not Applicable and continues on with procedure		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.25	Is RHR System normal as indicated by ALL of the following? ___ RHR Pumps - at least one running ___ RCS Level - >101 ft. elevation and stable or rising ___ RHR Flow - stabilized >1500 gpm ___ RCS Temperature - stable or lowering ___ No local indication of RHR Pump damage	No, no RHR Pumps are running.		
	3.30	**STOP** any running RHR Pumps.	Operator recognizes no RHR Pumps are running and continues on with procedure.		
	3.31	**CONTINUE**			

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	3.32	**INITIATE** one of the alternate methods of decay heat removal: ___ Attachment 7, Hot Leg Injection (Feed & Bleed - Preferred method if RCS not intact or Loops not filled and core exit TCs > 200°F) ___ Attachment 8, Cold Leg Injection (Feed & Bleed - Preferred Method if Core Exit TCs < 200°F) ___ Attachment 9, Steam Generator Reflux Cooling (RCS depressurized and no other means of decay heat removal is available) ___ Attachment 10, Forced Flow Or Natural Circulation Cooldown (RCS intact and filled to greater than 0% in the Pressurizer with Loops filled) ___ Attachment 11, Cooling the RCS with Spent Fuel Pool (Reactor Vessel Head Removed)	Operator performs Attachment 8, Cold Leg Injection based on Core Exit TCS less than 200 F.		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	ATT 8	**Attachment 8 COLD LEG INJECTION (preferred method if RCS < 200 F)**			
	1.0	**MAKEUP** to the RCS as follows:			
	1.A	IF the BIT flowpath AND a Charging Pump is available, THEN **ALIGN** feed path to the RCS as follows:	YES		
*	1.A.1	1. **OPEN** RWST outlet to Charging Pumps: ___ 2SJ1 ___ 2SJ2	**Operator depresses the OPEN pushbuttons for 2SJ1 or 2SJ2.**		
*	1.A.2	2. **CLOSE** VCT outlet to Charging Pumps: ___ 2CV40 ___ 2CV41	**Operator depresses the CLOSED pushbuttons for 2CV40 or 2CV41.**		
	1.A.3	IF both Centrifugal Charging Pumps are tagged out, THEN **SEND** Operator to release breaker for one Centrifugal Charging Pump.	N/A. 21 Charging Pump is in service.		

OPERATIONS TRAINING PROGRAM

JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	NOTE	**CAUTION** When the PS26 is the vent path, maximum flow of < 300 gpm is required when steam generator nozzle dams are installed. This may be controller by throttling the pump discharge valve.	Operator reads Caution and continues on with procedure. **CUE**: IF asked about the nozzle dams, then state: ***nozzle dams are not installed.***		
*	1.A.4	**START** the designated available Charging Pump AND **FEED** at maximum rate by aligning the following valves in the Cold Leg Injection flow path: ___ **OPEN** BIT INLET: 2SJ4 or 2SJ5 ___ **OPEN** BIT OUTLET: 2SJ12 or 2SJ13 ___ **CLOSE** Charging Discharge Isolation Valves: 2CV68 or 2CV69	**21 Charging Pump already running.** **Operator depresses the OPEN pushbutton for BIT valves 2SJ4 or 2SJ5 AND 2SJ12 or 2SJ13.** **Operator CLOSES 2CV68 or 2CV69 by depressing the associated CLOSED pushbutton.** **JPM is Complete**		

NAME: _____

DATE: _____

SYSTEM: Residual Heal Removal System

TASK: Respond to a Loss of Both RHR Pumps IAW S2.OP-AB.RHR-0001 in Mode 5 with RCS Depressurized and Vented

* #	STEP No.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT Evaluation)
	CUE:	WHEN operator informs you the task is complete, OR the JPM has been terminated for other reasons, THEN **RECORD** the STOP TIME. **STOP TIME**:_____	**Terminate JPM when 2CV68 or 2CV69 is closed.**		

S2.OP-AB.PZR-0001:

ATTACHMENT 8
(Page 1 of 8)

COLD LEG INJECTION (preferred method RCS < 200°F)

[C0354]

CAUTION
___ Only Borated water should be added to the RCS to maintain adequate Shutdown Margin.
___ Any opening in the RCS boundary could result in release of high temperature fluids, radioactive water, or gases to Containment.
___ Violation of Technical Specification 3.5.3 requires notifications IAW ECG.

___ 1.0 **MAKEUP** to the RCS as follows:

___ A. IF the BIT flowpath AND a Charging Pump is available, THEN **ALIGN** feed path to the RCS as follows:

___ 1. **OPEN** RWST outlet to Charging Pumps:

___ ♦ 2SJ1

___ ♦ 2SJ2

___ 2. **CLOSE** VCT outlet to Charging Pumps:

___ ♦ 2CV40

___ ♦ 2CV41

___ 3. IF both Centrifugal Charging Pumps are tagged out, THEN **SEND** Operator to release breaker for one Centrifugal Charging Pump.

