Xcel Energy	SIMULATOR EXERCISE GUIDE (SEG)

SITE: MONTICELLO **SEG #** ILT-SS-07E

SEG TITLE: 2009 ILT NRC 4, EOP C.5-1300 BLOWDOWN **REV. #** 0

PROGRAM: INITIAL LICENSE TRAINING **#:** MT-ILT

COURSE: NRC EXAM **#:** M-8119

TOTAL TIME: 1.5 HOURS

Additional site-specific signatures may be added as desired.

Developed by: _____
Instructor *Date*

Reviewed by: _____
Instructor *Date*
(Simulator Scenario Development Checklist.)

Validated by: _____
Validation Lead Instructor *Date*
(Simulator Scenario Validation Checklist.)

Approved by: _____
Training Supervision *Date*

Guide Requirements

Goal of Training:

ILT NRC EXAM

Learning Objectives:

1. Demonstrate the ability to predict and/or monitor changes in parameters associated with operating system controls for the appropriate tasks.
2. Demonstrate the ability to correctly use procedures to correct, control, or mitigate the consequences of normal and abnormal operations for the appropriate tasks.
3. Demonstrate the ability to monitor automatic operations of the systems to ensure proper operation for the appropriate tasks.
4. Demonstrate the ability to manually operate and/or monitor systems in the control room in accordance with approved procedures for the appropriate tasks.
5. Demonstrate the ability to complete administrative requirements, as necessary, in order to operate the plant for the appropriate tasks.
6. Demonstrate knowledge of and ability to implement shift supervision duties as they relate to crew operations for the appropriate tasks.
7. Given a degrading or improving plant condition or event, demonstrate the ability to: (CRS).
    a. Evaluate trends that may result in equipment damage or reduction in plant safety.
    b. Ensure proper diagnosis of plant problems by monitoring and interpreting data (information from panel indications).
    c. Evaluate and diagnose challenges to Critical Plant Parameters.
    d. Evaluate events and accidents.

Prerequisites:

Completion of MT-ILT Training program

Training Resources:

Simulator

References:

1. FP-T-SAT-72
2. FP-T-SAT-75
3. NUREG 1021, Rev.9, Supplement 1

Commitments:

None

Evaluation Method:

ILT NRC EXAM

Operating Experience:

None

Related PRA Information:

Initiating Event with Core Damage Frequency:
Unisolable LOCA in the Reactor Building

Important Components:
Scram Discharge Volume Vent valves

Important Operator Actions with Task Number:
SS304.198 – Implement emergency RPV depressurization
CR304.101 – Perform the actions associated with Emergency RPV Depressurization.

TASKS ASSOCIATED WITH SIMULATOR EXERCISE(S):

Shift Manager Tasks:

None

SRO Tasks:

SS299.351	Apply Administrative requirements of T.S. Section 3.3 and Bases to instrumentation	6, 7
SS299.354	Apply Administrative requirements of T.S. Section 3.6 and Bases to containment systems	6, 7
SS304.193	Implement RPV Control	6, 7
SS304.196	Implement Secondary Containment Control	6, 7
SS304.198	Implement Emergency RPV Depressurization	6, 7
SS315.101	Supervise response to reactor scram	6, 7
SS315.107	Supervise response to loss of RBCCW flow	6, 7
SS315.127	Supervise response to decreasing condenser vacuum	6, 7
SS315.141	Supervise response to a loss of power to LC-101 or its MCCs	6, 7
SS315.159	Supervise rapid power reduction	6, 7

RO Tasks:

CR200.146	Perform the procedure for a Reactor Scram	1-5
CR200.153	Perform the procedure for loss of RBCCW flow	1-5
CR200.172	Perform the procedure for decreasing condenser vacuum	1-5
CR200.185	Perform the procedure for a loss of power to LC-101 or its MCCs	1-5
CR200.203	Perform the procedure for rapid power reduction	1-5
CR299.353	Apply T.S. Section 3.3 and Bases to instrumentation	2, 5
CR299.356	Apply T.S. Section 3.6 and Bases to containment systems	2, 5
CR304.102	Perform the actions associated with RPV Control	1-5
CR304.105	Perform the actions associated with Secondary Containment Control	1-5
CR314.101	Perform actions associated with Emergency RPV Depressurization	1-5

STA Tasks:

None

QUANTITATIVE ATTRIBUTES (Use this form for Evaluations only.)

