LaSalle County Station

DYNAMIC SIMULATOR SCENARIO GUIDE

ILT CLASS 09-01 NRC Exam

NRC 09-1-1

Rev. 0

05/13/2010

DEVELOPED BY:

Facility Author	Date

APPROVED BY:

Facility Representative	Date

Facility: LaSalle Station	**Scenario No.:** 09-1-1	**Operating Test No.** 09-01

Evaluators	Operators:	Crew Position
_____	_____	_____
_____	_____	_____
_____	_____	_____

Initial Conditions:

- Mode Switch is in Startup
- Power is on IRM's Range 8 & 9
- U1 Startup is in progress IAW LGP1-1, Step E.4, Mode Switch to RUN.
- Online Safety level is green.
- Unit 2 is operating at 100% power.

Turnover:

- Reactor power is being raised via control rod withdrawal to transfer the Mode Switch to RUN.

Event No.	Malf. No.	Event Type*		Event Description
1	MRD060	C	RO,SRO	Pull rods for reactor Startup IAW LGP 1-1. One rod will uncouple when full out. Rod will be driven full in. (TS)
2	N/A	N	BOP,SRO	Swap VP loops IAW LOP-VP-02.
3	MRM034	C	BOP,SRO	Station Vent Stack WRGM low range pump trip / trip on restart and unavailable. (TS)
4	MNI018	I	RO,SRO	"A" IRM fails high/INOP (TS)
5	CAE	C	BOP,SRO	TBCCW system pressure low.
6	MCF033	M	ALL	Feedwater break outside containment / scram.
7	MRC034	M	ALL	RR LOCA on "B" RR suction.
8	CAE	C	BOP,SRO	1VP053B fails to isolate.

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor Transient, (T)ech Spec

Event(s)   **Description**

1   Reactor startup is in progress. Reactor power is approximately 7%. Pulling rods to transfer the Mode Switch to RUN. A rod will overtravel when full out, requiring the rod to be driven full in.

2   "B" VP chiller making noise. Swap Primary Containment Cooling (VP) loops per LOP-VP-02.

3   The Station Vent Stack Wide Range Gas Monitor low range pump will trip. The low range pump will not restart following a system purge. The crew should enter TRM 3.3.d and ODCM 12.2.2.A.

4   "A" IRM fails high/INOP. The crew should bypass the IRM and refer to T.S.3.3.1.1 and TRM 3.3.C.

5   The TBCCW system will experience low pressure due to a degraded pump. The crew will have to swap TBCCW pumps per LOR 1PM10J-A304 and LOP-WT-02.

6   A Feedwater break outside the containment will occur. The crew will scram, isolate feedwater and control level with ECCS systems and RCIC IAW LGA-001. (PRA)

7   A Reactor Recirc. leak will occur requiring entry into LGA-003. The crew will spray the suppression chamber and drywell IAW LGA-003. (PRA)

8   The 1VP053B, Primary Containment Cooling System isolation valve will fail to automatically isolate on High Drywell pressure, but can be manually isolated.

CRITICAL TASKS

1. With primary containment pressure above 1.93 psig, containment flood level below 723 feet, and pumps not needed for adequate core cooling available; start suppression chamber spray.
2. With suppression chamber pressure above 1 psig, containment flood level below 722 feet, and drywell parameters below the Drywell Spray Initiation Limit, trip all recirculation pumps and start drywell sprays using RHR pumps not needed for core cooling.

Shift Turnover Information

⇒ **Day of week and shift**

♦ Monday Day Shift

⇒ **Weather conditions**

♦ No adverse whether conditions expected in the next 24 hours

⇒ **(Plant power levels)**

♦ Unit 1 – M/S in startup, on IRM ranges 9 & 10.   ♦ Unit 2 – 100% Power

♦ 144 MWt   ♦ 3454 MWt

♦ 0 MWe   ♦ 1149 MWe

♦ 28 Mlbm/hr CORE FLOW   ♦ 107 Mlbm/hr CORE FLOW

⇒ **Thermal Limit Problems/Power Evolutions**

♦ Unit 1 startup is in progress IAW LGP-1-1, step E.4, Mode Switch to Run.   ♦ None

♦ Control rods are being withdrawn to increase CTP for mode change to Mode 1.   ♦

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

♦ None   ♦ None

♦   ♦

⇒ **LOSs in progress or major maintenance**

♦ None   ♦ None

⇒ **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)

                                                             ♦ Unit 2 is in a Division 2 work week.

Operator Actions

| Event No. (s): | 1 | | Page | 1 | of | 2 |

Description: 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 Mode 1. One uncouple rod will occur when full pulled to full out, requiring the crew to enter LOA-RD-101.

Initiation: Following shift turnover on the signal of lead examiner

Cues: Directed by SRO, LOR-1H13-P603-A404, CRD OVERTRAVEL **(NOTE – May receive 1H13-P602-A507, RR FCV Trouble due to RR delta temp – no action required)**

Time	Position	Applicant's Actions or Behavior

	RO	Per LGP-1-1
		• Continue to increase CTP with control rod withdrawal. Do NOT allow CTP to increase above 12% in Startup Mode**.**
		  ° Monitor IRM and APRM recorders.
		  ° Verify Main Turbine BPVs open as reactor power increases.
		Per LOP-RM-101:
		• Verify Rod desired to be positioned is selected on the Rod Select Display or Status Display, if in control mode.
		• Verify rod position information is correct on the Rod Select Display/Status Display/Core Map Display.
		• Verify no insert or withdraw block indications on the Rod Select Display.
		• Press rod withdraw push-button and check control rod withdrawal sequence begins:
		  ▪ Rod insert indication appears on the Rod Select or Status Display.
		  ▪ Rod withdraw indication appears on the Rod Select or Status Display
		  ▪ Control Rod motion is indicated on the Rod Select or Status Display.
		• Release rod withdrawal pushbutton and check:
		  ▪ Rod position indication on Rod Select Display, Status Display or Core Map shows new rod position.
		  ▪ Observe changes in nuclear instrumentation indications.
		  ▪ Rod settle light is lit for ≈ 2 seconds.
		Rod <u>42-19 uncoupled.</u>
		Per LOA-RD-101
		• CHECK CTP >LPSP (10% RTP) (NO)
		• If in Mode 3,4,5 or Defueled, EXIT to LOS-RD-SR1. (NO)
		• SELECT uncoupled control rod.
		• VERIFY INSERT BLOCK indication not present on ROD SELECT or STATUS Display.
		• If required, REMOVE insert block as follows:
		    o BYPASS control rod from RWM.
		    o PLACE the RWM Select switch to BYPASS.
		    o If RWM is bypassed, REFER to T.S. 3.3.2.1.
		• INSERT uncoupled control rod to position 00.(After 4 attempts to recouple)
		    • PLACE CRD DRIVE FLOW TRIP CIRCUIT BYPASS Switch to BYPASS.
		    • Second verifier required.
		• If required, PLACE the RWM Select switch to RUN.
		• DECLARE the control rod Inoperable.
		    • Place OOS per LOP-RM-02.
		    o DISARM the control rod drive – Hydraulically.
		    o DISARM the control rod drive – Electrically (preferred method)
		• Informs SRO to REFER to T.S. 3.1.3.
		• Notify QNE and EXIT procedure.

Operator Actions

Event No. (s): 1		Page 2 **of** 2
Time	**Position**	**Applicant's Actions or Behavior**
	BOP	• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.

	SRO	• Directs actions above.
		• Enforces OPS expectations and standards.
		• Directs use of LOA-RD-101.
		• Emphasizes need for caution and conservatism during the power change.
		• Refers to Tech Spec 3.1.3 and 3.1.6 and determines actions should include:
		  ▪ T.S. 3.1.3 (RA C.1 and C.2 – insert rod – 3hrs, disarm – 4 hrs)
		  ▪ 3.1.6 (RA A.2 – 8 hrs)
		• Per T.S. 3.3.2.1 – C.2..1.1 – IMMEDIATELY verify $\geq$ 12 rods withdrawn or S/U with RWM INOP not performed in last 12 months, and have second licensed operator verify rod movement.

Terminus: Rod 42-19 inserted, per lead examiner direction.		

NOTES:

Operator Actions

Event No. (s): 2		Page 1 **of** 2

Description: Swap VP loops per LOP-VP-02.

Initiation: Following rod 42-19 insertion, on the direction of the Unit Supervisor, call as field supervisor to report "A" VP compressor making noise..

Cues: Per US direction.

