

Facility: LGS Unit 1 Scenario No.: A Op-Test No.: \_\_\_\_\_

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Objectives: Execute GP-5 (Power Operations), S57.3.B (Primary Containment Pressure Control and Nitrogen Makeup), S06.0.E (Feedwater Level Control and Reactor Feed Pump Control System Manipulations), Tech Specs, OT-110 (Reactor High Level), T-103 (Secondary Containment Control), OT-114 (Inadvertent Opening of a Relief Valve), OT-101 (High Drywell Pressure), T-101 (RPV Control), T-102 (Primary Containment Control), SE-10 (LOCA), T-111 (Level Restoration), T-112 (Emergency Blowdown)

Initial Conditions: 85% Power, OPCON 1, "1C" SLC Pump is blocked for maintenance

Turnover: Perform nitrogen addition to the suppression pool to lower suppression pool oxygen concentration to less than 3%, Raise reactor power to 100%.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N(PRO)	Perform N <sub>2</sub> addition to suppression pool
	N/A	R(ALL)	Power increase to 100%
2	MFW046C	I(RO)	"1C" Steam Flow instrument fails to 100% of scale (triggered when power reaches 95%)
3	MHP451B	I(PRO)	Inadvertent HPCI inboard isolation due to failed high room temperature instrument (TE55-1N030D)
4	MAD138C	C(RO)	"1B" SRV fails open <sup>(mechanically)</sup> <del>(electrically)</del>
	MAD138B		"1B" SRV fails (stuck)
5	MRR440A, 0-20%	M(ALL)	Recirc Loop "A" rupture (0-20%)
	MCS183B	C(PRO)	"1B" Core Spray pump fails to start automatically (can be started using handswitch)

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

# I. SIMULATOR OPERATOR INSTRUCTIONS

## A. INITIAL SIMULATOR SETUP

✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	<ul style="list-style-type: none"> <li>■ Perform OTM 7.1 Checklist</li> </ul>
	<ul style="list-style-type: none"> <li>■ Reset Simulator to IC-51</li> </ul>
	<ul style="list-style-type: none"> <li>■ Take out of FREEZE and ensure the following:               <ul style="list-style-type: none"> <li>- Reactor power is approximately 85%</li> <li>- Suppression pool oxygen concentration is 3%</li> <li>- Indicating lights for "1C" SLC pump are not lit</li> <li>- Annunciator window I-1 on 108 REACTOR (1A/1B/1C STANDBY LIQUID PUMP MOTOR OVERLOAD/LOSS OF PWR) is lit</li> <li>- All other annunciator windows are clear</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>■ Place information tag on "1C" SLC pump key switch with the following information:                PERMIT NO: 00MMDDYY                EQUIP NAME/NUMBER: 1C STANDBY LIQUID CONTROL PUMP / 1CP208                REASON: BEARING REPLACEMENT                SIGNATURE/DATE: Sign your name/Today's date             </li> </ul>
	<ul style="list-style-type: none"> <li>■ Load Scenario LOT-00A from floppy disk labeled "00 LOT Scenarios" on A: drive and ensure the following malfunctions are loaded:               <ul style="list-style-type: none"> <li>• MAD138B, "1B" SRV fails stuck (active immediately)</li> <li>• MCS183B, "1B" Core Spray pump fails to start automatically (active immediately)</li> <li>• MRH528A, HV51-1F016A fails as is (closed) (active immediately)</li> <li>• MRH528D, HV51-1F021B fails as is (closed) (active immediately)</li> <li>• Annunciator window F-1 on 114 ISOL (DRYWELL HI OXYGEN) to "OFF" (active immediately)</li> <li>• Annunciator window F-3 on 114 ISOL (SUPPRESSION POOL HI OXYGEN) to "OFF" (active immediately)</li> <li>• 10S205 O<sub>2</sub> meter overridden to 30% of scale (3%)</li> </ul> </li> </ul>

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✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	<ul style="list-style-type: none"><li>• 10S206 O<sub>2</sub> meter overridden to 30% of scale (3%)</li><li>• 10S205 "HIGH O<sub>2</sub>" indicator light overridden OFF</li><li>• 10S206 "HIGH O<sub>2</sub>" indicator light overridden OFF</li><li>• MFW046C, 100%, "1C" Steam Flow instrument fails to 100% of scale (triggered when reactor power reaches 95%)</li><li>• MHP451B, Inadvertent HPCI inboard isolation due to failed high room temperature instrument (triggered 10 minutes after reactor power reaches 95%)</li><li>• Annunciator window I-5 on 107 REACTOR (DIV 4 STEAM LEAK DET SYS HI TEMP/TROUBLE) to "ON" (triggered 10 minutes after reactor power reaches 95%)</li><li>• MAD138C, "1B" SRV fails open electrically (triggered 21 minutes after reactor power reaches 95%)</li><li>• MRR440A (0-20%), Recirc Loop "A" rupture 0-20% severity, with a ramp time of 15 minutes (triggered 4 minutes after Reactor Mode Switch is placed in SHUTDOWN)</li></ul>
	■ Reset any annunciators that should not be present

**B. INSTRUCTIONS FOR SIMULATOR OPERATOR****EVENT 1: NITROGEN ADDITION TO SUPPRESSION POOL**

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>
	■ Respond as requested to calls for support

**EVENT 2: "1C" STEAM FLOW INSTRUMENT FAILS TO 100% OF SCALE**

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>
	■ If WWM / I&C / Floor Supervisor are contacted for investigation, inform crew a TRT (Troubleshooting, Rework, and Testing) form will be generated and routed to the MCR for approval.

**EVENT 3: INADVERTENT HPCI INBOARD ISOLATION**

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>
	■ If requested to perform T-290 in the Aux. Equip. Room, after 5 minutes, Report - Temperature element TE55-1N030D on TIS-25-101D (panel 10C611) is indicating three up arrows. All other temperature and radiation indications are normal in the Aux. Equip. Room.
	■ If requested, after 7 minutes, Report - HPCI room temperature indicates 86 deg. F. on panel 1BC208.
	■ If requested, after 8 minutes, Report - There is no sign of a steam leak or fire in the HPCI room.

### EVENT 4: INADVERTENT OPENING OF "1B" SRV, GP-4 (RAPID PLANT SHUTDOWN)

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<p>■ If requested, after 10 minutes, Remove fuses for "1B" SRV by toggling Remote Function RAD205 to "OUT". Report - The fuses have been removed for "1B" SRV per OT-114.</p>

### EVENT 5: RECIRC LOOP "A" RUPTURE (0-20%)

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<p>■ If requested, after 10 minutes, Reset shunt trips per SE-10-1 by loading scenario "shunt trip reset" (from Ops Training Scenario file) 2 minutes later, Report - shunt trips have been reset per SE-10-1.</p>
	<p>■ If requested, after 6 minutes, Reset RHRSW Radiation Monitor by toggling Remote Function RRM018 to RESET on Rad Monitoring (RM) page, then Report - RHRSW radiation monitors have been reset.</p>
	<p>■ If WWM / I&amp;C / Floor Supervisor contacted to investigate failure of "1B" Core Spray pump to auto start, inform the crew a TRT will be generated and routed to the MCR for approval.</p>
	<p>■ If T-240 directed, after 8 minutes, Open/close CRD pump discharge check valves as directed, and provide CRD pump discharge pressure indications as read on PMS Plant Parameter Status (Screen 904) for CRD Charging Pressure.</p>
	<p>■ If T-249 directed, after 10 minutes, Remove malfunction MHP451B, and report to the MCR that T-249 has been completed.</p>

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"><li>■ If requested, after 8 minutes, Report - there is no obvious problem with HV51-1F016A / HV51-1F021B. If asked, report that attempts to manually open either valve have been unsuccessful.</li></ul>

Op-Test No. \_\_\_\_\_

Scenario No.   A  Event No.:   1  

## Event Description:

Perform nitrogen addition to suppression pool; Raise power to 100%.