COLD LEG INJECTION

1.0 (continued)

CAUTION
___ **When the PS25 is the vent path, maximum flow of <300 gpm is required when steam generator nozzle dams are installed. This may be controlled by throttling the pump discharge valve.**

___ 4. **START** the designated available Charging Pump AND **FEED** at maximum rate by aligning the following valves in the Cold Leg Injection flow path:

___ ♦ **OPEN** BIT INLET: 2SJ4 or 2SJ5

___ ♦ **OPEN** BIT OUTLET: 2SJ12 or 2SJ13

___ ♦ **CLOSE** Charging Discharge Isolation Valves: 2CV68 or 2CV69

___ B. IF BIT flowpath and Charging Pump is NOT available,
AND a Safety Injection Pump with a Cold Leg Injection path is available,
THEN **ALIGN** feed path to the RCS as follows:

___ 1. **ENSURE** OPEN RWST TO SI PUMP valves:

___ ♦ **PLACE** 2RP4 lockout switch in VALVE OPERATE AND **OPEN** 2SJ30, RWST TO SI PUMPS STOP VALVE

___ ♦ 21SJ33 OR 22SJ33, SI PUMP SUCT VALVE, associated with the available SI Pump

___ ♦ 2SJ67 AND 2SJ68, SI PMP RECIRC VALVES

___ 2. IF both Safety Injection Pumps are tagged out,
THEN **SEND** Operator to release breaker for one Safety Injection Pumps.

S2.OP-AB.RHR-0001(Q)

ATTACHMENT 8
(Page 3 of 8)

COLD LEG INJECTION

1.0 (continued)

CAUTION
___ When the PS25 is the vent path, maximum flow of <300 gpm is required when steam generator nozzle dams are installed. This may be controlled by throttling the pump discharge valve.

___ 3. **START** the designated available Safety Injection Pump AND **FEED** at maximum rate by aligning the following valves in the Cold Leg Injection flow path:

___ ♦ **OPEN** 21SJ134 or 22SJ134, SI PMP TO COLD LEGS, associated with the available SI Pump

___ ♦ **PLACE** 2RP4 lockout switch in VALVE OPERATE AND **OPEN** 2SJ135

___ ♦ **CLOSE** 2SJ67 and 2SJ68, SI PMP RECIRC VALVES

___ C. **CONTINUE** feeding RCS at maximum rate until one of the following occurs:

___ 1. RHR is restored.

___ 2. Pressurizer level is ≥50% cold calibration.

___ 3. Flow from any RCS opening is adequate to result in lowering Core Exit Thermocouple temperatures.

JOB PERFORMANCE MEASURE VALIDATION CHECKLIST

NOTE: All steps of this checklist should be performed upon initial validation. Prior to JPM usage, revalidate JPM using steps 8 and 11 below.

RC 1. Task description and number, JPM description and number are identified.

RC 2. Knowledge and Abilities (K/A) references are included.

RC 3. Performance location specified. (in-plant, control room, or simulator)

RC 4. Initial setup conditions are identified.

RC 5. Initiating and terminating Cues are properly identified.

RC 6. Task standards identified and verified by SME review.

RC 7. Critical steps meet the criteria for critical steps and are identified with an asterisk (*).

RC 8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. __21___ Date _____1-13-20_____

RC 9. Pilot test the JPM:
a. verify Cues both verbal and visual are free of conflict, and
b. ensure performance time is accurate.

N/A 10. If the JPM cannot be performed as written with proper responses, then revise the JPM.

N/A 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

SME/Instructor: R. Chan Date: 1-13-20

SME/Instructor: R. Moore Date: 1-13-20

SME/Instructor: J. Klein Date: 1-13-20

INITIAL CONDITIONS:

- Unit 2 is in Mode 5 following a 30 day refueling outage.
- The RCS is depressurized **AND** vented using 2PS59 as the approved vent path.
- The Containment Equipment Hatch is CLOSED.
- The crew is performing S2.OP-IO.ZZ-0002, Cold Shutdown to Hot Standby.

Plant conditions are as follows:

- PZR level is 30%
- 21 Charging Pump in service
- 21 and 22 SI Pumps are C/T
- 22 Charging Pump is C/T
- RHR Letdown Booster Pump in service with 2CV8 throttled
- RCS temperature is 149 °F at the RHR Inlet.
- 22 RHR Pump is aligned for Shutdown Cooling

INITIATING CUE:

- You are the Reactor Operator.
- The in-service RHR pump (21 RHR Pump) providing shutdown cooling has just tripped due to an electrical fault on the motor.
- **INITIATE** S2.OP-AB.RHR-0001, Loss of RHR.