OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

STATION:	SALEM
SYSTEM:	Plant Service Systems (SF8) – Component Cooling Water System
TASK:	Respond to CCW Leak Inside Containment IAW S2.OP-AB.CC-0001
TASK NUMBER:	N1140080401
JPM NUMBER:	17-01 NRC Sim-h
ALTERNATE PATH:	[X]
K/A NUMBER:	008 A2.02
IMPORTANCE FACTOR:	3.2 (RO) / 3.5 (SRO)
APPLICABILITY:	EO [ ] RO [X] STA [ ] SRO [X]
EVALUATION SETTING/METHOD:	Simulator / Perform
REFERENCES:	S2.OP-AB.CC-0001, Rev 16 (checked 9-14-18)
TOOLS AND EQUIPMENT:	None
VALIDATED JPM COMPLETION TIME:	8 min
TIME PERIOD IDENTIFIED FOR TIME CRITICAL STEPS:	N/A
Developed By:	**R. Chan** Rudold Chan **Instructor** — **Date: 12-5-18**
Validated By:	**Raymond / Bell / Bates (Rev. 0) SME or Instructor** — **Date: 9-14-18**
Approved By:	**Training Department** — **Date:** 12/11/18
Approved By:	**Operations Department** MYERS — **Date:** 12/7/18

ACTUAL JPM COMPLETION TIME:

ACTUAL TIME CRITICAL COMPLETION TIME:

PERFORMED BY:
GRADE: [ ] **SAT** [ ] **UNSAT**

REASON, IF UNSATISFACTORY:

EVALUATOR'S SIGNATURE: **DATE:**

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REVISION HISTORY

JPM NUMBER: 17-01 NRC Sim-h

Rev #	Date	Description	Validation Required
00	8-30-18	**This JPM was modified from the bank by altering the course of action to isolate CCW to CNTMT**. This task aligns with Safety Function #8 K/A.	Yes
01	12-5-18	Incorporated NRC Prep week comments. Attachment 2 of S2.OP-AB.CC-0001 has a place keeping issue that may result in the candidate from performing the intended step to isolate CCW flow to containment and stop the leak. Due to exam security concerns formal procedure revision was not performed, notification to follow after exam. Attachment 2 was revised by the exam team and will be provided to the candidate during the exam. Change provides proper procedure place keeping method and no re-validation is considered necessary.	No

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SIMULATOR SETUP INSTRUCTIONS

SYSTEM: Plant Service Systems (SF8) – Component Cooling Water System

TASK: Respond to CCW Leak Inside Containment IAW S2.OP-AB.CC-0001

TASK NUMBER: N1140080401

SIMULATOR IC: **IC-238 [6-6-18]**

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 (Final)
01	CC0303, CC Leak Inside CNTMT	00:00:15	50	N/A	RT-1	10

3. This malfunction will simulate a CCW leak inside containment and cause CCW Surge Tank level to lower, resulting in console alarm for low level. The operator will initiate makeup by opening 2DR107 and CCW tank level will rise. **ALTERNATE PATH**: After operator restores CCW level, the leak will worsen and leak will exceed make up capability requiring operator to stop RCPs IAW Attachment 2. The operator will also be required to close various CCW valves to isolate CCW to containment.

OVERRIDES / REMOTES:

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

EVENT TRIGGERS:

ET#	Description	Command

SPECIAL INSTRUCTIONS:

- Additional instructor to silence OHA alarms should be used.
- **ENSURE that copies of revised S2.OP-AB.CC-0001 are available and that Attachment 2 has the proper place keeping initial step added to second bullet under step 1.D.**

OPERATOR TRAINING PROGRAM
JOB PERFORMANCE MEASURE

NAME: _____

DATE: _____

SYSTEM: Plant Service Systems (SF8) – Component Cooling Water System

TASK: Respond to CCW Leak Inside Containment IAW S2.OP-AB.CC-0001

TASK NUMBER: N1140080401

INITIAL CONDITIONS:

- Unit 2 at 100% power, MOL.
- No equipment is out of service and no active Tech Specs are in effect.

