

**FINAL AS-ADMINISTERED SCENARIOS**

**FOR THE LASALLE EXAMINATION THE WEEK OF NOVEMBER 13, 2000**

## Scenario Outline

Facility: LaSalle StationScenario No.: ESG 1.1Op Test No.: 1

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

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

**Initial Conditions:**

- Unit 1 is operating at 85% reactor power with flow control line at 105%.
- TLO Temperature controller in manual.
- 1C RHR Pump is OOS for breaker repair.
- 1B IN Compressor is OOS for lube oil change.
- Online Safety level is green.
- Unit 2 is operating at 100% power.

**Turnover:**

- Unit 1 is in a Division 2 work week.
- LOS-VG-M1 is scheduled to be performed this shift.
- A flow control line adjustment is also scheduled for this shift.
- Reactor Power has been reduced to 85% to allow for rod moves.
- The Control Rod Maneuver Request has been approved.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N RO SRO	Perform VG monthly surveillance IAW LOS-VG-M1.
2	N/A	R BOP SRO	Withdraw control rods to 110% flow control line.
3	CAEP	C RO SRO	Stuck control rod (30-39) due to excess friction.
4	MRD131	I RO SRO	Loss of rod position indication (30-23) at specific notch position.
5	CAEP	I BOP SRO	RCIC drain pot alarm w/failure of 1E51-F054 to open automatically (can be opened with control switch).
6	MCA004	C BOP SRO	VG supply fan trips on overload.
7	MES019	M ALL BOP SRO	RCIC steam supply line breaks with a failure of isolation valves to close.
8	CAEP		Failure of RCIC steam supply valve 1E51-F063.
9	CAEP		Failure of RCIC steam supply valve 1E51-F008.

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

**Narrative Summary**

<b>Event(s)</b>	<b>Description</b>
1.1.1	Once the turnover is completed, The SRO should direct the RO to withdraw control rods to the 110% flow control line. The RO should withdraw control rods in accordance with LGP 3-1, LOP-RM-01, and the rod sequence package.
1.1.2	The SRO should also direct the BOP operator to perform the VG monthly surveillance in accordance with LOS-VG-M1.
1.1.3	While pulling control rods for flow control line adjustment, a control rod will be stuck. The RO should refer to the abnormal operating procedures (LOA-RD-101). The rod can be moved by increasing drive pressure.
1.1.4	Also while moving control rods, the RO should find that rod position indication has failed (single notch position) for one of the rods to be moved. The crew should refer to the abnormal operating procedures and tech specs for required action.
1.1.5	After FCL rod moves are complete, drain trap failure will cause the hi level alarm on the RCIC steam line drain pot to come in. A failure of a hi level instrument switch will disable automatic opening of the 1E51-F054, requiring the BOP operator to take action to operate the valve using the control switch and lower drain pot level. The Crew should determine appropriate tech spec and administrative actions for the instrument failure.
1.1.6	Once the crew has carried out actions for the RCIC drain pot alarm, the VG supply fan trips on overload. The BOP should acknowledge/announce the alarms and refer to the applicable alarm procedures. The BOP should realign the VG train for shutdown and dispatch an operator locally to investigate the cause of the trip. The SRO should refer to tech specs for required action.
1.1.7, 8, 9	Once actions have been completed for the VG supply fan trip, the steam supply line breaks for the reactor core isolation cooling system (RCIC) with a failure of the isolation valves to close. The BOP should recognize the situation and attempt to manually isolate RCIC. The SRO should enter LGA-02 on high secondary containment temperature and LGA-01 for reactor pressure and level control after the scram. With the RCIC area temperature reaching maximum safe values, the crew should scram. As area temperatures rise in the secondary containment, the crew should emergency depressurize per the emergency operating procedures.

**Critical Tasks**

1. Crew recognizes primary release in secondary containment and manually scrams prior to 2 or more area temperatures reaching the "Max Safe" levels.
2. Crew recognizes failure of RCIC steam line isolation valves to close on valid isolation conditions, and take actions to attempt to isolate the line.
3. Crew performs an emergency depressurization (ADS) when area temperatures exceed Max Safe levels in more than one area. If crew elects to rapidly depressurize with BPVs and thus prevents second area from reaching max safe, this critical task should be considered met.

**Shift Turnover Information**⇒ **Day of week and shift**

- ◆ Monday Day Shift

⇒ **Weather conditions**

- ◆ No adverse weather conditions expected in the next 24 hours

⇒ **(Plant power levels)**

- |                               |                           |
|-------------------------------|---------------------------|
| ◆ Unit 1 - 85% Power/101% FCL | ◆ Unit 2 – 100% Power     |
| ◆ 2965 MWt                    | ◆ 3323 MWt                |
| ◆ 945 MWe                     | ◆ 1142 MWe                |
| ◆ 85 Mlbm/hr CORE FLOW        | ◆ 108.5 Mlbm/hr CORE FLOW |

⇒ **Thermal Limit Problems/Power Evolutions**

- |   |        |
|---|--------|
| ◆ A flow control line adjustment is scheduled for this shift.   | ◆ None |
| ◆ Reactor Power has been reduced to 85% to allow for rod moves. | ◆      |
| ◆ The Control Rod Maneuver Request has been approved.           | ◆      |

⇒ **Existing LCOs, date of next surveillance**

- |                                |        |
|--------------------------------|--------|
| ◆ T/S 3.5.1, 7 days for 1C RHR | ◆ None |
| ◆                              | ◆      |

⇒ **LOSs in progress or major maintenance**

- |   |        |
|---|--------|
| ◆ LOS-VG-M1 is in progress and complete to step 2.. | ◆ None |
| ◆ 1C RHR Pump OOS for breaker repair.               | ◆      |
| ◆ 1B IN Compressor is OOS for lube oil change.      | ◆      |

⇒ **Equipment to be taken out of or returned to service this shift/maintenance on major plant equipment**

- |        |        |
|--------|--------|
| ◆ None | ◆ None |
| ◆      | ◆      |

⇒ **Comments, evolutions, problems, etc.**

- |  |  |
|--|--|
| ◆ Online Safety is Green (RAW = 1.0)       | ◆ Online Safety is Green (RAW = 1.0)       |
| ◆ The Unit 1 is in a Division 2 work week. | ◆ The Unit 2 is in a Division 2 work week. |
| ◆ TLO Temperature controller in manual.    |  |

## Operator Actions

<b>Event No.(s):</b> 1.1.2		<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> The SRO should direct the BOP operator to perform the VG monthly surveillance in accordance with LOS-VG-M1.		
<b>Initiation:</b> Following shift turnover on the signal of lead examiner		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Actions or Behavior
	BOP	Per LOS-VG-M1: <ul style="list-style-type: none"> <li>Open 1VG001, U1 SBT Inlet Isol Vlv.</li> <li>Notify the Chemistry Technician on duty to take samples per ODCM.</li> <li>Start 1VG01C, U1 SBT primary fan and record the fan start time.</li> <li>VERIFY the following damper positions on Panel 1PM07J:               <ul style="list-style-type: none"> <li>1VG003, U1 SBT Dsch Isol Vlv, open.</li> <li>1VG002Y, U1 SBT Flow Cont Vlv, throttled</li> </ul> </li> <li>Verify 1VG01A, U1 SBT Elec Heating Coil is ON.</li> <li>When the system has been running for one hour, record system parameters.</li> <li>Perform the Shiftly Surveillance channel check for the SBT PRM system on LOS-AA-S101.</li> <li>Inspect the Filter Train locally for excessive vibration, high fan bearing temperatures, or other abnormal parameters or noises.</li> </ul>
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands</li> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Authorizes and directs performance of scheduled surveillance</li> <li>Enforces OPS expectations and standards</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Ensures OPS activities are completed as scheduled.</li> </ul>
<b>Terminus:</b> VG train in operation and 1 hour wait period (for readings) started		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.1.1		<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> Once the turnover is completed, The SRO should direct the RO to withdraw control rods to the 110% flow control line.		
<b>Initiation:</b> Following shift turnover on the signal of lead examiner		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Actions or Behavior
	RO	Per LGP-3-1 and LOP-RM-01: <ul style="list-style-type: none"> <li>Place additional condensate polishers into service as necessary, per LOP-CP-02.</li> <li>Increase power as recommended by QNE.</li> <li>Verify Rod Select power available with rod position information correct on Four Rod Display.</li> <li>Verify withdraw block light de-energized when rod is selected.</li> <li>Press rod withdraw push-button, release and verify the following:               <ul style="list-style-type: none"> <li>Rod insert light is lit and a drive flow of approximately four gpm is indicated.</li> <li>Rod withdraw light is lit and drive flow of approximately two gpm is indicated.</li> <li>Rod position indication on Four Rod Display shows new rod position.</li> <li>Observe changes in nuclear instrumentation indications.</li> <li>Rod settle light is lit for approximately 6 seconds.</li> </ul> </li> </ul>
	BOP	<ul style="list-style-type: none"> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Directs actions above.</li> <li>Enforces OPS expectations and standards</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Ensures OPS activities are completed as scheduled.</li> </ul>
<b>Terminus:</b> Clearly observable plant response from change in power level.		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.1.3		<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> While pulling control rods for flow control line adjustment, control rod 30-39 will be stuck. The rod can be moved by increasing drive pressure.		
<b>Initiation:</b> Will occur automatically when rod is selected		
<b>Cues:</b> No rod motion after W/D pushbutton is depressed		
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOP-RM-01:</p> <ul style="list-style-type: none"> <li>• If desired, RAISE CRD Drive Pressure Initially by no more than 100 psid.</li> <li>• Apply single withdraw signal.</li> <li>• If control rod fails to withdraw, attempt to withdraw by double clutching.</li> <li>• If rod does not withdraw, repeat Steps with drive pressure not to exceed 450 psid.</li> <li>• If control rod still can not be withdrawn, consult LOA-RD-101.</li> </ul> <p>Per LOA-RD-101:</p> <ul style="list-style-type: none"> <li>• Verify CRD Hydraulic System configuration is normal.</li> <li>• Raise Drive pressure to 500 psid and attempt to withdraw control rod per control rod sequence.</li> <li>• If rod fails to move, raise Drive Water Pressure to 550 psid.</li> <li>• If/when rod is successfully positioned, return Drive Water pressure to NORMAL.</li> <li>• NOTE applicable information in Unit Log and LOP-RM-01, Attachment A.</li> <li>• Closely monitor further movements of affected rod.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Directs actions above</li> <li>• Ensures RO is aware that moving a rod at elevated pressure may cause it to double notch.</li> <li>• Enforces OPS expectations and standards</li> <li>• Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> </ul>
<b>Terminus:</b> Rod has been positioned using elevated drive pressure IAW LOA-RD-101		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.1.4		<b>Page</b> 1 <b>of</b> 2
<b>Description:</b> Rod position indication fails (single notch position) for rod 30-23 while being withdrawn.		
<b>Initiation:</b> Will occur automatically when rod is at failed notch position		
<b>Cues:</b> No rod position on 4-Rod Display, RWM, or process computer (OD7).		
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOA-RM-101, For Loss of RPIS Display:</p> <ul style="list-style-type: none"> <li>• Prior to notching control rods to verify position displays, a Qualified Nuclear Engineer shall be consulted for guidance.</li> <li>• Complete Attachment B of LOA RM-01 and Forward a copy to IMD for Troubleshooting.</li> <li>• Check several rods for different four-rod displays -only one four rod display has failed RPIS.</li> <li>• Check RPIS INOP alarm - OFF when rods with good display are selected.</li> <li>• Attempt to notch withdraw peripheral rod at position 48 - normal withdraw sequence results.</li> <li>• Check all rods in selected four rod display - ONLY one rod has failed RPIS.</li> <li>• Complete actions per Tech. Spec. 3.1.3.7. If a rod must be fully inserted, perform Att. C. If a rod must be declared INOP, refer to Tech Spec. 3.1.3.1. <ul style="list-style-type: none"> <li>◦ Bypass RWM</li> <li>◦ Disable blocks on RWM per LOP-RW-01</li> <li>◦ Insert rod position for inoperable position: <ul style="list-style-type: none"> <li>◆ Process computer using OD-14, Option 1.</li> <li>◆ RWM</li> </ul> </li> </ul> </li> <li>• Check affected rod(s) - Left at operable position</li> </ul>

## NOTES:




## Operator Actions

Event No.(s): 1.1.4		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	BOP	<p>Per LOA-RM-101, For Loss of RPIS Display:</p> <ul style="list-style-type: none"> <li>Check DMM "RPIS LOST" LED - OFF (RMCS Display Memory Module Source Selector Card (1) at back of panel 1H13-P603 lower left of file monitor cards (4)).</li> </ul> <p>General:</p> <ul style="list-style-type: none"> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Directs actions above</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Declares failed notch position indicator inoperable and IAW T/S 3.1.3.7, directs one of the following:             <ul style="list-style-type: none"> <li>Moves rod by single notch movement to an operable position then returns rod to its original position and verifies no drifts once every 12 hours.</li> <li>Moves rod to position with operable indication.</li> </ul> </li> </ul>
<b>Terminus:</b> Crew has addressed failed RPI and SRO has directed one of the T/S actions listed.		