Malfunctions:

Before EOP Entry:

1. RB to Torus Vacuum Breaker failure
2. APRM #4 Upscale
3. SJAE steam supply failure
4. RBCCW Pump trip
5. Loss of LC-101

After EOP Entry:

1. One rod fails to scram
2. 2 of 3 ADS SRVs fail to open during blowdown

Abnormal Events:

1. SJAE steam supply failure
2. RBCCW Pump Trip
3. Loss of LC-101

Major Transients:

1. Small, unisolable LOCA and Secondary Containment High Radiation Levels

Critical Tasks:

1. **{When a primary system is discharging into the secondary containment through an unisolable break, perform an Emergency Depressurization per C.5-2002 when max safe operating values are exceeded in two or more areas.}**
2. **{When Emergency Depressurization is required, operate additional SRVs as necessary to achieve a total of 3 open SRVs.}**

SCENARIO OVERVIEW:

INITIAL CONDITIONS:

1. 100% power.
2. Procedure 0141 (Reactor Building to Torus Vacuum Breaker Operability Check) is commenced. Step 1 has been completed.
3. The following equipment is OOS:
   - B RPS MG Set

SEQUENCE OF EVENTS:

Event 1:

- Perform Reactor Bldg. to Torus Vacuum Breaker Test.
- Valve fails to close which requires the CRS to address Tech Specs 3.6.1.6.

Event 2:

- APRM #4 fails Upscale
  The ATC will address this problem. The CRS will address Tech Specs for LCO 3.3.1.1.

Event 3

- Loss of Steam Supply to an SJAE.

Event 4:

- Rapid power Reduction is performed for the loss of Main Condenser vacuum

Event 5

- RBCCW Pump Trip with auto-start failure of standby pump.

Event 6:

- Loss of LC 101
- The Scram will NOT reset without RPS and the Discharge Volume can NOT be isolated.
- EOP 1100 and 1300 are performed.
- Crew will anticipate Emergency Depressurization, which becomes necessary due to elevated Reactor Bldg. Radiation levels.

Event 7:

- One Control Rod fails to scram and remains full out.
  ATC will identify this problem. When selected and driven in, the rod will become un-stuck and will fully insert.

Event 8:

- When Emergency Depressurization is performed, only 1 of 3 ADS SRVs open. Operator must open additional SRVs until a total of 3 are open.

NOTE: Table may be modified as needed to include all scenario time-line items

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
	INITIAL CONDITIONS (IC): • Mode: 1 • Power: 100% • Pressure: 1000 psig	ATC BOP SRO	
	1. <u>SIMULATOR SET UP</u> Reset to IC 284 per SIMULATOR INPUT SUMMARY and Manual Setting and Instructions		
	2. **<u>SHIFT BRIEF</u>** Verify crew performs walk down of control boards and reviews turnover checklists. **When asked for out plant status provide the following** <u>Turbine Building Status</u>: 5 Condensate F/D are in service, 'C' demin has highest d/p indication at 3.8 psid. All other conditions are normal. <u>Reactor Building Status</u>: All conditions are normal. At the completion of the shift brief inform the CRS that their crew has the duty.		CDF is GREEN, XCEL condition is GREEN. B RPS MG secured due to a bearing problem; B RPS being supplied by Alternate source. Reactor Bldg. to Torus Vacuum Breaker Test is due The following support is available: Day Shift <u>Operations</u>: normal crew compliment plus 3 relief crew NLOs <u>Maintenance</u>: Support available upon request <u>Engineering</u>: Support available upon request <u>Management</u> Support available upon request