Time	Position	Applicant's Actions or Behavior
	CRS	Conduct pre-evolution brief for nitrogen addition
	PRO	Perform S57.3.A to add nitrogen to the suppression pool
	CRS	Conduct pre-evolution brief for power increase
	RO	Withdraw control rods IAW S73.1.A to 90%
	PRO	Raise power using recirc flow

Op-Test No. \_\_\_\_\_

Scenario No.   A  Event No.:   2  

## Event Description:

"1C" Steam flow instrument fails to 100% of scale, OT-110 Reactor High Level, S06.0.E Feedwater Level Control and Reactor Feed Pump Control System Manipulations

Time	Position	Applicant's Actions or Behavior
	RO	Recognize rise in RPV level
	RO	Reduce feedwater flow until normal RPV level is restored
	CRS	Enter and direct actions of OT-110, Reactor High Level
	RO	Reference appropriate ARC's
	CRS	Consider swapping FWLC to single element
	RO	If directed, swap FWLC to single element and return to automatic control per S06.0.E
	CRS	Contact personnel to troubleshoot failed "1C" steam flow instrument



Op-Test No. \_\_\_\_\_

Scenario No.   A  Event No.:   3  

## Event Description:

Inadvertent HPCI inboard isolation, Tech Specs, T-103 (Secondary Containment Control),  
T-290

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize HPCI inboard isolation
	PRO	Reference appropriate ARC's
	CRS	Enter and direct actions of T-103
	CRS	Direct performance of T-290
	PRO	Dispatch personnel to investigate HPCI isolation
	CRS	Reference Tech Specs for HPCI inoperability

Op-Test No. \_\_\_\_\_

Scenario No. AEvent No.: 4

## Event Description:

Inadvertent opening of "1B" SRV, OT-114 (Inadvertent Opening of a Relief Valve), GP-4 (Rapid Plant Shutdown), T-101 (RPV Control)

Time	Position	Applicant's Actions or Behavior
	RO	Recognize "1B" SRV open
	CRS	Enter and direct actions of OT-114, Inadvertent Opening of a Relief Valve
	PRO	Place 2 loops of suppression pool cooling in service
	RO	Reduce turbine inlet pressure to 900 psig.
	CRS	Direct GP-4, Rapid Plant Shutdown
	PRO	Transfer house loads
	PRO	Reduce recirc flow to minimum
	RO	Manually scram the reactor
	RO	Place reactor mode switch to SHUTDOWN
	CRS	Enter and direct actions of T-101, RPV Control
	RO	Insert SRM's/IRM's
	CRS	Verify all rods full in
	PRO	Trip the main turbine
	PRO	Ensure generator lockout
	RO	Restore and maintain RPV level between +12.5 to 54 inches using reactor feed pumps
	RO	Align FWLC for startup level control
	CRS	Direct fuses pulled for "1B" SRV per OT-114

Op-Test No. \_\_\_\_\_

Scenario No.   A  Event No.:   5  

## Event Description:

Recirc Loop "A" Rupture, OT-101 (High Drywell Pressure), T-101 (RPV Control), T-102 (Primary Containment Control), T-111 (Level Restoration), SE-10 (LOCA), T-112 (Emergency Blowdown)

Time	Position	Applicant's Actions or Behavior
	CREW	Recognize rising drywell pressure
	CRS	Enter and direct actions of OT-101, High Drywell Pressure
	CRS	Enter and direct actions of T-102, Primary Containment Control
	PRO	Secure both recirc pumps
	PRO	Maximize drywell cooling
	CRS	Direct suppression pool spray per T-225
	PRO	Place 1 loop of RHR in suppression pool spray per T-225
	RO	Increase feedwater injection to attempt to maintain RPV level
	PRO	Monitor RPV level ( <i>continuous</i> )
	CRS	Direct T-240
	RO	Perform T-240
	RO	Start "1A" and "1B" SLC pumps per S48.1.B
	PRO	Close MSIVs
	CRS	Direct drywell spray per T-225
	PRO	Attempt to place 1 loop of RHR in drywell spray per T-225
	CRS	Enter and direct actions of T-111, Level Restoration
	PRO	Inhibit Auto ADS
	CREW	Perform SE-10, LOCA
	PRO	Manually start "1B" Core Spray pump
	PRO	Dispatch personnel to investigate failure of HV51-1F016A / HV51-1F021B
	RO	Restart CRD and SLC pumps after LOCA signal
	CRS	Enter and direct actions of T-112, Emergency Blowdown

Op-Test No. \_\_\_\_\_

Scenario No.   A  Event No.:   5  

## Event Description:

Recirc Loop "A" Rupture, OT-101 (High Drywell Pressure), T-101 (RPV Control), T-102 (Primary Containment Control), T-111 (Level Restoration), SE-10 (LOCA), T-112 (Emergency Blowdown)

Time	Position	Applicant's Actions or Behavior
	PRO	Open 5 ADS valves
	PRO	Maintain RPV level above -161 inches

### CRITICAL TASKS

1. Direct drywell sprays when drywell temperature and pressure are on the SAFE side of Curve PC/P-2 (Drywell Spray Initiation Limit Curve), before exceeding 340 deg. F. drywell temperature or exceeding 55 psig drywell pressure.
2. When suppression pool pressure cannot be maintained on the SAFE side of Curve PC/P-3 (Pressure Suppression Pressure Curve), and before drywell pressure exceeds 55 psig, open 5 SRVs.
3. Operate injection systems to maintain reactor level greater than TAF.

### TERMINATION POINT

The scenario will be terminated when the following criteria are met:

1. 5 ADS/SRV's are open
2. RPV level is being maintained above -161" with LP ECCS systems

# SHIFT TURNOVER SHEET

## **UNIT 1 PLANT CONDITIONS:**

- OPCON 1
- 85% Reactor Power

## **INOPERABLE / OUT OF SERVICE EQUIPMENT:**

- "1C" Standby Liquid Control Pump is blocked for maintenance
  1. Maintenance activities are scheduled to be completed in 12 hours

## **ACTIVITIES PLANNED FOR THIS SHIFT:**

- Continue maintenance activities on "1C" Standby Liquid Control Pump
- Perform nitrogen addition to the suppression pool to lower suppression pool oxygen concentration to less than 3%.
- After nitrogen addition flowpath is established, raise reactor power to 100% using the Reactor Maneuvering Special Instructions provided.