NOTES:

[illegible]

## Operator Actions

<b>Event No.(s):</b> 1.1.5		<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> Drain trap failure will cause the hi level alarm on the RCIC steam line drain pot to come in. A failure of a hi level instrument switch will disable automatic opening of the 1E51-F054. Valve can be operated from CR using C/S.		
<b>Initiation:</b> After crew has addressed RPIS failure, on the signal of lead examiner		
<b>Cues:</b> Annunciator 1H13-P601-D502 alarming		
Time	Position	Applicant's Actions or Behavior
	BOP	Per LOR-1H13-P601-D502 <ul style="list-style-type: none"> <li>Recognizes failure of 1E51-F054, RCIC Turbine Inlet Steam Line Water Drain Pot Trap Bypass to open and opens the valve manually.</li> <li>Verifies AO-1E51-F025 and AO-1E51-F026, Upstream and Downstream RCIC Turbine Inlet Steam Line Water Drain Pot Normal Drains are open, if MO-1E51-F045, RCIC Turbine Steam Supply Stop, is closed.</li> <li>Initiate a PIF for each occurrence.</li> <li>Initiate an Action Request for 1E51-D003.</li> </ul>
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands</li> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Directs actions listed above.</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Declares interlock for 1E51-F054 inoperable and considers actions based on T/S 3.7.3. Acceptable responses would include:               <ul style="list-style-type: none"> <li>Declare RCIC inoperable based on "attendant controls" not performing its function and moisture accumulation concerns. System may be tripped or disabled from auto operation. Enter 14 day timeclock.</li> <li>Declare RCIC degraded but operable and establish some action to monitor for proper drain trap performance.</li> </ul> </li> <li>Enforces OPS expectations and standards.</li> <li>Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul>
<b>Terminus:</b> Drain Pot level alarm clear, SRO has addressed T/S's and directed actions accordingly.		

## NOTES:


## Operator Actions

<b>Event No.(s):</b>	4.1.6	<b>EVENT NOT USED</b>	<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> The running VG supply fan trips on overload.			
<b>Initiation:</b> After RCIC problem has been addressed, on the signal of lead examiner			
<b>Cues:</b> Annunciator LOR-1PM07J-A502 alarming			
<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>	
	BOP	Per LOR-1PM07J-A502 <ul style="list-style-type: none"> <li>• Verify trip of Standby Gas Treatment System Primary Fan 1VG01C and start of Standby Gas Treatment System Cooling Fan 1VG02C.</li> <li>• Dispatches operator to Reactor Building 480V MCC 136X-1, to reset breaker for Standby Gas Treatment System Supply Fan 1VG01C.</li> <li>• Verify proper shutdown of Standby Gas Treatment System Supply Fan 1VG01C per LOP-VG-02, Shutdown of Standby Gas Treatment System.</li> <li>• If SBGT was running for testing, initiate appropriate troubleshooting.</li> <li>• Verify 74 Relay at 136X-1 MCC is not chattering. Control Circuit logic allows a small voltage to remain on 74 Relay after Thermal Overload trip. This condition could cause relay chatter and possible premature relay failure.</li> <li>• If appropriate, initiate Action Request to have 74 (Alarm) Relay or Standby Gas Treatment System Supply Fan 1VG01C repaired.</li> <li>• Refer to CTS Section 3.6.5.3 (ITS Section 3.6.4.3).</li> </ul>	
	RO	<ul style="list-style-type: none"> <li>• Monitors reactor to ensure operations remain within established bands</li> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>	
	SRO	<ul style="list-style-type: none"> <li>• Directs actions listed above.</li> <li>• Declares U1 SBGT inoperable and directs system shutdown.</li> <li>• Complies with action statement(s) for T.S. Section 3.6.5.3 (ITS Section 3.6.4.3). Enters 7 day timeclock</li> <li>• Enforces OPS expectations and standards</li> <li>• Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> </ul>	
<b>Terminus:</b> VG train shutdown, SRO has addressed T.S. requirements.			

## NOTES:


## Operator Actions

Event No.(s): 1.1.7, 1.1.8, 1.1.9			Page 1 of 3
<b>Description:</b> The steam supply line breaks for the reactor core isolation cooling system (RCIC) with a failure of isolation valves 1E51-F008 and 1E51-F063 to close.			
<b>Initiation:</b> After VG fan trip has been addressed, on the signal of lead examiner			
<b>Cues:</b> Multiple secondary containment area temperature and area radiation alarms			
Time	Position	Applicant's Actions or Behavior	
	RO <b>Critical Task</b>	Performs EOP actions as directed by SRO <ul style="list-style-type: none"> <li>Initiate a manual reactor scram before any two area temperatures exceed Max Safe temperatures</li> <li>Per LGP-3-2 Attachment E (hardcard):               <ul style="list-style-type: none"> <li>Arm and Depress scram pushbuttons</li> <li>Place mode switch in Shutdown</li> <li>Insert IRMs and SRMs</li> <li>Check rods in and power decreasing</li> <li>Inform Unit Supervisor rods are in and power is decreasing</li> <li>Operate FW to control level 12.5 to 55.5 inches</li> <li>Report level and pressure are following expected trends</li> <li>Verified RR downshifted to slow speed</li> <li>Verify turbine and generator are tripped</li> <li>Stabilize pressure &lt;1043 psig</li> </ul> </li> <li>Coordinates with BOP operator to monitor and control RPV level and press.</li> </ul>	
	BOP <b>Critical Task</b>	<ul style="list-style-type: none"> <li>Makes plant announcement for reactor scram</li> <li>Reports secondary containment high temperature and rad alarms to SRO.</li> <li>Should make plant announcement to evacuate turbine and reactor buildings.</li> <li>Recognizes failure of RCIC steam line to isolate and attempts to close valves from the control room.</li> <li>Monitors Secondary Containment parameters</li> <li>Responds to ARM alarms:               <ul style="list-style-type: none"> <li>Checks back panel to determine affected areas</li> <li>Refers to LOA-AR-101 (as time permits)</li> <li>Informs SRO of any LGA-02 entry conditions.</li> </ul> </li> </ul>	

## NOTES:


Event No.(s): 1.1.7, 1.1.8, 1.1.9			Page 2 of 3
Time	Position	Applicant's Actions or Behavior	
	BOP	<p>Performs EOP actions as directed by SRO</p> <ul style="list-style-type: none"> <li>• Restarts VR IAW LGA-VR-01 as directed.</li> <li>• Restarts VP IAW LGA-VP-01 as directed.</li> <li>• Starts H2/O2 Monitors IAW LGA-CM-01 as directed.</li> <li>• Places RHR HXs on line               <ul style="list-style-type: none"> <li>◦ Startup RHR Service Water as follows:                   <ul style="list-style-type: none"> <li>◆ Start first RHR Service Water Pump.</li> <li>◆ Open 1A/1B RHR Hx Service Water Outlet Valve.</li> <li>◆ When indicated flow reaches 3000 gpm, START second RHR Service Water Pump.</li> </ul> </li> <li>◦ Start 1A/1B RHR Pump.</li> <li>◦ Establish RHR flow of 1500 to 7450 gpm.                   <ul style="list-style-type: none"> <li>◆ Throttle 1E12-F024A/B open.</li> <li>◆ Throttle 1E12-F048A/B closed.</li> </ul> </li> </ul> </li> <li>• Initiates ADS if/when 2 area temperatures exceed Max Safe</li> <li>• Coordinates with RO to monitor and control RPV level and press.</li> </ul>	
	SRO	<p>Directs entry into EOPs and EOP actions as entry conditions are met.</p> <p>Per LGA-001:</p> <ul style="list-style-type: none"> <li>• Directs RO to control RPV level 12.5-55.5 inches.</li> <li>• In anticipation of RPV blowdown, directs BOP to rapidly depressurize using Main Turbine BPVs.</li> </ul> <p>Per LGA-002:</p> <ul style="list-style-type: none"> <li>• Directs RO and BOP to isolate RCIC steam lines. May also direct isolation of main steam lines and main steam line drains.</li> <li>• Directs RPV blowdown (ADS) if/when 2 area temperatures exceed Max Safe</li> <li>• Directs restart of VR IAW LGA-VR-01 (as time and resources permit)</li> </ul>	

## NOTES:


Event No.(s): 1.1.7, 1.1.8, 1.1.9		Page 3 of 3
Time	Position	Applicant's Actions or Behavior
	SRO	<p>Directs entry into EOPs and EOP actions as entry conditions are met.</p> <p>Per LGA-003:</p> <ul style="list-style-type: none"> <li>• Directs use of all available suppression pool cooling.</li> <li>• Directs restoration of VP system IAW LGA-VP-01 (as time and resources permit).</li> <li>• Directs start of Post LOCA H2/O2 monitors IAW LGA-CM-01 (as time and resources permit).</li> </ul> <p>Per LGA-04 directs the following (if RPV blowdown required)</p> <ul style="list-style-type: none"> <li>• Verify SP level &gt;-18 feet</li> <li>• Initiate ADS</li> <li>• Verify 7 SRVs open</li> <li>• Wait until Shutdown Cooling interlocks clear</li> </ul> <p>General:</p> <ul style="list-style-type: none"> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Enforces OPS expectations and standards.</li> <li>• Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul> <p>GSEP Event Classification and PARS Determination (if performed):</p> <ul style="list-style-type: none"> <li>• GSEP - "Site Emergency" per EAL FS1</li> <li>• PARS - "9C, D, F, &amp; G"</li> </ul>
<b>Terminus:</b> <ul style="list-style-type: none"> <li>• RPV level stable and under control in required band</li> <li>• ADS has been initiated</li> <li>• Effort has been made to isolate RCIC steam lines</li> <li>• Upon approval of lead examiner</li> </ul>		

**NOTES:**


**REFERENCES**

<b><u>Procedure</u></b>	<b><u>Title</u></b>	<b><u>Revision</u></b>
LGA-001	RPV Control	00
LGA-002	Secondary Containment Control	00
LGA-003	Primary Containment Control	00
LGA-004	RPV Blowdown	00
LGA-CM-01	Emergency Operation of Post LOCA H2/O2 Monitors	04
LGA-VP-01	Rx Bldg Ventilation Startup Following System Isolation	06
LGA-VR-01	Primary Containment Temperature Reduction	07
LGP-3-1	Power Changes	25
LGP-3-2	Reactor Scram	42
LOA-RD-101	Control Rod Drive Abnormal	02
LOA-RM-101	Unit 1 RMCS Abnormal Situations	03
LOP-RM-01	Reactor Manual Control Operation	14
LOR-1H13-P601-D502	RCIC Turbine Inlet Steam Line Drain Pot Level High	01
LOR-1PM07J-A502	SGTS Primary Fan Automatic Trip	01
LOS-VG-M1	Standby Gas Treatment System Operability Test	24

## Simulator Operator Instructions

### Initial Setup

1. Recall IC-49 (Power reduced to 85% for rod set).
2. Place simulator in RUN.
3. Load and run the setup CAEP written for this scenario (**esg1.1.cae** on floppy disc)
4. Load RWM Sequence "purbocsu.DC64"
5. Post the FCL Greater Than 92.5% placard.
6. Ensure Hotwell Level is near the bottom of the green band (set  $cnm2htws = 4.5E6$ ).
7. Ensure CY Tank Level is near 20 feet (set  $cfm1cyts = 2.5E6$ ).
8. Hang OOS cards for 1C RHR
9. Write T/S 3.5.1, 7 days, for 1C RHR being OOS
10. Provide marked up LOS-VG-M1 complete to step 2.



## Event Triggers and Role Play

### Event #

1. Withdraw Rods To 110% FCL
  - a. No triggers
2. Perform LOS-VG-M1
  - a. No triggers
  - b. Turnover that procedure had been completed to step 2.
3. Control Rod Will Be Stuck
  - a. **Trigger 3** is automatic on elevated drive pressure – to clear stuck rod mf.
  - b. Role play for stuck rod IAW LOA-RD-101
4. Loss of Rod Position Indication for Control Rod
  - a. No trigger. Malfunction will be inserted on initial setup
  - b. Role play as QNE that movement of one notch in either direction is acceptable
5. RCIC Drain Pot Failure
  - a. **Trigger 5** on request from lead evaluator
  - b. No indications locally that would explain failure.
6. Unit 1 VG Fan Trips on Overload
  - a. **Trigger 6** on request from lead evaluator
  - b. Role play as operators
    - (1) Fan motor seems hot, and no chattering at 74 relay.
7. RCIC Steam Supply Line Breaks
  - a. **Trigger 7** on request from lead evaluator
  - b. Role play as personnel in the field
    - (1) Heavy steam in RCIC corner room
    - (2) Steam on 740' RB
8. RCIC Steam Line Isolation Valve (1E51- F063) Fails
  - a. **Triggers 8 & 18** are automatic on valve position
  - b. Role Play – Too much steam in area to get to outboard valve
9. RCIC Steam Line Isolation Valve (1E51- F008) Fails
  - a. **Trigger 9** is automatic on valve position
  - b. Role Play –

## Scenario Outline

Facility: LaSalle StationScenario No.: ESG 1.2Op Test No.: 1

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

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

**Initial Conditions:**

- Unit 1 startup is in progress IAW LGP-1-1, step E.11, Heatup/Pressurization.
- TLO Temperature controller in manual.
- 1C RHR Pump is OOS for breaker repair.
- 1B IN Compressor is OOS for lube oil change.
- Online Safety level is green.
- Unit 2 is operating at 100% power.

**Turnover:**

- Control rods are being withdrawn to raise Rx power for mode change to OC1.
- 1B RHR system is running for surveillance, LOS-RH-Q1 and is ready to be secured.
- Expect to have 1C RHR operable before mode change.
- Turbine shell warming is in progress.