Time	Position	Applicant's Actions or Behavior

	BOP	Per LOP-VP-02 step E.5:
		• Start "B" VP Loop per Sect. E.10
		  • Locally, VERIFY 1VP055A/B, PCCW Holdup Tank Train A/B Bypass Valves are closed.
		  • OPEN the following valves:
		    • 1VP053B, B DW Cooler Outlet Otbd Isol Vlv.
		    • 1VP063B, B DW Cooler Inlet Otbd Isol Vlv.
		    • 1VP113B, B DW Cooler Inlet Inbd Isol Vlv.
		    • 1VP114B, B DW Cooler Outlet Inbd Isol Vlv.
		  • START "B" VP Chill Water Pump as follows:
		    • If desired, locally OPEN 1VP055B, PCCW Holdup Tank Train B Bypass Valve.
		    • START B VP Chill Water Pump 1VP01PB by HOLDING Control Switch in START until the following valves are full open:
		      • 1VP084, PCCW Holdup Tank Train B Outlet Valve
		      • 1VP086, PCCW Holdup Tank Train B Inlet Valve
		    • If open, locally CLOSE 1VP055B, PCCW Holdup Tank Train B Bypass Valve.
		    • START "B" VP Supply Fan by placing control switch to START.
		    • Locally, start 5 area coolers.
		    • Locally start "B" VP Chiller per step E.11. (Requires closing "B" VP Vent. Chiller 1VP01CB Feed Breaker.
		    • Shutdown "A" VP Chiller per step E.8. (all local actions except opening "A" VP Chiller Breaker 1VP01CA on 1PM06J when directed.
		    • Shutdown "A" Chill water loop per Step E.9
		      • Stop the "A" Chille Water pump 1VP01PA and verify the holdup tank valves close:
		        • 1VP052, PCCW Holdup Tank Train A Outlet Valve.
		        • 1VP085, PCCW Holdup Tank A Inlet Valve.
		  • If desired, Stop the "A" VP Supply fan 1VP02CA.

NOTES:

Operator Actions

Event No. (s): 2		Page 2 of 2
Time	**Position**	**Applicant's Actions or Behavior**
	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	• Authorizes and directs completion of LOP-VP-02 • Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures. • Enforces OPS expectations and standards
Terminus: "B" VP on, "A" VP off.		

NOTES:

Operator Actions

Event No. (s): 3		Page 1 of 1

Description: Station Vent Stack WRGM low range pump trip / trip on restart and unavailable.

Initiation: After the crew has swapped VP loops and at the direction of the signal of lead examiner.

Cues: Annunciator, LOR-1N62-P600-B303, STA VENT STACK WIDE RANGE TROUBLE,

Time	Position	Applicant's Actions or Behavior

	BOP	Per LOR-1N62-P600-B303, STA VENT STACK WIDE RANGE TROUBLE:
		• REFER to TRM Section 3.3.d and ODCM 12.2.2.A
		• CHECK 0PM14J for high radiation level or loss of flow indication.
		• If low range pump has tripped, SELECT PURGE from RM-23 in Control Room to restart pump. (Refer to step C.1 for additional information.)
		• Per LOR-1N62-P600-B303, step 9: <u>If</u> low range monitor is inoperable:
		   • REQUEST Chemistry/IMD place mid range monitor into operation and adjust monitor database per Attachment E of LCP-310-11, Wide Range Gas Monitors Noble Gas, Iodine, and Particulate Sampling.
		
		   • REFER to Attachment J of LAP-1800-8, for noble gas sampling requirements until mid range monitor is operable. (8 hour, 24 hour and 30 day timeclocks)
		
		   • REFER to Attachment K of LAP-1800-8, for particulate and iodine sampling requirements. (4 hour and 30 day timeclocks)
		
		   • ESTABLISH a special log to record Auxiliary Sample Pump and Mid/High Range Sample Pump flows at least once every 4 hours.

	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	• REFER to TRM Section 3.3.d and ODCM 12.2.2.A – B.1, E.1,2,3, F.1,2. • Per TRM 3.3.d – RA D.1 - provide alternate method of sampling within 72hrs and RA D.2 – restore in 7 days.
Terminus		TRM actions addressed for loss of Station Vent Stack WRGM low range pump.

NOTES:

When BOP responds to OPM14J panel, evaluator should cue him that the low range "oper" green LED is NOT lit. If requested after purge, green LED is still NOT lit

Operator Actions

Event No. (s):	4	**Page** 1 **of** 1

Description: "A" IRM fails high/INOP

Initiation: Per Lead Evaluator, following WRGM event.

Cues: LOR-1H13-P603-B304, CHAN A IRM Hi-Hi/INOP

Time	**Position**	**Applicant's Actions or Behavior**
	RO	• VERIFY "A" IRM Switch in the correct position • 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 • REFER to T.S. 3.3.1.1 – No required actions.
	BOP	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	US	• Directs actions per LOR-1H13-P603-B304, CHAN A IRM Hi-Hi/INOP . • Contacts Shift Manager. • REFER to T.S. 3.3.1.1 – No required actions.
Terminus		"A" IRM bypassed, T.S. 3.3.1.1 referenced

NOTES:

Operator Actions

Event No.(s):	5		Page	1	of	1

Description: TBCCW pressure low.

Initiation: Following "A" IRM event, on the signal of lead evaluator.

Cues: 1PM10J-A304, "TBCCW Pmp Dsch Hdr Press Lo"

Time	Position	Applicant's Actions or Behavior
	BOP	Per LOR-1PM10J-A304: • CHECK TBCCW Discharge Header pressure is less than or equal to Alarm Setpoint (50#).Reports pressure at 48#. • START a Standby TBCCW pump. • Reports pressure returned to normal. • Dispatch an operator to 735' to inspect TBCCW for proper operation per LOP-WT-02. • If TBCCW is lost entirely, refer to LOA-WT-101.
	RO	• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	Directs actions per LOR-1PM10J-A304.

Terminus: Standby TBCCW pump started and pressure returned to > 57#.

NOTES:

Operator Actions

Event No.(s):	6		Page	1	of	1

Description: Feedwater Break outside containment / Scram

Initiation: TBCCW pumps swapped, per Lead Evaluator direction.

Cues: CP Control Panel Trouble Alarm, steam tunnel sump alarms.

Timej	Position	Applicant's Actions or Behavior
	Crew	• Diagnose Feedwater leak per Cues.
	RO	• Identifies FW header flow mismatch. • Identifies steam/feed flow mismatch. • Scram reactor per US direction. • Isolates Feedwater per US direction
	BOP	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. • Maintains Reactor water level per SRO direction.
	SRO	• Directs reactor scram on Feedwater Break. • Directs isolation of Feedwater • Notifies STA/SM. • Directs use of RCIC or HPCS to restore level.

Terminus:. N/A

NOTES:

Operator Actions

Event No.(s): 7,8		Page 1 **of** 1

Description: LOCA ("A" RR suction), 1VP053B fails to auto isolate

Initiation: .Following reactor scram.

Cues: High Drywell Pressure

Time	Position	Applicant's Actions or Behavior
	RO	Per LGA-001 • Maintain RPV Water Level 11 to 59.5 inches or as directed by the Unit Supervisor. • Maintains level control via ECCS on loss of feedwater.

	BOP	Per LGA-003
		• Monitor containment parameters
		• Start a second loop of Suppression Pool Cooling as needed to keep Suppression Pool Temperature below 105^0 F.
		• Start Suppression Chamber Spray **(CT).**
		• When pressure exceeds 12 psig;
		    • Trip the operating RR pump
		    • Initiate one loop of Drywell Spray **(CT)**
		• Monitors reactor to ensure operations remain within established bands
		• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
		• Identifies 1VP053B, VP isolation valve, failure to close and closes valve

	US	• Direct actions per LGA-001.
		    • Directs level control via ECCS on loss of feedwater.
		• Direct actions per LGA-003.
		    • Directs isolation verification.
		    • Start Suppression Chamber Spray **(CT).**
		    • Initiate one loop of Drywell Spray **(CT)**

Terminus: RPV and Primary Containment pressures and levels stable and under control, per lead evaluator.

NOTES:

REFERENCES

Procedure	Title	Revision
LGA-001	RPV Control	10
LGA-003	Primary Containment Control	8
LGA-RH-103	Unit 1 RHR operations in the LGAs	08
LOP-VP-02	Startup Operation and Shutdown of Primary Containment Chill Water and Ventilation	38
LGP-1-1	Normal Unit Startup	90
LGP-3-2	Reactor Scram	62
LOA-NR-101	Neutron Monitoring Trouble	15
LOA-RD-101	Control Rod Drive Abnormal	15
LOR-1N62-P600-B303	STA VENT STACK WIDE RANGE TROUBLE	06
LOR-1PM10J-A304	TBCCW Pmp Dsch Hdr Press Lo	02
LOP-RM-01	Reactor Manual Control Operation	01

Simulator Operator Instructions

Initial Setup

1. Recall **IC-18** (S/U in progress at 935 psig, ~1 BPV, pulling rods for mode change to Mode1).

2. Mark control rod move sheet to step 15 rod group 7 (next rod 26-35 position 12-48).

3. Pull rods to step 15 rod group 7 (next rod 26-35 position 12-48).

4. Secure "A" RHR and place in Standby.

5. Place MSL drains in normal lineup (green target)

6. Verify Pressure Setpoint is set at 920# and that pressure is being controlled in DOME Control.

7. Place simulator in RUN.

8. Load and run the setup CAEP written for this scenario (nrc-09-1-1.cae on jump drive)

Event Triggers and Role Play

Event #

1. Withdraw Rods To Raise Power for Mode Change to Mode1 (with mispositioned rod)
    a. Uncoupled rod malfunction for rod 42-19 inserted in cae.
    b. As QNE, acknowledge uncoupled rod and inform them you'll look at the sequence and inform them of any changes required.

