

Required Operator Actions

Form ES-D-2

Op-Test No.: <u>2012-301</u>

Scenario No.: 7

Event No.: 8

Event Description: DBA SGTR on SG # 3 followed by a FW Line Break after transition to 19030-C, E-3 Steam Generator Tube Rupture. Based on the Foldout Page of 19030-C, the crew will transition back to 19020-C to isolate the faulted steam generator, then back to 19030-C and eventually transition to 19131-C, ECA-3.1 SGTR WITH LOSS OF REACTOR COOLANT: SUBCOOLED RECOVERY DESIRED.

Time	Position	Applicant's Action or Behavior				
		PERFORMS OATC INITIAL ACTIONS				
	OATC	7. Check Containment Ventilation Isolation.				
		a. Dampers and Valves – CLOSED. (NO)				
		CVI MLB indication				
	Critical	a. Perform the following:				
		1) Close Dampers and Valves.				
		2) Start Piping Pen Units.				
		Note to examiner. CVI dampers on pages 57 and 58.				
	OATC	 Check Containment pressure – REMAINED LESS THAN 21 PSIG. (YES) 				
	ОАТС	9. Check ECCS flows:				
		a. BIT flow. (YES)				
		b. RCS pressure – LESS THAN 1625 PSIG. (NO)				
		RNO				
		d. Go to Step 10.				





Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 7

Event No.: 8

Time	Position	Applicant's Action or Behavior			
	OATC	PERFORMS OATC INITIAL ACTIONS 10. Check ECCS Valve alignment – PROPER INJECTION LINEUP INDICATED ON MLBs. (YES)			
	OATC	11. Check ACCW Pumps – AT LEAST ONE RUNNING. (YES)			
	OATC	12. Adjust Seal Injection flow to all RCPs 8 TO 13 GPM.			
	OATC	 Dispatch Operator to ensure one train of SPENT FUEL POOL COOLING in service per 13719, SPENT FUEL POOL COOLING AND PURIFICATION SYSTEM. END OF OATC INITIAL OPERATOR ACTIONS, return to E-0 Step 8. 			





Scenario No.: 7

Event No.: 8

Time	Position	Applicant's Action or Behavior				
	UO	UO INITIAL ACTIONS				
		1. Check AFW Pumps – RUNNING. (YES)				
		MDAFW Pumps				
		TDAFW Pump, if required.				
	UO	 Check NR level in at least one SG – GREATER THAN 10%. (32% ADVERSE) 				
	×	RNO				
1		2. Establish AFW flow greater than 570 gpm by starting pumps and aligning valves as necessary.				



Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 7

Event No.: 8

Event Description: DBA SGTR on SG # 3 followed by a FW Line Break after transition to 19030-C, E-3 Steam Generator Tube Rupture. Based on the Foldout Page of 19030-C, the crew will transition back to 19020-C to isolate the faulted steam generator, then back to 19030-C and eventually transition to 19131-C, ECA-3.1 SGTR WITH LOSS OF REACTOR COOLANT: SUBCOOLED RECOVERY DESIRED.

Time	Position	Applicant's Action or Behavior			
		UO INITIAL ACTIONS			
	UO	3. Check if main steamlines should be isolated: (NO)			
		a. Check for one or more of the following conditions:			
,		Any steamline pressure – LESS THAN OR EQUAL TO 585 PSIG.			
		Containment pressure – GREATER THAN 14.5 PSIG.			
		Low Steam Pressure SI/SLI – BLOCKED AND High Steam Pressure Rate – ONE TWO OR MORE CHANNELS OF ANY STEAMLINE.			
×.		RNO			
		a. Go to Step 4.			
	UO	4. Verify FW Isolation Valves closed: (YES)			
		• MFIVs			
		• BFIVs			
		• MFRVs			
		• BFRVs			





Scenario No.: 7

Event No.: 8

Time	Position	Applicant's Action or Behavior			
		UO INITIAL ACTIONS			
	UO	5. Verify SG Blowdown isolated. (YES)			
		 Place SG Blowdown isolation Valve handswitches HS-7603A, B, C, and D in the CLOSE position. 			
		Note to examiner: The UO will place the HS-7603A valves in the hard closed position.			
		SG Sample Isolation Valves – CLOSED. (YES)			
	UO	6. Verify Diesel Generators – RUNNING. (YES)			
	UO	 Throttle total AFW flow as necessary to maintain SG NR levels between 10% (32% ADVERSE) and 65%. 			
	2	Note to examiner : IF the UO suspects a SGTR into SG # 3, he may request to isolate AFW flow to SG # 3 to assist in determining which SG is ruptured.			
	UO	8. Verify both MFPs – TRIPPED. (YES)			
	UO	9. Check Main Generator Output Breakers – OPEN. (YES)			
		END OF UO INITIAL ACTIONS, return to step 8 of E-0.			