# SHIFT TURNOVER SHEET

## **UNIT 1 PLANT CONDITIONS:**

- OPCON 1
- 100% Reactor Power

## **INOPERABLE / OUT OF SERVICE EQUIPMENT:**

- "1B" CRD Flow Control Valve is inoperable due to a damaged stem. "1A" CRD Flow Control Valve is in service.
- I&C is in the Aux. Equipment Room performing ST-2-042-649-1, RPS and NSSSS - Reactor Vessel Water Level - Low; Level 3; Division 1A; Channel A Functional Test (LIS42-1N680A). You can expect to receive periodic alarms due to this testing. A copy of the ST is provided for your review.
- Annunciator window D-2 on 107 REACTOR, RPV HEAD SEAL LEAKAGE, has alarmed and is believed to be due to a failed pressure switch. I&C is investigating.

## **ACTIVITIES PLANNED FOR THIS SHIFT:**

- I&C will continue performance of ST-2-042-649-1, and investigation of the RPV HEAD SEAL LEAKAGE alarm.
- You are to reduce reactor power to 75% using RMSI, then remove "1B" Condensate Pump from service to allow investigation of a possible ground on the motor.

Facility: LGS Unit 1 Scenario No.: B Op-Test No.: \_\_\_\_\_

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
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Objectives: Execute S12.2.A (Shutdown of RHR Service Water Pumps and System), ON-101 (Loss of Isolated Phase Bus Cooling), Reactor Maneuvering Shutdown Instructions, Tech Specs., GP-5 (Power Operations), T-101 (RPV Control), T-117 (Level/Power Control), T-102 (Primary Containment Control)

Initial Conditions: 95% Power, OPCON 1, #3 APRM has failed inoperable and is bypassed, "1B" EHC pump motor is blocked for bearing replacement, RHR Suppression Pool Cooling was secured about 90 minutes ago, and chemical treatment of the "1B" RHR heat exchanger has been in progress for the past hour.

Turnover: Maintain 95% power, secure "0B" RHR Service Water pump

Event No.	Mal. No.	Event Type*	Event Description
1	N/A	N(PRO)	Secure "0B" RHR Service Water pump
	MRM019A	I(PRO)	RHR Service Water Radiation Monitor fails upscale
2	ANN 118 SERVICES, I-5	C(PRO)	Loss of Isolated Phase Bus Cooling
		R(ALL)	Power reduction to less than 20,000 amps Main Generator output current per ON-101
3	REG003	M(ALL)	Generator Lockout / Turbine Trip
	MRP029D	I(ALL)	Failure to Scram; "B" RPS fails to trip
	MRP407C		Failure to Scram; Both RRCS ARI Divisions fail
4	MSL559		SLC Injection line ruptures inside the drywell
5	MCR412C	C(RO)	"1A" CRD Pump trip; "1B" CRD Pump will not start
6	MEH112A	C(PRO)	"1A" EHC Pump trip

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor



**I. SIMULATOR OPERATOR INSTRUCTIONS****A. INITIAL SIMULATOR SETUP**

✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	<ul style="list-style-type: none"> <li>■ Perform OTM 7.1 Checklist</li> </ul>
	<ul style="list-style-type: none"> <li>■ Reset Simulator to IC-54</li> </ul>
	<ul style="list-style-type: none"> <li>■ Take out of FREEZE and ensure the following:               <ul style="list-style-type: none"> <li>- Reactor power is approximately 95%</li> <li>- "1B" EHC Pump handswitch is in Pull-To-Lock</li> <li>- Indicating lights for "1B" EHC pump are not lit</li> <li>- Annunciator window H-3 on 105 MAIN TURB (EHC HYD FLUID STANDBY PUMP NOT IN AUTO) is lit</li> <li>- #3 APRM is INOP</li> <li>- APRM Bypass joystick is positioned to "3" to bypass the #3 APRM</li> <li>- "0B" RHR Service Water Pump is in service through the "1B" RHR heat exchanger</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>■ Place information tag on "1B" EHC pump control switch with the following information:                PERMIT NO: 00MMDDYY                EQUIP NAME/NUMBER: 1B EHC PUMP / 1BP113                REASON: BEARING REPLACEMENT                SIGNATURE/DATE: Sign your name/Today's date             </li> </ul>
	<ul style="list-style-type: none"> <li>■ Load Scenario LOT-00D from floppy disk labeled "00 LOT Scenarios" on A: drive and ensure the following malfunctions are loaded:               <ul style="list-style-type: none"> <li>• MRP029D, "1B" RPS fails to scram (active immediately)</li> <li>• MRP407C, Both RRCS ARI Divisions fail (active immediately)</li> <li>• MRM019A, RHR Service Water Radiation Monitor fails upscale (active 4 minutes after "0B" RHR Service Water Pump is secured)</li> <li>• UNIT 1 ISOPHASE BUS COOLER TROUBLE annunciator to "ON" (active 9 minutes after "0B" RHR Service Water Pump is secured)</li> <li>• REG003, Generator Lockout / Turbine Trip (active when Control Rod 22-55 reaches full in position)</li> </ul> </li> </ul>

✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	<ul style="list-style-type: none"><li>• MSL559, SLC Injection Line rupture inside the Drywell (active 7 minutes after Generator Lockout / Turbine Trip)</li><li>• MCR412C, "1A" CRD Pump trip; "1B" CRD Pump will not start (active when reactor power reaches 20%)</li><li>• MEH112A, "1A" EHC Pump trip (active 6 minutes after reactor power reaches 20%)</li></ul>
	<ul style="list-style-type: none"><li>■ Reset any annunciators that should not be present</li></ul>

**B. INSTRUCTIONS FOR SIMULATOR OPERATOR****EVENT 1: SECURE "0B" RHR SERVICE WATER PUMP, RHR SERVICE WATER RADIATION MONITOR FAILURE**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"> <li>Respond as requested to calls for support</li> </ul>
	<ul style="list-style-type: none"> <li>If WWM / I&amp;C / Floor Supervisor called to investigate RHRSW Radiation monitor failure, wait 8 minutes, then Report - the "0A" RHRSW rad monitor is failed upscale due to an electronic failure. A Troubleshooting, Rework, and Testing (TRT) form will be generated and routed to the MCR for approval.</li> </ul>
	<ul style="list-style-type: none"> <li>If Chemistry is called to sample RHRSW, wait 10 minutes, then Report - RHRSW rad levels are normal</li> </ul>

**EVENT 2: LOSS OF ISOLATED PHASE BUS COOLING, POWER REDUCTION TO LESS THAN 20,000 AMPS MAIN GENERATOR OUTPUT CURRENT**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"> <li>If Equipment Operator sent to 10C930, "Isolated Phase Bus Cooler Control Panel", then after 4 minutes, Report - Both Isolated Phase Bus Cooling fans are off. All attempts to start a fan have been unsuccessful.</li> </ul>
	<ul style="list-style-type: none"> <li>If WWM / I&amp;C / Floor Supervisor are contacted for investigation, inform crew a TRT (Troubleshooting, Rework, and Testing) form will be generated and routed to the MCR for approval.</li> </ul>

**EVENT 3: GENERATOR LOCKOUT / TURBINE TRIP / FAILURE TO SCRAM**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"> <li>If requested to perform T-221, after 11 minutes, toggle Remote Function RTR051 on TRIPS page. Report - T-221 is complete in Unit 1 Aux. Equipment Room.</li> </ul>

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>  ■ If requested to perform T-270 in the Aux. Equipment Room, after 7 minutes, load scenario T-270 from Ops Training Scenario file. After T-270 completed,  Report - T-270 is completed in the Unit 1 Aux. Equip. Room.
	■ If requested to perform T-251, after 6 minutes, contact the MCR to verify HV51-1F006 is closed. When the MCR reports HV51-1F006 is closed, then toggle Remote Function RTR309 in TRIPS.  Report - T-251 is complete on Unit 1.
	■ If requested to perform T-216, wait until RPV level has been intentionally lowered per T-270, re-injection has been established, and level is stable, then, toggle Remote Function RTR114 in TRIPS.  Report - T-216 is complete on Unit 1
	■ If requested to perform T-215, wait 7 minutes, then  Report - We are having difficulty removing the fuses. I&C has been called for assistance.