2. Swap VP loops IAW LOP-VP-02
    a. Per Lead Evaluator, following rod 42-19 insertion, call as FS and report "A" VP compressor not operating properly per EM observation, suggest swapping to "B" VP loop.
    b. Role Play as EO and position valves as requested per LOP-VP-02.

3. Station Vent Stack WRGM low range pump trip / trip on restart and unavailable
    a. Trigger 3.
    b. When BOP responds to OPM14J panel, evaluator should cue him that the low range "oper" green LED is NOT lit. If requested after purge, green LED is still NOT lit.
    c. The SVS WRGM low range pump will trip and restart will be unsuccessful.
    d. As Chemistry, respond to requested samples and alternate sampling methods as directed.

4. "A" IRM fails Hi/INOP
    a. Trigger 4 on request from lead evaluator

5. TBCCW system low pressure
    a. Trigger 5 –
    b. Role play as rounds operator. Hears nothing abnormal with "A" WT pp.. Pressures as indicated in CR. (48#)
6. Feedwater leak outside containment
    a. Trigger 6

7. RR LOCA on "B" RR Suction
    a. Trigger 7 after crew has stabilized level.
8. 1VP053B fail to auto isolate
    a. Loaded in cae

ATTACHMENT 04
Scenario Validation Checklist
Page 1 of 1

		Initial
1	Verify with the Simulator Coordinator that the current training load is based on the current plant core.	_____
2	The scenario performance objectives/tasks are listed in the scenario guide.	_____
3	Simulator initial conditions are achievable.	_____
4	The scenario guide clearly indicates the instructor station commands needed to achieve the performance objectives.	_____
5	All malfunctions and other instructor station commands are entered in the sequence described in the scenario guide, and all items responded to support the performance objectives.	_____
6	The simulator requires the operator to take the same action on the simulator as in the plant, using the reference plant operating procedures.	_____
7	For annual exam scenarios and OBEs, the scenario is validated in real time by an operating team consisting of SRO certified or licensed personnel using all referenced procedures and adhering to management expectations.	_____
8	The responses of the simulator during the scenario were realistic, and observed changes correspond to expected plant response. - Important / Critical Parameters (e.g., Flow, Power, Pressure, Radiation Level, Temperature, and Water Level) - Annunciators - System or component status indications	_____
9	Tech Spec items / LCO declarations are correct. Appropriate documentation available.	_____
10	Reportability requirements identified.	_____
Note:	Wind speed and direction may be variable based on simulator modeling. ENSURE that these parameters are verified when validating the scenario.	
11	Emergency Action Level classifications and PARs are identified, including whether or not there is a radiological release, the wind speed, and wind direction.	_____
12	Critical tasks determined if applicable.	_____
13	Shutdown scenarios include shutdown risk assessment, time to boil calculations and shutdown status board information.	_____
14	Procedure steps that may be confusing or disagree with higher-level procedures are discussed with operations management and expectations defined. Suggested enhancements are entered into the appropriate tracking system.	_____
15	Management expectations are re-enforced.	_____
16	Scenario run time is in accordance with the stated quantitative attribute time.	_____

```
###############################
# CAE for NRC 09-1-1
###############################
# Malfunctions
# ROD 30-27 uncoupled
# Station WRGM Low rabge pp. trip
# "A" IRM Fails Hi
# TBCCW system pressure low
# FW break outside cont.
# "B" RR LOCA
# 1VP053B fails to isolate automatically
##########################################
# Event 1
# Rod 42-19 uncoupled
imf mrd064 | 1 | 1
# Event 3
# Station Vent Stack WRGM low range pp. trip
imf mrm034 (3 0) | 2 | 2
#
# Event 4
# "A" IRM fails hi
imf mni034 (4 0) | 3 | 3
#
# Event 5
# TBCCW header pressure low
ior g8c75g14 (5 0) 48 | 17 | 17
imf r1522 (5 0) 1 | 18 | 18
trgset 10 "k7b20jb4 .EQ. 1" | 19 | 19
trgset 11 "k7b20jb4 .EQ. 1" | 20 | 20
trg 10 "dor g8c75g14" | 21 | 21
trg 11 "dmf r1522" | 22 | 22
#
# Event 6
# Feedwater break outside cont.
imf mcf033 (6) 10 180 | 23 | 23
#
# Event 7
# RR LOCA on "B" suction
imf mrc034 (7 0) 1.5 240 | 24 | 24
#
# Event 8
# 1VP053B fails to isolate (can be manually isolated)
set vmcv53br = 1e6 | 25 | 25
trgset 15 "k9d72jp .GE. 0.9" | 26 | 26
trg 15 "set vmcv53br = 12" | 27 | 27
# Override 1FW018 & 26 ind. off
ior q4e00lgy off | 28 | 28
ior q4f00lgy off | 29 | 29
```

LaSalle County Station

DYNAMIC SIMULATOR SCENARIO GUIDE

ILT CLASS 09-01 NRC Exam

NRC 09-1-2

Rev. 0

05/20/2010

DEVELOPED BY:

_____   _____
Facility Author   Date

APPROVED BY:

_____   _____
Facility Representative   Date

Facility: LaSalle Station	**Scenario No.:** 09-1-2	**Operating Test No.** 09-01

Evaluators	**Operators:**	**Crew Position**
_____	_____	_____
_____	_____	_____
_____	_____	_____

Initial Conditions:

- Mode Switch is in RUN
- Power is 30%-35%, ready for RR pump upshift.
- U1 Startup is in progress IAW LGP1-1.
- Ready for pump upshift per step E.6.4 of LGP 1-1.
- Online Safety level is green.
- Unit 2 is operating at 100% power.

Turnover:

- Upshift RR per LOP-RR-05. Increase RR flow to 61#lb/hr per LGP 1-1 and hold for QNE direction.
- Continue power ascension.

Event No.	Malf. No.	Event Type*		Event Description
1	N/A	R	RO	Upshift RR per LOP-RR-05
2	CAE	C	BOP	Earthquake, "A" VR Exhaust Fan Trip (TS)
3	MNB080	C	BOP	Earthquake, Spurious RCIC initiation (TS)
4	MRC40	C	RO	"B" RR FCV fails open / HPU trip button fails (TS)
5	MEE039	C	BOP	Loss of MCC 133
6	multiple	I	BOP	Spurious VC realignment on spurious high rad
7	MRW010	M	All	RWCU leak, failure to isolate
8	MES08	C	BOP	SRV C fails to open on manual ADS

*	(N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor Transient, (T)ech Spec

| Event(s) | Description |

Event(s) **Description**

1   Reactor power is 30%-35%, Reactor Recirc upshift IAW LOP-RR-05.

2   The station will experience an earthquake. "A" VR Exhaust will trip, requiring defeating
         MSIV diff. temperature isolations per LOR-1PM06J-A305 before restarting a standby
         VR Exhaust fan. T.S. 3.3.6.1 A.1 will be entered.

3   RCIC will initiate during the earthquake and will be shutdown per LOR 1H13-P601-
         D406. T.S. 3.5.3 will be entered.

4   "B" Reactor Recirc. FCV fails open, requiring the crew to lock it up IAW LOA-RR-101.
         T.S. 3.4.1 will be entered if RR loop delta flows are greater than allowable.

5   Loss of MCC 133. This will cause a trip of the running RBCCW pump, trip of the
         running IN compressor and a trip of the running Fuel Pool Cooling pump. The crew will
         be allowed to re-energize MCC 133 and return systems to operation.

6   A spurious VC HVAC initiation on high radiation will be received. The crew will align
         the system to place the charcoal filters on line IAW LOR PM13J-B401.

7   An unisolable leak in the RWCU system will occur, requiring a Reactor scram IAW
         LGA-002. A RPV depressurization IAW LGA-004 will be required when two areas
         exceed Max Safe values on radiation. (PRA)

8   ADS valve "C" will fail to open during ADS manual initiation, requiring, manual
         opening of an additional SRV valve.

CRITICAL TASKS

1. With the reactor at power and with a primary system discharging into the secondary containment,
   manually scram the reactor.
2. With a primary system discharging into the secondary containment and area radiation exceed
   maximum safe operating levels in more than one area, initiate an emergency depressurization.
3. With an emergency depressurization required and less than 7 SRV's open, open additional SRV's
   until a total of 7 are open.

Shift Turnover Information

⇒ **Day of week and shift**

♦ Monday Day Shift

⇒ **Weather conditions**

♦ No adverse whether conditions expected in the next 24 hours

⇒ **(Plant power levels)**

♦ Unit 1 –at 33% power, ready for RR pump upshift	♦ Unit 2 – 100% Power
♦ 1067 MWt	♦ 3454 MWt
♦ 313 MWe	♦ 1149 MWe
♦ 36 Mlbm/hr CORE FLOW	♦ 107 Mlbm/hr CORE FLOW

⇒ **Thermal Limit Problems/Power Evolutions**

♦ Unit 1 startup is in progress IAW LGP-1-1, step E.6.4, ready for pump upshift.	♦ None
♦ Upshift RR per LOP-RR-05. Increase RR flow to 61 #lb/hr per LGP 1-1 and hold for QNE direction	

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

♦ None	♦ None

⇒ **LOSs in progress or major maintenance**

♦ None	♦ None

⇒ **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)
♦ Upshift RR per LOP-RR-05	♦ Unit 2 is in a Division 2 work week.