Scenario No.: 7

Event No.: 8

	Time	Position	Applicant's Action or Behavior		
<u>_</u>	43/25	OATC UO	19000-C, E-0 actions beginning with step 8. 8. Initiate the Continuous Actions Page.		
		OATC	9. Check RCS temperature stable at or trending to 557°F. (NO)		
			 IF temperature is less than 557°F and lowering, (it is) THEN perform the following as necessary: 		
			a. Stop dumping steam.		
			b. Perform the following as appropriate:		
			IF at least one SG NR level greater than 10% (32% ADVERSE), THEN lower total feed flow.		
			-OR-		
			If all SG NR levels less than 10% (32% ADVERSE), THEN lower total feed flow to NOT less than 570 gpm.		
			c. If cooldown continues, THEN close MSIVs and BSIVs.		
)			d. If temperature greater than 557°F and rising, THEN dump steam.		



Scenario No.: 7

Event No.: 8

ATC	CAUTION: A PRZR PORV Block Valve which was closed to isolate an excessively leaking or open PRZR PORV should not be opened unless used to prevent challenging the PRZR Safeties.
	 10. Check PRZR PORVs, Block Valves, and Spray Valves: (a) PRZR PORVs - CLOSED AND IN AUTO. (YES) (b) Normal PRZR Spray Valves - CLOSED. (YES) (c) Power to at least one Block Valve - AVAILABLE. (YES) (d) PRZR PORV Block Valves - AT LEAST ONE OPEN. (NO) RNO (d. Verify open at least one PRZR PORV Block Valve when
	Note to examiner : PORV "B" must be manually cycled to control at 2185 psig.



Required Operator Actions

Form ES-D-2

Op-Test No.: <u>2012-301</u>

Scenario No.: 7

Event No.: 8

Event Description: DBA SGTR on SG # 3 followed by a FW Line Break after transition to 19030-C, E-3 Steam Generator Tube Rupture. Based on the Foldout Page of 19030-C, the crew will transition back to 19020-C to isolate the faulted steam generator, then back to 19030-C and eventually transition to 19131-C, ECA-3.1 SGTR WITH LOSS OF REACTOR COOLANT: SUBCOOLED RECOVERY DESIRED.

Time	Position	Applicant's Action or Behavior			
	OATC	11. Check if RCPs should be stopped.			
		a. ECCS Pumps – AT LEAST ONE RUNNING: (YES)			
		CCP or SI Pump			
		b. RCS pressure – LESS THAN 1375 PSIG. (NO)			
		RNO			
		a. Go to Step 12.			
	UO	12. Check SGs secondary pressure boundaries:			
		a. SG Pressures:			
		Any lowering in an uncontrolled manner. (NO)			
		-OR-			
		Any completely depressurized.			
		RNO			
		a. Go to Step 13.			

onne Star SGs are bring routed. Contre-2000 # 355toble

Scenario No.: 7

Event No.: 8

Event Description: DBA SGTR on SG # 3 followed by a FW Line Break after transition to 19030-C, E-3 Steam Generator Tube Rupture. Based on the Foldout Page of 19030-C, the crew will transition back to 19020-C to isolate the faulted steam generator, then back to 19030-C and eventually transition to 19131-C, ECA-3.1 SGTR WITH LOSS OF REACTOR COOLANT: SUBCOOLED RECOVERY DESIRED.

Time	Position	Applicant's Action or Behavior			
Time	UO	 Applicant's Action or Behavior 13. Check SG Tubes intact: a. Direct Chemistry to take periodic activity samples of all SGs one at a time. b. Secondary radiation – NORMAL. (YES, possible to see on a couple of rad monitor trends but none will be in alert) MAIN STM LINE MONITORS: RE-13120 (SG 1) RE-13121 (SG 2) RE-13122 (SG 3) RE-13119 (SG 4) CNDSR AIR EJCTR/STM RAD MONITORS: RE-12839C RE-12839D (if on scale) RE-12839E (if on scale) STEM GEN LIQ PROCESS RAD: RE-0019 (Sample) RE-0021 (Blowdown) SG sample radiation. Check SG levels – ANY RISING IN AN UNCONTROLLED MANNER. (YES) d. Go to 19030-C, E-3 STEAM GENERATOR TUBE RUPTURE. 			

