SIMULATOR EXAMINATION SCENARIO

SCENARIO TITLE: DBLOCA/Loss of CL Recirc.

SCENARIO NUMBER: GOLF NRC ESG1

EFFECTIVE DATE: Per Approval Signatures

EXPECTED DURATION: 75-90 minutes

REVISION NUMBER: DRAFT

PROGRAM:

- [ ] **L.O. REQUAL**
- [X] **INITIAL LICENSE**
- [ ] **STA**
- [ ] **OTHER** _____

Revision Summary

PREPARED BY:	JK Lloyd/F. Kaminski **(DEVELOPER)**	7/3/02 **(DATE)**
REVIEWED BY:	W. Detwiler on telecon **(EP REPRESENTATIVE)**	10-18-02 **(DATE)**
APPROVED BY:	G. Galler **(TRAINING SUPERVISOR)**	10-25-02 **(DATE)**
APPROVED BY:	S. Sawer on telecon **(OPS MANAGER OR DESIGNEE)**	10-18-02 **(DATE)**

I OBJECTIVES

Enabling Objectives

A. Perform a power ascension IAW S2.OP-IO.ZZ-0004
B. Take corrective action for a failed IRNIS detector IAW S2.OP-AB.NIS-0001
C. Evaluate and implement required Technical Specifications
D. Respond to failure of a PZR level channel IAW S2.OP-AR.ZZ-0012
E. Respond to loss of a Circulating Water Pump Bus IAW S2.OP-AB.CW-0001
F. Isolate steam flow to the main turbine IAW the immediate actions of TRIP-1
G. Enter and execute the EOP network IAW SC.OP-AP.ZZ-0102
H. Respond to a DBA LOCA IAW 2-EOP-TRIP-1 and 2-EOP-LOCA-1
I. Take compensatory action for loss of both RHR Pumps IAW 2-EOP-LOCA-5

II MAJOR EVENTS

A. Power ascension
B. IRNIS Channel N35 fails.
C. Controlling PZR level channel fails HI
D. Loss of multiple Circulators/lowering condenser vacuum requires MANUAL Rx trip
E. AUTO and MANUAL turbine trips fail
F. Large break LOCA
G. 21 SI Pump fails to start
H. Loss of CL recirculation capability

III SCENARIO SUMMARY

The scenario begins with directions for power ascension at 5% per hour. 22 SI Pump is C/T for bearing replacement and 21B Circulator is C/T for screen repairs.

On cue from the Lead Evaluator, IRNIS channel N35 will fail high. The crew should respond IAW S2.OP-AB.NIS-0001, remove channel from service and implement the correct technical specification(s). Later in the scenario this failure will require the RO to manually re-instate the SRNIS detectors.

After the plant is stable, the controlling PZR level instrument fails high. The crew should respond IAW the console alarm procedure and select another channel for control.

Loss of Circulating Water Pump Bus Section 23 and/or lowering condenser vacuum will require a MANUAL reactor trip. The Main Turbine AUTO and MANUAL trips will fail resulting in a HI Steam Flow/LO-LO Tavg SI. The RO will have to manually initiate Main Steam Line Isolation (MSLI). The crew should perform actions IAW EOP-TRIP-1. 21 SI Pump and 21 RHR Pump fail to start on the SEC signal. The crew should manually start 21 SI Pump to ensure one full train of ECCS equipment but 21 RHR Pump will not start. During TRIP-1 implementation, the crew should recognize and respond to a DBA LOCA. Two functional restoration procedures may be entered (FRTS-1, FRCE-1) but operator actions are minimal.

At the appropriate point, the crew will transition from TRIP-1 to LOCA-1. 2B 4KV Vital Bus will trip on electrical fault during the execution of LOCA-1, resulting in loss of cold leg recirculation capability. The crew should transition to LOCA-5 at the appropriate step. The Lead Evaluator can terminate the scenario at any point after the CS flow reduction steps have been completed.

IV INITIAL CONDITIONS

____ IC-181 - EOL, 68 ppm, 820 MWe

MALFUNCTIONS:

SELF-CHECK	Description	Delay	Ramp	Trigger	Severity
____ 1.	SJ0184A 21 SIP fails to start on SEC	N/A	N/A	N/A	
____ 2.	RH0026A 21 RHR Pump trip	N/A	N/A	N/A	
____ 3.	RP0069 MT INT Vlv's failure	N/A	N/A	N/A	
____ 4.	RP0073 MT Trip failures	N/A	N/A	N/A	
____ 5.	RP0279A Train A AUTO MSLI fails	N/A	N/A	N/A	
____ 6.	RP0279B Train B AUTO MSLI fails	N/A	N/A	N/A	
____ 7.	NI0197A N35 IRNIS channel fails HI	N/A	N/A	RT-1	100
____ 8.	PR0017A PZR Level Ch I fails HI	N/A	N/A	RT-2	100
____ 9.	EL0053 Loss of CW Pump Bus Section 23	N/A	N/A	RT-3	
____ 10.	CN0086 Loss of Condenser Vacuum	N/A	3 min.	RT-3	90
____ 11.	RC0001A RCS loop 21 rupture	N/A	N/A	RT-4	
____ 12.	EL0145 Loss of 2B 4KV Vital Bus	N/A	N/A	RT-5	

REMOTES:

SELF-CHECK	Description	Delay	Ramp	Trigger	Condition
____ 1.	SJ17D: 22 SI Pump Control Power	N/A	N/A	N/A	OFF
____ 2.	SJ18D: 22 SI Pump Brkr racked out	N/A	N/A	N/A	Tagged

OVERRIDES:

SELF-CHECK	Description	Delay	Ramp	Trigger	Action
____ 1.	CM04 OVDI 21B CIRC START	N/A	N/A	N/A	OFF

TAGGED EQUIPMENT:

SELF-CHECK	Description
____ 1.	RH1 and RH2 (C/T)
____ 2.	VC 1-4 (C/T)
____ 3.	RH 18's (C/T)
____ 4.	RCPs (SELF CHECK)
____ 5.	RT (SELF CHECK)
____ 6.	MS 167s (SELF CHECK)
____ 7.	500 KV SWYD (SELF CHECK)
____ 8.	SGFP TRIP (SELF CHECK)
____ 9.	22 ABV Supply Fan (C/T)
____ 10.	23 Charging Pump (C/T)
____ **11.**	**22 SI Pump**
____ **12.**	**21B Circulator**

OTHER CONDITIONS:

	Description
____ 1.	Place plastic cover over 22 SI Pump
____ 2.	Place plastic cover over 21B CW Pump

V SEQUENCE OF EVENTS

A. State shift job assignments:

B. Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet)

C. Inform the crew "The simulator is running. You may commence panel walkdowns at this time. OS please inform me when your crew is ready to assume the shift".

D. Allow sufficient time for panel walk-downs. When informed by the OS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
1. Power Ascension	**CRS** specifies rate of change **CREW** notifies the Systems Operator and the Condensate Polishing Operator of the upcoming power ascension **PO** raises Turbine load: • Initiates monitoring the Main Turbine Data display points on the Plant Computer • Clears Valve Position Limiter • Uses the REF ▲ and GO pushbuttons to attain desired load	
Initiate the next event (RT-1) on cue from the Lead Evaluator	**RO** maintains T_{AVG}/T_{REF} and AFD within the target band using Auto Rod motion.	
RT-1 IRNIS Channel N-35 fails MALF NI0297A; SEV=100	**RO** responds to: • Console indication • Bistable trip • E Window alarm **CRS** enters AB.NIS-1 **RO** reports PRNIS has NOT failed **PO** stops power change **RO** reports IRNIS N-35 has failed high **CREW** enters S2.OP-SO.RPS-0001 to remove channel from service **RO** verifies N-35 not selected on recorder **CRS** enters TSAS 3.3.1.1. act. 3 **PO** places Level Trip Switch in BYPASS at the N-35 drawer **RO/PO** verifies proper bistable tripped **PO** removes instrument fuses at N-35	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	drawer	
Initiate next event (RT-2) on cue from the Lead Evaluator		
RT-2: PZR Level Ch I Fails HI **MALF PR0017A; SEV=100**	**CREW** responds to OHA E-36	
	RO diagnoses PZR level channel failure	
	CREW enters ARP for OHA E-36 and/or console alarm	
	RO takes MANUAL control of Master Flow Controller	
	RO selects an operable channel for Control, Alarm, and Recorder	
	RO restores PZR heaters to normal	
NOTE: Bistables need not be tripped to continue the scenario.	**CRS** contacts I&C to remove PZR level channel from service IAW SO.RPS-0003	
Initiate RT-3 on cue from the Lead Evaluator	**CRS** enters TSAS(s) 3.3.1.1 Action 6# and may review 3.3.3.7 (PAM -only two PZR Level Channels are required)	
RT-3: Loss of Circulator Bus Section 23 **MALF EL0053** **MALF CN0086, 90%, 3 min. ramp**	**CREW** responds to alarms and/or rising backpressure	
	PO reports loss of Bus Section 23 and all ALPHA Circulators	
	CRS enters AB.CW-0001	
	PO/CRS initiate Att. 1	
	CRS orders a MANUAL Reactor Trip due to rising backpressure	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	RO trips reactor and performs immediate actions: • Trip reactor/confirmation • Trip turbine-notes turbine did not trip • Attempts turbine trip by bezel PB • Initiates MSLI • All 4KV busses energized • SI actuated	
	RO verifies immediate actions	
	CRS transitions back to TRIP-1	
	RO/PO report 21 SI Pump and 21 RHR Pump failed to start	
	PO blocks 2A SEC	
	PO resets 2A SEC	
Initiate RT-4: LBLOCA on cue from Lead Evaluator but not until 2A SEC is reset **MALF RC0001A**		
CT#1: Establish at least one full complement of injecting ECCS equipment before transitioning from TRIP-1 to LOCA-1 **SAT_____UNSAT_____**	**RO** starts 21 SI Pump	
	RO reports 21 RHR Pump tripped	
	RO stops RCP's IAW CAS	
	RO closes CV139 and CV140 IAW CAS	
	RO starts 21 CS pump	
	PO throttles AFW flow	
	PO should be directed or request permission to open the Mn Gen Brkr's (1-9 and 9-10)	
	CRS transitions to FRTS-1	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	CRS exits FRTS-1 based on RHR flow	
NOTE: Depending on crew response time, the PURPLE PATH may clear before FR transition is permitted	**CRS** transitions to FRCE-1	
	CREW completes FRCE-1 and CRS transitions back to TRIP-1	
NOTE: This will occur at the 15-20 minutes point after the reactor trip	**RO** manually reinstates SRNIS	
	CREW performs steps of TRIP-1 and transitions to LOCA-1 at Step 28	
NOTE: Depending on crew response time, the RWST LO Level alarm may actuate before LOCA-1 is completed. In that case the crew would transition directly to LOCA-3	**RO/PO** perform SI reset actions • Reset SI • Reset Phase A • Reset Phase B • Open 21 and 22CA330 • Reset 2B and 2C SEC's • Verify 230V Control Ctr's reset	
	RO opens 21-24SS94 (SG Sample Vlv's)	
	RO reports RCS subcooling not >0	
RT-5: Loss of 2B 4KV Vital Bus		
	RO reports flow on RHR Flow Meters	
Initiate RT-5 after all EDG's are stopped OR just after transition to LOCA-3 **MALF EL0145**		
	PO stops all EDG's	
	RO reports no RHR Pumps available	
	RO closes 21&22CC16 (CCW to RHR HX)	
	CRS transitions to LOCA-5	
	RO/PO verify SI Reset actions	
	CRS sends NEO to Reset "B" SEC	
	RO initiates makeup to RWST	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	RO reports no train of emergency recirculation available	
	PO reports Steam Dumps not available	
	PO opens 21-24MS10	
NOTE: Evaluators should check Table C against existing conditions	**CRS** reviews Table C and determines no CS Pump required	
	RO resets CS Actuation	
CT#2: Crew conserves RWST inventory by running only the required number of CS Pumps **SAT_____UNSAT_____**	**RO** stops both CS Pumps	
	RO closes 21 and 22CS2	
	CREW maintains 22 CCP in service	
Terminate the scenario at Lead Evaluator discretion		