Operator Actions

Event No. (s):	1	Page	1	of	3

Description: Upshift Reactor Recirc. pumps from slow to fast speed per LOP-RR-05.

Initiation: Following shift turnover on the signal of lead examiner

Cues: Directed by SRO

Time	Position	Applicant's Actions or Behavior
	RO	Per LOP-RR-05, E.1.1,CHECK the following**:** • Both Reactor Recirc Pumps are in SLOW speed and Flow Control Valves are full open. • Reactor power is between 25% and 35%, with Flow Control Line <66.7%. • Both 1(2)B33-P611A and B, Flow Controller M/A Stations A and B in MANUAL. • Both RR Motor Breakers 4A and 4B are closed. • Feedwater flow >2.83 million pounds per hour (>20% of rated flow). Refer to the Discussion in LOA-RR-101(201). • Differential temperature between Reactor Recirc Pump suction and Steam Dome is >10.1°F for the loop to be upshifted. • Reactor level between high and low level alarm. At the 1(2)DS001 Operator Station RRFC Interlock screen, BYPASS both A and B RR Interlocks as follows: • SELECT "Low Flow Bypass" for Loop A and then PRESS the "Activate" button. • SELECT "Low Flow Bypass" for Loop B and then PRESS the "Activate" button. • SELECT "Low Power Bypass" for Loop A and then PRESS the "Activate" button. • SELECT "Low Power Bypass" for loop B and then PRESS the "Activate" button.

NOTES:

Operator Actions

Event No. (s):	1 (cont.)		**Page** 2 **of** 3

Description: Upshift Reactor Recirc. pumps from slow to fast speed per LOP-RR-05 (cont).

Initiation: Following shift turnover on the signal of lead examiner

Cues: Directed by SRO

Time	Position	Applicant's Actions or Behavior
____	RO	Per LOP-RR-05**:** • DEPRESS Lower pushbutton on Reactor Recirc Loop A/B M/A Station for loop in which pump speed will be changed until 1(2)B33-F060A/B, Flow Control Valve is at Minimum ($\leq$ 20% indicated). • At the 1(2)DS001 Operator Station Interlocks screen, Verify the following Interlocks are RESET: • A RR Loop "Feedwater Flow Low" • B RR Loop "Feedwater Flow Low" • A RR Loop "Suction Delta Temp Low" • B RR Loop "Suction Delta Temp Low" • VERIFY HI Speed Start Permissive indicating light 1(2)B33-DS02A/B is ON. • PLACE Selected Breaker RR Motor Bkr 3A/B Control Switch to START position and RELEASE. • OBSERVE the following in the selected loop: • 1A/B breaker (LFMG Drive Motor) opens. • 2A/B breaker (LFMG Generator) opens. • 3A/B breaker (RR Motor Bkr) closes after pump speed decreases to 350 RPM. • Pump speed increases to approximately 1750 rpm. • Reactor level drops then returns to level controller setpoint. • Reactor Power initially increases then stabilizes.

NOTES:

Operator Actions

Event No. (s):	1 (cont.)		**Page** 3 **of** 3

Description: Upshift Reactor Recirc. pumps from slow to fast speed per LOP-RR-05 (cont).

Initiation: Following shift turnover on the signal of lead examiner

Cues: Directed by SRO

Time	Position	Applicant's Actions or Behavior
____	RO	• Per LOP-RR-05: • Perform same actions for other RR pump. • At the 1(2)DS001 Operator Station RRFC Interlocks screen, PLACE both A and B RR Interlocks in NORMAL as follows: • SELECT "Low Flow Bypass" for Loop A and then PRESS the "Deactivate" button. • SELECT "Low Flow Bypass" for Loop B and then PRESS the "Deactivate" button. • SELECT "Low Power Bypass" for Loop A and then PRESS the "Deactivate" button. • SELECT "Low Power Bypass" for Loop B and then PRESS the "Deactivate" button. • THROTTLE 1(2)G33-F102, RWCU Suct Header Stop Valve until flow indicator 1(2)G33-R610 indicates >25 gpm.. • CONTROL Reactor Recirc Flow using Reactor Recirc Loop Flow Controller M/A Station(s) per LOP-RR-07.
	BOP	• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	• Directs actions per LOP-RR-05.
Terminus		RR flow at 61# lb/hr. awaiting QNE direction, per lead evaluator.

NOTES:

Operator Actions

Event No.(s):	2		**Page** 1 **of** 2

Description: Earthquake, "A" VR Exhaust Fan Trip

Initiation: Per Lead Evaluators Request

Cues: LOR-1PM10J-B504 "STRONG MOTION SEIS INSTR SYSTEM INITIATED"

Time	Position	Applicant's Actions or Behavior
	RO	• Monitors reactor to ensure operations remain within established bands. • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	BOP	• Per LOR-1PM10J-B504: • DETERMINE if actual seismic event has can be confirmed: • At panel 0PA11J, (AEER) Directs EO to CHECK SEISMIC SYSTEM TRIGGERED light on. • CALL several people around the plant and ASK if ground motion was felt. • NOTIFY the Sys Eng Sup to evaluate earthquake magnitude and reset the Seismic System. • If OBE or SSE light is energized on panel 0PA11J, refer to LOR-1PM10J-B503. • Monitor PC and continued operability of instrumentation in Tech Spec Table 3.3.3.1-1 and TRM Table T3.3.d-1. (Seismic TRM 3.3.o)
	SRO	• Directs actions above. • Enforces OPS expectations and standards. • Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures • Notifies SM and STA. • Takes actions IAW TRM 3.3.0. RA A.1
TERMINUS		N/A, continued next page.

NOTES:

Operator Actions

Event No.(s):	2 (cont.)		**Page** 2 **of** 2

Description: Earthquake, "A" VR Exhaust Fan Trip (cont)

Initiation: Per Lead Evaluator (Trigger 2 from earthquake initiation)

Cues: 1PM06J-A305 RB 1A VENT EXH FAN AUTO TRIP

Time	Position	Applicant's Actions or Behavior

	BOP	• Per LOR-1PM06J-A305 RB 1A VENT EXH FAN AUTO TRIP:
		   • MONITOR Main Steam Tunnel Temperatures.
		   • If less than 2 exhaust fans are running, PERFORM the following to bypass Group 1 MSIV logic before restarting fans:
		      • INSTALL MSL Pipe tunnel Diff. Temperature Bypass Keys (Control Keys 85 and 87) at panel 1H13-P642 for control switches. MSL PIPE TUNNEL DIFF TEMP BYPASS DIV 2 SIG B/D.
		      • PLACE keylock switches at panel 1H13-P642 to BYPASS.
		      • START appropriate timeclock (T.S. 3.3.6.1)
		      • START standby Reactor Building Ventilation Exhaust Fan.
		      • PLACE MSL Pipe tunnel Diff. Temperature Bypass Div. 2 B/D keylock switches at 1H13-P642 to NORMAL.
		      • DISPATCH operator to investigate cause of alarm at SWGR 131X, COMP 403C.

	RO	• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. • Maintains Reactor water level per US direction.
	SRO	• Directs performance of LOR-1PM06J-A305 RB 1A VENT EXH FAN AUTO TRIP. • ENTERS T.S. timeclock for T.S. 3.3.6.1 (RA D.1 – 12 hrs)

Terminus: 2 VR exhaust fans running per lead evaluator.

NOTES:

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Operator Actions

Event No.(s): 3			Page 1 of 1

Description: Earthquake, Spurious RCIC initiation.

Initiation: Per Lead Evaluator (Trigger 2 from earthquake initiation)

Cues: 1H13-P601-D406 "RCIC RUNNING"

Time	Position	Applicant's Actions or Behavior
	RO	• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. • Maintains Reactor water level per US direction.
	BOP	Per 1H13-P601-D406: • If RCIC injection is inadvertent or NOT desired, PERFORM the following: • TRIP RCIC Turbine. • If 1E51-F013/1E51-F065 is NOT full closed, PLACE Feedwater Turbine Trip NORMAL-BYPASS keylock switches to BYPASS unless the problem is corrected. • 1E51-F013 OPEN U1 MAIN & FW TURB TRIP LOGIC BYPASS • 1E51-F065 OPEN U1 MAIN & FW TURB TRIP LOGIC BYPASS • SHUTDOWN RCIC per LOP-RI-03. • REFER to T.S. 3.3.5.2 and 3.5.3.

	SRO	• Directs performance of 1H13-P601-D406.
		• Declares RCIC INOP per 3.5.3 RA A.1 and A.2.
		  • 3.5.3 RA A.1 – Verify HPCS operable immediately.
		  • 3.5.3 RA A.2 – Restore RCIC operable in 14 days.