**EVENT 4: SLC INJECTION LINE RUPTURE INSIDE THE DRYWELL**

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>
	■ If Equipment Operator / Floor Supervisor contacted to investigate SLC discharge pressure low, after 10 minutes,  Report - There is no obvious problem observed from Reactor Enclosure 283' elevation

**EVENT 5: "1A" CRD PUMP TRIP**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"><li>■ If Equipment Operator / Floor Supervisor contacted to investigate "1A" CRD pump trip, then after 6 minutes, Report - There is a "B" phase overcurrent trip on the "1A" CRD pump breaker.</li></ul>
	<ul style="list-style-type: none"><li>■ If Equipment Operator contacted to start "1B" CRD pump, then after 2 minutes, Report - there is a significant amount of oil on the floor behind the "1B" CRD pump. It appears the oil is leaking from the "1B" CRD pump.</li></ul>
	<ul style="list-style-type: none"><li>■ If WWM / Electrical Maintenance / Floor Supervisor are contacted for investigation, inform the crew a TRT (Troubleshooting, Rework, and Testing) form will be generated and routed to the MCR for approval.</li></ul>

**EVENT 6: "1A" EHC PUMP TRIP**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"><li>■ If Equipment Operator contacted to investigate loss of "1A" EHC pump, then after 5 minutes Report - "1A" EHC pump breaker has tripped open. There is no obvious reason why it tripped open.</li></ul>
	<ul style="list-style-type: none"><li>■ If WWM / Electrical Maintenance / Floor Supervisor are contacted for investigation, inform the crew a TRT (Troubleshooting, Rework, and Testing) form will be generated and routed to the MCR for approval.</li></ul>

Op-Test No. \_\_\_\_\_

Scenario No. DEvent No.: 1

## Event Description:

Secure "0B" RHR Service Water Pump, RHR Service Water Radiation Monitor Failure

Time	Position	Applicant's Actions or Behavior
	PRO	Secure "0B" RHR Service Water Pump
	PRO	Recognize RHR Service Water Radiation Monitor failure
	PRO	Reference appropriate ARCs
	CRS	Reference ODCM Section 3.2.1 and 3.2.2 for inoperable RHRSW Radiation Monitor. Recognize samples required every 8 hours.
	CRS	Request WWM / I&C / Floor Supervisor to investigate failure of RHRSW Radiation Monitor
	CRS	Contact Chemistry to sample RHRSW

Op-Test No. \_\_\_\_\_

Scenario No.   D  Event No.:   2  

## Event Description:

Loss of Isolated Phase Bus Cooling, Power Reduction to less than 20,000 amps Main Generator Output Current

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize Isolated Phase Bus Cooler Trouble
	PRO	Reference appropriate ARCs
	CRS	Enter and direct actions of ON-101, Loss of Isolated Phase Bus Cooling
	PRO	Dispatch an Equipment Operator to investigate Isolated Phase Bus Cooler Trouble alarm
	CRS	Within 10 minutes of alarm, direct power reduction to less than 20,000 amps Main Generator Output Current
	PRO	Reduce power to 90% using recirc flow
	RO	Reduce power to less than 20,000 amps using control rod insertion
	CRS	Request WWM / Electrical Maintenance / Floor Supervisor to investigate failure of both Isolated Phase Bus Cooling Fans

Op-Test No. \_\_\_\_\_

Scenario No.   D  Event No.:   3  

## Event Description:

Generator Lockout / Turbine Trip / Failure to Scram

Time	Position	Applicant's Actions or Behavior
	CREW	Recognize Main Turbine Trip
	RO	Recognize failure to scram
	CRS	Enter and direct actions of T-101, RPV Control
	RO	Manually Scram the reactor
	RO	Place Reactor Mode Switch to SHUTDOWN
	RO	Insert SRMs/IRMs
	PRO	Control RPV pressure using ADS/SRVs
	RO	Manually initiate RRCS
	CRS	Direct performance of T-215
	CRS	Direct performance of T-216
	CRS	Direct performance of T-219
	RO	Restore feedwater injection to the RPV following feedwater runback
	RO	Perform T-219
	PRO	Inhibit Auto ADS
	RO	Verify SLC injecting to the RPV
	RO	Verify RWCU isolation
	CRS	Enter and direct actions of T-117, Level/Power Control
	CRS	Direct T-221 performance
	CRS	Direct HPCI isolation
	PRO	Manually isolate HPCI
	CRS	Direct T-251 performance
	CRS	Direct manual control rod insertion
	RO	Manually insert control rods



Op-Test No. \_\_\_\_\_

Scenario No.   D  Event No.:   4  

Event Description:

SLC Injection Line Rupture Inside the Drywell

Time	Position	Applicant's Actions or Behavior
	RO	Recognize SLC pump discharge pressure lower than reactor pressure
	CRS	Direct the RO to secure SLC pumps
	RO	Secure all three SLC pumps
	CRS	Dispatch Equipment Operator / Floor Supervisor to investigate SLC low discharge pressure

Op-Test No. \_\_\_\_\_

Scenario No.   D  Event No.:   5  

## Event Description:

"1A" CRD Pump Trip

Time	Position	Applicant's Actions or Behavior
	RO	Recognize Trip of the "1A" CRD pump
	CRS	Direct RO to place "1B" CRD pump in service
	RO	Request Equipment Operator to investigate loss of "1A" CRD pump and prepare for start of "1B" CRD pump
	CRS	Request WWM / I&C / Floor Supervisor to investigate equipment problems on both CRD pumps

Op-Test No. \_\_\_\_\_

Scenario No.   D  Event No.:   6  

## Event Description:

"1A" EHC Pump Trip

Time	Position	Applicant's Actions or Behavior
	RO	Recognize Trip of the "1A" EHC pump
	CREW	Recognize Bypass Valves are closing
	CRS	Direct PRO to stabilize RPV pressure using ADS/SRVs
	CRS	Enter and direct actions of T-102, Primary Containment Control
	CRS	Direct 2 loops of Suppression Pool Cooling placed in service
	PRO	Place 2 loops of Suppression Pool Cooling in service
	CRS	At 110 deg. F. Suppression Pool temperature, direct T-270
	PRO	Perform T-270 actions for HPCI, RHR, and Core Spray
	RO	Perform T-270 actions for Condensate/Feedwater
	CRS	Direct T-270 performance in the Aux. Equipment Room
	RO	Re-initiate Condensate/Feedwater injection to the RPV when injection criteria met
	RO	Maintain RPV level within limits as directed by the CRS
	RO	Recognize Control Rod insertion due to completion of T-216
	CRS	Exit T-117, Enter T-101 RC/L