VII SCENARIO REFERENCES

A. Alarm Response Procedures (Various)
B. Technical Specifications
C. Emergency Plan (ECG)
D. SC.OP-AP.ZZ-0102(Q), Use of Procedures
E. S2.OP-IO.ZZ-0004, Power Operation
F. S2.OP-AB.NIS-0001, Nuclear Instrumentation Malfunction
G. S2.OP-AB.COND-0001, Condenser Malfunction
H. S2.OP-AB.CW-0001, Circulating Water System Malfunction
I. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
J. 2-EOP-FRTS-1, Response to Imminent PTS Conditions
K. 2-EOP-FRCE-1, Response to Excessive Containment Pressure
L. 2-EOP-LOCA-1, Loss of Reactor Coolant
M. 2-EOP-LOCA-5, Loss of Emergency Recirculation

VIII CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigation capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...

- degradation of any barrier cooling system (ECCS) or emergency power capacity
- a violation of a safety limit
- a violation of the facility lice to fission product release
- degraded emergency core nse condition
- incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
- a significant reduction of safety margin beyond that irreparably introduced by the scenario

A. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...

- effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
- recognize a failure or an incorrect automatic actuation of an ESF system or component.
- take one or more actions that would prevent a challenge to plant safety.
- prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation.

VIII ESG - CRITICAL TASKS

CT#1 – Start 21 SI Pump to establish at least one full train of injecting ECCS equipment prior to permanently exiting TRIP-1

CT#2 – Stop both CS Pumps to minimize flow out of the RWST until emergency recirculation capability can be restored

IX ESG - PSA RELATIONSHIP EVALUATION

SALEM ESG - PRA RELATIONSHIPS EVALUATION FORM

EVENTS LEADING TO CORE DAMAGE

Y/N	EVENT
N	TRANSIENTS with PCS Unavailable
N	Steam Generator Tube Rupture
N	Loss of Offsite Power
N	Loss of Switchgear and Pen Area Ventilation
Y	LOCA
N	Loss of Service Water
N	Loss of CCW
N	Loss of Control Air
N	Station Black Out

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	COMPONENT, SYSTEM, OR TRAIN
N	Containment Sump Strainers
N	SSWS Valves to Turbine Generator Area
N	RHR Suction Line valves from Hot Leg
N	CVCS Letdown line Control and Isolation Valves
N	Gas Turbine
N	Any Diesel Generator
Y	Auxiliary Feed Pump
N	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
N	Cooldown the RCS and depressurize the system
N	Isolate the affected Steam generator which has the tube ruptures
N	Early depressurize RCS
Y	Initiate feed and bleed

X

UNIT TWO PLANT STATUS TODAY

MODE: 1 **POWER:** 60% **RCS BORON:** 1256 **MWe:** 630

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

REACTIVITY PARAMETERS

Core Burnup: 4000 MWD/MTU

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

3.5.2.a (22 SI Pump) – 60 hours remaining. Bearing replacement, expected back in 12 hours.

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

Raise power at 5%/hr Reactor Engineering recommends diluting 130 gals/ percent power. Also recommends using control rods for first 5% power rise, OS agrees.

ABNORMAL PLANT CONFIGURATIONS:

RMS Channels R41A-D out of service, ODCM 3.3.3.9 in effect.

CONTROL ROOM:

Unit 1 and Hope Creek at 100% power.
No penalty minutes in the last 24 hrs.

PRIMARY:

None

SECONDARY:

Heating steam is aligned to Unit 1

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

21B Circulator is C/T for screen repairs

SIMULATOR READY-FOR-TRAINING CHECKLIST		
	1.	Verify simulator is in correct load for training
	2.	All required computer terminals in operation
	3.	Simulator clocks synchronized
	4.	Required chart recorders advanced and ON (proper paper installed)
	5.	Rod step counters correct (channel check)
	6.	All tagged equipment properly secured and documented (TSAS Log filled out)
	7.	DL-10 log up-to-date
	8.	Required procedures clean
	9.	All OHA lamps operating (OHA Test)
	10.	All printers have adequate paper AND functional ribbon
	11.	Procedure pens available
	12.	Procedures in progress open and signed-off to proper step
	13.	Shift manning sheet available
	14.	SPDS reset
	15.	Reference verification performed with required documents available
	16.	Ensure a current RCS Leak Rate Worksheet with Baseline Data is by Aux Alarm Typewriter
	17.	Required keys available
	18.	Video Tape (if applicable)
	19.	Ensure ECG Classification is correct - - 960502140 CRCA-03
	20.	Reset P-250 Rod Counters
	21	Verify phones are connected to simulator, not live to plant after a drill

SIMULATOR EXAMINATION SCENARIO

SCENARIO TITLE: SGTR

SCENARIO NUMBER: GOLF NRC ESG2

EFFECTIVE DATE: Per Approval Signatures

EXPECTED DURATION: 75-90 minutes

REVISION NUMBER: 0

PROGRAM:

- [ ] **L.O. REQUAL**
- [X] **INITIAL LICENSE**
- [ ] **STA**
- [ ] **OTHER** _____

Revision Summary

PREPARED BY:	JK Lloyd/F. Kaminski **(DEVELOPER)**	7/17/02 **(DATE)**
REVIEWED BY:	W. Detwiler on Telecon **(EP REPRESENTATIVE)**	10-18-02 **(DATE)**
APPROVED BY:	 **(TRAINING SUPERVISOR)**	10-25-02 **(DATE)**
APPROVED BY:	S. Sauer on Telecon **(OPS MANAGER OR DESIGNEE)**	10-18-02 **(DATE)**

I. OBJECTIVES

Enabling Objectives

A. Respond to a pressurizer pressure channel failure IAW S2.OP-AB.PZR-0001

B. Apply technical specifications

C. Respond to closure of the RCP Thermal Barrier HX Return Valve (2CC131) IAW the associated Alarm Response Procedure and S2.OP-AB.RCP-0001

D. Respond to trip of a circulating water pump IAW S2.OP-AB.CW-0001

E. Reduce power IAW S2.OP-IO.ZZ-0004 and/or S2.OP-AB.LOAD-0001

F. Respond to trip of the operating charging pump

G. Initiate a reactor trip IAW the S2.OP-AB.RCP-0001

H. Respond to a 21 SG tube leak progressing to a SGTR IAW the EOP network and/or S2.OP-AB.SG-0001

I. Take corrective action for failure of 2C SEC

J. Take corrective action for failure of 21MS167

II. MAJOR EVENTS

A. Pressurizer Pressure Channel I fails HI

B. Instrument failure causes 2CC131, RCP Thermal Barrier HX Return Valve, to close

C. Trip of 21B Circulator requires a power reduction

D. Trip of the operating charging pump results in loss of RCP seal injection with no CCW to the thermal barriers

E. MANUAL reactor trip and stop of all RCP's

F. Progressing 21 SG Tube Leak results in MANUAL or AUTO SI

G. 2C Safeguards Equipment Cabinet (SEC) fails to actuate

H. 21 SG MSIV (21MS167) fails to close

III. SCENARIO SUMMARY

The crew assumes the watch with directions to maintain 100% power. A power reduction is scheduled for later this shift to allow replacement of an electronic component in the 21 SGFP speed control system. The OS is expecting a call from the OM and will inform them when to start the power reduction. Both 21 AFW Pump and 21A Circulator are OOS for maintenance.