Terminus: RCIC secured, per lead evaluator.

NOTES:

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Operator Actions

Event No. (s):	4		**Page**	1	**of**	1

Description: "B" RR FCV fails open / HPU trip button fails

Initiation: Following RCIC event, per Lead Evaluator.

Cues: Power slowing increasing.

Time	Position	Applicant's Actions or Behavior

	RO	Announces condition and Locks up FCV.
		Enters LOA-RR-101 Section B.5
		1. CHECK FCV position -STABLE. If not, 1.1 Lock up FCV:
		  ° PRESS 1A/1B HPU TRIP pushbutton.(Does Not Trip)
		  ° Lockup solenoid valve at 1DS001.(will lockup)
		  ° Stop HPU Pump at 1DS001.(will stop)
		2. PERFORM Subsection B.1, Core Instabilities, and continue below.(if in regions 1 or 2 – inserts crams)
		3. CHECK Recirc loop flows balanced - LESS THAN T.S. MISMATCH.
		· Within 5.425 Mlbm/hr, if core flow is greater than or equal to 75.95 Mlbm/hr.
		· Within 10.85 Mlbm/hr, if core flow is less than 75.95 Mlbm/hr.
		If Not, Within 1 hr;
		  ° RESTORE flow mismatch.
		  ° REDUCE power rapidly per LGP-3-1, Power Changes, including shifting both pumps to slow speed.
		  ° TRIP the low-flow RR pump per Step B10.4.2.
		3.1 START 2-hour timeclock per Tech Spec 3.4.1.Cond. B
		3.2 EVALUATE core performance.

	BOP	Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	Directs actions per LOA-RR-101. START 2-hour timeclock per Tech Spec 3.4.1.Cond. B
Terminus		RR FCV actions taken, per lead evaluator.

NOTES:

Operator Actions

Event No. (s):	5		**Page** 1 **of** 1

Description: Loss of MCC 133**.**

Initiation: Following RR FCV event, per Lead Evaluator.

Cues: Annunciator, LOR-1PM01J-A511 (133 undervoltage)**,** and multiple associated alarms based on loss of 133.

Time	Position	Applicant's Actions or Behavior
	BOP	• Dispatches EO to determine cause. • Re-energizes 133 when no damage observed. • Starts Standby WR Pp. • Dispatches operator to check WR for abnormalities. • Refers to LOA-WR-101. • Refers to LOR 1PM13J-A404, IN Trouble. • Dispatches operator to investigate. • Refers to LOA-FC-101. • When 133 re-energized, S/U FC IAW LOP-FC-03. • Refers to LOA-RR-101. • Monitors RR bearing temps.
	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	• Directions response per LOR's • Directs re-energizing 133 when no problems identified
Terminus		Actions addressed for loss of MCC 133, per lead evaluator.

NOTES:

Operator Actions

Event No.(s): 6		Page **1** of **1**

Description: Spurious VC realignment on spurious high rad

Initiation: Trigger 6 on Lead Evaluator direction

Cues: Control Room CAM Panel Trouble Alarm (LOR-1PM13J-B401)

Time	Position	Applicant's Actions or Behavior
	RO	• Maintain Reactor Vessel Level and Pressure. • Respond per US direction.

	BOP	CHECK alarm typer printout to determine if alarm is due to Control Room HVAC
		If alarm is due to Control Room Outside Air High Radiation: (R1387 and R1389)
		a. At 1PM05J, PERFORM following :
		    1) VERIFY 0A CR HVAC Emer MU Fan 0VC03CA is running.
		      2) MANUALLY ALIGN CR HVAC Recirculation Charcoal Filter by placing
		      0A CR HVAC Charcoal Filter Damper Control switch to FILTER position.
		    3) VERIFY following Charcoal Filter damper positions:
		        a) Inlet 0VC11YA is OPEN.
		        b) Outlet 0VC12YA is OPEN.
		        c) Bypass 0VC13YA is CLOSED.
		    4) VERIFY 0A VC Purge Damper Control is in OFF position.
		b. Direct local operator to manually align the AEER HVAC per this LOR.

	SRO	• Directs Assist NSO to enter LOR-1PM13J-B401 • Maintain Level and Pressure Control

Terminus: LOR-1PM13J-B401 actions taken, per Lead Evaluator direction.

NOTES:
If requested, per SM, direct S/D of Emergency M/U train per LOP-VC-01 page 22 E.6.

Operator Actions

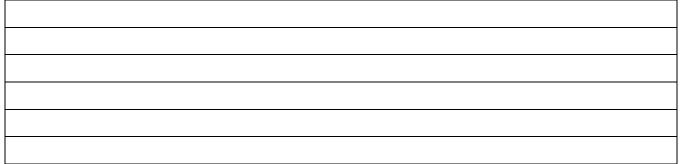| Event No.(s):	7,8	**Page** 1 **of** 1

Description: RWCU leak, failure to isolate. SRV "C" fails to open on manual ADS.

Initiation: Following VC event, on direction of lead evaluator.

Cues:. LOR's for RT system flow and delta flow; RB and RB Vent Rad levels high.

Objective	Position	Applicant's Actions or Behavior
	RO	• Scrams per SRO direction. • Controls Reactor Level per US direction.
	BOP	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. • Notifies SRO of LGA-002 entry conditions. • Notifies US of failure of RT system to isolate. • Initiates ADS per SRO direction. **(CT)** • Notifies SRO that "C" SRV failed to open and opens an additional SRV **(CT)**
	SRO	• Directs performance of LOR's. • Directs isolation of RT system. • Enters LGA-002 on Rad levels. • Directs reactor scram per LGA-002. • Directs LGA-004, RPV Blowdown, when 2 areas above Max Safe Radiation and unable to isolate leak. **(CT)**

Terminus: Emergency depressurization performed, on the lead evaluators direction.

NOTES:

REFERENCES

Procedure	Title	Revision
LGA-001	RPV Control	10
LGA-003	Primary Containment Control	8
LGA-RH-103	Unit 1 RHR operations in the LGAs	08
LGA-004	RPV Blowdown	05
LGA-002	Secondary Control	04
LOR-1PM10J-B504	STRONG MOTION SEIS INSTR SYSTEM INITIATED	08
LOR-1PM06J-A305	RB 1A VENT EXH FAN AUTO TRIP	01
LOR-1H13-P601-D406	RCIC RUNNING	04
LOA-VR-101	U-1 Recovery from a Group 4 isolation or spurious trip	10
LOA-RR-101	U-1 RR Pump abnormal	28

Simulator Operator Instructions

Initial Setup

1. Recall full power IC 25 (ready for RR pump upshift).

2. Place "B" VP in service and secure "A" VP.

3. Reset VP alarms and clear VP exp. Tank alarms.

4. Close the 1N62-F047.

5. If DW pressure Hi, open 1VQ029 and 1VQ030 to reduce Dw pressure.

6. S/D "B" EHC pp. if running.

7. Mark rods to appropriate step.

8. Provide REMA.

9. Provide marked up LGP 1-1.

10. Place simulator in RUN.

11. Load and run the setup CAEP written for this scenario (nrc-09-1-2.cae on jump drive)

Event Triggers and Role Play

<u>Event #</u>

1.   Upshift RR.

2.   Earthquake, "A" VR exhaust fan trip.
     a.   Trigger 2
     b.   As EO, if sent to seismic system, report the seismic system triggered light lit, but no OBE or SSE light lit.
     c.   Role Play as EO and provide status of VR as requested using displays for VR.
     d.   If requested, as personnel in plant, report you did feel movement.

3.   Earthquake, spurious RCIC initiation.
     a.   Triggered from trigger 2.
     b.   Deleted annunciators r0744, r0032 and g8a76g2p after 10 sec. of seismic alarm.

4.   "B" RR FCV fails open, HPU trip P.B. fails
     a.   Loaded in CAE
     b.   Prior to triggering 4, reinstate the current "B" FCV position to prevent FCV from immediately ramping to open.

5.   Loss of MCC133
     a.   Trigger 5
     b.   Return 133 malfunction to "normal" to allow reclosure of breaker if attempted.
     c.   As contractor working in the area call the control room and report "I was working in the area of 141Y and accidentally banged a breaker with a piece of scaffolding".
     d.   As EO - report no visible damage at Bus 133 or 141Y

6.   Spurious VC realignment on spurious high rad
     a.   Trigger 6
     b.   If EO sent out or RC called, report that IMD and RP were in the area with a source. Inform them that they will leave the area immediately. Delete the VC rad malfunctions after this notice is made.
     c.   When dispatched to VC system, report that you have a copy of LOR-1PM13J-B401 and that AEER HVAC has been realigned per step 3.b of the procedure.
     d.   If requested, per SM, direct S/D of Emergency M/U train per LOP-VC-01 page 22 E.6.
     e.   Respond as requested.