Event No.	Malf. No.	Event Type*		Event Description
1	N/A	R	RO SRO	Pull rods for reactor startup. LGP-1-1 in progress.
2	N/A	N	BOP SRO	Secure 1B RHR from surveillance LOS-RH-Q1.
3	CAEP	I	BOP SRO	1B RHR min flow valve 1E12-F064B fails to open.
4	MNI098	I	RO SRO	IRM C fails upscale. This results in half-scam on RPS bus A.
5	CAEP	C	RO SRO	Blown RPS fuse 1C71-F18C occurs during reset of half scram.
6	MCN002	C	BOP SRO	Rupture in OG piping results in loss of condenser vacuum.
7	MRD277 MRD278	M	ALL	Manual Scram/ATWS/Hydraulic lock of Scram Discharge Volume.
8	CAEP		BOP SRO	Small LOCA from 1B RR Pump seal failure.

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

**Narrative Summary**

<b>Event(s)</b>	<b>Description</b>
1.2.1	After the crew has taken the shift, the SRO should direct the RO to continue with control rod pulls to raise reactor power for mode change to OC1.
1.2.2, 3	The SRO should also direct the BOP to secure the 1B RHR system from its quarterly surveillance test. The BOP should shutdown the RHR loop in accordance with LOS-RH-Q1. While securing the RHR loop, the RHR minimum flow valve, 1E12-F064B, will fail to open because of a bad flow switch instrument. The operator will be able to open the valve manually, but the flow instrument must be considered inoperable and appropriate tech spec actions taken.
1.2.4, 5	Once the BOP operator has responded to the RHR min flow valve problem and the RO has withdrawn sufficient control rods to meet the reactivity change requirements, IRM C fails (inop trip). This results in a half-scam on RPS bus A. The crew should respond in accordance with the abnormal operating procedures and will have to bypass the failed IRM and reset the half scram. When the RO resets the half scram signal, RPS fuse 1C71-F18C will blow. The crew will follow the abnormal procedure, re-insert the half scram, replace the fuse, and reset the half scram. The SRO should refer to tech specs for required actions.
1.2.6	Once the crew has addressed the RPS problems, a rupture occurs in the OG piping that will result in a loss of condenser vacuum and ultimately a loss of the main condenser. The BOP/RO should acknowledge/announce the applicable OG system alarms and refer to the alarm procedures. The SRO should direct the RO to scram the reactor when he/she has determined vacuum will not be recovered.
1.2.7, 8	When the RO attempts to scram the reactor, he/she should recognize that all rods did not insert and report this to the SRO. The RO should also initiate the alternate rod insertion (ARI) system. The SRO should enter the emergency operating procedures for a failure to scram. The SRO should direct the RO to perform alternate rod insertion in accordance with LGA-NB-01. The SRO should direct the BOP to start suppression pool cooling in anticipation of a loss of the main condenser. The success path is to perform method 4 of LGA-NB-01 to insert the control rods. This step will allow drainage of the scram discharge volume to allow the rods to insert. Overall plant control will be further complicated by a small LOCA in the Drywell from a failed 1B RR Pump seal.

**Critical Steps**

1. Crew initiates a manual scram before reactor pressure reaches the auto scram setpoint (1043 psig).
2. With ATWS conditions, crew injects boron and/or performs alternate rod insertion in accordance with the emergency operating procedures to shutdown the reactor.
3. Crew initiates suppression chamber and drywell sprays as directed by the EOP's.

**Shift Turnover Information****⇒ Day of week and shift**

- ◆ Monday Day Shift

**⇒ Weather conditions**

- ◆ No adverse weather conditions expected in the next 24 hours

**⇒ (Plant power levels)**

- |   |                         |
|---|-------------------------|
| ◆ Unit 1 – M/S in startup, on IRM ranges 8 & 9. | ◆ Unit 2 – 100% Power   |
| ◆ 300 MWt                                       | ◆ 3454 MWt              |
| ◆ 0 MWe   | ◆ 1149 MWe              |
| ◆ 37 Mlbm/hr CORE FLOW                          | ◆ 107 Mlbm/hr CORE FLOW |

**⇒ Thermal Limit Problems/Power Evolutions**

- |  |        |
|--|--------|
| ◆ Unit 1 startup is in progress IAW LGP-1-1, (rev 63) step E.11.22, Heatup/Pressurization. | ◆ None |
| ◆ Control rods are being withdrawn to increase CTP for mode change to OC1.                 | ◆      |

**⇒ Existing LCOs, date of next surveillance**

- |                                |        |
|--------------------------------|--------|
| ◆ T/S 3.5.1, 7 days for 1C RHR | ◆ None |
| ◆                              | ◆      |

**⇒ LOSs in progress or major maintenance**

- |  |        |
|--|--------|
| ◆ 1C RHR Pump OOS for breaker repair.          | ◆ None |
| ◆ 1B IN Compressor is OOS for lube oil change. | ◆      |
| ◆  | ◆      |

**⇒ Equipment to be taken out of or returned to service this shift/maintenance on major plant equipment**

- |  |        |
|--|--------|
| ◆ 1C RHR Pump OOS in process of being cleared. | ◆ None |
| ◆  | ◆      |

**⇒ Comments, evolutions, problems, etc.**

- |  |  |
|--|--|
| ◆ Online Safety is Green (RAW = 1.0)   | ◆ Online Safety is Green (RAW = 1.0)   |
| ◆ Unit 1 is in a Division 2 work week.   | ◆ Unit 2 is in a Division 2 work week. |
| ◆ Turbine shell warming is in progress.  |  |
| ◆ 1B RHR has been running for greater than 30 minutes for LOS-RH-Q1 and is now ready to be shutdown. |  |

## Operator Actions

<b>Event No.(s):</b> 1.2.1		<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> After the crew has taken the shift, the SRO should direct the RO to continue with control rod pulls to increase CTP for mode change to OC1.		
<b>Initiation:</b> Following shift turnover on the signal of lead examiner		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LGP-1-1</p> <ul style="list-style-type: none"> <li>Continue to increase CTP with control rod withdrawal. Do NOT allow CTP to increase above 12% in Startup Mode. <ul style="list-style-type: none"> <li>Monitor IRM and APRM recorders.</li> <li>Verify Main Turbine BPVs open as reactor power increases.</li> </ul> </li> </ul> <p>Per LOP-RM-01:</p> <ul style="list-style-type: none"> <li>Verify Rod Select power available with rod position information correct on Four Rod Display.</li> <li>Verify withdraw block light de-energized when rod is selected.</li> <li>Press rod withdraw push-button, release and verify the following: <ul style="list-style-type: none"> <li>Rod insert light is lit and a drive flow of <math>\approx 4</math> gpm is indicated.</li> <li>Rod withdraw light is lit and drive flow of <math>\approx 2</math> gpm is indicated.</li> <li>Rod position indication on Four Rod Display shows new rod position.</li> <li>Observe changes in nuclear instrumentation indications.</li> <li>Rod settle light is lit for <math>\approx 6</math> seconds.</li> </ul> </li> </ul>
	BOP	<ul style="list-style-type: none"> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Directs actions above.</li> <li>Enforces OPS expectations and standards</li> <li>Emphasizes need for caution and conservatism during the power change.</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Ensures OPS activities are completed as scheduled.</li> </ul>
<b>Terminus:</b> Clearly observable plant response from change in power level.		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.2.2, 1.2.3		<b>Page</b> 1 <b>of</b> 2
<p><b>Description:</b> The SRO directs the BOP to secure the 1B RHR pump which has been running for LOS-RH-Q1. An instrument failure will prevent the min flow valve, 1E12-F064B, from opening as the system flow decreases.</p>		
<p><b>Initiation:</b> Following shift turnover on the signal of lead examiner</p>		
<p><b>Cues:</b> Annunciator 1H13-P601-B306, does not clear as system flow is reduced</p>		
<b>Time</b>	<b>Position</b>	<b>Applicant's Actions or Behavior</b>
	BOP	<p>Per LOS-RH-Q1, Att. 1B:</p> <ul style="list-style-type: none"> <li>• VERIFY B RHR Pump motor has ran a minimum of 30 minutes.</li> <li>• CLOSE 1E12-F024B, B RHR Test to SP Vlv.</li> <li>• VERIFY 1E12-F064B, B RHR Min Flow Vlv OPENS as flow decreases. <ul style="list-style-type: none"> <li>◦ Operator recognizes failure of 1E12-F064B to open.</li> <li>◦ Reports problem to SRO.</li> <li>◦ Opens 1E12-F064B with C/S and/or continues with pump shutdown.</li> </ul> </li> <li>• STOP B RHR Pump 1E12-C002B.</li> <li>• OPEN 1E12-F048B, B RHR HX Bypass Valve.</li> <li>• If corner room temperature is less than 104 °F, VERIFY B/C RHR Pump Cubicle Cooler Fan 1VY03C has stopped.</li> <li>• If no longer required, SHUTDOWN DG Cooling Water Pump at 1PM01J.</li> <li>• On Panel 1H13-P601, verify RHR PMP dsch press LO alarm (B306) is clear.</li> <li>• 1E12-F031B, B RHR Pump Dsch Check Valve, check to close is satisfactory. If NOT satisfactory, REFER to LAP-300-46 for applicable actions.</li> <li>• At RB 673 inside B/C RHR Corner Room, after the RHR pump motor has cooled to ambient temperature, VERIFY RHR pump motor bearing oil reservoir levels are proper.</li> </ul>

NOTES:

[illegible]

## Operator Actions

Event No.(s): 1.2.2, 1.2.3		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	BOP	<p>Per LOR-1H13-P601-B306, RHR Pump 1B Injection Flow High:</p> <ul style="list-style-type: none"> <li>• VERIFY automatic action has occurred.</li> <li>• VERIFY RHR Pump flow is maintained above 1100 gpm per appropriate operating procedure to insure adequate flow for cooling.</li> <li>• If alarm does not function as required:               <ul style="list-style-type: none"> <li>◦ VERIFY sensor is properly valved in.</li> <li>◦ INITIATE appropriate corrective action.</li> <li>◦ Instrument setpoint is specified in Technical Specification Section 3/4.3.3.</li> <li>◦ NOTIFY Unit Supervisor.</li> </ul> </li> </ul>
	RO	<ul style="list-style-type: none"> <li>• Monitors reactor to ensure operations remain within established bands</li> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Authorizes and directs completion of scheduled surveillance</li> <li>• Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>• Refers to Tech Specs for failed instrument:</li> <li>• Acceptable tech spec actions should include:               <ol style="list-style-type: none"> <li>1. Declare Flow instrument inoperable and enter 24hr to trip/7days to restore timeclock (T/S 3.3.3)</li> <li>2. Declare 1B LPCI inoperable and enter 24hr to restore timeclock (T/S 3.5.1).</li> </ol> </li> <li>• Enforces OPS expectations and standards</li> </ul>

**Terminus:** 1B RHR system shutdown. Applicable timeclocks started

NOTES:

[illegible]

## Operator Actions

<b>Event No.(s):</b> 1.2.4, 1.2.5		<b>Page</b> 1 <b>of</b> 2
<b>Description:</b> IRM C fails (inop trip) resulting in a half-scam on RPS bus A.. The crew will have to bypass the failed IRM and reset the half scam. When the RO resets the half scam signal, RPS fuse 1C71-F18C will blow.		
<b>Initiation:</b> After RHR failure has been addressed, on the signal of lead examiner.		
<b>Cues:</b> Annunciator 1H13-P603-B304, applicable scam light out on 1H13-P603 benchboard		
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOR-1H13-P603-B304, Channel A IRM HI-HI/INOP:</p> <ul style="list-style-type: none"> <li>VERIFY RPS Channel A DEENERGIZES and Control Rod Block INITIATES.</li> <li>If RPS Channel B is NOT TRIPPED VERIFY IRM Range Switch is in correct position.</li> <li>If one IRM in Channel A has failed High or is Inop, BYPASS that IRM and INITIATE corrective action to restore operability. RESET RPS Channel A..</li> <li>REFER to Tech Spec 3/4.3.1.</li> <li>NOTIFY Unit Supervisor.</li> </ul> <p>Per LOA-NR-101,</p> <ul style="list-style-type: none"> <li>Stop all control rod motion/power changes.</li> <li>Check reactor in STARTUP on IRM range 3 or greater</li> <li>Check at least - one Indication available.</li> <li>Check recorders - working:               <ul style="list-style-type: none"> <li>Digital indication.</li> <li>Pens tracking.</li> </ul> </li> <li>Check IRM indications on 1H13-P603 and 1H13-P635/636 -NORMAL.</li> <li>If IRM inop, BYPASS the IRM.               <ul style="list-style-type: none"> <li>Refer to Tech Spec 3.3.1 and 3.3.6.</li> <li>Contact QNE.</li> </ul> </li> </ul>

## NOTES:




## Operator Actions

Event No.(s): 1.2.4, 1.2.5		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOA-RP-101</p> <ul style="list-style-type: none"> <li>• Check only one RPS Bus -affected and Control Rods NOT moving.</li> <li>• Suspend any half scram testing in progress.</li> <li>• Check more than one RPS BUS LIVE light out on a single Channel. If not:               <ul style="list-style-type: none"> <li>◦ Replace affected bulb.</li> <li>◦ If light remains de-energized, immediately insert a half scram on the affected RPS Bus.</li> <li>◦ Direct BOP to replace any bad fuses</li> <li>◦ Reset half scram.</li> </ul> </li> <li>• Verify proper rod position per OD-7 Option 2.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Check if affected 1C71-F18 fuse is blown at panels 1H13-P609 and P611.               <ul style="list-style-type: none"> <li>◦ Replace blown fuse</li> </ul> </li> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Directs actions above</li> <li>• Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>• Refers to Tech Specs for failed instrument:</li> <li>• Acceptable tech spec actions should include:               <ol style="list-style-type: none"> <li>1. Declare 1C IRM inoperable. No T/S action required - LCO met.</li> </ol> </li> <li>• Enforces OPS expectations and standards</li> </ul>