On cue from the Lead Evaluator the controlling PZR pressure channel fails high. The crew should respond IAW S2.OP-AB.PZR-0001. When PZR PRESS control is returned to AUTO and on cue from the Lead Evaluator, an RCP Thermal Barrier leak will cause a HI DISCHARGE FLOW alarm to actuate on the CCW section of the console. The crew will enter the alarm response procedure (ARP) and determine that the RCP Thermal Barrier HX CCW Return Valve (2CC131) should have closed. The RO should take manual control of 2CC131 and close it. Then the crew should enter S2.OP-AB.RCP-0001, RCP Malfunction.

On cue from the Lead Evaluator 21B Circulator breaker trips open. S2.OP-AB.CW-1 requires a power reduction because neither circulator is running on 21 Condenser. The crew should initiate a power reduction IAW S2.OP-IO.ZZ-0004 and/or S2.OP-AB.LOAD-0001.

On cue from the Lead Evaluator the operating charging pump trips, resulting in a loss of seal injection with no CCW flow through the thermal barrier HX's of all RCP's. The crew should initiate a manual reactor trip, stop all RCP's, enter EOP-TRIP-1 (TRIP-1) and then transition to TRIP-2. Coincident with the reactor trip, a progressive tube leak begins in 21 SG. The crew should recognize the tube leak, initiate a manual safety injection and then transition back to TRIP-1. 2C SEC fails to start loads when SI actuates. The crew should take the actions necessary to start 2C Vital Bus equipment. They will continue to the diagnostic section of TRIP-1 and transition to SGTR-1. The crew unsuccessfully attempts to close 21MS167 and therefore must close the other MS167's. The crew should trip the SDAFW Pump to terminate that release path.

The Lead Evaluator can terminate the scenario at any point after the SDAFW Pump is tripped.

IV. INITIAL CONDITIONS

____ IC-182, 100% power

MALFUNCTIONS:

SELF-CHECK	Description	Delay	Ramp	Trigger	Severity
____ 1.	MS0092E: 21MS167 cannot be closed	N/A	N/A	N/A	N/A
____ 2.	CC0326 2CC131 Fails to Auto Close	N/A	N/A	N/A	N/A
____ 3.	PR0016A PP Ch I (PT455) fails HI	N/A	N/A	RT-1	2500
____ 4.	RC0013A 21 RCP Thermal Barrier fails.	N/A	N/A	RT-2	205
____ 5.	CW0114B 21B Circulating Water Pump trips	N/A	N/A	RT-3	10
____ 6.	CV0208A: 21 CCP breaker trips	N/A	N/A	RT-4	
____ 7.	SG0078A: 21 Steam Generator Tube Rupture	N/A	N/A	ET-1	650
____ 8.	RP318S2 22 Chg Pmp fails to start on SEC	N/A	N/A	N/A	N/A
____ 9.	RP318R2 21 SI Pmp fails to start on SEC	N/A	N/A	N/A	N/A
____ 10.	RP318B3 Prim SW Pmp 25 fails to start on SEC	N/A	N/A	N/A	N/A
____ 11.	RP318C3 ALT SW Pmp 25 fails to start on SEC	N/A	N/A	N/A	N/A
____ 12.	RP318D3 25 CFCU Low Speed fails to start on SEC	N/A	N/A	N/A	N/A
____ 13.	RP318D5 25 CFCU Low Speed fails to start on SEC	N/A	N/A	N/A	N/A
____ 14.	RP318M1 Emerg Cntrl Air Compr fails to start on SEC	N/A	N/A	N/A	N/A
____ 15.	RP318G1 21 Aux Bldg Supply Fan fails to start on SEC	N/A	N/A	N/A	N/A
____ 16.	RP318F3 23 Chiller fails to start on SEC	N/A	N/A	N/A	N/A
____ 17.	RP318G5 23 Aux Bldg Exhaust Fan fails to start on SEC	N/A	N/A	N/A	N/A

REMOTES:

SELF-CHECK	Description	Delay	Ramp	Trigger	Condition
____ 1.	AF21D 21 AFWP				TAGGED
____ 2.	AF20D 21 AFWP Control Power				OFF
____ 3.	PR34D PORV Stop Valve 2PR6 Tagged				TAGGED

OVERRIDES:

SELF-CHECK	Description	Delay	Ramp	Trigger	Action
____ 1.	CM02 OVDI 21A Circ Start	N/A	N/A	N/A	OFF

TAGGED EQUIPMENT:

SELF-CHECK	Description
____ 1.	RH1 and RH2 (C/T)
____ 2.	VC 1-4 (C/T)
____ 3.	RH 18's (C/T)
____ 4.	RCPs (SELF CHECK)
____ 5.	RT (SELF CHECK)
____ 6.	MS 167s (SELF CHECK)
____ 7.	500 KV SWYD (SELF CHECK)
____ 8.	SGFP TRIP (SELF CHECK)
____ 9.	22 ABV Supply Fan (C/T)
____ 10.	23 Charging Pump (C/T)
____ **11.**	**21A Circulator**
____ **12.**	**21 Aux Feedwater Pump**

OTHER CONDITIONS:

	Description
____ 1.	Ensure 21 CCP I/S
____ 2.	Ensure PP Ch I selected for control

V SEQUENCE OF EVENTS

State shift job assignments:

Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet)

Inform the crew "The simulator is running. You may commence panel walkdowns at this time. OS please inform me when your crew is ready to assume the shift".

Allow sufficient time for panel walk-downs. When informed by the OS that the crew is ready to assume the shift. ensure the simulator is cleared of unauthorized personnel.

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
RT-1: Pressurizer Pressure Channel I fails high **MALF: PR0016A, Severity: 2500**	**CREW** responds to indications/alarms • OHA D-8, RC PRESS HI • OHA E-42, 2PR1 1/2 • RC PRESSURE DEVIATION HI console alarm • PS1 & 2 full open • Actual PZR pressure lowering **RO** responds to the transient: • Evaluates indications and determines PP Channel I failed • Obtains concurrence of the **CRS** and places the Master Pressure Controller in MANUAL • Closes both Spray Valves and energizes all PZR Heaters by depressing the PRESSURE INCREASE pushbutton **CRS** enters AB.PZR-1, Pressurizer Pressure Malfunction. **RO** selects PP Channel III to CONTROL **RO** returns Master Pressure Controller to AUTO **CRS** directs **RO** to place 2PR1 in MANUAL and close 2PR6	
RT-5: PR34D 2PR6 C/T	**CRS** directs WCC or a NEO to remove power from 2PR6 **CRS** initiates actions of S2.OP-SO.RPS-0003, Placing PZR Channel in Tripped Condition **CREW** notifies I&C for assistance	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
NOTE: If pressure falls below 2205 psig, the DNB LCO (3.2.5) also applies	**CRS** reviews and enters Tech Specs. • 3.3.1.1 Action 6 • 3.3.2.1 Action 19 • 3.4.5 Action b	
Initiate the next event after TSAS determination(s) and on cue from the Lead Evaluator		
RT-2: RC0013A 21 RCP Thermal Barrier HX fails **Severity 205**		
	RO responds to DISCHARGE FLOW HI bezel alarm	
	CREW enters ARP	
	RO places 2CC131 in MANUAL and closes	
	CRS enters AB.RCP-1	
	RO/CRS implement Attachment 1	
	RO monitors RCP parameters	
	RO reports seal water flow available to all RCP's	
	CRS initiates actions to send operators into CNMT for thermal barrier isolation activities	
Initiate the next event on cue from the Lead Evaluator		
RT-3:CW0114B 21B Circulator trips		
	PO responds to console alarm	
	CREW enters AB.CW-1	
	CREW implements Attachment 1	
	PO reports no indication of pipe rupture	
	PO reports 21A and 21B Circulators OOS	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	PO reports four circulators I/S	
NOTE: At this point, a load reduction may not be required to maintain back pressure within limits	**CRS** directs load reduction IAW Attachment 4	
	PO reports no circulators running on 21 Condenser	
	PO reports 21 HD Pump running	
NOTE: CRS may direct entry into AB.LOAD-1	**CRS** directs a power reduction to <850 MWe at ≤5%/minute	
	PO initiates load reduction at specified rate	
	RO initiates boration, monitors Tavg and rod motion	
Initiate the next event on cue from the Lead Evaluator		
RT-4: CV0208A 21 CCP trips		
	RO/PO responds to console alarm	
	CREW returns to AB.RCP-1 CAS (Att. 1)	
	RO reports no seal water or thermal barrier flow	
	CRS directs reactor trip	
ET-1: SG0078A SGTL on 21 SG, SEV=650 gpm	**RO** initiates a MANUAL reactor trip	
	RO stops all four RCP's	
	RO completes IA's of TRIP-1 from memory: • Reactor trip • Reactor Trip confirmed • Trip Turbine • At least one vital bus energized • SI actuation (NO)	
	CRS enters TRIP-1	
	CRS transitions to TRIP-2	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
NOTE: Crew may report 21 SGTR symptoms at any point	**RO** makes page announcement	
	CRS directs OS to implement the ECG	
	PO stops both SGFPs	
	RO verifies Tavg trending to 547°F	
	RO verifies both reactor trip breakers open	
	PO verifies all rods inserted	
	PO closes 21-24BF22	
	RO verifies PZR level >17%	
	RO verifies Charging and Letdown in service	
	RO monitors PZR pressure status	
	RO/CREW notes SGTR symptoms	
	CRS directs RO to initiate a MANUAL SI based on TRIP-2 CAS	
	RO initiates a MANUAL SI	
	CRS transitions to TRIP-1 **CRS** reviews TRIP-1 immediate actions	
	RO makes page announcement	
	RO/PO verify SEC loading, reports incomplete loading on 2C 4KV Vital Bus	
	PO blocks 2C SEC	
	PO resets 2C SEC	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
CT#1: Start 22 CCP to provide high head injection prior to exiting TRIP-1 **SAT_____UNSAT_____**	**RO/PO** start TABLE A loads or verifies equipment running: • 240/480V Brkr • 22 CCP • 22 SIP • 25 or 26 SWP • 23 and 25 CFCU in LOW • 2 ECAC • 21 AUX BLDG SUP FAN • 23 AUX BLDG EXH FAN • 23 Chiller **PO** reports 22 AFW Pump running **RO** closes CV139 and CV140 when/if RCS pressure lowers <1500 PSIG **PO** verifies valves in Safeguards alignment **RO** closes 21/22CA330 **RO** verifies CS not required **RO** reports MSLI not required **RO** reports two CCW Pumps operating **RO** reports adequate ECCS flow **PO** reports total AFW flow >22E04 and may throttle to maintain level **RO** reports both RTB's open **PO** reports both PZR PORV's closed **RO** reports no SG faulted	
CT#2: Close 21AF11 and 21AF21 within no later than 10 minutes after SGTR identification **TIME:** **SAT_____UNSAT_____**	**PO** reports 21 SG rising in an uncontrolled manner	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	CREW transitions to SGTR-1	
	PO sets 21MS10 to 1045 PSIG	
NOTE: May attempt MSLI for 21 Loop also.	**PO** Attempts to close 21MS167 and reports 21MS167 is not closed	
	PO closes: • 22-24MS167's and MS18's • 21-24MS7 • 21/22MS26	
	CRS dispatches operators with RP support to close Table A valves	
	PO reports 21 SG ruptured	
	PO reports 23 AFW NOT the only source of AFW	
	PO lowers 23 AFW Pump speed to minimum	
CT#3: Perform control room action to eliminate a release path by tripping 23 AFW Pump at the point the step is read **SAT_____UNSAT_____**	**PO** trips 23 AFW Pump	
Terminate scenario at Lead Evaluator discretion	**CRS** dispatches operator with RP support to close 21MS45	