7.   RWCU Leak, failure to isolate
     a.   Trigger 7, per lead evaluator.

8.   SRV "C" fails to open on manual ADS
     a. Loaded in cae

ATTACHMENT 04
Scenario Validation Checklist
Page 1 of 1

		Initial
1	Verify with the Simulator Coordinator that the current training load is based on the current plant core.	_____
2	The scenario performance objectives/tasks are listed in the scenario guide.	_____
3	Simulator initial conditions are achievable.	_____
4	The scenario guide clearly indicates the instructor station commands needed to achieve the performance objectives.	_____
5	All malfunctions and other instructor station commands are entered in the sequence described in the scenario guide, and all items responded to support the performance objectives.	_____
6	The simulator requires the operator to take the same action on the simulator as in the plant, using the reference plant operating procedures.	_____
7	For annual exam scenarios and OBEs, the scenario is validated in real time by an operating team consisting of SRO certified or licensed personnel using all referenced procedures and adhering to management expectations.	_____
8	The responses of the simulator during the scenario were realistic, and observed changes correspond to expected plant response. - Important / Critical Parameters (e.g., Flow, Power, Pressure, Radiation Level, Temperature, and Water Level) - Annunciators - System or component status indications	_____
9	Tech Spec items / LCO declarations are correct. Appropriate documentation available.	_____
10	Reportability requirements identified.	_____
Note:	Wind speed and direction may be variable based on simulator modeling. ENSURE that these parameters are verified when validating the scenario.	
11	Emergency Action Level classifications and PARs are identified, including whether or not there is a radiological release, the wind speed, and wind direction.	_____
12	Critical tasks determined if applicable.	_____
13	Shutdown scenarios include shutdown risk assessment, time to boil calculations and shutdown status board information.	_____
14	Procedure steps that may be confusing or disagree with higher-level procedures are discussed with operations management and expectations defined. Suggested enhancements are entered into the appropriate tracking system.	_____
15	Management expectations are re-enforced.	_____
16	Scenario run time is in accordance with the stated quantitative attribute time.	_____

```
###############################################
#
#
# CAE for ILT NRC09-1-2 scenario
#
###############################################
#
# Events
#
# 1. Upshift RR
# 2. Earthquake, "A" VR Exhaust fan trip
# 3. Earthquake, Spurious RCIC initiation
# 4. "B" RR FCV fails open - HPU trip button fails
# 5. Loss of MCC 133
# 6. Spurious VC realignment on spurious high rad
# 7. RWCU leak, failure to isolate
# 8. SRV "C" fails to open on manual ADS
###############################################
#
#
# Upshift RR
#
# Earthquake, "A" VR Exhaust fan trip
# SEISMIC
imf r1272 (2 0) on | 2 | 2
# RCIC INIT
imf mnb080 (2 15) | 4 | 4

# SP level increase on seismic
imf r0032 (2 2) on | 5 | 5
ior g8a76g2p (2 0) 2.5 | 6 | 6

# SBLC level swing on seismic
imf r0744 (2 4) on | 7 | 7
# "A" VR exh fan trip
ior k7d18wpg (2 15) stop | 8 | 8
imf r0453 (2 0) on | 33 | 33
ior q7d18mag (2 0) on | 34 | 34
ior q7d18lgg (2 0) on | 35 | 35

# "B" RR FCV fails open - HPU trip button fails
imf mrc040 (4) 80 120 | 9 | 9
ior k2k09pxi false | 10 | 10
#
# Loss of MCC 133
irf dcov1331 (5) tripped | 11 | 11
#
# Spurious VC realignment on spurious high rad
```

imf mrm039 (6 5) 8 120| 12 | 12
imf mrm040 (6 15) 3 130 | 13 | 13
imf mrm041 (6 0) 8 110 | 14 | 14
imf mrm042 (6 20) 8 130 | 15 | 15
#
RWCU leak, failure to isolate
RB North recorder
ior gi001g5g (7 0) 1000 480 | 24 | 24
RB South recorder
ior gi001g6g (7 0) 1000 480 | 25 | 25
RB North indicator
ior gj205g1g (7 0) 1000 480 | 26 | 26
RB South indicator
ior gj211g1g (7 0) 1000 480 | 27 | 27
RT leak after 4 vlv
imf mrw010 (7 0) 100 | 28 | 28
RT 1 vlv fail to close
set vmrw001r=1e6 | 29 | 29
RT 4 vlv fail to close
set vmrw004r=1e6 | 30 | 30
RT 101 vlv fail to close
set vmrw101r=1e6 | 31 | 31
#
#
SRV "C" fails to open
imf mes008 | 32 | 32

override 1fw018 & 26 off
ior q4e00lgy off | 33 | 33
ior q4f00lgy off | 34 | 34

LaSalle County Station

DYNAMIC SIMULATOR SCENARIO GUIDE

ILT CLASS 09-03 NRC Exam

NRC 09-1-3

Rev. 0

05/24/2010

DEVELOPED BY:

          Facility Author   Date

APPROVED BY:

          Facility Representative   Date

Facility: LaSalle County Station	Scenario No.: 09-1-3	Op-Test No.: 09-1
NRC Exam		

Examiners: _____   Operators:

_____
_____

_____

_____

_____

Initial Conditions: 100% Power
- U-1 at 100% Power
- U-2 at 100% Power

Turnover:
- S/U "D" and S/D "C" Condensate/ Booster Pump IAW LOP-CD-03

Event No.	Malf. No.	Event Type*		Event Description
1	N/A	N	BOP	Swap CD pumps
2	MMS047	R	RO	Main Turbine #5 Bypass valve fails open (TS)
3	CAE	I	BOP	RCIC Drain Pot Drain Fails Closed (TS)
4	MNI095	I	RO	LPRM fails downscale (TS)
5	CAE	C	BOP	Steam Seal Evaporator PCV fails closed
6	CAE MMS056	C	RO	Turbine Lube Oil TCV fails closed / Main Turbine Shaft Bow / Scram
7	MRD277,278	M	All	ATWS
8	MNB106, 109, 113	M	All	"A" MSL steam leak / Fails to isolate

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

NARRATIVE SUMMARY

Event(s)	Description
1	The crew will swap Condensate/Condensate Booster pumps IAW LOP-CD-03.
2	The Main Turbine #5 Bypass valve will fail open. The crew will enter LOA-EH-101, LOA-HD-101 and LOA-PWR-101.The crew will lower RR flow to 70Mlb/hr in an attempt to close the valve but will be unsuccessful. The crew will enter T.S. 3.3.1.1. Cond B
3	The RCIC Drain Pot Drain Fails closed, causing a drain pot level high alarm. The actions taken per the LOR response are unsuccessful, requiring RCIC to be isolated and declared INOP per T.S. 3.5.3.
4	An LPRM will fail downscale, requiring entry into LOA-NR-101, Neutron Monitoring Trouble. The crew will bypass the failed LPRM and refer to T.S. 3.3.2.1, Control Rod Block Instrumentation and T.S.
5	The Steam Seal Evaporator Pressure Control Valve will fail closed, requiring the crew to take manual bypass control of the Steam Seal header pressure.
6-10	The Turbine Lube Oil Temperature Control Valve will fail closed, with subsequent Main Turbine Vibration increasing. The crew will trip the Main Turbine and initiate a reactor scram. The scram is unsuccessful. The crew will enter LGA-001 and LGA-010. A leak in the "A" MSL will occur, requiring entry into LGA-002 and isolation will be unsuccessful. The crew will perform an RPV depressurization IAW LGA-006 when two areas exceed Max Safe temperature limits. (PRA)

CRITICAL TASKS

1. With a reactor scram required and the reactor not shutdown with power > 3%, reduce power by injecting boron.
2. During an ATWS with reactor power above 3%, and water level lowered to less than -60 inches, used Preferred ATWS systems to hold RPV water level between -60 inches and -150 inches on Wide Range.
3. With a primary system discharging into the secondary containment and two areas of the same parameter exceed max values, initiate emergency depressurization per LGA-006.

Shift Turnover Information

⇒ **Day of week and shift**

- ♦ Monday Day Shift

⇒ **Weather conditions**

- ♦ No adverse whether conditions expected in the next 24 hours

⇒ **(Plant power levels)**

♦ U-1 at 100% Power	♦ Unit 2 – 100% Power
♦ 3484 MWt	♦ 3454 MWt
♦ 1180 MWe	♦ 1149 MWe
♦ 102 Mlbm/hr CORE FLOW	♦ 107 Mlbm/hr CORE FLOW

⇒ **Thermal Limit Problems/Power Evolutions**

♦ None	♦ None
○	○

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

♦ None	♦ None
○	○

⇒ **LOSs in progress or major maintenance**

♦ None	♦ None
○	○

⇒ **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)
♦ Place "D" CD/CB pump in service and S/D "C" CD/CB pump IAW LOP-CD-03.	♦ Unit 2 is in a Division 2 work week.

Operator Actions

Event No. (s):	1		Page 1 of 2

Description: Startup 1D CD/CB pump and S/D 1C CD/CB pump IAW LOP-CD-03..