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 1	**3. <u>RB to Torus Vacuum Breaker Test:</u>** a. Role play I&C Technician if necessary. DPIS readings for step 1 are provided. b. When AO-2380 is taken to OPEN, verify **Trigger 1** goes active and the following go active: a) Malfunction **02-S74-02**, AO-2380 handswitch open position goes True b) Remote **02-DS162-02**, AO-2380 green lamp off (False) after 11 seconds c. Role Play Ops Mgr as necessary for new LCO. Will call the Plant Mgr and NRC Resident	BOP	Perform Test 0141 (Reactor Building to Torus Vacuum Breaker Operability Check) • Verifies DPIS 2572 and 2573 are reading less than 0. (Step 1) • Open and time AO-2379. (Step 2) • Close and time AO-2379. (Step 2) • Open and time AO-2380. (Step 3) • Attempt to close and time AO-2380. (Step 3) • Report to the CRS that AO-2380 will <u>NOT</u> close. <u>Key Parameter Response</u>: Valve won't Auto Close. <u>Key Alarms</u>: None <u>Auto Actions</u>: None Evaluate Tech Spec 3.6.1.6 • Determine T.S. 3.6.1.6 Condition A is applicable; a 72 hour LCO to close the Vacuum Breaker.

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 2	4. APRM #4 fails Upscale		Key Parameter Response: APRM 4 upscale
	a. When directed by the lead evaluator, INSERT MANUAL **TRIGGER 3**.		Key Alarms: 5-A-30 (APRM Hi Hi INOP Ch 4, 5, 6), 5-B-5 (Reactor Auto Scram Channel B), 5-A-3 (Rod Withdraw Block)
	1) Verify the following Malfunction goes active:		Auto Actions: RPS B half scram.
	a) **NI13D**, APRM #4 Upscale	ATC	• Informs CRS • Observes #4 APRM HI HI/INOP light and #4 APRM recorder full scale • Observes RPS channel 'B' trip (1/2 scram)
		BOP	• Observes and reports HI HI light lit and meter full scale and INOP light NOT lit
		CRS	Evaluate TS 3.3.1.1, 3.3.2.1, TRM 3.3.2.1
	b. If called, respond as the Ops Manager, Plant Manager, and/or System Engineer		• Determine from Table 3.3.1.1-1 that the required number of channels, 2 per trip system, are available and Condition A.1 is met with the ½ scram. TRM 3.3.2.1 Req'd. action A.1 is met with the Rod Block. • Provides crew brief • Directs # 6 APRM unbypassed and #4 APRM bypassed and ½ scram reset
		ATC	Unbypasses # 5 and bypasses #4 APRM and resets the ½ scram

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 3	**5. Loss of Steam Supply to an SJAE.**		
	a. When directed by the lead evaluator, INSERT MANUAL **TRIGGER 5**.		Key Parameter Response: Degrading Condenser Vacuum Key Alarms: 7-A-20 (Offgas Annunciator) and 252-A-46 (11 SJAE Steam Supply Press Low Trip) Auto Actions: AO-1085A closes.
	1) Verify the following Malfunctions go active:		
	a) **MC04B**, Loss of Steam to SJAE	BOP	Perform actions from C.4-B.06.03.A (Decreasing Condenser Vacuum)
	b) **MC03**, Condenser air in-leakage at 0.5%		• Trip HWC by placing HS-4148 (HWC System Control) on OFF
	2) When requested to open the Mechanical Vacuum Pump suction valves, Role Play the in-plant operator as necessary.		• Notify the Chemist that HWC is out of service • Notify Radiation Protection Personnel of changing radiological conditions in MVP Room
	a) Wait Rapid Power Reduction has been initiated and at least 3 minutes. Open the MVP Suction valves modifying REMOTE FUNCTION **MC06 to 100%**		• Direct an in-plant operator to open MVP Suction Valves, OG-22-1and OG-22-2 • Identify that PI-1246 reading is NOT normal

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
	b. When Rapid Power Reduction with Recirc has been completed, restore SJAE pressure using Remote Function: 1) MC01, #11 SJAE PCV Bypass MS-24-1 to 18%		• Take manual control of PC-1246 and attempt to restore SJAE Sup pressure to 120-130 psig • Dispatch an in-plant operator to locally bypass the failed PCV using MS-24-1
Event 3	6. Loss of Steam Supply to an SJAE.	BOP	• When SJAE Supply pressure is restored to 120-130 psig, reset the SJAE supply trip using PB-1085 (SJAE Isolation Trip Reset) • Confirm that Offgas and Condenser Vacuum parameters return to normal
Event 4	7. Rapid power Reduction is performed for the loss of Main Condenser vacuum NOTE: If called, respond as the Ops Manager, Plant Manager, and/or System Engineer concerning notification of the event.	CRS ATC	Directs and supervises Rapid Power Reduction for Step 1 of C.4-B.06.03.A Performs Rapid Power Reduction per C.4.F • Reduces recirculation flow • Does NOT go below 35Mlb/hr