**Terminus:** "C" IRM bypassed, RPS fuse replaced, half scram reset

NOTES:

[illegible]

## Operator Actions

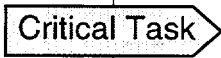
Event No.(s): 1.2.6		Page 1 of 2
<b>Description:</b> A rupture occurs in the OG piping that will result in a loss of condenser vacuum and ultimately a loss of main condenser availability.		
<b>Initiation:</b> On the signal of lead examiner.		
<b>Cues:</b> Annunciator LOR-1PM03J-B511, Condenser Vacuum Low		
Time	Position	Applicant's Actions or Behavior
	BOP	Per LOR-1PM03J-B511, Condenser Vacuum Low: <ul style="list-style-type: none"><li>• Monitor Condenser Vacuum Indication.</li><li>• Verify SJAE are operating properly per LOP-OG-07, Startup of Off Gas System.</li><li>• Verify Circulating Water System is operating properly per LOP-CW-03, Startup of Circulating Water System.</li><li>• If Condenser Vacuum decreases to turbine trip point (21.6"), refer to LOA-TG-101, Unit 1 Turbine Generator.</li><li>• Initiate appropriate corrective action as required.</li></ul>
	RO	Per LOR-1PM03J-B511, Condenser Vacuum Low: <ul style="list-style-type: none"><li>• If Condenser Vacuum continues to decrease, reduce Reactor Power per LGP-3-1, as necessary, to a point at which Condenser Vacuum has stabilized. If vacuum cannot be stabilized and Turbine Trip is imminent, manually Scram reactor per LGP-3-2, Reactor Scram.<ul style="list-style-type: none"><li>◦ With the turbine off line, RO should initiate a manual reactor scram prior to receiving an automatic scram on high Rx pressure or power.</li></ul></li></ul> Per LGP-3-2 Attachment E (hardcard): <ul style="list-style-type: none"><li>• Arm and Depress scram pushbuttons</li><li>• Place mode switch in Shutdown</li><li>• Insert IRMs and SRMs</li><li>• Check rods in and power decreasing<ul style="list-style-type: none"><li>◦ Inform SRO that rods have failed to insert.</li></ul></li><li>• Operate FW to control level in band directed by SRO</li><li>• Report level and pressure trends</li><li>• Verified RR downshifted to slow speed</li><li>• Stabilize pressure &lt;1043 psig</li></ul>

Critical Task

Critical Task

## NOTES:


## Operator Actions

Event No.(s): 1.2.6		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	SRO	<p>Specific:</p> <ul style="list-style-type: none"> <li>• SRO should anticipate a loss of pressure control as condenser vacuum decreases and should prepare the crew for a manual scram.</li> <li>• SRO directs a manual reactor scram prior to an automatic scram on high Rx pressure or power.</li> <li>• Upon failed reactor scram, SRO should monitor for EOP entry conditions and direct the crew accordingly.</li> </ul> <p>General:</p> <ul style="list-style-type: none"> <li>• Directs actions described above.</li> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Enforces OPS expectations and standards.</li> <li>• Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul>
	<p><b>Terminus:</b> This failure will lead to an automatic or manual reactor scram</p>	

NOTES:

[illegible]

## Operator Actions

Event No.(s): 1.2.7, 1.2.8		Page 1 of 3
<b>Description:</b> A scram discharge volume hydraulic lock will cause an ATWS on a manual or automatic scram. Overall plant control will be further complicated by a small LOCA in the Drywell from a failed 1B RR Pump seal.		
<b>Initiation:</b> Will occur automatically on a manual or automatic scram.		
<b>Cues:</b> Numerous rods remain out after auto/manual scram, rising containment pressure, ECCS and PCIS initiations.		
Time	Position	Applicant's Actions or Behavior
<div>Critical Task</div>	RO	<p>Per LGA-NB-01, Alternate Rod Insertion:</p> <ul style="list-style-type: none"><li>• Initiate ARI</li><li>• Insert rods using normal means</li><li>• Checks scram lights on and scram group lights off</li><li>• Check that more that 25 rods failed to insert</li><li>• Performs/Coordinates Method 4 Scram Reset/Full Scram<ul style="list-style-type: none"><li>◦ As necessary, coordinates Attachment 1B to defeat scram trip relays.</li><li>◦ As necessary, resets/defeats ARI.</li><li>◦ Reset the scram</li><li>◦ When the SDV High Level Scram signals clear, then initiate a scram by removing jumpers and depress scram PBs in at least one trip channel</li></ul></li><li>• Reports to the Unit Supervisor when all control rods are FULL-IN</li></ul> <p>Performs additional EOP actions as directed by SRO</p> <ul style="list-style-type: none"><li>• Monitors RPV level and coordinates with BOP to control in band specified using RCIC and CRD systems</li><li>• Monitors RPV pressure and coordinates with BOP to control with SRVs.</li></ul>
	BOP	<p>Performs EOP actions as directed by SRO</p> <ul style="list-style-type: none"><li>• Inhibits ADS and prevents ECCS injection</li><li>• Starts 2 loops of suppression pool cooling<ul style="list-style-type: none"><li>◦ Startup RHR Service Water as follows:<ul style="list-style-type: none"><li>◆ Start first RHR Service Water Pump.</li><li>◆ Open 1A/1B RHR Hx Service Water Outlet Valve.</li><li>◆ When flow reaches 3000 gpm, START second RHRWS Pump.</li></ul></li><li>◦ Start 1A/1B RHR Pump.</li><li>◦ Establish RHR flow of 1500 to 7450 gpm.<ul style="list-style-type: none"><li>◆ Throttle 1E12-F024A/B open.</li><li>◆ Throttle 1E12-F048A/B closed.</li></ul></li></ul></li></ul>

## NOTES:


## Operator Actions

Event No.(s): 1.2.7, 1.2.8		Page 2 of 3
Time	Position	Applicant's Actions or Behavior
	BOP <b>Critical Task</b>	Performs EOP actions as directed by SRO <ul style="list-style-type: none"> <li>• Initiates Suppression Chamber Spray</li> <li>• Initiates DW Spray</li> <li>• Coordinates with RO to control pressure with SRVs</li> </ul>
	SRO <b>Critical Task</b>	Directs entry into EOPs and EOP actions as entry conditions are met. Per LGA-10 as directed from LGA-01: <ul style="list-style-type: none"> <li>• Per the Power Leg directs the following:               <ul style="list-style-type: none"> <li>◦ Initiate ARI, Start SBLC (SBLC start is optional)</li> <li>◦ Run RR-FCVs to minimum</li> <li>◦ Insert Rods per LGA-NB-01</li> </ul> </li> <li>• Per the Level Leg directs the following:               <ul style="list-style-type: none"> <li>◦ Hold level between -150 and +55.5 inches</li> <li>◦ If/When can't hold level &gt;-189 (-150) inches, enters LGA-06</li> </ul> </li> </ul> Per LGA-003: <ul style="list-style-type: none"> <li>• Per Primary Containment Pressure Leg, directs the following:               <ul style="list-style-type: none"> <li>◦ Spray the Suppression Chamber before pressure reaches 8 psig</li> <li>◦ When SC pressure is 8 psig, then                   <ul style="list-style-type: none"> <li>◆ VERIFY within the limits of the DSL</li> <li>◆ TRIP all RR pumps</li> <li>◆ SPRAY the Drywell (per LGA-RH-103)</li> </ul> </li> </ul> </li> <li>• Per Drywell Temperature Leg, directs the following:               <ul style="list-style-type: none"> <li>◦ If determined can't stay below 135 F in DW, then start all available drywell cooling (per LGA-VP-01)</li> </ul> </li> <li>• Per Pool Temperature Leg, directs the following:               <ul style="list-style-type: none"> <li>◦ Start two loops of pool cooling</li> <li>◦ If determined can't stay below 105 F in Suppression Pool, then start all available pool cooling per (LGA-RH-103)</li> </ul> </li> <li>• Pool Level Leg               <ul style="list-style-type: none"> <li>◦ Monitor Suppression Pool Level (-4.5 to +3.0 inches)</li> </ul> </li> <li>• Hydrogen Leg               <ul style="list-style-type: none"> <li>◦ Start Hydrogen and Oxygen Monitors (per LGA-CM-01)</li> </ul> </li> </ul>

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.2.7, 1.2.8		<b>Page</b> 3 <b>of</b> 3
Time	Position	Applicant's Actions or Behavior
	SRO	<p>General:</p> <ul style="list-style-type: none"> <li>• Directs actions described above.</li> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Enforces OPS expectations and standards.</li> <li>• Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul> <p>GSEP Event Classification and PARS Determination (if performed):</p> <ul style="list-style-type: none"> <li>• GSEP - "Site Emergency" per EAL MS3</li> <li>• PARS - Prepare</li> </ul>
<p><b>Terminus:</b></p> <ul style="list-style-type: none"> <li>• All rods fully inserted (or proper actions in progress).</li> <li>• RPV level stable and under control in required band.</li> <li>• Containment sprays initiated and pressure decreasing.</li> <li>• Upon approval of lead examiner.</li> </ul>		

## NOTES:


**REFERENCES**

<b><u>Procedure</u></b>	<b><u>Title</u></b>	<b><u>Revision</u></b>
LGA-001	RPV Control	00
LGA-010	Failure to Scram	00
LGA-NB-01	Alternate Rod Insertion	05
LGA-RH-103	Unit 1 RHR operations in the LGAs	02
LGP-1-1	Normal Unit Startup	62
LGP-3-2	Reactor Scram	42
LOA-NR-101	Neutron Monitoring Trouble	01
LOA-RP-101	Unit 1 Loss of RPS Power	03
LOP-RH-05	Operation of RHR Service Water System	20
LOP-RH-13	Suppression Pool Cooling Operation	22
LOP-RM-01	Reactor Manual Control Operation	14
LOR-1H13-P603-B304	Channel A IRM HI-HI/INOP	00
LOR-1PM03J-B511	Condenser Low Vacuum	01

## Simulator Operator Instructions

### Initial Setup

1. Recall **IC-36** (S/U in progress at 935 psig, ½ BPV, pulling rods for mode change to OC1).
2. Place simulator in RUN.
3. Verify RWM sequence loaded
4. Load and run the setup CAEP written for this scenario (**esg1.2.cae** on floppy disc)
5. Ensure Hotwell Level is near the bottom of the green band (set  $cnm2htws = 4.5E6$ ).
6. Ensure CY Tank Level is near 20 feet (set  $cfm1cyts = 2.5E6$ ).
7. Hang OOS cards for 1C RHR
8. Write T/S 3.5.1, 7 days, for 1C RHR being OOS



**Event Triggers and Role Play**Event #

1. Withdraw Rods To Raise Power for Mode Change to OC1
  - a. No triggers
2. Shutdown 1B RHR From LOS-RH-Q1
  - a. No triggers
3. 1E12-F064B Fails to Open Because of Bad Flow Switch
  - a. No triggers – Flow switch is failed on initial setup.
  - b. Failure is from setpoint drift. Can only be diagnosed by IMD cal or functional test.
4. 1C IRM Fails (Inop Trip)
  - a. **Trigger 4** on request from lead evaluator.
  - b. IMD can diagnose failure from “module unplugged”.
5. RPS Fuse 1C71-F018C Blows When Half Scram Reset
  - a. **Trigger 5** automatic on reset of half scram.
  - b. Role play as required to support blown fuse 1C71-F18C.
6. Rupture of Off Gas Piping From Main Condenser
  - a. **Trigger 6** on request from lead evaluator
  - b. Role play as operators
    - (1) Perform actions for LOP-OG-02 as directed
    - (2) If dispatched to heaterbay, report severe air leak along A hood but can't determine where.
7. ATWS/Hydraulic Lock of SDV
  - a. No triggers – SDVs degraded on initial setup.
  - b. Role play for LGA-NB-01 as necessary.
  - c. Remove SDV malfunction before re-scram per method 4 is completed.
8. Trip of bus 152
  - a. **Triggers 8** automatic on reactor scram
  - b. Role Play – No signs of damage at bus. Over current target up.

Facility: LaSalle StationScenario No.: ESG 1.3Op Test No.: 1

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Initial Conditions:**

- Unit 1 is operating at 85% reactor power with flow control line at 107%.
- TLO Temperature controller in manual..
- 1C RHR Pump is OOS for breaker repair.
- 1B IN Compressor is OOS for lube oil change.
- Online Safety level is green.
- Unit 2 is operating at 100% power.

**Turnover:**

- Unit 1 is in a Division 2 work week.
- LOS-CM-M1 is scheduled to be performed this shift.
- A power ascension for load following is also scheduled for this shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N RO SRO	Complete LOS-CM-M1, start both Post-LOCA H2/O2 monitors IAW LOP-CM-02.
2	N/A	R BOP SRO	Power ascension to 100% power at 300 MWE/hour.
3	CAEP	I BOP SRO	Div 1 Post LOCA H2/O2 Monitor fails upscale.
4	MAI003	C BOP SRO	Trip of the running Instrument Nitrogen (IN) compressor.
5	CAEP	C RO SRO	Trip of running TDRFP seal injection pump with failure of standby pump auto start.
6	MCF123	I RO SRO	Output signal from the TDRFP A manual-auto (M/A) control station fails low.
7	MCA005	M	Broken Division 1 containment monitoring instrument line.
8	MNB104		Major steam leak propagates inside the primary containment.