### CRITICAL TASKS

1. Implement T-216 to insert control rods
2. Terminate and prevent injection to the RPV to lower level in an ATWS per T-270
3. Inhibit Auto ADS

### TERMINATION POINT

The scenario will be terminated when the following criteria are met:

1. RPV level is above Top of Active fuel (-161") and not dropping
2. All Control Rods are fully inserted

Facility: LGS Unit 1 Scenario No.: C Op-Test No.: \_\_\_\_\_

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Objectives: Execute S92.2.N to secure D13 Diesel Generator (Shutdown of the Diesel Generators), Tech Specs., E-1AY160 (Loss of 1A RPS/UPS Power), ON-104 (Control Rod Problems), Reactor Maneuvering Shutdown Instructions, OT-101 (High Drywell Pressure), T-101 (RPV Control), T-102 (Primary Containment Control), T-112 (Emergency Blowdown), T-116 (RPV Flooding)

Initial Conditions: 100% Power, OPCON 1, "0B" Control Enclosure Chiller is out of service for replacement of the chiller compressor lube oil pump, D13 Diesel Generator was started, synchronized to the D13 Bus, and loaded to 2000 KW for the past two (2) hours per S92.1.O.

Turnover: Unload and secure D13 Diesel Generator

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N(PRO)	Unload and secure D13 Diesel Generator per S92.2.N
2	152-11707/CS "TRIP" ON	I(PRO)	D13 Diesel Generator Output Breaker trips due to overcurrent instrument failure, followed by report from EO that there is an engine oil leak.
	MDG418C		D13 Diesel Generator trips 8 minutes after D13 speed controller taken to "lower" (if not secured manually)
3	MED280A	C(PRO)	Loss of 1AY160
	MRD016F, 34-27	C(RO)	Control Rod 34-27 Scrams on loss of 1AY160
	On SIMINS Screen		Thermal Limits violation: MFLCPR = 1.02
		R(ALL)	Power decrease to 80%
	On SIMINS Screen		Thermal Limits normal: MFLCPR = 0.94
4	MMS067, 0-3000 gpm	M(ALL)	Steam Leak in the Drywell (0-3000 gpm, ramp over 15 minutes)
5	MRH171A	C(PRO)	"1A" RHR Pump trip
6	MVI236F	I(ALL)	All RPV level reference legs flash, causing RPV level to become unknown

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

**I. SIMULATOR OPERATOR INSTRUCTIONS****A. INITIAL SIMULATOR SETUP**

✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	<ul style="list-style-type: none"> <li>■ Perform OTM 7.1 Checklist</li> </ul>
	<ul style="list-style-type: none"> <li>■ Reset Simulator to IC-53</li> </ul>
	<ul style="list-style-type: none"> <li>■ Take out of FREEZE and ensure the following:               <ul style="list-style-type: none"> <li>• Reactor power is approximately 100%</li> <li>• Indicating lights for "0B" Control Enclosure Chiller are not lit</li> <li>• Annunciator window D-4 on 002 VENT (B Control Structure Chiller Out of Service) is lit</li> <li>• All other annunciator windows are clear</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>■ Place information tag on "0B" Control Enclosure Chiller handswitch with the following information:                PERMIT NO: 00MMDDYY                EQUIP NAME/NUMBER: 0B CONTROL ENCLOSURE CHILLER / 0BK112                REASON: LUBE OIL PUMP REPLACEMENT                SIGNATURE/DATE: Sign your name/Today's date             </li> </ul>
	<ul style="list-style-type: none"> <li>■ Load Scenario LOT-00C from floppy disk labeled "00 LOT Scenarios" on A: drive and ensure the following malfunctions are loaded:               <ul style="list-style-type: none"> <li>• MRH171A, "1A" RHR Pump trip (active immediately)</li> <li>• 152-11707/CS "TRIP" ON, D13 Diesel Generator Output Breaker trips (active 3 minutes after the D13 Diesel Generator speed controller is taken to lower)</li> <li>• D13 D-G BKR TRIP annunciator to "ON" (active 3 minutes after the D13 Diesel Generator speed controller is taken to lower)</li> <li>• D13 D-G TROUBLE annunciator to "ON" (active 4 minutes after the D13 Diesel Generator speed controller is taken to lower)</li> <li>• MDG418C, D13 Diesel Generator auto trips (active 8 minutes after the D13 Diesel Generator speed controller is taken to lower)</li> <li>• MED280A, Loss of 1AY160 (active 10 minutes after D13 Diesel Generator speed controller is taken to lower)</li> <li>• MRD016F, 34-27, Control Rod 34-27 Scrams on loss of 1AY160 (active 10 minutes D13 Diesel Generator speed controller is taken to lower)</li> <li>• MMS067, 0-3000 gpm, Steam Leak in the Drywell (0-3000 gpm, ramp over 15 minutes )(active 8 minutes after PCIG isolation is bypassed)</li> </ul> </li> </ul>

✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	• MVI236F, All RPV level reference legs flash, causing RPV level to become unknown (active when RPV pressure drops below 200 psig)
	■ Reset any annunciators that should not be present

**B. INSTRUCTIONS FOR SIMULATOR OPERATOR****EVENT 1: PERFORM 92.2.N TO UNLOAD AND SECURE D13 DIESEL GENERATOR**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	■ Respond as requested to calls for support

**EVENT 2: D13 DIESEL GENERATOR OUTPUT BREAKER TRIPS DUE TO OVERCURRENT INSTRUMENT FAILURE**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	■ If Equipment Operator is contacted in D13 Diesel Generator Bay, then immediately,  Report - "I have a LUBE OIL PRESSURE LO alarm on the local panel. There is a significant oil leak on the D13 Diesel engine. I'm still trying to pinpoint exactly where the oil is leaking from."
	■ If WWM / I&C / Floor Supervisor contacted to investigate D13 Diesel Generator output breaker trip, or oil leak on D13 Diesel engine, inform the crew a TRT will be generated and routed to the MCR for approval.