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 5	**8. RBCCW Pump Trip**		Key Parameter Response: Lowering RBCCW pressure Key Alarms: 6-B-32 (RBCCW Low Disch Press) Auto Actions: None, standby pump fails to start.
	Note: #12 Pump handswitch taken to stop during IC setup to defeat auto start feature. White Auto Start light is overridden on. a. When directed by the lead evaluator, INSERT MANUAL **TRIGGER 7** 1) Verify the following Malfunction goes active: a) **SW01A**, RBCCW Pump #11 Trip	BOP	• Check RBCCW Header Pressure, PI-1399 • Refer to C.4-B.02.05.A (Loss of RBCCW Flow) • Verify an RBCCW Pump is running. Pump must be taken to START because auto-start feature has failed.
	b. Role Play the Reactor Bldg operator as necessary	CRS	Direct Response to loss of RBCCW flow
Event 5 (cont'd)	9. RWCU restoration after RBCCW Pump Trip NOTE: RWCU isolates very quickly (≈12 seconds) upon loss of RBCCW to NRHX.	BOP	Respond to Annunciator C04-B31 (Cleanup Demin Temp Hi-Hi) • Verify Auto Actions o Cleanup Return CLOSED, MO-2399 o Cleanup Dump to Condenser CLOSED, MO-2404 o Cleanup Dump to Radwaste CLOSED, MO-2405

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
	a. When requested to close Demin Flow Control valves and place Demins in HOLD, use the following REMOTES: 1) RU01B, #11 Demin Flow CV to 0 2) RU02B, #12 Demin Flow CV to 0 3) RU03, #11 Demin to OUT SER 4) RU04, #12 Demin to OUT SER **10. Operator actions to restore RWCU may be more than what is necessary to complete an evaluation. Begin the next event:** **a. When directed by the Lead Evaluator <u>Or</u>** **b. When the BOP requests in-plant operator assistance to return the RWCU demins to service.**		o Both Cleanup pumps TRIPPED o Recognize the cause of the high-high temperature condition, loss of RBCCW • Notify Shift Supervision and System Engineer Restore Cleanup to service per B.2.2-05 G.9 • Dispatch an in-plant operator to close Demin Flow Control valves and place Demins in HOLD • Notify Shift Chemist of high-high temperature condition • Place Switch 12A-S7 in BYPASS • Verify Reactor Power <1772 MWt. • OPEN Demin Bypass, MO-2400 • Throttle open Cleanup Return until dual position indication, MO-2399

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 5 (cont'd)	11. RWCU restoration after RBCCW Pump Trip		• Throttle (fully) OPEN NRHX RBCCW out, MO-3501 • Start 11 or 12 RWCU Pump • When NRHX out is <125°F, return 12A-S7 to NORMAL
Event 6	**12. Loss of LC 101** a. When directed by the lead evaluator, INSERT MANUAL **TRIGGER 9**. 1) Verify the following Malfunctions go active: a) **ED06A**, Loss of LC 101 b) **CH22A**, SDV Vent failure to isolate c) **CH22B,** SDV Drain failure to isolate	BOP CRS	Key Parameter Response: Loss of power to LC-101 Key Alarms: 8-B-26 (No.101 Trans 480V Bkr Trip) Auto Actions: Full Scram due to a complete loss of RPS • Identify that Breaker 52-101 to LC 101 is open • Perform actions from C.4-B.9.7.A (Loss of Power to LC-101 or its MCCs • Notify Shift Supervision • Direct actions from C.4-B.9.7.A • Initiate an investigation to determine the cause of the loss of power • Correlate the loss of MCC-111 with the loss of RPS Scram using plant knowledge of Table MCC-111

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 6 Scram	13. Reactor Scram response (ATC): **NOTE: The scram is the result of the loss of LC-101 which was providing RPS power through A MG Set and the Alternate transformer.**	ATC	Actions per C.4-A (Reactor Scram): • Place Mode Switch in SHUTDOWN. • Verify all Control Rods are inserted to or beyond position 04. 1 Rod remains full out (See Event 7) • Provides scram script to CRS Reports when Reactor level drops to less than 9" EOP entry condition. • Monitor Reactor Power o Insert SRM and IRM detectors. o Switch recorders from APRM to IRM. o Range down on IRMs as necessary. • Verify SDV Vent and Drain Valves closed. • Reports to CRS that SDV Vent and Drain Valves are NOT closed.