Initiation: Following shift turnover on the signal of lead examiner

Cues: Directed by SRO

Time	Position	Applicant's Actions or Behavior

	BOP	Per LOP-CD-03:
		• SWAP CD/CB pumps by performing <u>all</u> of the following actions
		  • START standby CD/CB pump per Steps E.1.3 through E.1.11 of this procedure.
		  • VERIFY locally, CD/CB Pump Lube Oil Pump reservoirs are filled to normal level (1/4 to 1/2 full by sightglass).
		  • **CAUTION** -Auxiliary Lube Oil Pump associated with each CD/CB Pump should remain running as long as the CD/CB Pump is shut down
		  • VERIFY 1(2)CD03PA/B/C/D CD/CB Pump Auxiliary Lube Oil pumps are running with lube oil temperature greater than or equal to 80°F.
		  • VERIFY CD/CB pump Lube Oil Pressure Low alarm is clear.
		  • VERIFY 1(2)CD139A/B/C/D, A/B/C/D Cond Pump Seal Water Supply Valve (TB 663 in 1(2)A/B/C/D CD/CB Pump Room) OPEN.
		  • VERIFY 1(2)HS-CB065/1(2)CB018 A/B/C/D, Cond Booster 1(2)A/B/C/D Min Flow Valve, ALIGNED to AUTO <u>or</u> OPEN at Control Room Panel 1(2)PM03J.
		  • START one CD/CB pump 1(2)CD01PA/B/C/D.
		  • MONITOR operating CD/CB pump bearing temperature.
		  • VERIFY Main Shaft Oil Pump is properly vented using Main Shaft Oil Pump discharge vent located between speed changer and CB pump.
		  • STOP associated Auxiliary Lube Oil Pump, 1(2)CD03PA/B/C/D. This pump will not auto STOP and must be manually stopped.
		  • START Aux Lube Oil Pump for the Condensate/Condensate Booster Pump that is to be shutdown.
		  • SHUTDOWN CD/CB pump as required.
		  • <u>When</u> swapping is complete, ENSURE a CD/CB pump is selected for standby <u>and</u> there are sufficient CD/CB pumps running to support current plant operating condition.

	RO	Monitors control room panels and notifies the SRO of any unusual or unexpected conditions
	SRO	Directs performance of LOP-CD-03.
Terminus		CD/CB pumps swapped, per lead evaluator.

NOTES:

Operator Actions		
Event No.(s): 2		Page **1** of **1**

Description: Main Turbine #5 bypass valve fails open.

Initiation: Per Lead evaluator, following CD/CB swap.

Cues: LOR-1PM02J-B304, Turbine BPV Open

Time.	Position	Applicant's Actions or Behavior
	RO	• Monitor the Plant for Anomalies • Enters LOA-PWR-101 for reactor power greater than 100%, when BPV #5 fails to close. • Lowers reactor power to less than 100% CTP.
	BOP	• Enters LOR-1PM02J-B304 for TBV #5 open. • Enters LOA-EH-101, LOA-HD-101 for TBV #5 being open. • Lowers RR flow to 70Mlb/hr to close TBV #5 per LOA-EH-101.
	SRO	• Directs entering LOA-EH-101, LOA-PWR-101 & LOA-HD-101 for TBV #5 being stuck open, and Reactor Power >100%. • Notifies Power Team of Power reduction. • Provides critical parameters for monitoring the plant and enforces expectations of operations for annunciators and place keeping. • Identifies Tech Specs 3.7.7 for Bypass Valve issue. • Enters T.S. 3.3.1.1. Cond B RA B.1 or B.2 for TSV (6 hrs)
Terminus		Bypass Valve T.S.'s addressed, per lead evaluator.

NOTES:

Operator Actions

Event No.(s):	3		Page	**1**	of	**1**

Description: RCIC Drain Pot Failure

Initiation: Following event 2, per Lead Evaluator.

Cues: 1H13-P601-D502, RCIC TURBINE STM LINE WTR DRN POT LVL HI

Time	Position	Operator's Actions or Behavior
	BOP	• Announce alarm and refer to LOR 1H13-P601-D502: • VERIFY automatic action (OPENS AO-1E51-F054, RCIC Turbine Inlet Steam Line Water Drain Pot Trap Bypass) occurs. • VERIFY AO-1E51-F025 and AO-1E51-F026, Upstream and Downstream RCIC Turbine Inlet Steam Line Water Drain Pot Normal Drains to Main Condenser are OPEN, if MO-1E51-F045, RCIC Turbine Steam Supply Stop, is CLOSED. • If RCIC is in standby, and the alarm does NOT clear and 1E51-F054 does NOT close within approximately two minutes, CLOSE 1E51-F360, RCIC Turbine Trip and Throttle Valve and DECLARE RCIC INOP. • If RCIC is in standby, INITIATE an IR • May dispatch local operator to observe locally • Enters information in Unit log
	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions
	SRO	• Supervises panel operators and provides direction as necessary • Refers to Technical Specification TS 3.5.3 A.1 and A.2. • Declares RCIC INOP and enters information on Unit Time Clock sheet • Verifies HPCS operable – immediately and enters timeclock of 14 days to return RCIC to operable.
TERMINUS		RCIC Trip & Throttle Valve closed, TS identified and timeclocks initiated.

NOTES:

Operator Actions

Event No.(s):	4		**Page** 1 **of** 1

Description: LPRM 48-33C fails downscale.

Initiation: Following RCIC event, on the signal of lead examiner

Cues: Alarm LOR-1H13-P603-A407, LPRM DOWNSCALE

Time	Position	Applicant's Actions or Behavior

	RO	Per LOR- LOR-1H13-P603-A407:
		• REFER to LOA-NR-101, Neutron Monitoring Trouble.
		• OBSERVE APRM flux indications and DETERMINE cause of alarm.
		• CHECK for flux oscillations >2 times peak to peak. If core stability may exist, REFER to LOA-RR-101. (No)
		Per LOA-NR-101:
		• STOP all control rod motion/power changes.
		• SELECT control rod that will display suspect LPRM on four rod display.
		• If required, DEMAND option OD-8 to aid in determining LPRM operability.
		• EVALUATE LPRM indication – NORMAL for plant condition (**NO**)
		  • If possible, BYPASS the APRM fed by the failed LPRM. ("C" APRM)
		  • BYPASS failed LPRM detector.
		  • REFER to Att. B to assist in determining the operability of associated APRM.
		    • Equal to or greater than two LPRM's per level.
		    • Equal to or greater than 14 LPRM's per channel.
		  • SELECT control rod that displays affected LPRM detector and VERIFY downscale reading on the meter.
		  • REFER to T.S. 3.3.2.1 and 3.3.1.1.
		  • If possible, UNBYPASS the APRM.
		  • NOTIFY a QNE.
		  • REFER to LTP-1600-28, Identification of LPRM abnormalities.
		  • VERIFY, using the Process Computer and Powerplex, that LPRM inputs are zero. If not, change inputs to zero per LOP-CX-07.

	BOP	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	• Directs actions above. • Enforces OPS expectations and standards • Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures. • Refers to T.S. 3.3.2.1 and 3.3.1.1, No R.A.

Terminus: "C" APRM unbypassed and 48-33C LPRM bypassed, per lead evaluator.

NOTES:

Operator Actions

Event No. (s):	5	**Page** 1 **of** 1

Description: Steam Seal Evaporator Pressure Control Valve fails closed**.**

Initiation: After the crew has addressed the failed LPRM, at the direction of the signal of lead examiner.

Cues: LOR-1PM02J-A105, Gland Seal Steam Aux Feed Vlv open**,**

Time	Position	Applicant's Actions or Behavior

	BOP	Per LOR-:refer to LOA-GS-101.
		• Per LOA-GS-101:
		• CHECK Stm Seal Header Press, 1PI-GS026 at 1PM02J - INDICATES BELOW 6 PSIG.
		• CHECK Feed Press, 1PI-GS019 at 1PM02J - INDICATES ABOVE 50 PSIG.
		• CHECK Level, 1LI-GS018 at 1PM02J - INDICATES 6 TO 8 INCHES.
		• CHECK Stm Seal Header Press, 1PI-GS026 at 1PM02J - INDICATES ABOVE 2 PSIG (NO)
		    • VERIFY 1GS-S1, SSEVP Outlet PCV Upstrm Stop at 1PM02J fully open.
		    • THROTTLE 1GS-S2, SSEVP Outlet PCV Bypass Stop at 1PM02J to maintain 4 to 6 psig on Stm Seal Header Press, 1PI-GS026.
		        • <u>CHECK</u> stack gas release rates below limits of ODCM 12.4.
		        • NOTIFY Radiation Protection of Plant Configuration Change. Radiation Protection Supervisor will need to evaluate for additional surveys in affected area.

	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	• Directs actions of LOA-GS-101.
Terminus		Turbine gland seal restored, per lead evaluator.

NOTES:

Operator Actions

Event No.(s):	6		Page	**1**	of	**1**

Description: Turbine Lube Oil Temp Control Valve Fails Closed

Initiation: Following the Steam Seal Evaporator event, per Lead Evaluator

Cues: 1PM02J A408 Turb Oil Cooler Outlet Temp / 1PM02J A401 -Turb Gen Vibr Hi W092   HiCX alarm / W104   CX alarm TDRFP Oil Temperature High / Turbine Hi Vibs Vibration Recorders ramping up

Time	Position	Applicant's Actions or Behavior
	RO	Monitors reactor parameters. Reduces power per LGP 3-1 as directed.