**EVENT 3: LOSS OF 1AY160, CONTROL ROD 34-27 SCRAMS, THERMAL LIMITS VIOLATION, POWER REDUCTION**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"> <li>■ If Equipment Operator / Floor Supervisor is requested to investigate the loss of 1AY160, then after 5 minutes, Report - One of the RPS/UPS inverter series output breakers has tripped open on overvoltage.</li> </ul>
	<ul style="list-style-type: none"> <li>■ If WWM / I&amp;C / Floor Supervisor contacted to investigate the loss of 1AY160, inform the crew a Troubleshooting, Rework and Testing (TRT) form will be generated and routed to the MCR for approval.</li> </ul>
	<ul style="list-style-type: none"> <li>■ If Equipment Operator / Floor Supervisor is requested to investigate the HCU for control rod 34-27, then after 8 minutes, Report - The fuse for the "B" RPS scram pilot solenoid valve for control rod 34-27 is blown.</li> </ul>
	<ul style="list-style-type: none"> <li>■ If Reactor Engineering contacted for the thermal limit violation, then inform the crew that a review of the thermal limit data will be conducted, and a recovery plan will be developed and brought to the MCR as soon as possible.</li> </ul>

**EVENT 4: STEAM LEAK IN THE DRYWELL (0 - 3000 gpm)**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"> <li>■ If requested, after 10 minutes, Reset shunt trips per SE-10-1 by loading scenario "shunt trip reset" (from Ops Training Scenario file) 2 minutes later, Report - shunt trips have been reset per SE-10-1.</li> </ul>
	<ul style="list-style-type: none"> <li>■ If requested, after 6 minutes, Reset RHRSW Radiation Monitor by toggling Remote Function RRM018 to RESET on Rad Monitoring (RM) page, then Report - RHRSW radiation monitors have been reset.</li> </ul>



**EVENT 5: "1A" RHR PUMP TRIP**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"><li>■ If WWM / I&amp;C / Floor Supervisor contacted to investigate trip of the "1A" RHR pump, then 6 minutes later, Report - the "1A" RHR pump breaker has an overcurrent trip on the "B" phase. A Troubleshooting, Rework and Testing (TRT) form will be generated and routed to the MCR for approval.</li></ul>

**EVENT 6 ALL RPV LEVEL REFERENCE LEGS FLASH, CAUSING RPV LEVEL TO BECOME UNKNOWN**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<ul style="list-style-type: none"><li>■ I&amp;C contacted to backfill reference legs per T-255, Report - it will take about 40 minutes before we can begin backfilling the first reference leg. We'll let you know when we are ready to begin.</li></ul>

Op-Test No. \_\_\_\_\_

Scenario No.   C  Event No.:   1  

## Event Description:

Perform S92.2.N to Unload and Secure D13 Diesel Generator

Time	Position	Applicant's Actions or Behavior
	CRS	Conduct pre-evolution brief for securing D13 Diesel Generator
	PRO	Secure D13 Diesel Generator per S92.2.N

Op-Test No. \_\_\_\_\_

Scenario No.   C  Event No.:   2  

## Event Description:

D13 Diesel Generator Output Breaker Trip Due to Overcurrent Instrument Failure

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize trip of the D13 Diesel Generator output breaker
	PRO	Reference appropriate ARCs
	PRO	Contact Equipment Operator in D13 Diesel Generator Bay to determine cause of D13 D-G TROUBLE alarm
	PRO	Recognize failure of D13 Diesel Generator to auto trip, and the need to shutdown D13 Diesel Generator due to oil leak
	CRS	Direct the PRO to secure D13 Diesel Generator
	PRO	Secure D13 Diesel Generator
	CRS	Contact WWM / I&C / Floor Supervisor to investigate D13 Diesel Generator output breaker trip and oil leak on D13 Diesel Generator

Op-Test No. \_\_\_\_\_

Scenario No   C  Event No.:   3  

## Event Description:

Loss of 1AY160, Control Rod 34-27 Scrams, Thermal Limits Violation, Power Reduction

Time	Position	Applicant's Actions or Behavior
	RO	Recognize half scram signal
	PRO	Recognize loss of 1AY160
	RO	Recognize one control rod scrammed
	CRS	Enter and direct actions of E-1AY160
	CRS	Enter ON-113, Loss of RECW
	PRO	Bypass and restore RECW flow to recirc. pumps per E-1AY160
	PRO	Bypass and restore DWCW flow per E-1AY160
	PRO	Bypass and restore Instrument Gas per E-1AY160
	CRS	Enter and direct actions of ON-104, Control Rod Problems
	RO	Recognize MFLCPR limit is being exceeded (value of 1.02)
	CRS	Reference GP-14, Resolution of Thermal Limit Violations
	PRO	Reduce recirc flow until reactor power is 90%
	RO	Insert control rods per Reactor Maneuvering Shutdown Instructions until reactor power is less than or equal to 80%
	RO	Recognize MFLCPR limit is now less than 1.00
	CRS	Contact Reactor Engineering for guidance
	CRS	Contact WWM / I&C / Floor Supervisor to investigate loss of 1A RPS/UPS power and Control Rod 34-27 inadvertent scram

Op-Test No. \_\_\_\_\_

Scenario No. CEvent No.: 4

## Event Description:

Steam Leak in the Drywell (0 - 3000 gpm)

Time	Position	Applicant's Actions or Behavior
	RO	Recognize rising drywell pressure
	CRS	Enter and direct actions of OT-101, High Drywell Pressure
	CRS	Direct Reactor Scram before 1.68 psig drywell pressure
	RO	Manually scram the reactor
	RO	Place reactor mode switch to SHUTDOWN
	CRS	Enter and direct actions of T-101, RPV Control
	CRS	When Drywell pressure reaches 1.68 psig, enter and direct actions of T-102, Primary Containment Control
	RO	Insert SRM's/IRM's
	CRS	Verify all rods full in
	PRO	Trip the main turbine
	PRO	Ensure generator lockout
	RO	Restore and maintain RPV level between +12.5 to 54 inches using reactor feed pumps
	RO	Align FWLC for startup level control
	PRO	Recognize HPCI start on 1.68 psig drywell pressure
	PRO	Minimize HPCI injection if HPCI not needed for RPV level control
	CRS	Direct the bypasses of RECW and PCIG be removed
	PRO	Maximize drywell cooling
	CRS	Direct Suppression Pool Spray per T-225
	PRO	Place one loop of RHR in Suppression Pool Spray per T-225
	CRS	Direct RWCU isolation per OT-101
	PRO	Isolate RWCU per OT-101
	CRS	Direct MSIVs closed to stabilize RPV pressure

Op-Test No. \_\_\_\_\_

Scenario No.   C  Event No.:   4  

## Event Description:

Steam Leak in the Drywell (0 - 3000 gpm)

Time	Position	Applicant's Actions or Behavior
	PRO	Close MSIVs
	PRO	Bypass and restore H <sub>2</sub> /O <sub>2</sub> analyzers
	CRS	When on safe side of Drywell Spray Initiation Limit Curve, direct drywell spray per T-225
	CREW	Recognize LOCA signal
	CRS	Perform SE-10, LOCA
	CRS	Recognize inability to stay on safe side of Pressure Suppression Pressure Curve
	CRS	Enter and direct actions of T-112, Emergency Blowdown
	RO	Open 5 ADS valves

Op-Test No. \_\_\_\_\_

Scenario No.   C  Event No.:   5  

## Event Description:

"1A" RHR Pump Trip

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize trip of "1A" RHR pump
	CRS	Contact WWM / I&C / Floor Supervisor to investigate trip of "1A" RHR pump

Op-Test No. \_\_\_\_\_

Scenario No.   C  Event No.:   6  

## Event Description:

All RPV Level Reference Legs Flash, Causing RPV Level to Become Unknown

Time	Position	Applicant's Actions or Behavior
	CREW	Recognize RPV level unknown
	CRS	Enter and direct actions of T-116, RPV Flooding
	CRS	Direct all injection sources started and aligned to inject to the RPV
	CRS	Direct RCIC isolation
	CRS	Ensure MSIVs closed
	CRS	Ensure Main Steam Line Drain Valves closed
	PRO	Close RCIC isolation valves
	CRS	Direct 5 ADS valves opened (if not performed per T-112)
	RO	Open 5 ADS valves (if not performed per T-112)
	CREW	Establish RPV pressure at least 50 psig above suppression pool pressure and not dropping, with 5 ADS/SRVs open
	CRS	Request I&C perform T-255 to backfill reference legs