INITIATING CUE:

- You are the Reactor Operator.
- Respond to all alarms and indications.

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. **Open's 2DR107 to makeup to CCW surge tank.**
2. **TRIPs the Reactor, Stops RCPs, and Closes CNTMT CCW valves IAW Attachment 2.**

SYSTEM: **Plant Service Systems (SF8) – Component Cooling Water System**

TASK: **Respond to CCW Leak Inside Containment IAW S2.OP-AB.CC-0001**

* #	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:**_____			
	CUE	**Simulator Operator**: **INSERT** RT-1 when the operator assumes the watch. **MALF: CC0303 CCW Leak Inside CNTMT** **Initial Value = 50** **Final Value = 10** **Ramp = 15 seconds**	**Evaluator's Note:** Both CCW Surge Tank levels are normally at 46%. It can take 9-10 minutes for the CCW surge tanks to reach 0% level with the modified leak rate and makeup in progress.		
		The following alarm and indication will come in after ≈ 25 seconds: 1. **OHA C-2 CNTMT SUMP PMP START** 2. Followed shortly by CCW Console Alarm for **SURGE TANK LEVEL HI-LO**	Operator reports receipt of unexpected OHA C-2 and shortly thereafter console alarm for CCW Surge Tank Level Hi-Lo. Operator refers to OHA ARP for C Window and/or 2CC1 ARP. **CUE**: IF operator reports to you as CRS the following alarms AND is waiting for direction; **THEN state**: CRS directs you to respond to alarms and indications IAW applicable Alarm Response Procedures.		
	CUE:	**Evaluator's Note:** The operator may at any time initiate makeup by opening 2DR107 without waiting for procedure direction.			

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
		The following steps are from Alarm Response Procedure (ARP) **S2.OP-AR.ZZ-0011, CONTROL CONSOLE 2CC1**	**Evaluator's Note**: The operator may also refer to ARP for OHA C-2 Window, but the console ARP will provide the appropriate action to address lowering CCW Surge Tank Level.		
	2CC1 ARP pg 93	COMPONENT COOLING WATER SYSTEM Surge Tank **SURGE TANK LEVEL HI-LO**	Operator responds to console alarm for SURGE TANK LEVEL HI-LO and refers to 2CC1 ARP S2.OP-AR.ZZ-0011 page 93.		
	1.0	**CAUSE(S):** High or low level in the CC Surge Tank.	Operator reads the step and continues on.		
	2.0	**AUTOMATIC ACTIONS**: None	Operator reads the step and continues on.		
	3.0	**OPERATOR ACTIONS:**			
	3.1	**MONITOR** CC Surge Tank Level on 2LI-628A and C on Bezel	Operator monitors Surge Tank Level and observes lowering Surge Tank Level.		
	3.2	IF the cause of the alarm is high level, THEN:	N/A: Operator determines alarm is due to low level AND GOES to next step.		
	3.3	IF the cause is low level, **THEN**:	Operator determines alarm is due to low level.		

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TASK: **Respond to CCW Leak Inside Containment IAW S2.OP-AB.CC-0001**

* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
*	3.3.A	**OPERATE** 2DR107, MAKEUP TO CC SURGE TANK, to restore CC Surge Tank level.	**Operator opens 2DR107.** **Operator reports CCW Surge Tank Level is rising.** **CUE:** IF operator requests an operating band THEN state: *CRS directs you to maintain CCW surge tank level between 45 and 55%.*		
	3.3.B	IF a leak exists or is suspected, THEN **GO TO** S2.OP-AB.CC-0001, Component Cooling Abnormality	Operator **GOES TO** S2.OP-AB.CC-0001. **CUE:** IF operator asks about entering the Abnormal procedure, THEN state: *CRS directs you to implement AB.CC-0001.*		
		S2.OP-AB.CC-0001			
	3.1	**INITIATE** Attachment 1, CAS	Operator reviews Attachment 1 CAS and determines none are applicable at this time.		
		Simulator Operator: IF the operator takes the action to Trip the Rx using the CAS,THEN **MODIFY RT-1 to 35.**	**Evaluator's Note**: The operator may determine that the CCW rate is large enough that warrants implementing the CAS action to trip the Rx upon entering AB.CC-0001.		