VII SCENARIO REFERENCES

A. Alarm Response Procedures (Various)
B. Technical Specifications
C. Emergency Plan (ECG)
D. SC.OP-AP.ZZ-0102(Q), Use of Procedures
E. S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction
F. S2.OP-AB.RCP-0001, RCP Abnormality
G. S2.OP-AB.CW-0001, Circulating Water System Malfunction
H. S2.OP-AB.LOAD-0001, Rapid Load Reduction
I. S2.OP-IO.ZZ-0004, Power Operation
J. S2.OP-AB.SG-0001, SG Tube Leak
K. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
L. 2-EOP-TRIP-2, Reactor Trip Response
M. 2-EOP-SGTR-1, Steam Generator Tube Rupture

VIII CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigation capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...

- degradation of any barriercooling system (ECCS) or emergency power capacity
- a violation of a safety limit
- a violation of the facility lice to fission product release
- degraded emergency core nse condition
- incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
- a significant reduction of safety margin beyond that irreparably introduced by the scenario

A. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...

- effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
- recognize a failure or an incorrect automatic actuation of an ESF system or component.
- take one or more actions that would prevent a challenge to plant safety.
- prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation.

VIII ESG - CRITICAL TASKS

CT#1: Start 22 CCP to establish high head injection prior to exiting TRIP-1

CT#2: Close 21AF11 and 21AF21 no later than 10 minutes after the step "IS ANY SG LEVEL RISING IN AN UNCONTROLLED MANNER" is read to minimize the rate of SG level and pressure rise

CT#3: Perform control room action to eliminate a release path from the ruptured SG by tripping 23 AFW Pump at the required point of SGTR-1

IX ESG - PSA RELATIONSHIP EVALUATION

SALEM ESG - PRA RELATIONSHIPS EVALUATION FORM

EVENTS LEADING TO CORE DAMAGE

Y/N	EVENT
N	TRANSIENTS with PCS Unavailable
Y	Steam Generator Tube Rupture
N	Loss of Offsite Power
N	Loss of Switchgear and Pen Area Ventilation
N	LOCA
N	Loss of Service Water
N	Loss of CCW
N	Loss of Control Air
N	Station Black Out

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	COMPONENT, SYSTEM, OR TRAIN
N	Containment Sump Strainers
N	SSWS Valves to Turbine Generator Area
N	RHR Suction Line valves from Hot Leg
N	CVCS Letdown line Control and Isolation Valves
N	Gas Turbine
N	Any Diesel Generator
N	Auxiliary Feed Pump
N	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
N	Restore AC power during SBO
N	Connect to gas turbine
Y	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
N	Cooldown the RCS and depressurize the system
N	Isolate the affected Steam generator which has the tube ruptures
N	Early depressurize RCS
N	Initiate feed and bleed

Complete this evaluation form for each ESG.

X

UNIT TWO PLANT STATUS TODAY

MODE: 1 **POWER:** 100% **RCS BORON:** 3 ppm **MWe:** 1140

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

REACTIVITY PARAMETERS

Core Burnup: 12500 MWD/MTU

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

Aux Feedwater 3.7.1.2A act a, expires in 60 hours

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

21 AFW Pump motor and pump disconnected

ABNORMAL PLANT CONFIGURATIONS:

RMS Channels R41A-D out of service, ODCM 3.3.3.9 in effect.

CONTROL ROOM:

- Unit 1 and Hope Creek at 100% power.
- No penalty minutes in the last 24 hrs.

PRIMARY:

None

SECONDARY:

Heating steam is aligned to unit 1

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

21A Circulator tagged for repairs

SIMULATOR READY-FOR-TRAINING CHECKLIST		
	1.	Verify simulator is in correct load for training
	2.	All required computer terminals in operation
	3.	Simulator clocks synchronized
	4.	Required chart recorders advanced and ON (proper paper installed)
	5.	Rod step counters correct (channel check)
	6.	All tagged equipment properly secured and documented (TSAS Log filled out)
	7.	DL-10 log up-to-date
	8.	Required procedures clean
	9.	All OHA lamps operating (OHA Test)
	10.	All printers have adequate paper AND functional ribbon
	11.	Procedure pens available
	12.	Procedures in progress open and signed-off to proper step
	13.	Shift manning sheet available
	14.	SPDS reset
	15.	Reference verification performed with required documents available
	16.	Ensure a current RCS Leak Rate Worksheet with Baseline Data is by Aux Alarm Typewriter
	17.	Required keys available
	18.	Video Tape (if applicable)
	19.	Ensure ECG Classification is correct - - 960502140 CRCA-03
	20.	Reset P-250 Rod Counters
	21	Verify phones are connected to simulator, not live to plant after a drill

SIMULATOR EXAMINATION SCENARIO GUIDELINE

SCENARIO TITLE: LOSS OF AFW

SCENARIO NUMBER: GOLF NRC ESG3

EFFECTIVE DATE: September 19, 2002

EXPECTED DURATION: 75-90 minutes

REVISION NUMBER: 0

PROGRAM:

- [ ] **L.O. REQUAL**
- [X] **INITIAL LICENSE**
- [ ] **STA**
- [ ] **OTHER** _____

Revision Summary

PREPARED BY:	JK Lloyd/F. Kaminski **(DEVELOPER)**	7/17/02 **(DATE)**
REVIEWED BY:	W. Detarsio per Telecon **(EP REPRESENTATIVE)**	10-17-02 **(DATE)**
APPROVED BY:	 **(TRAINING SUPERVISOR)**	10-25-02 **(DATE)**
APPROVED BY:	S. Sauer per Telecon **(OPS MANAGER OR DESIGNEE)**	10-18-02 **(DATE)**

I OBJECTIVES

Enabling Objectives

A. Reduce power IAW S2.OP-IO.ZZ-0004 and/or S2.OP-AB.LOAD-0001
B. Respond to a CCW leak IAW S2.OP-AB.CC-0001
C. Respond to failure of an RCS loop Tcold instrument IAW S2.OP-AB.ROD-0003
D. Respond to failure of a VCT level channel IAW the console alarm response procedure (ARP)
E. Apply technical specifications
F. Respond to loss of 2B Vital Instrument Bus IAW S2.OP-AB.115-0002
G. Initiate a manual reactor trip by opening breakers 2E6D and 2G6D
H. Respond to a reactor trip IAW EOP-TRIP-1 and EOP-TRIP-2
I. Maintain a heat sink IAW EOP-FRHS-1

II MAJOR EVENTS

A. Power reduction
B. Isolable CCW leak on 21 safeguards header
C. 24 RCS Loop Tc hails high causing continuous rod motion
D. VCT level channel LT-112 fails high
E. Loss of 2B Vital Instrument Bus generates reactor trip demand
F. MANUAL reactor trip
G. Loss of condenser vacuum trips both SGFP's
H. 23 AFW Pump (steam-driven) fails
I. Loss of 2B 4KV Vital Bus results in no AFW
J. Crew maintains a heat sink via condensate feed to SG's or RCS feed and bleed

III SCENARIO SUMMARY

The crew will assume the watch with direction to maintain 100% power – awaiting an order from the OS to reduce power and begin turbine valve testing. Both 21 AFW Pump and 21A Circulator are OOS for maintenance.