### CRITICAL TASKS

1. Direct drywell sprays when drywell temperature and pressure are on the **SAFE** side of Curve PC/P-2 (Drywell Spray Initiation Limit Curve), before exceeding 340 deg. F. drywell temperature or exceeding 55 psig drywell pressure.
2. When RPV level cannot be determined, perform Emergency Blowdown per T-116.
3. Operate injection systems to maintain 5 ADS/SRVs open with RPV pressure at least 50 psig above suppression pool pressure and not dropping

### TERMINATION POINT

The scenario will be terminated when the following criteria are met:

1. 5 ADS/SRV's are open
2. RPV pressure is being maintained at least 50 psig above suppression pool pressure and is not dropping

# SHIFT TURNOVER SHEET

## UNIT 1 PLANT CONDITIONS:

- OPCON 1
- 95% Reactor Power
- RHR Suppression Pool Cooling was secured about 90 minutes ago, and chemical treatment of the "1B" RHR heat exchanger has been in progress for the past hour.

## INOPERABLE / OUT OF SERVICE EQUIPMENT:

- #3 APRM has failed inoperable and is bypassed
- "1B" EHC pump motor is blocked for bearing replacement

## ACTIVITIES PLANNED FOR THIS SHIFT:

- Maintain 95% reactor power
- Secure "0B" RHR Service Water pump

Facility: LGS Unit 1 Scenario No.: B D Op-Test No.: SPARE

Examiners: \_\_\_\_\_ Operators: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Objectives: Execute GP-5 (Power Operations), Reactor Maneuvering Shutdown Instructions, S05.2.A (Shutdown of a Condensate Pump), OT-117 (RPS Failures), Tech Specs, T-101 (RPV Control), T-103 (Secondary Containment Control), ON-102 (Air Ejector Discharge or Main Steam Line High Radiation), T-112 (Emergency Blowdown)

Initial Conditions: 100% Power, OPCON 1, "1B" CRD Flow Control Valve is inoperable due to a damaged stem (1A Flow Control Valve is in service), I&C is in the Aux. Equipment Room performing ST-2-042-649-1, RPS and NSSSS - Reactor Vessel Water Level - Low; Level 3: Division 1A; Channel A Functional Test (LIS-42-1N680A); the "RPV HEAD SEAL LEAKAGE" alarm (107 REACTOR Window D-2) has annunciated and is believed to be due to a failed pressure switch. I&C is investigating.

Turnover: Reduce power to 75%, then remove "1B" Condensate Pump from service to allow investigation of a possible ground on the motor.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	R(ALL)	Power decrease to 75%
	N/A	N(PRO)	Perform S05.2.A to secure "1B" Condensate Pump
2	MVI232B		"A" Narrow Range Level instrument fails downscale
	MRP029A	I(RO)	RPS fails to generate a half scram when "A" Narrow Range Level Instrument fails downscale
3	MNS159F	I(PRO)	Inadvertent Group 6C isolation
4	MMS136 (1%)	M(ALL)	Steam leak in outboard MSIV room (1%)
	MMS061C		"C" MSL Inboard Isolation Valve fails open
	MMS062C		"C" MSL Outboard Isolation Valve fails open
	MRT001B, (1048 pins)	C(RO)	Fuel Failure (1048 fuel pins)
	RAD208	C(PRO)	"1E" ADS valve fails to open electrically (blown fuses)

\* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor

**I. SIMULATOR OPERATOR INSTRUCTIONS****A. INITIAL SIMULATOR SETUP**

✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	<ul style="list-style-type: none"> <li>■ Perform OTM 7.1 Checklist</li> </ul>
	<ul style="list-style-type: none"> <li>■ Reset Simulator to IC-52</li> </ul>
	<ul style="list-style-type: none"> <li>■ Take out of FREEZE and ensure the following:               <ul style="list-style-type: none"> <li>- Reactor power is approximately 100%</li> <li>- "1B" CRD flow control valve is closed and "1A" CRD flow control valve is open</li> <li>- Annunciator window D-2 on 107 REACTOR (RPV HEAD SEAL LEAKAGE) is lit</li> <li>- All other annunciator windows are clear</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>■ Place information tag on "1B" CRD flow control valve with the following information:               <p>PERMIT NO: 00MMDDYY</p> <p>EQUIP NAME/NUMBER: 1B CRD FLOW CONTROL VALVE / FV-C-46-1F002B)</p> <p>REASON: BENT VALVE STEM</p> <p>SIGNATURE/DATE: Sign your name/Today's date</p> </li> </ul>
	<ul style="list-style-type: none"> <li>■ Load Scenario LOT-00B from floppy disk labeled "00 LOT Scenarios" on A: drive and ensure the following malfunctions are loaded:               <ul style="list-style-type: none"> <li>• MMS061C, "C" MSL Inboard Isolation Valve fails open (active immediately)</li> <li>• MMS062C, "C" MSL Outboard Isolation Valve fails open (active immediately)</li> <li>• MRP029A, RPS fails to scram (AUTO only) (active immediately)</li> <li>• RAD208, "1E" ADS valve fails to open electrically (blown fuses) (active immediately)</li> <li>• MVI232B, "A" Narrow Range Level instrument fails downscale (Activated 5 minutes after "1B" condensate pump discharge valve handswitch is taken to close)</li> <li>• MNS159F, Inadvertent Group 6C Isolation (Activated 3 minutes after "A" RPS trips)</li> </ul> </li> </ul>

✓	ITEM / MALFUNCTION / REMOTE FUNCTION / CONDITION
	<ul style="list-style-type: none"><li>• MMS136, Steam leak in outboard MSIV room (1%) (Activated 13 minutes after "A" RPS trips)</li><li>• MRT001B, Fuel failure (1048 fuel pins) (Activated 4 minutes after Reactor Mode Switch is placed in SHUTDOWN)</li><li>• MRM040, ARM Channel 21 (RWCU Pump Area) increases to 10,000 mr/hr over a 5 minute ramp time (Activated 5 minutes after Reactor Mode Switch is placed in SHUTDOWN)</li><li>• MRM041, ARM Channel 22 (RWCU Heat Exchanger Area) increases to 10,000 mr/hr over a 5 minute ramp time (Activated 5 minutes after Reactor Mode Switch is placed in SHUTDOWN)</li></ul>
	■ Reset any annunciators that should not be present

**B. INSTRUCTIONS FOR SIMULATOR OPERATOR****EVENT 1: POWER REDUCTION TO 75%; SECURE "1B" CONDENSATE PUMP**

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>
	■ Respond as requested to calls for support

**EVENT 2: "A" NARROW RANGE RPV LEVEL INSTRUMENT FAILS DOWNSCALE; RPS FAILS TO GENERATE A HALF SCRAM**

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>
	■ If WWM / I&C / Floor Supervisor are contacted for investigation, inform crew a TRT (Troubleshooting, Rework, and Testing) form will be generated and routed to the MCR for approval.