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 7	14. One Control Rod fails to scram and remains full out. a. As requested, use REMOTE FUNCTION **CH22** to close CRD-14 b. When the ATC places the ROD MOVEMENT CONTROL switch to ROD IN to insert Rod 22-51, verify Trigger 11 goes active and MALFUNCTION **CH02_119**, Stuck Rod 22-51, is deleted.	ATC	Insert Rod 22-51 • Recognize that the scram can NOT be reset due to RPS power being lost with the loss of MCC-111 • Direct an in-plant operator to manually close CRD-14 • Bypass the RWM • Select and insert the full out rod
Event 6 Scram	15. Reactor Scram response (BOP):	BOP	Starts performance of Part B of C.4.A • Announce over the plant paging system that a Reactor Scram has occurred. • Open Main Generator output breakers 8N4 & 8N5. • Trip the Main Turbine. • Verify the Generator Field Breaker Open. • Start the Turbine Aux Oil Pump. • Verify Turbine Exhaust Hood Sprays in service. • Verify Main Steam Pressure Control or Low-Low Set is controlling Reactor Pressure.

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
Event 6	16. Scram Discharge Volume leak **<u>NOTE</u>: It takes approximately 4 minutes for area A-11, West CRD HCU, to reach Max Safe Rad levels (1R/hr). It takes an additional 4 minutes for the second area, A-15 Reactor Bldg Drain Tank, to reach Max Safe (1R/hr).**	BOP	Perform the actions of EOP-1300 (Secondary Containment Control) • The BOP will respond to and report annunciators o 3-B-56 (High Area Temp Steam Leak) o 4-A-11 (Reactor Building Hi Radiation) • Enter C.4-B.02.04.A, Steam Leaks Outside Primary Containment. • Directs evacuation of area or entire reactor building. • Reports RWCU room radiation levels and room temperatures are rising • Keeps the CRS informed of Secondary Containment parameter values and trends
		BOP/ ATC	• Attempts to manually close SDV isolation valves • If directed to anticipate Blowdown, takes the Turbine PRO to OPEN
		CRS	Enters EOP-1300 (Secondary Containment Control) • Direct isolation of the SDV • Monitors Secondary Containment parameters

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
	{When a primary system is discharging into the secondary containment through an unisolable break, perform an Emergency Depressurization per C.5-2002 when max safe operating values are exceeded in two or more areas.}		CRS May anticipate Blowdown per a C.5-1100 Override Statement and direct RPV pressure be lowered using the Turbine Bypass Valves • Recognizes when 2 area radiation levels have exceeded Max Safe • Enters and directs EOP-2002 (Blowdown) • Verifies Torus level > -5.9 ft. • Directs that 3 ADS SRVs be opened
Event 8	17. Alternate Depressurization **{When Emergency Depressurization is required, operate additional SRVs as necessary to achieve a total of 3 open SRVs.}**	BOP	Perform Emergency Depressurization • When directed by CRS, take 3 ADS SRVs to OPEN • Recognize that SRV C & D did <u>NOT</u> open • Informs the CRS of the failure • Use Alternate Depressurization systems o Open 2 non-ADS SRVs until a total of 3 SRVs are open • Monitor RPV Pressure and Level • Proceed to Cold Shutdown

SCENARIO TIME-LINE:			
SEQ	SEQUENCE OF EVENTS / INSTRUCTOR NOTES	CREW POS	EXPECTED STUDENT RESPONSES
	18. When the conditions are stabilized or at discretion of lead instructor/evaluator 19. End the scenario by placing the simulator in freeze	Crew:	• Remain in simulator for potential questions from evaluator. • No discussion of scenario or erasing of procedure marking is allowed.