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TASK: **Respond to CCW Leak Inside Containment IAW S2.OP-AB.CC-0001**

* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.2	Is CCW Surge Tank Level > 58% and rising?	NO: Operator determines CCW Surge Tank Level is NOT rising and **GOES TO** Step 3.13. **Evaluator's Note**: Surge Tank may be rising at this point due to makeup in progress. The operator should determine that level cannot be maintained without makeup. Operator can stop makeup and monitor level to make this determination.		
	3.13	Is CCW Surge Tank level < 42% and dropping?	YES: Operator determines that CCW Surge Tank level is < 42% and dropping.		
*	3.14	**INITIATE** makeup to the CCW Surge Tank to maintain level > 42%. ❖ **OPEN** 2DR107, Surge Tank Make-up ❖ **OR** ❖ **DIRECT** an NEO to OPEN 2WR114, PW CC SURGE TK VALVE, **AND START** Primary Water Pump.	**IF not already performed, Operator OPENs 2DR107.** Operator may report CCW Surge Tank level is rising.		
	3.15	**SEND** Operators to locate leak.	**CUE:** *CRS will dispatch operators to locate leak. You are directed to continue on with procedure.*		
	3.16	Are any Aux Building Sump, RHR Sump, or WHUT levels rising?	YES: Operator checks recorders on 2RP1 back panel and determines that 22 WHUT level is rising. Operator **GOES TO** step 3.19		
	3.17	**DIRECT** NEO to area of suspected leakage.	**CUE**: CRS will direct an NEO to look for leakage.		

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TASK: Respond to CCW Leak Inside Containment IAW S2.OP-AB.CC-0001

* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.18	When the leak is located, ISOLATE the leak using Attachment 3	**CUE**: CRS will direct operators to locate leak using Attachment 3.		
	3.19	Does indication of a CCW leak in Containment exist (e.g., Containment Sump level rise?)	YES: Operator determines CCW leak is in CNTMT due to receiving OHA C-2, CNTMT SUMP PMP START earlier.		
	3.20	**SEND** Operators to walkdown Containment as applicable.	**CUE**: *CRS will assemble a team to walkdown Containment to locate leak. You are directed to continue on with procedure.*		
	CUE	**Simulator Operator:** When the operator commences **step 3.21**, THEN MODIFY RT-1 to the following: **MALF: CC0303 Final Value = 35** **No Ramp**	**Evaluator's Note:** Modifying RT-1 will increase the CCW leak inside Cntmt above the capacity of CCW makeup such that CCW Surge Tank will continue to lower. Following modifying CCW leak, the operator may take the CAS action to Stop RCPs IAW Attachment 2 at any time.		
		ALTERNATE PATH STARTS HERE:	CCW Leak > Makeup Capability		

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	3.21	**ISOLATE** CCW to the Excess Letdown HX by performing the following: **3.21.1 ENSURE** 2CV132, EXCESS LETDOWN is CLOSED. **3.21.2 ENSURE** 2CC215, EXC LHX INLET, is CLOSED. **3.21.3 ENSURE** 2CC113, EXC LHX OUTLET, is CLOSED.	Operator determines all of these valves are already in the CLOSED position, **EXCEPT for 2CC113 which the operator will need to depress the CLOSED PB.**		
	3.22	IF Excess Letdown is in service, **THEN** ISOLATE Excess Letdown flow through the Excess Letdown HX:	N/A: Operator determines that Excess Letdown is not in service and continues on.		
	3.23	Does indication of a CCW leak in Containment still exist with 2CC113, EXC LHX OUTLET, **AND** 2CC215, EXC LHX INLET, closed?	YES: Operator determines that CCW leak inside Containment still exists since not action has been taken to isolate the leak.		
	3.24	IF CC Surge Tank level indication can NOT be maintained >5%, **THEN STOP** RCPs IAW Attachment 2, Stopping Reactor Coolant Pumps.	Operator determines that with 2DR107 makeup valve open AND lowering CCW Surge Tank level, leak exceeds makeup capability and **GOES TO** Attachment 2 to Stop RCPs. **Evaluator's Note**: IF operator goes to Step 3.25 **THEN** see Evaluator's CUE below.		