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

## NARRATIVE SUMMARY

Event(s)	Description
1.3.1	Once the crew has accepted the unit, the SRO should direct the RO to commence the power ascension to 100% power at 300 MWE/hour in accordance with LGP 3-1 and LOP-RR-07.
1.3.2	The SRO should also direct the BOP to complete LOS-CM-M1. The BOP will need to start both Post-LOCA hydrogen-oxygen monitors in accordance with LOP-CM-02.
1.3.3	After both Post-LOCA hydrogen-oxygen monitors are started, the Division 1 monitor O <sub>2</sub> channel will fail upscale. The crew will have to address the tech spec requirements for the monitor being inoperable.
1.3.4	When the crew has addressed the containment monitoring problem, a trip of the running Instrument Nitrogen (IN) compressor will occur. The BOP should acknowledge/announce the control room alarms and refer to the applicable alarm and abnormal procedures. The BOP should cross-tie IN with the Instrument Air (IA) system. An operator should be dispatched locally to investigate and restore IN.
1.3.5	After the IN system has been restored, the operating TDRFP seal injection pump will trip and the standby pump will fail to auto start. The crew will be able to start the standby pump manually.
1.3.6	Once the crew has restored seal injection, the output signal from the TDRFP A manual-auto (M/A) control station will fail low. As a result, TDRFP A will be driven to minimum speed. The RO may attempt to stabilize reactor water level; however, if the RO/SRO determines that water level cannot be stabilized, the RO should manually scram the reactor and carry out the actions of LGP 3-2.
1.3.7	A malfunction was initially inserted to simulate a broken containment monitoring instrument line. This break will have the following effects: - Fail Division 1 drywell pressure indication - Fail Division 1 ECCS and EDG automatic initiation - Prevent remote operation of Division 1 drywell spray The diagnosis of the exact cause of these failures is not the immediate concern while performing the actions of the symptom-based LGAs. More important is that the operators recognize the impact of these failures in performing the EOPs (e.g., using redundant instrumentation, manually initiating affected systems if needed).
1.3.8	Once the reactor is manually scrammed or reactor water level is stabilized, a major steam leak propagates inside the primary containment which requires entry into the LGAs. Actions will include initiating suppression chamber sprays and drywell sprays. As previously mentioned, the operators will need to recognize the impact of the containment line instrument break and take appropriate compensatory actions.

### Critical Steps

1. Crew recognizes failure of Division 1 ECCS to initiate and take action to manually initiate Division 1 logic and systems as required.
2. Crew initiates Drywell Sprays before drywell pressure exceeds the limits of the Pressure Suppression Pressure curve in the emergency operating procedures.

**Shift Turnover Information****⇒ Day of week and shift**

- ◆ Monday Day Shift

**⇒ Weather conditions**

- ◆ No adverse weather conditions expected in the next 24 hours

**⇒ (Plant power levels)**

- |                               |                         |
|-------------------------------|-------------------------|
| ◆ Unit 1 - 85% Power/101% FCL | ◆ Unit 2 – 100% Power   |
| ◆ 2965 MWt                    | ◆ 3454 MWt              |
| ◆ 945 MWe                     | ◆ 1149 MWe              |
| ◆ 85 Mlbm/hr CORE FLOW        | ◆ 107 Mlbm/hr CORE FLOW |

**⇒ Thermal Limit Problems/Power Evolutions**

- |   |                       |
|---|-----------------------|
| ◆ Power ascension for load following is scheduled this shift (300 MWe/hr) | ◆ None                |
| ◆   | ◆ Unit 2 – 100% Power |

**⇒ Existing LCOs, date of next surveillance**

- |                                |            |
|--------------------------------|------------|
| ◆ T/S 3.5.1, 7 days for 1C RHR | ◆ None     |
| ◆                              | ◆ 3454 MWt |

**⇒ LOSs in progress or major maintenance**

- |  |        |
|--|--------|
| ◆ LOS-CM-M1, continue at step for running Post LOCA H2/O2 Monitors | ◆ None |
| ◆ 1C RHR Pump OOS for breaker repair.                              | ◆      |
| ◆ 1B IN Compressor is OOS for lube oil change.                     | ◆      |

**⇒ Equipment to be taken out of or returned to service this shift/maintenance on major plant equipment**

- |        |        |
|--------|--------|
| ◆ None | ◆ None |
| ◆      | ◆      |

**⇒ Comments, evolutions, problems, etc.**

- |  |  |
|--|--|
| ◆ Online Safety is Green (RAW = 1.0)       | ◆ Online Safety is Green (RAW = 1.0)       |
| ◆ The Unit 1 is in a Division 2 work week. | ◆ The Unit 2 is in a Division 2 work week. |
| ◆ TLO Temperature controller in manual.    |  |

## Operator Actions

Event No.(s): 1.3.2		Page 1 of 1
<b>Description:</b> The SRO should also direct the BOP to complete LOS-CM-M1. The BOP will need to start both Post-LOCA hydrogen-oxygen monitors in accordance with LOP-CM-02.		
<b>Initiation:</b> Following shift turnover on the signal of lead examiner		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Actions or Behavior
	BOP	<p>Per LOS-CM-M1:</p> <ul style="list-style-type: none"> <li>Start Post-LOCA Containment Monitoring System A and B per LOP-CM-02.</li> <li>Record both division O2 &amp; H2 readings and calculate the differentials.</li> <li>Shutdown to standby Post-LOCA Monitor Systems A and B per LOP-CM-02.</li> </ul> <p>Per LOP-CM-02</p> <ul style="list-style-type: none"> <li><i>For Division 1 only</i>, prior to placing Post LOCA H2/O2 Monitoring System in analyze, refer to T/S 3.4.3.1 to determine if 1PL75J should be shutdown or left in operation. <ul style="list-style-type: none"> <li>If securing 1PL75J, perform the following. <ul style="list-style-type: none"> <li>At 1PM13J, STOP 1PL75J, Pri Cnmt Cam Smpl Pmp.</li> <li>At 1PL75J, close 1CM035, PC CAM Panel 1PL75J Inlet Stop.</li> </ul> </li> </ul> </li> <li>To sample DW, place 1A/B Post LOCA H2/O2 Monitor Isol Vlvs in DW.</li> <li>To sample SC, place 1A/B Post LOCA H2/O2 Monitor Isol Vlvs in SP.</li> <li>At 1PM13J: <ul style="list-style-type: none"> <li>Depress 1A/B Post LOCA Remote Control Selector.</li> <li>Verify 1A/B Post LOCA Mon 1PL76J/77J Function Selector in sample.</li> <li>Place 1A/B Post LOCA Mon 1PL76J/77J Mode Selector in analyze.</li> <li>Monitor H2 and O2 concentrations on recorders at 1PM13J.</li> </ul> </li> </ul>
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands</li> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Directs actions above.</li> <li>Enforces OPS expectations and standards</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Ensures OPS activities are completed as scheduled.</li> </ul>
<b>Terminus:</b> Both Post LOCA H2/O2 Monitors in operation in analyze mode.		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.3.1		<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> After the crew has taken the shift, the SRO should direct the RO to continue to raise reactor power to 100% at 300 MWe/hr.		
<b>Initiation:</b> Following shift turnover on the signal of lead examiner		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Actions or Behavior
	RO	Per LGP-3-1: <ul style="list-style-type: none"> <li>Place additional condensate polishers into service as necessary, per LOP-CP-02.</li> <li>Increase power at the rate recommended by a QNE, or applicable Attachment from LGP-3-1, or computer generated equivalent.</li> <li>Recirculation flow changes shall be made per LOP-RR-07.</li> </ul> Per LOP-RR-07: <ul style="list-style-type: none"> <li>Verify manual light on recirculation loop flow controller M/A station A/B is ON.</li> <li>Change flow evenly in both loops by pressing RAISE/LOWER buttons and observing flow indication to flow controller M/A station.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Directs actions above.</li> <li>Enforces OPS expectations and standards</li> <li>Ensures RO monitors critical parameters carefully.</li> <li>Stresses awareness of where operation is on the power to flow map.</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Ensures OPS activities are completed as scheduled.</li> </ul>
<b>Terminus:</b> Clearly observable plant response from change in power level.		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.3.3		<b>Page</b> 1 <b>of</b> 2
<b>Description:</b> After both Post-LOCA hydrogen-oxygen monitors are started, the Division 1 monitor O <sub>2</sub> channel will fail upscale.		
<b>Initiation:</b> After both Post LOCA monitors are in operation, on the signal of lead examiner.		
<b>Cues:</b> Annunciator LOR-1PM13J-A103, recorder indication upscale		
Time	Position	Applicant's Actions or Behavior
	BOP	Per LOR-1PM13J-A1031 <ul style="list-style-type: none"> <li>Verify Post-LOCA sample system mode switch is in standby or analyze.</li> <li>If power ON light is OFF at 1PM13J, then verify 120 VAC Ckt Bkr #5 at MCC 135X-1 is ON.</li> <li>If Drywell percent Hydrogen is &gt;2%, enter LGA-03, Primary Containment Control.</li> <li>Notify Unit Supervisor.</li> </ul>
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands</li> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>Directs actions above.</li> <li>Enforces OPS expectations and standards</li> <li>Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>Declares the division 1 Post LOCA H<sub>2</sub>/O<sub>2</sub> Monitor inoperable and performs the actions of T/S 3.3.7.5:               <ul style="list-style-type: none"> <li>Enters 30 day timeclock to restore to operable.</li> </ul> </li> </ul>
<b>Terminus:</b> SRO has declared monitor inop and entered appropriate timeclocks.		

## NOTES:


## Operator Actions

Operator Actions		
<b>Event No.(s):</b> 1.3.4	<b>EVENT NOT USED</b>	<b>Page 1 of 2</b>
<b>Description:</b> When the crew has addressed the containment monitoring problem, a trip of the running Instrument Nitrogen (IN) compressor will occur.		
<b>Initiation:</b> After crew has addressed the failed Post LOCA instrument, on the signal of lead examiner.		
<b>Cues:</b> Annunciator LOR-1PM13J-A404 alarming		
Time	Position	Applicant's Actions or Behavior
	BOP	<p>Per LOR-1PM13J-A404, Instrument Nitrogen System Trouble:</p> <ul style="list-style-type: none"> <li>• If alarm is due to R0103 1A Instr N2 Comp O/L Trip <ul style="list-style-type: none"> <li>◦ Dispatch an operator to MCC 133-2, Compt D-3 to investigate.</li> <li>◦ Dispatch an operator to 1IN01CA and B, A and B Drywell Pneumatic Compressors to perform following: <ul style="list-style-type: none"> <li>▪ If available, 1B Drywell Pneumatic compressor in HAND (<i>not available due to OOS</i>)</li> <li>▪ Place 1IN01CA, A Drywell Pneumatic compressor in OFF.</li> <li>▪ Reset 1IN01CA, A Drywell Pneumatic compressor.</li> <li>▪ Place 1IN01CA, A Drywell Pneumatic compressor in AUTO.</li> <li>▪ If 1IN01CA and B, A and B Drywell Pneumatic Compressors are not running, place 1IN01CA, A Drywell Pneumatic compressor in hand.</li> <li>▪ If 1A and 1B Drywell Pneumatic Compressors will not stay running, refer to LOA-IN-101 Loss of Drywell Pneumatic Air Supply.</li> </ul> </li> </ul> </li> </ul> <p>Per LOA-IN-101 (operator may use hardcard):</p> <ul style="list-style-type: none"> <li>• CHECK a Group 10 Primary Containment Isolation -NORMAL.</li> <li>• OPEN 1IN059 and 1IN060 at 1PM13J. (One control switch for both valves).</li> <li>• CHECK Southside and Northside N2 Bank - NORMAL.</li> <li>• CHECK 1IN061A and B, Air Receiver Relief Valves -CLOSED.</li> <li>• CHECK Power to the Drywell Pneumatic Air Compressors -AVAILABLE.</li> <li>• CHECK IN Compressor -RUNNING <ul style="list-style-type: none"> <li>◦ RESTART system per LOP-IN-01.</li> </ul> </li> </ul>