Shortly after the crew assumes the watch, the System Operator will call with directions to rapidly reduce load to 1000 Mwe due to a transformer failure at the New Freedom Switching Station. When the plant is in a stable condition a leak develops in 21 CCW safeguards header. The crew should respond and isolate the leak IAW AB.CC-1, Component Cooling Abnormality.

When the CCW leak has been isolated, RCS loop 24 Tcold fails high. The crew should respond IAW AB.ROD-3, Continuous Rod Motion, remove the channel from service and return Rod Control to AUTO. While the associated bistables are being tripped LT-112, VCT level instrument fails high. The crew should respond IAW the related Alarm Response Procedure.

When the vacuum breaker 21AR65 fails open. this generates a turbine trip/reactor trip demand but the reactor does not trip automatically. The reactor will not trip until the RO opens 2E6D/2G6D during the EOP-TRIP-1 immediate actions. Coincident with the reactor trip the loss of condenser vacuum causes a trip of both SGFP's. The SDAFW Pump trips on overspeed when it attempts to start in response to the turbine/reactor trip.

Shortly after transitioning to EOP-TRIP-2, 2B 4KV Vital Bus trips on electrical fault resulting in loss of 22 AFW Pump. The crew should continue in EOP-TRIP-2 and transition to EOP-FRHS-1 when a RED PATH develops on the Heat Sink CFST.

The Lead Evaluator can terminate the scenario when feed has been established via a Condensate Pump or RCS Feed and Bleed has been initiated.

IV INITIAL CONDITIONS

IC-183, 100% power, EOL

MALFUNCTIONS:

SELF-CHECK	Description	Delay	Ramp	Trigger	Severity
____ 1.	RP0058 Failure of AUTO RX TRIP	N/A	N/A	N/A	N/A
____ 2.	RP0059A Failure of MAN RX TRIP	N/A	N/A	N/A	N/A
____ 3.	AF0183 23 AFWP OVSPD	N/A	N/A	N/A	N/A
____ 4.	RC0015D Loop 24 Tc RTD fails high	N/A	N/A	RT-2	630
____ 5.	CV0037 VCT Level transmitter LT-112 fails high	N/A	N/A	RT-3	100
____ 6.	VL0115 21AR65 Fails to Position (0-100%)	N/A	N/A	RT-4	100%
____ 7.	BF0105A 21 Stm Gen Feed Pump Trip	N/A	N/A	ET-1	3
____ 8.	BF0105B 22 Stm Gen Feed Pump Trip	N/A	N/A	ET-1	3
____ 9.	EL0145 Loss of 2B 4KV Vital Bus	N/A	N/A	RT-5	

REMOTES:

SELF-CHECK	Description	Delay	Ramp	Trigger	Condition
____ 1.	AF21D 21 AFW Pump Brkr racked out	N/A	N/A	N/A	TAGGED
____ 2.	AF20D 21 AFWP Control Power	N/A	N/A	N/A	OFF
____ 3.	CC11A 2CC143 CCW Surge Tank Drain	N/A	N/A	RT-1	100
____ 4.	CC12A 2CC144 CCW Surge Tank Drain	N/A	N/A	RT-1	100

OVERRIDES:

SELF-CHECK	Description	Delay	Ramp	Trigger	Action
____ 1.	B440 OVDI: RTB A	N/A	N/A	N/A	OFF
____ 2.	B441 OVDI: RTB B	N/A	N/A	N/A	OFF
____ 3.	B441 OVDI 21A Circ Start	N/A	N/A	N/A	OFF

TAGGED EQUIPMENT:

SELF-CHECK	Description

____ 1. RH1 and RH2 (C/T)
____ 2. VC 1-4 (C/T)
____ 3. RH 18's (C/T)
____ 4. RCPs (SELF CHECK)
____ 5. RT (SELF CHECK)
____ 6. MS 167s (SELF CHECK)
____ 7. 500 KV SWYD (SELF CHECK)
____ 8. SGFP TRIP (SELF CHECK)
____ 9. 22 ABV Supply Fan (C/T)
____ 10. 23 Charging Pump (C/T)
____ **11. 21 AFW Pump**
____ **12. 21A Circulator**

OTHER CONDITIONS:

	Description
____ 1.	

V SEQUENCE OF EVENTS

State shift job assignments:

Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet)

Inform the crew "The simulator is running. You may commence panel walkdowns at this time. OS please inform me when your crew is ready to assume the shift".

Allow sufficient time for panel walk-downs. When informed by the OS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
On CUE from the Lead Evaluator, BOOTH OPERATOR: Call as Systems Operator - reduce power to 1000 MWe as quickly as possible due to a transformer failure at the New Freedom Switching Station.	**CRS** specifies load reduction rate **CREW** references IOP-4 and/or AB.LOAD-1 **PO** sets EHC controls **PO** initiates load reduction **RO** initiates boration **RO** ensures rod motion tracks Tavg	
Initiate the next event (RT-1) on cue from the Lead Evaluator		
RT-1 CCW Header leak **REMOTE CC11A Severity 100** **REMOTE CC12A Severity 100**	**RO** responds to console alarm **CRS** enters ARP **RO** opens 2DR107 **CRS** transitions to AB.CC-1 **RO** reports CCW Surge Tank level rising with M/U valve open **CREW** contacts NEO(s) to look for CCW leaks	
After approximately two minutes, report a vent valve on the CC header near the Waste Evaporator was found open, the vent has been closed	**CRS** refers to AB.CC-1 Att. 3 and directs leak isolation	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	CRS refers to Technical Specifications	
Initiate the next event (RT-2) on cue from the Lead Evaluator		
RT-2: Loop 24 Tc RTD fails high RC0015D Severity = 630		
	RO responds to: • Console alarms • OHA E-8&16 • Rods stepping in	
	RO determines no Turbine Runback in progress	
	RO gains **CRS** concurrence and places Rod Control in MANUAL	
	CRS enters AB.ROD-3	
	RO monitors and controls Tavg	
	CRS verifies rod motion was in the inward direction	
	RO verifies a NIS channel has not failed	
	RO stops RCS dilution	
	RO identifies Loop 24 Tcold failed high	
	RO returns PZR level to program by adjusting Master Flow Controller in MANUAL	
	RO defeats failed Tavg input by depressing the 24 Loop Deviation Defeat PB	
	RO selects Tavg Recorder to a valid loop	
	RO defeats failed ΔT input to RIL Comparator by depressing the Deviation Defeat PB for 24 Loop	
	RO selects ΔT Recorder to a valid loop	
NOTE: Bistables do not need to be tripped to continue scenario	**CRS** contacts Maintenance to remove channel from service	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	RO returns Master Flow Controller to AUTO	
	CRS verifies rods are above the RIL	
	RO restores Rod Control to AUTO	
Initiate next event (RT-3) after TSAS determination and/or on cue from the Lead Evaluator	**CRS/STA** refers to TS. • 3.3.1.1 Action 6 (OTΔT) • 3.3.2.1 Action 19	
RT-3: VCT Level transmitter LT-112 fails high **MALF CV0037, Severity 100**		
	RO responds to VCT HI/LO LEVEL console alarm	
	RO compares console level with computer indications and determines LT-112 is failed	
	CREW refers to the CC2 Console Alarm Response Procedure	
	CRS directs **RO** to select CV35 to MANUAL and align it to the VCT	
Initiate next event (RT-4) on cue from the Lead Evaluator	**CREW** discusses related problems: • MANUAL M/U required if VCT level lowers • AUTO swap to RWST disabled	
RT-4 Vacuum Breaker fails open **MALF VL0115 Severity 100**		
	CREW responds to multiple alarms	
	RO recognizes reactor trip demand	
	CRS directs MANUAL reactor trip	
	RO attempts both trip handles	
	RO attempts to open RTB's	
	RO opens 2E6D and 2G6D	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	RO performs TRIP-1 Immediate actions • Trip reactor/confirmation • Trips turbine • All 4KV busses energized • SI not actuated	
	CRS enters TRIP-1 and reads Immediate actions	
	CREW transitions to TRIP-2	
	RO announces reactor trip	
	CRS informs OS to implement ECG	
NOTE: PO should report 23 AFWP not running	**PO** reports AFW flow >22E04	
	PO reports both SGFP's tripped	
RT-5 Loss of 2B 4KV Vital Bus **MALF EL0145**		
	CREW responds to alarms	
	PO reports loss of 2B 4KV Vital Bus	
	CREW/PO recognizes loss of 22 AFW Pump	
	CRS requests Maintenance assistance	
BOOTH OPERATOR: After 2-3 minutes, report signs of serious mechanical failure – perhaps the overspeed trip mechanism failed	**CRS** dispatches NEO to check 23 AFW Pump	
	CREW performs TRIP-2 actions until a HS RED PATH develops	
	CRS transitions to FRHS-1	
	RO/PO report RCS pressure >Intact SG pressure	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
EVALUATORS: If Feed & Bleed is required then go to Page 13 of this Scenario Guide	**CRS** reviews RCS Bleed and Feed initiation criteria	
	CRS and **PO** continue efforts to restore AFW flow	
CT#1: Crew stops all RCP's prior to commencing selected SG de-pressurization **SAT_____UNSAT_____**	**RO** stops all RCP's	
	PO reports Condensate System in operation	
	PO reports SGFP's not available	
	RO initiates SI	
	CRS designates crew member to perform APPX-3	
	RO: • Resets SI • Resets Phase A Isolation • Resets Phase B Isolation • Opens 21 and 22CA330 • Resets each SEC (sends NEO for B SEC) • Resets 230V Control Centers	
	RO stops all running RHR and SI Pumps	
	RO stops either 21 or 22 Charging Pump	
	CREW selects SG to be depressurized	
	PO fully opens selected MS10	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
BOOTH OPERATOR: Open the selected BF19 or BF40 using the associated MALF and failing to the requested position. **BF19's: VL0446-0449** **BF40's: VL0466-0469**	**CREW** sends a NEO to open selected BF40 or 19	
	PO opens selected BF13	
	PO releases associated BF22	
	PO opens 21 and 22CN48	
	PO closes 21 and 22CN32	
CT#2: Establish condensate flow into at least one SG **SAT_____UNSAT_____**	**PO/STA** observe and verify selected SG level rising and/or CET temperatures lowering	
Lead Evaluator can terminate the scenario when condensate flow to SG is confirmed		