SIMULATOR INPUT SUMMARY

Manual Trigger	Type	Code	Description	Delay	Ramp	Final Severity or Value	Event Trigger
5	Malfunction	MC04B	Loss of steam supply to #11 SJAE CV-1242			True	
9	Malfunction	ED06A	Loss of LC 101			True	
9	Malfunction	CH22A	SDV Vent failure to isolate			True	
9	Malfunction	CH22B	SDV Drain failure to isolate			True	
5	Malfunction	MC03	Condenser Air In-leakage			0.5%	
Initial Condition	Malfunction	CH02_119	Stuck Rod 22-51			True	11 ZD_CRDIN
7	Malfunction	SW01A	RBCCW Pump #11 Trip			True	
Initial Condition	Malfunction	AP08C	C SRV (RV2-71-C) stuck closed	0	0	True	
Initial Condition	Malfunction	AP08D	D SRV (RV2-71-D) stuck closed	0	0	True	
3	Malfunction	NI13D	APRM #4 Upscale			True	
Initial Condition	Override	02-S74-02	RB to Torus Vacuum Breaker Handswitch Open Position			True	1 ZD_PC800
Initial Condition	Override	02-DS162-02	AO-2380 Green Lamp	00:00:11		False (Off)	1 ZD_PC800
Initial Condition	Override	04-A1DS126-02	RBCCW Pump #12 White Lamp			ON	

SIMULATOR INPUT SUMMARY

Manual Trigger	Type	Code	Description	Delay	Ramp	Final Severity or Value	Event Trigger
Initial Condition	Override	01-DS121-02	C SRV Red Lamp			Off	
Initial Condition	Override	01-DS124-02	D SRV Red Lamp			Off	
*Initial Condition	Remote	PP02_120	RPS B Transfer to Alternate			Alternate	
*Initial Condition	Remote	TC01	Hood spray Valve			NORMAL	
As Requested	Remote	MC01	#11 SJAE PCV Bypass MS-24-1			18%	
As Requested	Remote	CH22	Close CRD-14			0%	
As Requested	Remote	RU01B	#11 Demin Flow CV			0%	
As Requested	Remote	RU02B	#12 Demin Flow CV			0%	
As Requested	Remote	RU03	#11 Demin			OUT SER	
As Requested	Remote	RU04	#11 Demin			OUT SER	
As Requested	Remote	MC06	Mechanical Vacuum Pump suction Valves			100%	

* = Built into IC and NOT shown on summary

Manual Setting and Instructions:

1. Reset to IC 284
2. Verify Event Trigger definitions:
    a. Trigger 1 as ZD_PC800
    b. Trigger 11 as ZD_CRDIN
3. Verify Initial Conditions
    a. APRM 2 and 6 are bypassed.
    b. RPS B being supplied by Alternate Source.
4. Verify Malfunctions, Overrides per Simulator Input Summary.
5. Verify availability of Procedure 0141 (Reactor Building to Torus Vacuum Breaker Operability Check) with Step 1 completed. DPIS 2573 reads – 10” and DPIS 2573 reads – 10” .

(This table may be modified based on site simulator)

Attach the following site-specific information as necessary:

- Simulator Set-up Checklist (before and after training)
- Pre-evaluation Brief Guide (for evaluations only)
- Post-evaluation Critique (for evaluations only)
- Turnover Log

Historical Record: New create

SIMULATOR SETUP CHECKLIST (IC *)

Before Training or Evaluation:

- ☐ Simulator in Training Load
- ☐ Alarm Sound "ON" on simulator console
- ☐ Simulator reset to correct IC (malfunctions, remotes, overrides entered per guide)
- ☐ MTF-7100-051 (Attendance Record) available
- ☐ Chart recorders operating and forwarded
- ☐ Tags hung per simulator guide (Caution, Danger, Info)
- ☐ Pens, paper, markers, available
- ☐ Turnover Sheet, LCO log, PRA sheet as applicable
- ☐ SPDS terminals operating
  - ☐ Verify that SPDS is the EOF has "MPIRT" in the lower right corner of display.
    - ☐ Verify "SPIRT" does NOT appear in the lower right corner. (If it does, contact John Shriver)
    - ☐ Check for outside air temperature approximately the same as real air temperature on the SPDS (another indication that the SPDS is indicating Live data or Simulator data).
- ☐ Process Computer alarm screen up and clear
- ☐ Numac alarms reset and displays off
- ☐ RWCU filter demin flows set to desired flow (approx. 80 gpm)
- ☐ RWCU temperature set between 115° and 118°F
- ☐ Generator MVAR loading ≤50 MVAR delivered
- ☐ Turbine lube oil temperature between 111° and 113°F
- ☐ Reactor water level control is in 3 element and Median selected (unless IC specifies a different configuration)
- ☐ Status board updated
- ☐ Verify all Hi / Hi-Hi alarms are reset on C-37 for neutron monitors.