09 49(02) transition to E-3 57

Required Operator Actions

Form ES-D-2

Op-Test No.: <u>2012-301</u>

Scenario No.: 7

Event No.: 8

Time	Position	Applicant's Action or Behavior				
		NOTE to Simbooth : Report back in 20 minutes that SG # 3 shows activity in the samples IF REQUESTED previously.				
SS SS transitions to 19030-C, E-3 STEAM GENERATOR RUPTURE.		SS transitions to 19030-C, E-3 STEAM GENERATOR TUBE RUPTURE.				
		NOTE to Simbooth : Once SS has transitioned to E-3, enter the fault on SG # 3.				

Scenario No.: 7

Event No.: 8

Time	Position		Applicant's Action or Behavior			
, t		VALVE #	DESCRIPTION	LOCATION		
		HV-12975	CNMT AIR RAD MON SPLY ISO IRC	QPCP		
		HV-12976	CNMT AIR RAD MON SPLY ISO ORC	QPCP		
		HV-12977	CNMT AIR RAD MON RTN ISO ORC	QPCP		
		HV-12978	CNMT AIR RAD MON RTN ISO IRC	QPCP		
		HV-2626A	CTB NORM PURGE SPLY IRC ISO VLV- MAIN (Normally de-energized shut)	QHVC (C31)		
		HV-2626B	CTB NORM PURGE SPLY IRC ISO VLV-MINI	QHVC ((C32)		
		HV-2627A	CTB NORM PURGE SPLY ORC ISO VLV- MAIN (Normally de-energized shut)	QHVC (D31)		
	,	HV-2627B	CTB NORM PURGE SPLY ORC ISO VLV-MINI	QHVC (D32)		
		HV-2628A	CTB NORM PURGE EXH IRC ISO VLV- MAIN (Normally de-energized shut)	QHVC (A33)		
		HV-2628B	CTB NORM PURGE EXH IRC ISO VLV-MINI	QHVC ((A34)		
		HV-2629A	CTB NORM PURGE EXH ORC ISO VLV- MAIN (Normally de-energized shut)	QHVC (B33)		
		HV-2629B	CTB MINI PURGE EXH ORC ISO VLV-MINI	QHVC (B34)		
		HV-2624A	CTB POST LOCA PURGE EXH IRC ISO VLV	QHVC (A35)		
		HV-2624B	CTB POST LOCA PURGE EXH IRC ISO VLV	QHVC (B35)		

Scenario No.: 7

Event No.: 8

Time	Positior	n	Applicant's Action or Be	Applicant's Action or Behavior		
		HV-12604	PIPING PEN RM OUTLET ISO DMPR	QHVC (C22)		
		HV-12605	PIPING PEN RM INLET ISO DMPT	QHVC (B22)		
		HV-12606	PIPING PEN RM INLET ISO DMPR	QHVC (B23)		
		HV-12607	PIPING PEN RM OUTLET ISO DMPR	QHVC (C23)		
		HV-12596	RECYCLE HOLD-UP TK-1 ISO VENT VLV	QHVC (E22)		
		HV-12597	RECYCLE HOLD-UP TK-1 ISO VENT VLV	QHVC (E23)	×	
		HS-2548	PIPING PEN RM FLTR & EXH FAN 1	QHVC (A22)		
		HV-2549	PIPING PEN RM FLTR & EXH FAN 2	QHVC (A23)		

Scenario No.: 7

Event No.: 8

Event Description: DBA SGTR actions from 19030-C, E-3 STEAM GENERATOR TUBE RUPTURE to be followed by a Feedline Break IRC.

Time	Position	Applicant's Action or Behavior
	CREW	1. Initiate the following:
		 Continuous Actions and Foldout Page.
		 Critical Safety Function Status Trees per 19200-C, F-O CRITICAL SAFETY FUNCITON STATUS TREE.
	SS	2. Initiate NMP-EP-110, EMERGENCY CLASSIFICATION DETERMINATION AND INITIAL ACTION.
	OATC	3. Maintain Seal Injection flow to all RCPs – 8 to 13 GPM.
	OATC	4. Check if RCPs should be stopped:
	-	a. ECCS Pumps – AT LEAST ONE RUNNING: (YES)
		CCP or Sip Pump
		b. RCS pressure – LESS THAN 1375 PSIG. (NO)
		RNO
		 b. IF RCS pressure lowers to less than 1375 psig prior to initiation of RCS cooldown in Step 17. THEN stop all RCPs and return to Step in effect.
		Go to Step 5.