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
FEED and BLEED Steps		
CT#1: Crew stops all RCP's prior to SI Initiation **SAT_____UNSAT_____**	**RO** stops all RCP's	
	RO initiates SI	
	PO verifies Safeguards valves in SI position	
	RO verifies 21 or 22 Charging Pp running and BIT flow established	
CT#2: Establish bleed path so the RCS depressurizes sufficiently for SI Pump injection to occur **SAT____ UNSAT____**	**RO** opens both PZR PORVs and PORV Stop valves	
	RO/PO perform APPX-3	
	RO/PO resets Safeguards if not performed	
	RO maintains ECCS flow and PZR PORVs open	
Lead Evaluator can terminate the scenario any time after the PORV's are open and injection flow is confirmed		

VII SCENARIO REFERENCES

A. Alarm Response Procedures (Various)
B. Technical Specifications
C. Emergency Plan (ECG)
D. SC.OP-AP.ZZ-0102(Q), Use of Procedures
E. S2.OP-IO.ZZ-0004, Power Operation
F. S2.OP-AB.LOAD-0001, Rapid Load Reduction
G. S2.OP-AB.CC-0001, Component Cooling Abnormality
H. S2.OP-AB.ROD-0003, Continuous Rod Motion
I. S2.OP-AB.115-0002, Loss of 2B 115V Vital Instrument Bus
J. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
K. 2-EOP-TRIP-2, Reactor Trip Response
L. 2-EOP-FRHS-1, Response to Loss of Secondary Heat Sink

VIII CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigation capability of the plant.

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- degradation of any barrier cooling system (ECCS) or emergency power capacity
- a violation of a safety limit
- a violation of the facility lice to fission product release
- degraded emergency core nse condition
- incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
- a significant reduction of safety margin beyond that irreparably introduced by the scenario

A. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...

- effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
- recognize a failure or an incorrect automatic actuation of an ESF system or component.
- take one or more actions that would prevent a challenge to plant safety.
- prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation.

VIII ESG - CRITICAL TASKS

CRITICAL TASKS FOR FEEDING SG VIA CONDENSATE

CT#1: Crew stops all RCP's to lower heat input prior to commencing selected SG de-pressurization

CT#2: Maintain a heat sink by establishing condensate flow into at least one SG prior to "SG dryout"

CRITICAL TASKS IF BLEED AND FEED IS REQUIRED

CT#1: Crew stops all RCP's to lower heat input prior to SI Initiation and lowering RCS pressure

CT#2: Establish RCS bleed path so the RCS depressurizes sufficiently for SI Pump injection to occur

IX ESG - PSA RELATIONSHIP EVALUATION

SALEM ESG - PRA RELATIONSHIPS EVALUATION FORM

EVENTS LEADING TO CORE DAMAGE

Y/N	EVENT
N	TRANSIENTS with PCS Unavailable
N	Steam Generator Tube Rupture
N	Loss of Offsite Power
N	Loss of Switchgear and Pen Area Ventilation
N	LOCA
N	Loss of Service Water
N	Loss of CCW
N	Loss of Control Air
N	Station Black Out

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	COMPONENT, SYSTEM, OR TRAIN
N	Containment Sump Strainers
N	SSWS Valves to Turbine Generator Area
N	RHR Suction Line valves from Hot Leg
N	CVCS Letdown line Control and Isolation Valves
N	Gas Turbine
N	Any Diesel Generator
Y	Auxiliary Feed Pump
N	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
N	Cooldown the RCS and depressurize the system
N	Isolate the affected Steam generator which has the tube ruptures
N	Early depressurize RCS
Y	Initiate feed and bleed

X

UNIT TWO PLANT STATUS TODAY

MODE: 1 **POWER:** 100% **RCS BORON:** 1152 ppm **MWe:** 1140

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

REACTIVITY PARAMETERS

Core Burnup: 4000 MWD/MTU

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

21 AFW Pump, 60 hours remaining

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

None – awaiting orders to lower power for turbine valve testing.

ABNORMAL PLANT CONFIGURATIONS:

21 Auxiliary Feedwater Pump motor bearing replacement.

RMS Channels R41A-D out of service, ODCM 3.3.3.9 in effect.

CONTROL ROOM:

- Unit 1 and Hope Creek at 100% power.
- No penalty minutes in the last 24 hrs.

PRIMARY:

None

SECONDARY:

Heating steam is aligned to unit 1.

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

21B Circulator tagged for screen repairs

SIMULATOR READY-FOR-TRAINING CHECKLIST		
	1.	Verify simulator is in correct load for training
	2.	All required computer terminals in operation
	3.	Simulator clocks synchronized
	4.	Required chart recorders advanced and ON (proper paper installed)
	5.	Rod step counters correct (channel check)
	6.	All tagged equipment properly secured and documented (TSAS Log filled out)
	7.	DL-10 log up-to-date
	8.	Required procedures clean
	9.	All OHA lamps operating (OHA Test)
	10.	All printers have adequate paper AND functional ribbon
	11.	Procedure pens available
	12.	Procedures in progress open and signed-off to proper step
	13.	Shift manning sheet available
	14.	SPDS reset
	15.	Reference verification performed with required documents available
	16.	Ensure a current RCS Leak Rate Worksheet with Baseline Data is by Aux Alarm Typewriter
	17.	Required keys available
	18.	Video Tape (if applicable)
	19.	Ensure ECG Classification is correct - - 960502140 CRCA-03
	20.	Reset P-250 Rod Counters
	21	Verify phones are connected to simulator, not live to plant after a drill

SIMULATOR EXAMINATION SCENARIO

SCENARIO TITLE: MANUAL Reactor Trip/SBLOCA

SCENARIO NUMBER: GOLF NRC ESG-Spare

EFFECTIVE DATE: Per Approval Signatures

EXPECTED DURATION: 75-90 minutes

REVISION NUMBER: DRAFT

PROGRAM:

- [ ] **L.O. REQUAL**
- [X] **INITIAL LICENSE**
- [ ] **STA**
- [ ] **OTHER** _____

Revision Summary

PREPARED BY:	J.K. Lloyd **(DEVELOPER)**	7/3/02 **(DATE)**
REVIEWED BY:	W. Detwiler per telecon **(ER REPRESENTATIVE)**	10-18-02 **(DATE)**
APPROVED BY:	D Gallagher **(TRAINING SUPERVISOR)**	10-24-02 **(DATE)**
APPROVED BY:	S Sams per telecon **(OPS MANAGER OR DESIGNEE)**	10-18-02 **(DATE)**

I. OBJECTIVES

Enabling Objectives

A. Perform a normal power reduction IAW S2.OP-IO.ZZ-0004

B. Respond to failure of a PZR level channel IAW S2.OP-AR.ZZ-0012

C. Respond to failure of Turbine First Stage Pressure Channel IAW S2.OP-AB.ROD-0003

D. Evaluate and implement required Technical Specifications

E. Respond to a leak in 2 SW Bay IAW S2.OP-AB.SW-0003

F. TCAF closure of a turbine governor valve (TGV) IAW S2.OP-SO.TRB-0001 and S2.OP-AB.LOAD-0001

G. Direct/initiate a reactor trip in response to a feedwater regulating valve failure

H. Enter and execute the EOP network IAW SC.OP-AP.ZZ-0102(Q)

I. Respond to a SBLOCA IAW 2-EOP-LOCA-1 and LOCA-2

J. Restart ECCS loads following Blackout after SI Reset IAW 2-EOP-LOCA-2

II MAJOR EVENTS

A. Power reduction to 60%

B. Controlling PZR level channel fails low

C. PT-505 failure

D. SW Bay 2 leak

E. TGV fails closed

F. One BF19 fails closed during the rapid power reduction

G. SBLOCA following the reactor trip

H. Blackout following SI Reset

III SCENARIO SUMMARY

The scenario begins at 70% power with 22 SI Pump out of service for motor bearing replacement. The crew is directed to lower power to 60% at 10%/hour so that 21 SGFP can be removed from service for a control oil leak repair.

After the plant is stable, the controlling PZR level instrument fails low. The crew should respond IAW the console alarm procedure, select another channel and restore letdown.