Continued on Back

SIMULATOR SETUP CHECKLIST (IC *)
(Continued)

Before Evaluation Only:

- ☐ Videotape in VCR and setup to record (Taped evaluations only)
- ☐ Exam signs posted on all simulator doors
- ☐ Evaluation team briefed
- ☐ SEC contacted if participating
- ☐ Determine individual responsible for SEC duties if SEC NOT participating
- ☐ Phone volume at Instructor Console in the Simulator Control Room turned down

After Training for the Day

- ☐ Simulator reset to IC-15
- ☐ Tags removed from control panels
- ☐ Exam/Training signs turned around
- ☐ Procedures cleaned and put away
- ☐ Headsets turned off and put away
- ☐ Recorders stopped
- ☐ Phone volume at Instructor Console in the Simulator Control Room returned to normal

Simulator Scenario Development Checklist

Mark with an X Yes or No for any of the following. If the answer is No, include justification for the no answer or the corrective action needed to correct the discrepancy after the item.

1. The scenario contains objectives for the desired tasks and relevant human performance tools.	Yes	No
2. The scenario identifies key parameter response, expected alarms, and automatic actions associated with the induced perturbations.	Yes	No
3. The scenario content adequately addresses the desired tasks, through simulator performance, instructor-led training freezes, or both.	Yes	No
4. Plant PRA initiating events, important equipment, and important tasks are identified.	Yes	No
5. Turnover information includes a Daily At Power or Shutdown Safety Risk Assessment.	Yes	No
6. The scenario contains procedurally driven success paths. Procedural discrepancies are identified and corrected before training is given.	Yes	No
7. The scenario guide includes responses for all anticipated communications to simulated personnel outside the Control Room, based on procedural guidance and standard operating practices. Include estimated completion times and/or notes for use of time compression.	Yes	No
8. The scenario includes related industry experience. SOER, SER and similar OE recommendations are clearly identified and fully addressed.*	Yes	No
9. The scenario guide incorporates verification of Operator Fundamental application.*	Yes	No
10. Training elements and specific human performance elements are addressed in the scenario critique guide to be used by the critique facilitator. The critique guide includes standards for expected performance.*	Yes	No

Developer and Reviewer: Once checklist is completed and deficiencies are corrected, sign the cover page.

* For evaluations these items may be marked NO without justification.

Simulator Scenario Validation Checklist

Mark with an X Yes or No for any of the following. If the answer is No, include an explanation after the item.

1.	The desired initial condition(s) could be achieved.	Yes	No
2.	All malfunctions and other instructor interface items were functional and responded to support the simulator scenario.	Yes	No
3.	All malfunctions and other instructor interface items were initiated in the same sequence described within the simulator scenario.	Yes	No
4.	All applicable acceptance criteria were met for procedures that were used to support the simulator scenario.	Yes	No
5.	During the simulator scenario, observed changes corresponded to expected plant response.	Yes	No
6.	Did the scenario satisfy the learning or examination objectives without any significant simulator performance issues, or deviations from the approved scenario sequence? If learning objective(s) could not be satisfied, identify the objectives in the Simulator Action Request	Yes	No
7.	Evaluation: The simulator is capable of being used to satisfy learning or examination objectives without exceptions, significant performance discrepancies, or deviation from the approved scenario sequence.	Yes	No

Discrepancies noted (Check "none" or list items found) ☐ None
SMAR = Simulator Action Request

SMAR:_____ SMAR:_____ SMAR:_____ SMAR:_____

Comments:_____

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Validator: Sign the cover page only after noted discrepancies are corrected or compensatory actions are taken to ensure quality training.