51(10) actuate SLI, adverse S

Scenario No.: 7

Event No.: 8

Event Description: DBA SGTR actions from 19030-C, E-3 STEAM GENERATOR TUBE RUPTURE to be followed by a Feedline Break IRC.

Time	Position	Applicant's Action or Behavior
	UO	5. Identify ruptured SG(s) by any of the following conditions.
		Unexpected rise in any SG NR level.
		High radiation from any SG sample.
		High radiation from any SG steamline.
		High radiation from any SG blowdown line.
		Note to examiner: SG # 3 level will be rising with AFW flow throttled.
		Note to examiner: Once SG # 3 has been identified, the Simbooth Operator will insert a DBA Feedwater line break on SG # 3 that will require a transition back to 19020-C, E-2 FAULTED STEAM GENERATOR ISOLATION and then back to 19030-C. IF identified earlier in E-0, the Simbooth operator will initiate the FW line break as soon as E-3 is entered.
	UO OATC	Recognize rising steam flow on SGs 1, 2, and 4 and lowering RCS pressure.
	SS	Transitions to 19020-C, E-2 FAULTED STEAM GENERATOR ISOLATION based on Foldout Page Criteria.

0952(38) E-2 transition & Goldont page (N 55)

Op-Test No.: 2012-301

Scenario No.: 7

Event No.: 8 (E-2 Actions)

Time	Position	Applicant's Action or Behavior
	CREW	 Initiate critical safety function status trees per 19200-C, F-O CRITICAL SAFETY FUNCTION STATUS TREE.
	SS	2. Initiate NMP-EP-110, EMERGENCY CLASSIFICATION DETERMINATION AND INITIAL ACTION.
		Note to examiner: The SS will call the Simbooth to have the Shift Manager implement NMP-EP-110.
	OATC	<u>CAUTION</u> : At least one SG should be available for RCS cooldown.
	UO	 Verify Main Steamline Isolation and Bypass Valves – CLOSED. (NO)
	Critical	Note to examiner: Auto actuation of the Main Steamline and Bypasses is defeated. The UO will have to manually actuate SLI to satisfy the critical step.
	UO	4) Check SGs secondary pressure boundaries:\
54/45		(a.) Identify intact SG(s): (# 1, 2, and 4 are intact)
	1	• SG pressures – ANY STABLE OR RISING. (YES)
		b. Identify faulted SG(s).
5415		ANY SG PRESSURE LOWERING IN AN UNCONTROLLED MANNER. (YES, SG # 3)
		-OR-
		ANY SG COMPLETELY DEPRESSURIZED. (maybe by now, SG # 3)

RCP thip criteria > did not perform because E-2 SS (2V?)

Required Operator Actions

Form ES-D-2

Op-Test No.: 2012-301

Scenario No.: 7

Event No.: 8 (E-2 Actions)

Time	Position	Applicant's Action or Behavior
	UO	5. Isolate Main Feedwater to the faulted SG(s):
		Close affected MFIVs:
		HV-5227 (SG 1) HV-5228 (SG 2) HV-5229 (SG 3) HV-5230 (SG 4)
		Close affected BFIVs:
		HV-15196 (SG 1) HV- 15197 (SG 2) HV- 15198 (SG 3) HV- 15199 (SG 4)
	UO	6. Isolate Auxiliary Feedwater to the faulted SG(s):
		Close affected MDAFW Pump Throttle Valves:
55/36	Critical	HV-5139 – SG 1 FROM MDAFW PMP-A HV-5132 – SG 2 FROM MDAFW PMP-B HV-5134 – SG 3 FROM MDAFW PMP-B HV-5137 – SG 3 FROM MDAFW PMP-A
		Close affected TDAFW Pump Throttle Valves:
55/48	Critical	HV-5122 – SG 1 FROM TDAFW HV-5125 – SG 2 FROM TDAFW HV-5127 – SG 3 FROM TDAFW HV-5120 – SG 3 FROM TDAFW
		Note to examiner: The valves bolded above are critical at this time IF not already previously closed.