## NOTES:




## Operator Actions

Event No.(s): 1.3.4		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	BOP	Per LOA-IN-101 (continued) <ul style="list-style-type: none"> <li>• CHECK IN Compressors A/B Discharge Relief Valves - CLOSED.</li> <li>• CHECK Outboard and Inboard (if possible) system - INTACT. (No leaks)</li> <li>• CHECK IN Dryer –OPERATING PROPERLY.</li> <li>• VERIFY all compressor drain trap bypass valves closed.</li> <li>• MONITOR Primary Containment O2 levels at 1PM13J.</li> <li>• When IN System restored to normal operation, CLOSE 1IN059 and 1IN060.</li> </ul>
	RO	<ul style="list-style-type: none"> <li>• Monitors reactor to ensure operations remain within established bands</li> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	Specific: <ul style="list-style-type: none"> <li>• Directs actions listed above</li> <li>• Should consider contacting Work Control to expedite work on 1B IN compressor.</li> <li>• Considers tech spec implications of rising O2 levels in containment               <ul style="list-style-type: none"> <li>◦ Refers to T/S 3.6..6.2, Drywell and Suppression Chamber Oxygen Concentration</li> </ul> </li> </ul> General: <ul style="list-style-type: none"> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Enforces OPS expectations and standards.</li> <li>• Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul>
<b>Terminus:</b> Actions of LOA-IN-101 complete,		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 1.3.5		<b>Page</b> 1 of 1
<b>Description:</b> After the IN system has been restored, the operating TDRFP seal injection pump will trip and the standby pump will fail to auto start.		
<b>Initiation:</b> After crew has restored IN pressure, on the signal of lead examiner.		
<b>Cues:</b> Annunciator LOR-1PM03J-A307 alarming		
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOR-1PM03J-A307,</p> <ul style="list-style-type: none"> <li>• VERIFY a Seal Injection Pump is operating (Second Seal Injection Pump should start at 40 PSID)</li> <li>• At Panel 1FW01JA (768' outside feedpump room) VERIFY pressure at 1PS-FW187/188/189 is greater than 50 PSID. <ul style="list-style-type: none"> <li>◦ 1AP84E-E1-27 (136Y-3, Compt E-1, Bkr 21) provides Control Power for both the 1A TDRFP and 1B TDRFP Seal Injection Temperature Controls.</li> </ul> </li> <li>• CHECK indication for 1A TDRFP Turning Gear on panel 1PM03J. <ul style="list-style-type: none"> <li>◦ If indication is NOT present, DISPATCH an operator to reset the breaker at 1AP84E-E1-21 (136Y-3, Compt E-1, Bkr 21).</li> </ul> </li> <li>• At panel 1PL03JA, CHECK TDRFP Seal Injection Temperature Control System for proper operation. <ul style="list-style-type: none"> <li>◦ If local indication is de-energized, VERIFY the Seal Injection Temperature Control Valves have failed open.</li> <li>◦ If TDRFP Seal Injection Temperature Controller is NOT working in AUTO, take manual control locally at the controllers.</li> </ul> </li> <li>• If the problem cannot be corrected, the TDRFP must be shutdown and isolated before leakoff drain temperature exceeds 200°F.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Directs actions above.</li> <li>• Enforces OPS expectations and standards</li> <li>• Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>• Contacts Work Control to investigate problem and initiate repairs.</li> </ul>
<b>Terminus:</b> TDRFP Seal Injection Pump running and hi temperature alarms clear		

## NOTES:


## Operator Actions

Event No.(s): 1.3.6

Page 1 of 1

**Description:** Once the crew has restored seal injection, the output signal from the TDRFP A manual-auto (M/A) control station will fail low. As a result, TDRFP A will be driven to minimum speed.

**Initiation:** After crew has restored TDRFP Seal Injection, on the signal of lead examiner.

**Cues:** Annunciator LOR-1H13-P603-A409 alarming, Lowering RPV level

Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOR-1H13-P603-A409:</p> <ul style="list-style-type: none"> <li>• Check Rx Vessel level less than or equal to alarm setpoint.</li> <li>• If Automatic Level Control has malfunctioned, refer to LOA-FW-101.</li> <li>• If only one TDRFP running, and Rx Water level reaches Level 4 (31.5"), VERIFY RR Flow Control Valves RUNBACK to minimum position.</li> </ul> <p>Per LOA-FW-101</p> <ul style="list-style-type: none"> <li>• Verify all TDRFP M/A Xfr Stations are in manual.</li> <li>• Check MDRFP shutdown.</li> <li>• Stabilize reactor water level using feedpump M/A stations or TDRFP manual backup stations by initially matching feedwater flow with steam flow.</li> <li>• Check selected reactor water level instrument is operating properly.</li> <li>• Check reactor water level &gt;12.5 inches and &lt; 55.5 inches.</li> <li>• Check S/U controller deviations and indications normal.</li> <li>• Check steam flows and feed pump flows are normal.</li> <li>• Do not use 3 element auto until all feedpump flow indication is operable.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Requests an additional NSO to the control room for manual FW control.</li> <li>• Enforces OPS expectations and standards.</li> </ul>

**Terminus:** RPV level stable in the green band, RWLC in manual, or Reactor scram

## NOTES:


## Operator Actions

Event No.(s): 1.3.7, 1.3.8		Page 1 of 4
<b>Description:</b> Once the reactor is manually scrammed or reactor water level is stabilized, a major steam leak (steam line "D") propagates inside the primary containment. A broken containment monitoring instrument line will have the following effects: - Fail Division 1 drywell pressure indication - Fail Division 1 ECCS and EDG automatic initiation - Prevent remote operation of Division 1 drywell spray – Fail SPDS DW Pressure Indication.		
<b>Initiation:</b> Conditions stable following RWLC failure, or shortly after reactor scram if RPV level control is lost.		
<b>Cues:</b> Multiple annunciators for High DW pressure		
Time	Position	Applicant's Actions or Behavior
	RO	When RO/BOP recognize indications of LOCA: Per LGP-3-2 Attachment E (hardcard): <ul style="list-style-type: none"> <li>• Arm and Depress scram pushbuttons</li> <li>• Place mode switch in Shutdown</li> <li>• Insert IRMs and SRMs</li> <li>• Check rods in and power decreasing</li> <li>• Inform Unit Supervisor rods are in</li> <li>• Operate FW to control level 12.5 to 55.5 inches</li> <li>• Report level and pressure trends</li> <li>• Verified RR downshifted to slow speed</li> <li>• Verify turbine and generator are tripped</li> </ul> Performs additional EOP actions as directed by SRO <ul style="list-style-type: none"> <li>• Coordinates with BOP to maintain/restore RPV level in band specified using preferred injection systems</li> <li>• Monitors RPV parameters               <ul style="list-style-type: none"> <li>◦ Report lowering RPV level/pressure (value, rate, trend)</li> <li>◦ Report indications of steam line break</li> </ul> </li> </ul>

## NOTES:


## Operator Actions

Event No.(s): 1.3.7, 1.3.8		Page 2 of 4
Time	Position	Applicant's Actions or Behavior
<div>Critical Task</div>	BOP	<p>Makes plant announcement for reactor scram</p> <p>Verifies needed auto actions (PCIS, ECCS)</p> <ul style="list-style-type: none"><li>• Report failure of Division 1 systems to initiate on LOCA condition</li><li>• Manually initiates/starts division 1 ECCS using one of the following methods:<ul style="list-style-type: none"><li>◦ Arm and depress Div 1 ECCS Initiation push button</li><li>◦ Starts, 1A RHR and/or LPCS manually as required.</li></ul></li></ul> <p>Performs additional EOP actions as directed by SRO</p> <ul style="list-style-type: none"><li>• Starts 2 loops of suppression pool cooling<ul style="list-style-type: none"><li>◦ Startup RHR Service Water as follows:<ul style="list-style-type: none"><li>◆ Start first RHR Service Water Pump.</li><li>◆ Open 1A/1B RHR Hx Service Water Outlet Valve.</li><li>◆ When indicated flow reaches 3000 gpm, START second RHR Service Water Pump.</li></ul></li><li>◦ Start 1A/1B RHR Pump.</li><li>◦ Establish RHR flow of 1500 to 7450 gpm.<ul style="list-style-type: none"><li>◆ Throttle 1E12-F024A/B open.</li><li>◆ Throttle 1E12-F048A/B closed.</li></ul></li></ul></li><li>• Initiates Suppression Chamber Spray</li><li>• Initiates DW Spray</li><li>• Coordinates with RO to maintain/restore RPV level in band specified using preferred injection systems</li><li>• Restarts VR IAW LGA-VR-01 (as time permits)</li></ul>
	<div>Critical Task</div>	

NOTES:

[illegible]

## Operator Actions

Event No.(s): 1.3.7, 1.3.8		Page 3 of 4
Time	Position	Applicant's Actions or Behavior
	SRO	<p>Directs entry into EOPs and EOP actions as entry conditions are met.</p> <p>Per LGA-001:</p> <ul style="list-style-type: none"> <li>• Directs RO to control RPV level 12.5-55.5 inches.</li> </ul> <p>Per LGA-003:</p> <ul style="list-style-type: none"> <li>• Per Primary Containment Pressure Leg, directs the following:               <ul style="list-style-type: none"> <li>◦ Spray the Suppression Chamber before pressure reaches 8 psig</li> <li>◦ When SC pressure is 8 psig, then                   <ul style="list-style-type: none"> <li>◆ VERIFY within the limits of the DSL</li> <li>◆ TRIP all RR pumps</li> <li>◆ SPRAY the Drywell (per LGA-RH-103)</li> </ul> </li> <li>◦ If SC pressure can't be maintained below the PSP limits, initiate ADS IAW LGA-004.</li> </ul> </li> <li>• Per Drywell Temperature Leg, directs the following:               <ul style="list-style-type: none"> <li>◦ If determined can't stay below 135 F in DW, then start all available drywell cooling (per LGA-VP-01)</li> </ul> </li> <li>• Per Pool Temperature Leg, directs the following:               <ul style="list-style-type: none"> <li>◦ Start two loops of pool cooling</li> <li>◦ If determined can't stay below 105 F in Suppression Pool, then start all available pool cooling per (LGA-RH-103)</li> </ul> </li> <li>• Pool Level Leg               <ul style="list-style-type: none"> <li>◦ Monitor Suppression Pool Level (-4.5 to +3.0 inches)</li> </ul> </li> <li>• Hydrogen Leg               <ul style="list-style-type: none"> <li>◦ Start Hydrogen and Oxygen Monitors (per LGA-CM-01)</li> </ul> </li> </ul>

NOTES:

[illegible]

## Operator Actions

Event No.(s): 2.3.7, 2.3.8, 2.3.9		Page 4 of 4
Time	Position	Applicant's Actions or Behavior
	SRO	<p>Directs entry into EOPs and EOP actions as entry conditions are met.</p> <p>Per LGA-04 directs the following (if RPV blowdown required)</p> <ul style="list-style-type: none"> <li>• Verify SP level &gt;-18 feet</li> <li>• Initiate ADS</li> <li>• Verify 7 SRVs open</li> <li>• Wait until Shutdown Cooling interlocks clear</li> </ul> <p>General:</p> <ul style="list-style-type: none"> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Enforces OPS expectations and standards.</li> <li>• Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul> <p>GSEP Event Classification and PARS Determination (if performed):</p> <ul style="list-style-type: none"> <li>• GSEP - "Alert" per EAL FA1</li> <li>• PARS – None</li> </ul>

**Terminus:**

- RPV level stable and under control above TAF and in required band
- DW Spray initiated and DW pressure lowering
- Upon approval of lead examiner
- 

NOTES:

[illegible]

**REFERENCES**

<b><u>Procedure</u></b>	<b><u>Title</u></b>	<b><u>Revision</u></b>
LGA-001	RPV Control	00
LGA-002	Secondary Containment Control	00
LGA-003	Primary Containment Control	00
LGA-CM-01	Emergency Operation of Post LOCA H2/O2 Monitors	04
LGA-RH-103	Unit 1 RHR operations in the LGAs	02
LGP-3-1	Power Changes	25
LGP-3-2	Reactor Scram	42
LOA-IN-101	Loss of Drywell Pneumatic Air Supply	01
LOP-CM-02	Operation of Post LOCA H2/O2 Monitoring System	19
LOP-RR-07	Operation of RR Flow Control System	19
LOR-1H13-P603-A409	Feedwater Control Reactor Water Low – Level 4	01
LOR-1PM03J-A307	RFP 1A Seal Leakoff Drain Line Temperature High	01
LOR-1PM13J-A103	Drywell Air Hydrogen High	00
LOR-1PM13J-A404	Instrument Nitrogen System Trouble	01
LOS-CM-M1	Monthly Accident Monitoring Instrument Channel Check	19



**Simulator Operator Instructions****Initial Setup**

1. Recall IC-49 (Power reduced to 85% for rod set).
2. Place simulator in RUN.
3. Load and run the setup CAEP written for this scenario (**esg1.3.cae** on floppy disc)
4. Post the FCL Greater Than 100% placard.
5. Ensure Hotwell Level is near the bottom of the green band (set  $cnm2htws = 4.5E6$ ).
6. Ensure CY Tank Level is near 20 feet (set  $cfm1cyts = 2.5E6$ ).
7. Hang OOS cards for 1C RHR
8. Write T/S 3.5.1, 7 days, for 1C RHR being OOS

**Event Triggers and Role Play**Event #

1. Raise Power with RR Flow
  - a. No triggers
  - b. Role play for rounds operators as necessary
2. Perform LOS-CM-M1
  - a. No triggers
  - b. Role play for operator actions at 1PL15J/1PL75J
    - (1) Crew should elect to secure the 1PL75J
    - (2) Operate the 1CM035/36 as requested – not modeled
3. Div 1 Post LOCA O2 Monitor Fails Upscale
  - a. **Trigger 3** on request from lead evaluator
  - b. Role play for operator actions at HD racks
4. Trip of 1A IN Compressor
  - a. **Trigger 4** on request from lead evaluator
  - b. Role play as operators at breaker and IN skid
    - (1) No visible signs of damage.
    - (2) NO IN leaks
5. Trip of Running TDRFP Seal Injection Pump
  - a. **Trigger 5** on request from lead evaluator
  - b. Role play as rounds operator.
    - (1) Local controls for Seal Injection FCVs are operating normally
6. Output Signal from 1A TDRFP M/A Station Fails Low
  - a. **Trigger 6** on request from lead evaluator
  - b. Role play as necessary
7. Division 1 Containment Monitoring Instrument Line Broken
  - a. No Trigger, malfunction inserted on initial setup
  - b. Role play as necessary
8. Steam Leak Inside Primary Containment
  - a. **Trigger 8** on request from lead evaluator, or shortly after scram if level control is lost

Facility: LaSalle StationScenario No.: ESG 2.1Op Test No.: 2

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Initial Conditions:**

- Unit 1 is operating at 85% reactor power with flow control line at 105%.
- TLO Temperature controller in manual.
- 1A GC pump is OOS for alignment.
- HPCS is OOS to megger and inspect motor.
- Online Safety level is green.
- Unit 2 is operating at 100% power.