On cue from the Lead Evaluator, PT-505, Turbine First Stage Pressure Detector will fail low, causing continuous rod insertion. The crew should respond IAW S2.OP-AB.ROD-0003, Continuous Rod Motion, place rod control in MANUAL, perform necessary operations to remove the channel from service and implement Technical Specifications.

After identification of the PT-505 related technical specifications, a leak will develop in #2 SW Bay. The crew should respond IAW S2.OP-AB.SW-0003, SW Bay Leak, shift the running SW Pumps, isolate the leak, and implement Technical Specifications.

On cue from the lead evaluator one turbine governor valve will fail closed. The CRS should refer to the load limitations specified in S2.OP-SO.TRB-0001, Turbine Generator Operation, and initiate a rapid load reduction to <30% power IAW S2.OP-AB.LOAD-0001, Rapid Load Reduction. During the load reduction the feedwater regulating valve on one of the SG's will fail closed. The CRS should direct a MANUAL reactor trip. Following the reactor trip a SBLOCA will ramp in and the crew should initiate a MANUAL SI. The path of EOP use is TRIP-1; TRIP-2; back to TRIP-1; LOCA-1; LOCA-2. In LOCA-2, the crew will begin a cooldown of the RCS. A loss of off-site power will occur during the cooldown, requiring the crew to re-start ECCS loads.

The Lead Evaluator can terminate the scenario after the ECCS loads have been re-started.

IV INITIAL CONDITIONS

____ IC-184

MALFUNCTIONS:

Self check		Description	Delay	Ramp	Trigger	Severity
_____	1	PR0017A Pzr Lvl CH I (LT459) Fails H/L	N/A	N/A	RT-1	0
_____	2	TU0055 1st Stg Press Xmtr 505 Fails H/L	N/A	N/A	RT-2	0
_____	3	SW0216A 21 SW Hdr Leak in SW Structure	N/A	2 min.	RT-3	10000
_____	4	TU0081H 24MS29 Turb Cntrl Vlv fails cls.	N/A	N/A	RT-7	N/A
_____	5	VL0447 22BF19 Fails to Position (0-100%)	N/A	N/A	RT-8	0
_____	6	RC0002 RCS Leak into Containment	N/A	1 min.	RT-9	1750
_____	7	CV0040 Fuel Element failure	N/A	N/A	RT-9	9
_____	8	EL0134 Loss of all 500KV Offsite Power	N/A	N/A	RT-10	

REMOTES:

Self check		Description	Delay	Ramp	Trigger	Condition
	1.	SJ18D	N/A	N/A	NONE	TAGGED
	2	SJ17D	N/A	N/A	NONE	OFF
	3	SW23D	N/A	N/A	RT-4	OFF
	4	SW27D	N/A	N/A	RT-5	OFF
_____	5	SW32D	N/A	N/A	RT-6	OFF

OVERRIDES:

Self check		Description	Delay	Ramp	Trigger	Action
_____	1.	CM02 OVDI 21A Circ Start	N/A	N/A	N/A	OFF

TAGGED EQUIPMENT:

_____ 1. RH1 and RH2 (C/T)
_____ 2. VC1-4 (C/T)
_____ 3. RH18's (C/T)
_____ 4. RCP's (self check)
_____ 5. RTB's (self check) and RTBB's (C/T)
_____ 6. MS167's (self check)
_____ 7. 500 KV Swyd. (self check)
_____ 8. SGFP Trip (self check)
_____ 9. 22 ABV Supply Fan (C/T)
_____ 10 23 CVC Pump (C/T)

OTHER CONDITIONS:

_____ 1. None

V SEQUENCE OF EVENTS

- State shift job assignments:
- Hold a shift briefing, detailing instruction to the shift: (provide crew members a copy of the shift turnover sheet)
- Inform the crew "The simulator is running. You may commence panel walkdowns at this time. OS please inform me when your crew is ready to assume the shift".
- Allow sufficient time for panel walk-downs. When informed by the OS that the crew is ready to assume the shift, ensure the simulator is cleared of unauthorized personnel.

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
1. Power reduction to 60% using normal plant procedures	**CRS** briefs crew and establishes rate of power reduction **CREW** commences a power reduction IAW Step 5.3, S2.OP-IO.ZZ-0004 **CREW** notifies System Operator and Condensate Polishing Operator **PO** initiates load reduction • Initiates monitoring Main Turbine Data display points on the Plant Computer • Uses Rate Thumbwheel, REF ∇ and GO pushbuttons to attain desired load **RO** initiates boration	
Initiate next event (RT-1) on cue from Lead Evaluator	**RO** maintains minimal T_{AVG}/T_{REF} mismatch and AFD within band **PO** verifies SG Feed Pump suction pressure is being maintained >300 psig **PO** monitors condenser temperatures using the plant computer	
RT-1: PZR Level Ch I Fails LO MALF PR0017A; SEV=0	**CREW** responds to OHA E-36 **RO** diagnoses PZR level channel failure **CREW** enters ARP for OHA E-36 and/or console alarm **RO** takes MANUAL control of Master Flow Controller **RO** selects an operable channel for Control, Alarm, and Recorder **RO** restores PZR heaters to normal	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	RO restores letdown IAW S2.OP-SO.CVC-0001	
NOTE: Bistables need not be tripped to continue the scenario.	**CRS** contacts I&C to remove PZR level channel from service IAW SO.RPS-0003	
Initiate RT-2 on cue from the Lead Evaluator	**CRS** enters TSAS(s) 3.3.1.1 Action 6# and may review 3.3.3.7 (PAM -only two PZR Level Channels are required)	
RT-2: First Stage Impulse Pressure Channel (PT-505) Failure MALF TU0055, Severity = 0	**RO** determines rod insertion is unwarranted, gains **CRS** concurrence, places Rod Control in MANUAL **CRS** enters AB.ROD-3 **PO** identifies PT-505 failed low and verifies alarms are consistent with the failure **Crew** performs actions of AB.ROD-3: • **RO** places rod control in MANUAL • **RO** adjusts Tave to within 1.5°F of Tref • **RO** determines rods above RIL • **PO** verifies Steam Dump set at 1005 psig, verifies AUTO selected, then selects MS PRESS CONT • **PO** verifies SG levels being maintained 33-44% **CRS** enters TS 3.3.2.1.b, Action 19 **CRS** directs initiation of SO.RPS-6, to remove failed channel from service	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
Initiate next event (RT-3) after I&C is contacted for B/S tripping OR on cue from the Lead Evaluator	**CRS** contacts I&C for assistance with PT-505	
	CRS communicates channel failure to OS and/or OM	
RT-3 - 2 SW Bay Leak **MALF SW0216A; SEV=10000, RAMP=2 mins.**	**Crew** responds to OHA alarms and **RO** acknowledges standby pump start	
ROLE PLAY: Report water level rising in Bay 2 – Recommend stopping the pumps ASAP	**RO/PO** dispatches NEO to investigate	
	CRS enters AB.SW-1 or goes directly to AB.SW-3	
	CREW transitions to AB.SW-3	
	RO opens 21&22SW23, NucHdr X-ties	
	RO closes 21&22SW17, Pump Disch. X-ties	
	PO monitors AB.SW-3 CAS	
SIM OP: 125 VDC Control Power for Bay 2 Pumps: RT-4 REMOTE: SW23D RT-5 REMOTE: SW27D RT-6REMOTE: SW32D	**Crew** isolates 2 SW Bay: • **RO** starts 24 SW Pump • **RO** stops 21&23 SW Pumps • **CRS** directs NEO to open 125 VDC Control Power to 2 Bay SW Pumps • **RO** closes 21SW22, NucHdr Inlet • **RO** closes 21SW20, TurbHdr Supply	
ROLE PLAY: NEO reports level has stopped rising	**CRS** contacts maintenance to investigate	
Initiate next event (RT-7) after TS call and/or on cue from the Lead Evaluator **RT-4 - TGV Fails Closed** **MALF TU0081H**	**CRS** enters TSAS 3.7.4	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	RO/PO respond to uncontrolled load change, RCS response	
	RO controls Tavg with rods in MANUAL	
	PO identifies 24MS29 CLOSED using EHC console indications	
	CRS dispatches NEO to investigate cause of valve closure	
Role Play: After 5 minutes, NEO reports EHC fluid leak on fittings of 24MS29. Leak is contained but cannot be repaired.	**CRS** reviews S2.OP-SO.TRB-0001 precautions and limitations. Determines load limitation of <30% with failed governor valve	
	CRS orders a turbine load reduction at 5%/minute IAW SO.TRB-1	
	CRS informs the Electric System Operator, OS and/or OM of load reduction	
	PO/RO coordinate actions to reduce turbine load to <30% power	
Initiate next event (RT-8) while load reduction is in progress **RT-5 22BF19 fails closed** **MALF VL0447**	**CRS** enters AB.LOAD-1	
	PO responds to alarms and/or notes change in BF19 position	
	PO attempts to open 22BF19 in MANUAL	
	CRS directs MANUAL Reactor Trip	
	RO initiates a MANUAL Rx Trip	
	RO completes IA's of TRIP-1 from memory: • Reactor trip • Reactor Trip confirmed • Trip Turbine • At least one vital bus energized • SI actuation (NO)	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	CRS enters TRIP-1	
	CRS transitions to TRIP-2	
	RO makes page announcement	
	CRS directs OS to implement the ECG	
	PO stops both SGFPs	
Initiate next event (RT-9) after SGFP's are stopped or on cue from Lead Evaluator		
	RO verifies Tavg trending to 547°F	
RT-9: SBLOCA **MALF RC0002; SEV.=0-1750 gpm; RAMP=1 min.** **MALF CV0040; SEV 9**	**RO** verifies both reactor trip breakers open	
	PO verifies all rods inserted	
	PO closes 21-24BF22	
	RO verifies PZR level >17%	
	RO verifies Charging and Letdown in service	
	RO monitors PZR pressure status	
	RO/CREW notes LOCA symptoms	
	CRS directs RO to initiate a MANUAL SI based on TRIP-2 CAS	
	RO initiates a MANUAL SI	
	CRS transitions to TRIP-1	
	RO performs TRIP-1 immediate actions	
	RO makes page announcement	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
NOTE: 21, 22, 23 SW Pumps and 22 SI Pump all OOS, with control power removed	**RO/PO** verify SEC loading	
	RO monitors TRIP-1 CAS	
CT#1: Crew closes CV139 or CV140 IAW procedure CAS when pressure lowers <1500 psig **SAT____UNSAT____**	**Crew** closes CV139 and CV140 when CAS criteria is met	
	PO verifies 21 & 22 AFW Pumps running	
	PO verifies valves in Safeguards alignment	
	RO verifies 21/22CA330 closed	
	RO verifies CS not required	
	RO initiates MSLI	
CT#2: Crew stops all RCP's before exiting the procedure in effect when pressure lowers <1350 psig **SAT____UNSAT____**	**RO** stops all RCPs when pressure lowers below 1350 psig	
	CREW transitions to LOCA-1@ Step 28	
	CREW performs SI Reset actions: • Resets SI • Resets Phase A Isolation • Resets Phase B Isolation • Opens 21 & 22 CA330, Containment Control Air Isolation • Resets all SECs • Verifies all 230V Control Centers reset	
	RO opens 21-24SS94, Bldn. Sample Vlvs.	
	RO stops RHR Pumps	