Scenario No.: 7

Event No.: 8 (E-2 Actions)

Scenario No.: 7

Event No.: 8 (E-2 Actions)

Time	Position	Applicant's Action or Behavior
Time	UO	Applicant's Action or Behavior 13. Initiate checking if SG Tubes intact: (a) Direct Chemistry to take periodic activity samples of all SGs one at a time. (b) Secondary radiation – NORMAL. (NO) (b) Secondary radiation – NORMAL. (NO) (c) JES • MAIN STM LINE MONITORS • RE-13120 (SG 1) • RE-13121 (SG 2) • RE-13122 (SG 3) • RE-13119 (SG 4) • CNDSR AIR EJCTR/STM RAD MONITORS: • RE-12839C • RE-12839D (if on scale) • RE-12839E (if on scale) • STM GEN LIQ PROCESS RAD: • RE-0019 (Sample) • RE-0021 (Blowdown)
	SS	 G sample radiation. C. Check SG levels – ANY RISING IN AN UNCONTROLLED MANNER. (YES) d. Go to 19030-C, E-3 STEAM GENERATOR TUBE RUPTURE.
	SS	Transitions back to 19030-C, E-3 STEAM GENERTOR TUBE RUPTURE.

59(45) E-3 good diagnosis 55/

Op-Test No.: <u>2012-301</u>

Scenario No.: 7

Event No.: 8

Time	Position	Applicant's Action or Behavior
00 (22)	CREW	 Initiate the following: Continuous Actions and Foldout Page. Critical Safety Function Status Trees per 19200-C, F-O CRITICAL SAFETY FUNCITON STATUS TREE.
	SS	2. Initiate NMP-EP-110, EMERGENCY CLASSIFICATION DETERMINATION AND INITIAL ACTION.
	OATC	3. Maintain Seal Injection flow to all RCPs – 8 to 13 GPM.
	OATC	 4. Check if RCPs should be stopped: (a) ECCS Pumps – AT LEAST ONE RUNNING: (YES) CCP or Sip Pump (b) RCS pressure – LESS THAN 1375 PSIG. (YES) (c) Stop all RCPs.

10 01 (45) stop & RCPs Я

Scenario No.: 7

Event No.: 8

Scenario No.: 7

Event No.: 8

Time	Position	Applicant's Action or Behavior
		CAUTION: If TDAFW Pump is the only available AFW pump, maintain at least one steam supply OPEN.
	UO	7. Close affected TDAFW Pump Steam supply valve(s): (N/A) HV-3009 (SG 1) LP-1 MS SPLY TO AUX FW TD PMP-1. HV-3019 (SG 2) LP-2 MS SPLY TO AUX FW TD PMP-1.
	UO	8. Verify SG Blowdown Isolation Valves – CLOSED WITH HANDSWITCHES IN CLOSE POSTION.
	OATC	9. Isolate flow from the ruptured SG(s) by closing its Main Steamline isolation and Bypass Valves.

Scenario No.: 7

Event No.: 8

Time	Position	Applicant's Action or Behavior
		 CAUTIONS: This procedure should be performed in a timely manner to assure that break flow in the ruptured SG(s) is terminated before water enters the SGs main steam piping. Any ruptured SG that is also faulted, should remain isolated during subsequent recovery actions unless needed for RCS cooldown or SG activity sample.
	UO	10. Check ruptured SG(s) level:
		(a.) SG NR level – GREATER THAN 10% (32% ADVERSE). (NO)
		b. Stop feed flow to ruptured SG(s).
		Note to examiner: AFW flow should remain isolated to SG # 3 due to the CAUTIONS above.
	UO	11. Check ruptured SG(s) pressure – GREATER THAN 290 PSIG. (NO)
		RNO
	SS	11. Go to 19131-C, ECA-3.1 SGTR WITH LOSS OF REACTOR COOLANT SUBCOOLED RECOVERY DESIRED.
		END OF EVENT 8, END OF THE SCENARIO.

simulator > Greeje 1009.

66

Largel ZERO Every day, every job, safety	NUCLEAR SAFETY FOCUS TARGET ZERO
Protecto	EOOS: Green Alpha Yellow Bravo Orange Red
Plant Conditions:	29 % power BOL.
Major Activities:	Initiate power ascent UOP 12004-C section 4.1 for Power Ascent at a rate not to exceed 8% per hour. Step 4.1.40 has been performed. Step 4.1.41 is the next procedure plateau.
Active LCOs:	LCO 3.5.2 Condition A is in effect due to SIP A tagged out.
OOS/ Degraded CR Instruments:	□ None
Narrative Status:	 Containment mini-purge is in service for a planned Containment Entry on next shift. SIP A is tagged out for motor repair, expected return to service time is 24 hours with 48 hours left on a shutdown LCO of 72 hours. MFPT B will be placed in service at 55% power per UOP step 4.1.45. The remnants of Hurricane Maya are passing through, severe weather and thunderstorms will be in the area for the next 8 hours. The Severe Weather Checklist is in effect. Power Range high level trip bistables are set at 90%.