**Turnover:**

- Unit 1 is in a Division 3 work week.
- LOS-DG-M3 is scheduled to be performed this shift.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N BOP SRO	Monthly operability surveillance for EDG.
2	MRD279	I RO SRO	Output for the control rod drive (CRD) flow controller fails high.
3	MRD070	C RO SRO	Control rod drift.
4	N/A	R RO SRO	Reduce core flow by 15 Mlbm due to CRD drift.
5	MNB101	I BOP SRO	Main generator hydrogen high temperature.
6	MCF081	I RO SRO	1B TDRFP flow instrument fails downscale.
7	CAEP	M BOP SRO ALL BOP SRO	RCIC fails upon initiation (1E51-F045 trips).
8	MCF033		Large break in feedwater line (steam tunnel).
9	MNB038		SRVs "S" and "U" fail to open on ADS initiation.

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

**NARRATIVE SUMMARY**

<b>Event(s)</b>	<b>Description</b>
2.1.1	Once the crew has accepted the unit, the SRO should direct the BOP to complete the monthly operability surveillance for the EDG. The BOP will need to synchronize the EDG to the grid and step load it to 2600 KW.
2.1.2, 3, 4	After the DG has been loaded, the output for the control rod drive (CRD) flow controller fails high. Moments later, a control rod begins to drift in from high cooling water pressure/flow. The actual sequence of actions may vary at this point. The RO may immediately recognize the flow controller failure and begin to take action or may not notice until after the rod drift begins. In either case, once the rod begins to drift, actions should be prioritized to mitigate the consequences of the drifting rod. The immediate action should be to determine which rod is drifting, watch for any additional drifting rods (which requires a scram), and refer to LOA-RD-101 for guidance. Subsequently, the procedure will have the operators command an insert signal to position 00 and reduce core flow by 15 Mlbm. Next, the operators will need to respond to the failed flow controller output by placing the controller in manual and returning flow to normal in accordance with the same LOA.
2.1.5	Once the major actions of the previous events have been completed, a main generator high hydrogen temperature alarm will come in. The crew will follow the annunciator and abnormal operating procedures and dispatch an EO to the local skid. Upon investigation, they will discover that the hydrogen temperature controller has failed. The BOP operator will have to take manual control of the temperature controller to clear the alarm.
2.1.6, 7	After main generator temperature is under control, the 1B TDRFP flow instrument will fail downscale. As a result, the TDRFP will ramp to maximum speed. The RO should recognize this failure and place the RWLC System in manual. If the RO is slow in responding, or is unable to control RPV level, an auto or manual scram may result. In any event, as RPV level drops and RCIC starts (auto start at -50" or manual start), the breaker for the RCIC turbine steam inlet valve, 1E51-F045, will trip. This prevents RCIC from running.
2.1.8, 9	Shortly after the feedwater transient, a large break in one of the feedwater lines occurs in the main steam tunnel area of secondary containment. The crew will have to recognize the high energy line break and take action to isolate feedwater (there is no automatic isolation for feedwater). Once the operators recognize that condensate and feedwater are unavailable, they will attempt to start RCIC and other available injection sources. However, as mentioned above, RCIC will not start. The MSIVs may have closed on high steam tunnel temperature from the feedwater break. This could prevent depressurization with the turbine bypass valves. The SRO should enter the LGAs for reactor pressure and level control and secondary containment control. When level drops to the top of active fuel (TAF), the crew should perform an emergency depressurization. When ADS logic is initiated, two SRVs, "S" and "U", will fail to open. The BOP operator will have to recognize this failure and open two additional SRV's for a total of seven open.

**Critical Steps**

1. Crew recognizes high energy line break in secondary containment and takes steps to isolate the Feedwater system from the break.
2. Crew performs an emergency depressurization when RPV level can't be maintained above TAF

**Shift Turnover Information****⇒ Day of week and shift**

- ◆ Monday Day Shift

**⇒ Weather conditions**

- ◆ No adverse weather conditions expected in the next 24 hours

**⇒ (Plant power levels)**

- |                               |                         |
|-------------------------------|-------------------------|
| ◆ Unit 1 - 85% Power/107% FCL | ◆ Unit 2 – 100% Power   |
| ◆ 2965 MWt                    | ◆ 3454 MWt              |
| ◆ 1000 MWe                    | ◆ 1149 MWe              |
| ◆ 93 Mlbm/hr CORE FLOW        | ◆ 107 Mlbm/hr CORE FLOW |

**⇒ Thermal Limit Problems/Power Evolutions**

- |   |        |
|---|--------|
| ◆ Power ascension for load following is scheduled this shift (300 MWe/hr) | ◆ None |
| ◆ .   | ◆      |

**⇒ Existing LCOs, date of next surveillance**

- |                                 |        |
|---------------------------------|--------|
| ◆ T/S 3.5.1, 14 days for HPCS   | ◆ None |
| ◆ Att 1D of LOS-AA-W1 1/8 hours | ◆      |

**⇒ LOSs in progress or major maintenance**

- |  |        |
|--|--------|
| ◆ LOS-DG-M3, continue at step 2 of Att 1B-Idle for running the 1B DG | ◆ None |
| ◆ HPCS pump is OOS to megger and inspect motor.                      | ◆      |
| ◆ 1A GC pump is OOS for alignment.                                   | ◆      |

**⇒ Equipment to be taken out of or returned to service this shift/maintenance on major plant equipment**

- |        |        |
|--------|--------|
| ◆ None | ◆ None |
| ◆      | ◆      |

**⇒ Comments, evolutions, problems, etc.**

- |  |  |
|--|--|
| ◆ Online Safety is Green (RAW = 1.0)       | ◆ Online Safety is Green (RAW = 1.0)       |
| ◆ The Unit 1 is in a Division 3 work week. | ◆ The Unit 2 is in a Division 2 work week. |
| ◆ TLO Temperature controller in manual.    |  |

## Operator Actions

<b>Event No.(s):</b> 2.1.1	<b>EVENT NOT USED</b>	<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> Once the crew has accepted the unit, the SRO should direct the BOP to complete the monthly operability surveillance for the EDG. The BOP will need to synchronize the EDG to the grid and step load it to 2600 KW.		
<b>Initiation:</b> Following shift turnover on the signal of lead examiner		
<b>Cues:</b> Directed by SRO		
Time	Position	Applicant's Actions or Behavior
	BOP	Per LOS-DG-M3 <ul style="list-style-type: none"> <li>• Verify 1B Diesel Gen Cooling Wtr Pmp control switch in normal.</li> <li>• Direct EO to perform steps for local start. and record time and date of start.</li> <li>• Verify 1B Diesel Gen Cooling Wtr Pmp 1E22-C002 running.</li> <li>• Direct EO to complete steps for local start.</li> <li>• Place 1B Diesel Gen Control Selector switch in remote manual.</li> <li>• Verify proper DG frequency and volts.</li> <li>• Place 1B DG/143 Synchronizing (synchroscope select) Switch to ON.</li> <li>• Adjust Speed until synchroscope rotates slowly in the fast direction.</li> <li>• Adjust Incoming Volts until it is slightly above Running Volts.</li> <li>• When synchroscope is just before 12 o'clock, close ACB 1433.</li> <li>• Place 1B DG/143 Synchronizing (synchroscope select) Switch to OFF.</li> <li>• Slow LOAD DG to 2400-2600 KW and 650-1750 kvar.</li> <li>• Record Time/Date Diesel Generator loaded to □□2400 KW.</li> <li>• Direct EO to perform DG local running checks</li> </ul>
	RO	<ul style="list-style-type: none"> <li>• Monitors reactor to ensure operations remain within established bands</li> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• Directs actions above.</li> <li>• Enforces OPS expectations and standards</li> <li>• Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.</li> <li>• Ensures OPS activities are completed as scheduled.</li> </ul>
<b>Terminus:</b> DG loaded to 2400-2600 KW.		

## NOTES:


## Operator Actions

Event No.(s): 2.1.2, 2.1.3, 2.1.4		Page 1 of 2
<b>Description:</b> After the DG has been loaded, the output for the control rod drive (CRD) flow controller fails high. Moments later, control rod 14-19 begins to drift in from high cooling water pressure/flow. Procedure requirements will include directions to reduce core flow by 15 Mlbm/hr.		
<b>Initiation:</b> Following 1B DG loading, on the signal of lead examiner		
<b>Cues:</b> Annunciator for control rod drift, CRD system flows and pressures outside normal bands.		
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOR-1H13-P603-A504 (for control rod drift):</p> <ul style="list-style-type: none"><li>• Check all control rods.</li><li>• If more than one rod has drifted / scrammed, manually scram Reactor.</li><li>• If the alarm is unexpected, reduce core flow by at least 15 million lbs/hr, but DO NOT go below 60 million lbs/hr.</li><li>• Refer to LOA-RD-101, Control Rod Drive Abnormal.</li></ul> <p>Per LOA-RD-101 (for control rod drift):</p> <ul style="list-style-type: none"><li>• Check control rods - only one rod drifted/scrammed.</li><li>• Verify core flow dropped 15 M#/hr. minimum.</li><li>• Select drifting/scrammed rod.</li><li>• Check insert block light – OFF at rod select matrix.</li><li>• Insert rod to position 00 (full-in).</li><li>• Check control rod remains at position 00.</li><li>• Verify cooling water –normal (<i>operator may adjust RD valves 1C11-F003 and/or 1C11-F002A/B to bring flows/pressures in proper range</i>)</li><li>• Notify QNE</li><li>• Obtain OD-7 option 2.</li><li>• Check all other control rods are in their correct sequence positions.</li><li>• Declare control rod inoperable and refer to Tech Spec 3.1.3.1.</li><li>• Investigate cause of drift/scram.</li></ul>

## NOTES:


## Operator Actions

Event No.(s): 2.1.2, 2.1.3, 2.1.4		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOA-RD-101 (for flow control failure):</p> <ul style="list-style-type: none"> <li>• Check CRD parameters in normal range.</li> <li>• Transfer Flow Controller, 1C11-R600, to manual.</li> <li>• Adjust Flow Controller Output using open/close pushbuttons to obtain a CRD system flow of approximately 60 gpm.</li> <li>• Check Flow Control Valve controlling flow at approximately 60 gpm. If not: <ul style="list-style-type: none"> <li>◦ Place Inservice Flow Control Valve in local manual operation as follows: <ul style="list-style-type: none"> <li>◦ Adjust Manual/Auto Station 1C11-D009A/B, to minimum.</li> <li>◦ Position Manual/Auto Station Manual/Auto switch to Manual.</li> <li>◦ Slowly raise valve percent open setpoint tape to obtain approximately 60 gpm flow as indicated on local indicator 1C11-R019.</li> </ul> </li> <li>◦ Check Flow Control Valve controlling flow at approximately 60 gpm.</li> <li>◦ If FCV is NOT controlling at approximately 60 gpm, transfer to Standby Flow Control Valve per Attachment B.</li> </ul> </li> </ul> <p>Per LGP-3-1</p> <ul style="list-style-type: none"> <li>• Remove condensate polishers from service when no longer needed.</li> <li>• Maintain Condensate System Flow per LOP-CD-03 as measured through the condensate polishers, while continuing to perform the following steps.</li> <li>• For a power decrease to a final power &gt; 60%, perform the following: <ul style="list-style-type: none"> <li>◦ Reduce core flow to approximately 70 Mlbm/hr, per LOP-RR-07.</li> </ul> </li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Declare control rod inoperable and refer to Tech Spec 3.1.3.1. <ul style="list-style-type: none"> <li>◦ W/I 1 hour, disarm associated directional control valves.</li> </ul> </li> <li>• Enforces OPS expectations and standards.</li> <li>• Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul>
<b>Terminus:</b> Core flow reduced by 15 M#/hr, drifting rod fully inserted, CRD flow control restored		