VI SCENARIO GUIDE SEQUENCE AND EXPECTED RESPONSE

Evaluator/Instructor Activity	Expected Plant/Student Response	Comments
	PO stops all EDG's	
	CRS transitions to LOCA-2	
	PO initiates 100°F/hr cooldown using MS10's	
Initiate next event (RT-10) after cooldown is in progress		
	RO reports subcooling NOT >0°F	
RT-10 Loss of Off-Site Power **MALF EL0134**		
	CRS may terminate the cooldown until ECCS loads are restored	
CT#3: Crew re-starts at least 21 SI Pump and 3 CFCU's in LOW Speed **SAT_____UNSAT_____**	**CREW** re-starts loads IAW Table A	
Lead Evaluator can terminate the scenario after actions to restart Table A loads have been completed		

VII SCENARIO REFERENCES

A. Alarm Response Procedures (Various)
B. Technical Specifications
C. Emergency Plan (ECG)
D. SC.OP-AP.ZZ-0102(Q), Use of Procedures
E. S2.OP-IO.ZZ-0004, Power Operation
F. S2.OP-SO.CVC-0001, Establishing Charging and Letdown
G. S2.OP-SO.TRB-0001, Turbine Generator Operation
H. S2.OP-AB.ROD-0003, Continuous Rod Motion
I. S2.OP-AB.SW-0003, Service Water Bay Leak
J. S2.OP-AB.LOAD-0001, Rapid Load Reduction
K. 2-EOP-TRIP-1, Reactor Trip or Safety Injection
L. 2-EOP-TRIP-2, Reactor Trip Response
M. 2-EOP-LOCA-1, Loss of Reactor Coolant
N. 2-EOP-LOCA-2, Post-LOCA Cooldown and Depressurization

VIII CRITICAL TASK METHODOLOGY

In reviewing each proposed CT, the examination team assesses the task to ensure, that it is essential to safety. A task is essential to safety if, in the judgment of the examination team, the improper performance or omission of this task by a licensee will result in direct adverse consequences or in significant degradation in the mitigation capability of the plant.

The examination team determines if an automatically actuated plant system would have been required to mitigate the consequences of an individual's incorrect performance. If incorrect performance of a task by an individual necessitates the crew taking compensatory action that would complicate the event mitigation strategy, the task is safety significant.

Examples of CTs involving essential safety actions include those for which operation or correct performance prevents...

- degradation of any barriercooling system (ECCS) or emergency power capacity
- a violation of a safety limit
- a violation of the facility lice to fission product release
- degraded emergency core nse condition
- incorrect reactivity control (such as failure to initiate Emergency Boration or Standby Liquid Control, or manually insert control rods)
- a significant reduction of safety margin beyond that irreparably introduced by the scenario

A. Examples of CTs involving essential safety actions include those for which a crew demonstrates the ability to...

- effectively direct or manipulate engineered safety feature (ESF) controls that would prevent any condition described in the previous paragraph.
- recognize a failure or an incorrect automatic actuation of an ESF system or component.
- take one or more actions that would prevent a challenge to plant safety.
- prevent inappropriate actions that create a challenge to plant safety (such as an unintentional Reactor Protection System (RPS) or ESF actuation.

VIII ESG - CRITICAL TASKS

CT#1: Close at least one series CCP miniflow valve (CV139 or 140) when RCS pressure lowers <1500 psig to maximize injection flow during a SBLOCA before exiting the procedure in effect

CT#2: Stop all RCP's when RCS pressure lowers <1350 psig to minimize RCS mass loss during a small SBLOCA before exiting the procedure in effect

CT#3: Re-establish plant design basis conditions by starting at least one train of ECCS equipment after a loss of off-site power occurs with SI Reset

IX ESG - PSA RELATIONSHIP EVALUATION

SALEM ESG - PRA RELATIONSHIPS EVALUATION FORM

EVENTS LEADING TO CORE DAMAGE

Y/N	EVENT
N	TRANSIENTS with PCS Unavailable
N	Steam Generator Tube Rupture
Y	Loss of Offsite Power
N	Loss of Switchgear and Pen Area Ventilation
Y	LOCA
N	Loss of Service Water
N	Loss of CCW
N	Loss of Control Air
N	Station Black Out

COMPONENT/TRAIN/SYSTEM UNAVAILABILITY THAT INCREASES CORE DAMAGE FREQUENCY

Y/N	COMPONENT, SYSTEM, OR TRAIN
N	Containment Sump Strainers
N	SSWS Valves to Turbine Generator Area
N	RHR Suction Line valves from Hot Leg
Y	CVCS Letdown line Control and Isolation Valves
N	Gas Turbine
N	Any Diesel Generator
N	Auxiliary Feed Pump
N	SBO Air Compressor

OPERATOR ACTIONS IMPORTANT IN PREVENTING CORE DAMAGE

Y/N	OPERATOR ACTION
N	Restore AC power during SBO
N	Connect to gas turbine
N	Trip Reactor and RCPs after loss of component cooling system
N	Re-align RHR system for re-circulation
N	Un-isolate the available CCW Heat Exchanger
N	Isolate the CVCS letdown path and transfer charging suction to RWST
Y	Cooldown the RCS and depressurize the system
N	Isolate the affected Steam generator which has the tube ruptures
N	Early depressurize RCS
N	Initiate feed and bleed

Complete this evaluation form for each ESG.

X

UNIT TWO PLANT STATUS TODAY

MODE: 1 **POWER:** 70% **RCS BORON:** 753 **MWe:** 800

SHUTDOWN SAFETY SYSTEM STATUS (5, 6 & DEFUELED):

NA

REACTIVITY PARAMETERS

Core Burnup: 8 GWD/MTU

MOST LIMITING LCO AND DATE/TIME OF EXPIRATION:

3.5.2.a (22 SI Pump) – 60 hours remaining

EVOLUTIONS/PROCEDURES/SURVEILLANCES IN PROGRESS:

Awaiting orders to reduce to 60% power this shift IAW S2.OP-IO.ZZ-0004. 21 SGFP will be taken OOS for a control oil leak repair.

ABNORMAL PLANT CONFIGURATIONS:

22 Safety Injection Pump out of service for maintenance activity.

RMS Channels R41A-D out of service, ODCM 3.3.3.9 in effect.

CONTROL ROOM:

Unit 1 and Hope Creek at 100% power.
No penalty minutes in the last 24 hrs.

PRIMARY:

None

SECONDARY:

Heating steam is aligned to unit 1.

RADWASTE:

No discharges in progress

CIRCULATING WATER/SERVICE WATER:

21A Circulator tagged out of service for screen repairs

SIMULATOR READY-FOR-TRAINING CHECKLIST		
	1.	Verify simulator is in correct load for training
	2.	All required computer terminals in operation
	3.	Simulator clocks synchronized
	4.	Required chart recorders advanced and ON (proper paper installed)
	5.	Rod step counters correct (channel check)
	6.	All tagged equipment properly secured and documented (TSAS Log filled out)
	7.	DL-10 log up-to-date
	8.	Required procedures clean
	9.	All OHA lamps operating (OHA Test)
	10.	All printers have adequate paper AND functional ribbon
	11.	Procedure pens available
	12.	Procedures in progress open and signed-off to proper step
	13.	Shift manning sheet available
	14.	SPDS reset
	15.	Reference verification performed with required documents available
	16.	Ensure a current RCS Leak Rate Worksheet with Baseline Data is by Aux Alarm Typewriter
	17.	Required keys available
	18.	Video Tape (if applicable)
	19.	Ensure ECG Classification is correct - - 960502140 CRCA-03
	20.	Reset P-250 Rod Counters
	21	Verify phones are connected to simulator, not live to plant after a drill