**EVENT 3: INADVERTENT GROUP 6C ISOLATION**

✓	<b>MALFUNCTION / REMOTE FUNCTION / REPORT</b>
	■ If WWM / I&C / Floor Supervisor are contacted for investigation, inform crew a TRT (Troubleshooting, Rework, and Testing) form will be generated and routed to the MCR for approval.

**EVENT 4: STEAM LEAK OUTSIDE PRIMARY CONTAINMENT (1%); FUEL FAILURE; "1E" ADS VALVE FAILURE**

✓	MALFUNCTION / REMOTE FUNCTION / REPORT
	<p>■ If Equipment Operator / Floor Supervisor are contacted to isolate instrument air from HV41-1F028C, after 7 minutes,</p> <p>Report - current radiation levels on Reactor Enclosure elevation 283 are too high. HP will not allow access to 283 elevation.</p>
	<p>■ If requested to perform T-290 (<b>initial request</b>) in the Aux. Equipment Room, after 5 minutes,</p> <p>Report - Outboard MSIV room temperatures are _____ Deg. F. for instruments TE41-1N010A and TE41-1N014.</p> <p>(Give actual data from Simulator Instructor Station monitor, by clicking on Reactor Enclosure button under "Readings", and giving temperature for MS/FW Pipe Chase Rm 407/518)</p> <p>■ If requested to perform T-290 (<b>followup requests</b>) in the Aux. Equipment Room, then immediately,</p> <p>Report - Outboard MSIV room temperatures are _____ Deg. F.</p> <p>Report - RWCU Pump room and RWCU Heat Exchanger Area radiation levels are _____ mr/hr (Give actual data from Simulator Instructor Station monitor, by clicking on ARMs and giving radiation indications for channels 21 and 22.)</p>
	<p>■ If requested to perform T-236, after 10 minutes,</p> <p>Report - T-236 has been completed on Unit 1</p>
	<p>■ If WWM / I&amp;C / Floor Supervisor contacted to investigate failure of "1E" ADS valve solenoid to energize, inform the crew a Troubleshooting, Rework and Testing (TRT) form will be generated and routed to the MCR for approval.</p>

Op-Test No. \_\_\_\_\_

Scenario No.   B  Event No.:   1  

## Event Description:

Reduce Power to 75%; Secure "1B" Condensate Pump.

Time	Position	Applicant's Actions or Behavior
	CRS	Conduct pre-evolution brief for power decrease
	CRS	Notify Load Dispatcher of power reduction
	PRO	Reduce power to 90% using recirc. flow per RMSI
	RO	Reduce power to 75% using control rods per RMSI
	CRS	Notify Chemistry of >15% power change
	CRS	Conduct pre-evolution brief for securing "1B" Condensate Pump
	PRO	Secure "1B" Condensate Pump per S05.2.A



Op-Test No. \_\_\_\_\_

Scenario No.   B  Event No.:   2  

## Event Description:

"A" Narrow Range RPV level instrument fails downscale; RPS fails to generate a half scram

Time	Position	Applicant's Actions or Behavior
	RO	Recognize RPS failure to generate an "A" half scram
	CRS	Enter and direct actions of OT-117, RPS Failures
	RO	Insert manual half scram on "A" RPS
	CRS	Call WWM / I&C/ Floor Supervisor to investigate failure of RPS to automatically generate a half scram

Op-Test No. \_\_\_\_\_

Scenario No.   B  Event No.:   3  

Event Description:

Inadvertent Group 6C isolation

Time	Position	Applicant's Actions or Behavior
	PRO	Recognize inadvertent Group 6C isolation
	PRO	Reference appropriate ARC's
	CRS	Reference Tech Specs for inoperability of 10S205 H <sub>2</sub> /O <sub>2</sub> analyzer
	PRO	Call WWM / I&C / Floor Supervisor to investigate inadvertent Group 6C isolation
	PRO	Use P&ID's / Op-Aid in Control Room Information Book to determine if either H <sub>2</sub> /O <sub>2</sub> analyzer is still operable

Op-Test No. \_\_\_\_\_

Scenario No. BEvent No.: 4

## Event Description:

Steam leak outside primary containment (1%); Fuel failure; "1E" ADS valve failure

Time	Position	Applicant's Actions or Behavior
	CREW	Recognize steam leak in secondary containment
	RO	Recognize reactor has failed to automatically scram
	CRS	Enter and direct actions of T-101, RPV Control
	RO	Manually scram the reactor
	RO	Place reactor mode switch to SHUTDOWN
	RO	Insert SRMs / IRMs
	CRS	Verify all rods full in
	PRO	Trip main turbine
	PRO	Ensure Generator Lockout
	PRO	Recognize Group I isolation with failure of "C" MSL isolation valves to close
	PRO	Attempt to close "C" MSL isolation valves using handswitches
	PRO	Direct Equipment Operator / Floor Supervisor to manually isolate pneumatic supply to "1C" Outboard MSIV
	RO	Stabilize RPV level using condensate/feedwater
	CRS	Enter and direct actions of T-103, Secondary Containment Control
	CRS	Direct performance of T-290
	CRS	Direct evacuation of Reactor Enclosure
	RO	Recognize high radiation condition inside secondary containment
	CRS	Re-enter and direct actions of T-103, Secondary Containment Control
	CRS	Recognize 2 areas have exceeded Max. Safe Operating Radiation levels
	CRS	Enter and direct actions of T-112, Emergency Blowdown

Op-Test No. \_\_\_\_\_

Scenario No.   B  Event No.:   4  

## Event Description:

Steam leak outside primary containment (1%); Fuel failure; "1E" ADS valve failure

Time	Position	Applicant's Actions or Behavior
	PRO	Take handswitches for all 5 ADS valves to open
	PRO	Recognize "1E" ADS valve fails to open, and open another SRV until a total of 5 ADS/SRVs are open
	CRS	Call WWM / I&C / Floor Supervisor to investigate failure of "1E" ADS valve

### CRITICAL TASKS

1. Recognize failure of RPS to generate a half scram signal, and manually insert a half scram using the arm-and-depress pushbuttons.
2. Direct performance of T-290 to operations personnel located outside the Main Control Room.
3. Perform Emergency Blowdown per T-112 after it has been determined that two areas in Table SCC-2 have exceeded max. safe operating values and a primary system is still discharging into secondary containment.
4. Recognize failure of one ADS valve to open, and open another SRV until a total of 5 ADS/SRVs are open.

### TERMINATION POINT

The scenario will be terminated when the following criteria are met:

1. 5 ADS/SRV's are open
2. Direction has been given to attempt to close the MSIVs from outside the MCR

# SHIFT TURNOVER SHEET

## **UNIT 1 PLANT CONDITIONS:**

- OPCON 1
- 100% Reactor Power

## **INOPERABLE / OUT OF SERVICE EQUIPMENT:**

- "0B" Control Enclosure Chiller is out of service for replacement of the chiller compressor lube oil pump
- D13 Diesel Generator was started, synchronized to D13 Bus, and loaded to 2000 KW for the past two (2) hours.

## **ACTIVITIES PLANNED FOR THIS SHIFT:**

- Continue maintenance activities on "0B" Control Enclosure Chiller
- Unload and Secure D13 Diesel Generator