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	3.25	IF CC Surge Tank level indication can be maintained >5%, THEN **EVALUATE** continued operation of Unit 2 and RCPs.	CUE: IF operator reaches this step, THEN state: ***CRS directs you to perform actions IAW Attachment 2.***		
		S2.OP-AB.CC-0001, Attachment 2	**Stopping RCPs and Isolating CCW to CNTMT**		
*	1.0	IF Reactor Trip Breakers are CLOSED, THEN: A. Manually **TRIP** the Reactor B. Is Reactor Trip confirmed? C. **STOP** affected RCPs	**Operator TRIPs the Reactor using either Rx Trip pistol grip switches.** **Operator confirms Reactor is Tripped** **Operator STOPs ALL RCPs** CUE: WHEN all RCPs are Stopped, THEN state: ***CRS directs you to continue performing Attachment 2 actions and the crew will initiate EOP-TRIP-1.***		
	1.0 Contd.	D. Simultaneously **PERFORM** the following:			

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* #	STEP NO.	STEP (Shaded area denotes Critical Step) (* Critical Step)	STANDARD (Bolded area identifies Task Standard)	EVAL S/U	COMMENTS (Required for UNSAT evaluation)
	❖	IF a total loss of Component Cooling Water was the initiating event (including loss of CCW to the CVCS Letdown Heat Exchanger), **THEN ISOLATE** RCS Letdown **AND SWAP** Charging Pump Suction to RWST as follows:	**N/A**: Operator determines that this step is not applicable at this time, unless the CC leak cannot be isolated. **Evaluator's Note**: A total loss of CCW is defined as no CCW flow due to no pumps running. In this case, CCW leak can be isolated by closing the CNTMT isolation valves.		
*	❖	IF a Component Cooling Water LEAK in Containment with 2CC113 AND 2CC215 closed was the initiating event, **THEN CLOSE** the following valves: • 2CC117, RCP COOLING INLET • 2CC118,, RCP COOLING INLET • 2CC131, RCP THERM BAR CC CONT V • 2CC136, RCP COOLIING OUTLET • 2CC187, RCP COOLING OUTLET • 2CC190, RCP THERM BAR CC OUTLET V	**CUE:** IF the operator initiates Attachment 2 prior to closing 2CC113 and 2CC215, THEN state: ***CRS directs you to Perform this step to close the CC valves.*** **Operator closes all of the valves listed by depressing the CLOSED PB for each valve and verifying the CLOSED PB illuminates.** **When 2CC190 is CLOSED, state JPM is Complete.**		
	❖	**GO TO** 2-EOP-TRIP-1,, Reactor Trip or Safety Injection	**CUE: JPM is complete**		

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	CUE:	JPM is complete when the task is complete OR at the direction from the Lead Evaluator. **RECORD** the STOP TIME. **STOP TIME:**_____	**Terminate the JPM when the operator GOES TO 2-EOP-TRIP-1**		

JPM: 17-01 NRC Sim-h

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.

R 12-5-18

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

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

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

4. Initial setup conditions are identified.

5. Initiating and terminating Cues are properly identified.

6. Task standards identified and verified by SME review.

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

8. Verify the procedure referenced by this JPM matches the most current revision of that procedure: Procedure Rev. _____ Date _____

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

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

NA 11. When JPM is revalidated, SME or Instructor sign and date JPM cover page.

R 12-5-18

SME/Instructor: NA Date: _____

SME/Instructor: _____ Date: _____

SME/Instructor: _____ Date: _____

INITIAL CONDITIONS:

- Unit 2 at 100% power, MOL.
- No equipment is out of service and no active Tech Specs are in effect.

INITIATING CUE:

- You are the Reactor Operator.
- Respond to all alarms and indications.

SALEM

17-01 NRC EXAM

IN-PLANT

JPMs