## NOTES:




## Operator Actions

<b>Event No.(s):</b> 2.1.5	<b>EVENT NOT USED</b>	<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> A main generator high hydrogen temperature alarm will come in. Upon investigation, the crew should discover that the hydrogen temperature controller has failed.		
<b>Initiation:</b> Following recovery from rod drift and on the signal of lead examiner.		
<b>Cues:</b> Annunciators 1PM02J-B101 and 1PM02J-B301		
Time	Position	Applicant's Actions or Behavior
	BOP	<p>Per LOR-1PM02J-B101:</p> <ul style="list-style-type: none"> <li>DISPATCH operator to CHECK 1PL19J for source of Trouble Alarm.</li> <li>PROCEED per LOR for alarm at Hydrogen Panel 1PL19J.</li> </ul> <p>Per LOR-1PM02J-B301 and LOR-1PL19JB-1-3:</p> <ul style="list-style-type: none"> <li>CHECK 1TI-WS001, Generator Cold Gas Temp, &gt; 51°C or &lt; 30°C.</li> <li>PLACE 1TK-WS001, Gen H2 Coolers Temp Contrl, in MANUAL and POSITION 1WS043, Gen H2 Coolers WS Outlet Temperature Control Valve, to maintain Generator Cold Gas Temperature between 30°C to 56°C.</li> <li>If Cold Gas Temperature can NOT be controlled using 1TK-WS0C1: <ul style="list-style-type: none"> <li>Concurrently throttle open 1WS045, Gen H2 Coolers TCV 10" B/P Valve and throttle closed 1WS042, Gen H2 Coolers TCV Stop Valve.</li> <li>Continuously monitor 1TI-WS001, Generator Cold Gas Temp.</li> <li>ADJUST 1WS045 to maintain Cold Gas Temperature 30°C-56°C.</li> </ul> </li> <li>If Generator Cold Gas Temp exceeds 56°C on 1TI-WS001 or Hydrogen Cooler H2 Inlet Temp exceed 72°C, REDUCE VARS to approximately 0.</li> <li>If Generator Cold Gas Temperature cannot be reduced below 56°C, load should be reduced in 30 MWe increments to limit winding temperature.</li> </ul>
	RO	<ul style="list-style-type: none"> <li>Monitors reactor to ensure operations remain within established bands</li> <li>Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>On transient, positions himself as command authority on the unit.</li> <li>Acknowledges immediate operator actions and directs subsequent actions.</li> <li>Enforces OPS expectations and standards.</li> <li>Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul>
<b>Terminus:</b> Main generator H2 temp below alarm setpoint with control restored in manual		

## NOTES:


## Operator Actions

Event No.(s): 2.1.6		Page 1 of 1
<b>Description:</b> The 1B TDRFP flow instrument will fail downscale. As a result, the TDRFP goes to maximum speed. The RO will have to take manual control of FW.		
<b>Initiation:</b> On the signal of lead examiner.		
<b>Cues:</b> Annunciator 1H13-P603-A309 on hi RPV level, rising flow and speed on 1B TDRFP		
Time	Position	Applicant's Actions or Behavior
	RO	<p>Per LOR-1H13-P603-A309:</p> <ul style="list-style-type: none"> <li>• Check Rx Vessel level greater than or equal to alarm setpoint.</li> <li>• If Automatic Level Control has malfunctioned, refer to LOA-FW-101.</li> <li>• If TDRFP flow setback has initiated, reduce flow demand within 30 seconds to avoid a repeat flow excursion.</li> <li>• If control of TDRFP can NOT be established, TRIP malfunctioning Feed Pump prior to reaching Level 8.</li> <li>• If control of RPV level has been re-established prior to automatic protective action, station an additional NSO in CR to monitor and control RPV level.</li> </ul> <p>Per LOA-FW-101</p> <ul style="list-style-type: none"> <li>• Verify all TDRFP M/A Xfr Stations are in manual.</li> <li>• Check MDRFP shutdown.</li> <li>• Stabilize reactor water level using feedpump M/A stations or TDRFP manual backup stations by initially matching feedwater flow with steam flow.</li> <li>• Check selected reactor water level instrument is operating properly.</li> <li>• Check reactor water level &gt;12.5 inches and &lt; 55.5 inches.</li> <li>• Check S/U controller deviations and indications normal.</li> <li>• Check steam flows and feed pump flows are normal.</li> <li>• DO not use 3 element auto until all feedpump flow indication is operable.</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Requests an additional NSO to the control room for manual FW control.</li> <li>• Enforces OPS expectations and standards.</li> </ul>
<b>Terminus:</b> RPV level stable in the green band, RWLC in manual, or Rx scram		

## NOTES:


## Operator Actions

<b>Event No.(s):</b> 2.1.7		<b>Page</b> 1 <b>of</b> 1
<b>Description:</b> RCIC fails on initiation signal (1E51-F045 trips). Steps for a manual reactor scram are also included here should RPV level control be lost during the previous event.		
<b>Initiation:</b> On the signal of lead examiner or automatically if RPV level control is lost.		
<b>Cues:</b> Annunciator 1H13-P603-B505 or 1H13-P601-D405 on low or high RPV level		
Time	Position	Applicant's Actions or Behavior
	RO	Per LGP-3-2 Attachment E (hardcard): <ul style="list-style-type: none"> <li>• Arm and Depress scram pushbuttons</li> <li>• Place mode switch in Shutdown</li> <li>• Insert IRMs and SRMs</li> <li>• Check rods in and power decreasing</li> <li>• Inform Unit Supervisor rods are in and power is decreasing</li> <li>• Operate FW to control level 12.5 to 55.5 inches</li> <li>• Report level and pressure are following expected trends</li> <li>• Verified RR downshifted to slow speed</li> <li>• Verify turbine and generator are tripped</li> <li>• Stabilize pressure &lt;1043 psig</li> </ul>
	BOP	<ul style="list-style-type: none"> <li>• Makes plant announcement for reactor scram</li> </ul> Per LOR-1H13-P601-D104 (RCIC trip): <ul style="list-style-type: none"> <li>• Verify auto closure of Trip &amp; Throttle valve, injection valve, and Min flow vlv.</li> <li>• Verify closed the steam supply valve and LO cooler supply valve.</li> <li>• Determine cause of trip and reset if possible IAW LOP-RI-04.</li> <li>• If cause of trip cannot be determined, shutdown RCIC IAW LOP-RI-03.</li> <li>• Notify SRO of RCIC failure</li> </ul>
	SRO	<ul style="list-style-type: none"> <li>• On transient, positions himself as command authority on the unit.</li> <li>• Acknowledges immediate operator actions and directs subsequent actions.</li> <li>• Enforces OPS expectations and standards.</li> <li>• Contacts Shift Manager and recommends notifications IAW OP-AA-101-501.</li> </ul>
<b>Terminus:</b> This event will lead directly into the major transient		

## NOTES:


## Operator Actions

Event No.(s): 2.1.8, 2.1.9		Page 1 of 2
<b>Description:</b> A large break in one of the feedwater lines occurs in the main steam tunnel area of secondary containment. If/when ADS logic is initiated, 2 SRVs will fail to open.		
<b>Initiation:</b> On the signal of lead examiner, or immediately following reactor scram		
<b>Cues:</b> High Temp Alarms in Secondary Containment, Lowering RPV level, SRV "S" & "U" not open after ADS initiated.		
Time	Position	Applicant's Actions or Behavior
	RO	<ul style="list-style-type: none"> <li>Recognizes hi FW flow and indications of FW line break and reports to SRO.</li> <li>Coordinates with BOP operator to monitor and control RPV level and press. Performs EOP actions as directed by SRO</li> <li>Lines up CRD for alternate injection IAW LGA-RD-01 as directed</li> </ul>
	BOP	<div>Critical Task</div> <ul style="list-style-type: none"> <li>Reports secondary containment high temperature/rad alarms to SRO</li> <li>Should make plant announcement to evacuate turbine and reactor buildings.</li> <li>Recognizes symptoms of FW line break and isolates Feedwater from the break (may also be recognized by the RO). Performs EOP actions as directed by SRO</li> <li>Starts 2 loops of suppression pool cooling               <ul style="list-style-type: none"> <li>Startup RHR Service Water as follows:                   <ul style="list-style-type: none"> <li>Start first RHR Service Water Pump.</li> <li>Open 1A/1B RHR Hx Service Water Outlet Valve.</li> <li>When indicated flow reaches 3000 gpm, START second pump.</li> </ul> </li> <li>Start 1A/1B RHR Pump.</li> <li>Establish RHR flow of 1500 to 7450 gpm.                   <ul style="list-style-type: none"> <li>Throttle 1E12-F024A/B open.</li> <li>Throttle 1E12-F048A/B closed.</li> </ul> </li> </ul> </li> <li>Initiates ADS when RPV level reaches -150 inches.               <ul style="list-style-type: none"> <li>Recognizes failure of "S" and "U" SRVs to open on initiation of ADS.</li> <li>Manually open "S" &amp; "U" SRVs or any 2 additional SRVs for a total of 7.</li> </ul> </li> <li>Restarts VR IAW LGA-VR-01 as directed.</li> <li>Restarts VP IAW LGA-VP-01 as directed.</li> <li>Starts H2/O2 Monitors IAW LGA-CM-01 as directed.</li> </ul> <div>Critical Task</div>

## NOTES:


## Operator Actions

Event No.(s): 2.1.8, 2.1.9		Page 2 of 2
Time	Position	Applicant's Actions or Behavior
	SRO	<ul style="list-style-type: none"> <li>Directs entry into EOPs as entry conditions are met.</li> </ul> <p>Per LGA-001:</p> <ul style="list-style-type: none"> <li>Directs RO to control RPV level 12.5-55.5 inches.</li> <li>Directs BOP to inhibit ADS when RPV level cannot be maintained &gt; -150".</li> <li>Directs use of alternate injection systems to maintain RPV level.</li> <li>Directs initiation of ADS IAW LGA-004 when RPV level drops to -150".</li> <li>After RPV blowdown, directs restoration of level using preferred injection systems.</li> </ul> <p>Per LGA-002:</p> <ul style="list-style-type: none"> <li>Directs RO and BOP to isolate FW an lines. May also direct isolation of RWCU lines, Main Steam lines and Main Steam line drains.</li> <li>Directs restart of VR IAW LGA-VR-01 (as time and resources permit)</li> </ul> <p>Per LGA-003:</p> <ul style="list-style-type: none"> <li>Directs use of all available suppression pool cooling.</li> <li>Directs restoration of VP system IAW LGA-VP-01 (as time and resources permit)</li> <li>Directs start of Post LOCA H2/O2 monitors IAW LGA-CM-01 (as time and resources permit).</li> </ul>
<p><b>Terminus:</b></p> <ul style="list-style-type: none"> <li>RPV level stable and under control above TAF</li> <li>RPV blowdown complete,</li> <li>Upon approval of lead examiner</li> </ul>		

NOTES:

[illegible]

**REFERENCES**

<b><u>Procedure</u></b>	<b><u>Title</u></b>	<b><u>Revision</u></b>
LGA-001	RPV Control	00
LGA-002	Secondary Containment Control	00
LGA-003	Primary Containment Control	00
LGA-004	RPV Blowdown	00
LGA-CM-01	Emergency Operation of Post LOCA H2/O2 Monitors	04
LGA-VP-01	Rx Bldg Ventilation Startup Following System Isolation	06
LGA-VR-01	Primary Containment Temperature Reduction	07
LGP-3-1	Power Changes	25
LGP-3-2	Reactor Scram	42
LOA-FW-101	Reactor Level/Feedwater Pump Control Trouble	03
LOA-RD-101	Control Rod Drive Abnormal	02
LOA-SRV-101	Unit 1 Stuck Open Safety Relief Valve	01
LOP-RM-01	Reactor Manual Control Operation	14
LOP-RR-07	Operation of RR Flow Control System	19
LOR-1H13-P601-D104	RCIC Turbine Trip	00
LOR-1H13-P603-A309	FW Control – Reactor Water Level Seven-High	00
LOR-1H13-P603-A504	Control Rod Drive Drift Alarm	01
LOR-1PL19JB-1-3	Generator 1 Machine Gas Temperature High	00
LOR-1PM02J-B101	Hydrogen Panel Trouble	00
LOR-1PM02J-B301	Generator 1 Hydrogen Temperature High or Low	00
LOS-DG-M3	1B Diesel Generator Operability Test	44

**Simulator Operator Instructions****Initial Setup**

1. Recall IC-49 (Power reduced to 85% for rod set).
2. Place simulator in RUN.
3. Load and run the setup CAEP written for this scenario (**esg2.1.cae** on floppy disc)
4. Post the FCL Greater Than 100% placard.
5. Ensure Hotwell Level is near the bottom of the green band (set  $cnm2htws = 4.5E6$ ).
6. Ensure CY Tank Level is near 20 feet (set  $cfm1cyts = 2.5E6$ ).
7. Hang OOS cards for HPCS
8. Write T/S 3.5.1, 14 days, for HPCS being OOS

**Event Triggers and Role Play**Event#

1. DG Run IAW LOS-DG-M3
  - a. No triggers
  - b. Role play for DG run
2. RD Flow Control Valve Failure
  - a. **Trigger 2** on request from lead evaluator
  - b. Role play for RD flow control valve failure IAW LOA-RD-101
3. Rod Drift
  - a. **Trigger 3** on request from lead evaluator
  - b. Role play for Rod drift IAW LOA-RD-101
4. Power Reduction For Rod Drift
  - a. No triggers
5. Generator H2 Temperature Controller Failure
  - a. **Trigger 5** on request from lead evaluator
  - b. Role play for activities at H2 Skid
    - (1) Alarm at 1PL19JB is 1-3. It has basically the same instructions as the LOR at 1PM02J.
    - (2) Need to verify that WS is lined up to H2 cooler and then throttle the bypass if directed.
6. 1B TDRFP Flow Instrument Fails Downscale
  - a. **Trigger 6** on request from lead evaluator
  - b. Role play as IMD as requested.
7. RCIC Fails On Initiation
  - a. **Trigger 7** is automatic on RCIC start
  - b. If sent to breaker for 1E51-F045, you can't reset it. If sent to valve, you can't engage the handwheel.
8. Large FW Line Break In Steam Tunnel
  - a. **Trigger 8** on request from lead evaluator. Don't wait to long after scram. Prompt as necessary.
  - b. Report steam in heater bay and on turbine deck (blow out panels in steam tunnel burst).
  - c. Also can report steam in RB raceway
9. SRVs "S" and "U" Will Fail To Open on ADS Initiation
  - a. No triggers