	BOP	Takes action per LOR-1PM02J-A408 for high Turbine Lube oil temperature:
		• CHECK Turbine Oil Reservoir temperature greater than alarm point (125°F)
		• Dispatch an EO to VERIFY controller is tracking
		• Dispatch an EO to VERIFY proper operation of the coolers
		• MONITOR bearing temperatures for abnormal rise
		• INITIATE Action Request
		Takes actions per LOR-1PM02J-A401 for turbine high vibrations
		• CHECK vibration alarms on process computer video display
		• CHECK Turbine vibration recorder
		• DISPATCH an EO to TSI panel to IDENTIFY, trips and first hit
		• If bearing 11 or 12 indicate greater than 10 mils on both X and Y TSI panel indicators, Trip Main Turbine immediately.
		• PERFORM LOA-TG-101
		Takes actions per LOA-TG-101 when turbine shows increasing vibrations
		• CHECK vibration (levels), REFER to limits in Attachment A
		    Bearing 11 or 12 at 10 mils, trip the turbine
		    Bearings 1-10, 12 mils or 10 mils for 15 minutes, trip the turbine
		    REDUCE power as directed by the Unit Supervisor
		    CHECK turbine lube oil within limits
		    At or near 1800 rpm, 110°F to 120°F
		    DISPATCH an EO to listen for noise (no)
		    CHECK lube oil operating properly (no)
		    CHECK steam seal pressure <4 psig
		    CHECK exhaust hood temperature <175°F (yes)

	SRO	Directs actions per the LOR procedures Directs actions per LOA-TG-101

Terminus ; N/A

Operator Actions

Event No.(s):	7	Page **1** of **2**

Description: Manual Reactor Scram / ATWS / Manual Turbine Trip due to High Vibs

Initiation: due to conditions from previous trigger

Cues: High Turbine Vibs – Degraded SDV loaded in scenario

Time	Position	Applicant's Actions or Behavior

	RO	Take actions per LGA-001 when reactor power is greater than 3% and a scram is required
		    Manually SCRAM the reactor
		    PLACE the reactor mode switch in SHUTDOWN
		    If all rods are not in to at least 02 and the reactor will not stay shutdown without Boron
		    then EXIT LGA-001 and ENTER LGA-010
		Per the POWER Leg
		    INITIATE ARI
		    If power is >3% then START SBLC (per LGA-SC-101) **(CT)**
		    RUNBACK Reactor Recirculation flow to minimum
		    If power is >3% then TRIP RR Pumps
		    ENTER LGA-NB-01
		    WAIT until rods in except one in to at least 02 OR Reactor will stay shutdown under all
		    conditions without boron per QNE.
		    WAIT until Reactor is Shutdown or Cold Shutdown Boron is injected (<3050 gal in
		    SBLC Tank)
		Per the Level Leg
		    If reactor power > 3% or unknown then Rapidly LOWER Level to at least –60 inches
		    (CT) and use only preferred systems to hold level between –150 and –60 inches. **(CT)**

	BOP	Take actions per LGA-010 when directed from LGA-001
		    Inhibit ADS
		    Prevent injection form HPCS, LPCS and LPCI
		Per the PRESSURE Leg
		    If SRVs are cycling then OPEN SRVs to lower pressure to 950 psig
		    STABILIZE pressure <1059 psig using main turbine bypass valves
		    Okay to reduce pressure so CB pumps can be used to control RPV level before
		    stabilizing pressure. Do NOT exceed cooldown rate of 100°F /hr.
		    Use Alternate Pressure Control Systems if needed
		    EHC Pressure Set at 870 psig keeps SRVs closed when LLS is reset.
		    VERIFY required automatic actions occur (Isolations and DGs Start)
		    If Steam Lines are open then BYPASS MSIV isolations per LGA-MS-01

	SRO	Directs actions per LGA-001 and LGA-010: • START SBLC **(CT)** • Rapidly LOWER Level to at least –60 inches **(CT)** and use only preferred systems to hold level between –150 and –60 inches. **(CT)**

Terminus : N/A

Operator Actions

Event No.(s):	7		Page	2	of	2

Description: ATWS

Initiation: **Included in cae.**

Cues:**. All Rod Not Full In , Power >3%.**

Obj.	Position	Applicant's Actions or Behavior
431.010	RO	Take action to insert rods per LGA-NB-01.
	BOP	Monitors reactor to ensure operations remain within established bands Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
431.010	SRO	Directions actions per LGA-010. Directions actions per LGA-NB-01.

Terminus: N/A

NOTES:

Operator Actions

Event No.(s):	8	**Page** 1 **of** 1

Description**:** Failure of "A" MSL to Isolate / Steam Leak in Tunnel

Initiation: Following reactor scram.

Cues:**.** LOR-1H13-P601-F404, "LD MSL Pipe Tunnel Amb Temp Hi"

Time	Position	Applicant's Actions or Behavior

	BOP	Per LOR-1H13-P601-F404, "LD MSL Pipe Tunnel Amb Temp Hi":
		     Check temperatures on 1H13-P632.
		     Directs entry to LGA-002.
		     Initiate ADS on direction of US.(**CT**)

	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. • Terminates and prevents all RPV injection except Boron, CRD and RCIC.

	SRO	Directions actions per LOR-1H13-P601-F404, "LD MSL Pipe Tunnel Amb Temp Hi".
		 • Enters LGA-002.
		 • Enters LGA-006, when 2 areas > Max Safe (MSL Pipe Tunnel & RWCU F/D) (**CT**)
		 • Per LGA-006:
		     • Verifies Suppression Pool level > -18 ft.
		     • Directs termination and prevention of all RPV injection except Boron, CRD and RCIC.
		     • Directs ADS

Terminus: Emergency Depressurization performed, Rods in , Rx and Cont. parameters under control.

NOTES:

REFERENCES

Procedure	Title	Revision
LGA-001	RPV Control	10
LGA-003	Primary Containment Control	08
LGA-002	Secondary Containment Control	04
LGA-006	ATWS Blowdown	05
LGA-010	Failure to Scram	09
LGA-RH-103	Unit 1 RHR Operations in the LGAs	08
LOA-TG-101	U-1 Turbine Generator	01
LOA-GS-101	U-1 Turbine Gland Seal System Abnormal	03
LGP-3-2	Reactor Scram	62
LOA-NR-101	Neutron Monitoring Trouble	16
LOA-EH-101	U-1 EHC Abnormal	25
LOP-CD-03	Startup and Operation of the Condensate/Booster System	31
LOR-1H13-P601-D502	RCIC Turbine Inlet Steam Line Drain Pot Level High	02
LOR-1H13-P603-A407	Local Power Range Monitor Downscale	02

Simulator Operator Instructions

Initial Setup

1. Recall a full power IC.

2. Verify A,B and C CD/CB on.

3. Provide marked up copy of LOP-CD-03.(Sect E.2 up to E.2.1 and E.1 up to E.1.3)

4. Place HW level control in HAND per LOP-CD-06. (step E.1.2 of LOP-CD-03)

5. Place simulator in RUN.

6. Load and run the setup CAEP written for this scenario (nrc-09-1-3.cae on jump drive)

Event Triggers and Role Play

<u>Event #</u>

1.   S/U "D" CD/CB pump and S/D "C" CD/CB pump.

2.   As EO, have a copy of LOP-CD-03 and respond as necessary.

3.   Main Turbine Bypass #5 fails open.

   a.   Trigger #2.

4.   RCIC drain pot fails closed.

   a.   Trigger 3.

   b.   Role Play: As plant operator, if dispatched to the RCIC area, wait eight minutes and then report that although 1E51-F054 is open, the drain line seems to be cooler than (not as hot as) you remember. (This would be true if something obstructed the drain flow path allowing the condensate in the line to collect and cool towards room / ambient temperatures.

5.   LPRM fails downscale

   a.   Trigger 4.

   b.   As QNE, state you look at core parameters and limits.

6.   Steam Seal Evaporator Fails Closed

   a.   Trigger 5

   b.   Use LOA-GS-101 and instructor display GS1 to respond as requested.

   c.   As Rad. Prot., assist in dose assessment as requested. State areas required are < 1mr/hr.

7.   Turbine Lube Oil TCV fails closed / Main Turbine Shaft Bow / Scram

   a.   Trigger 6

   b.   Role play -As an EO, wait 4 minutes then report that the TO TCV is closed. It apparently is not responding to controller demand. When asked to open the bypass, 1WS115 or 1WS329, wait another minute then report that one/both are very difficult to operate and will not open.

   c.   **NOTE:** Event Trigger 28 will go true when turbine oil temperature is >125°F. This will cause R0837 to alarm and annunciator 1PM02J-A408 will annunciate.

   d.   **NOTE:** Event Trigger 29 will go true automatically when turbine lube oil temperature is greater than 133°F. This will initiate the Shaft Bow malfunction (imf mms056(3) 12 10:00). The malfunction will ramp turbine vibration

8.   ATWS

   a.   ATWS malfunction inserted in cae

   b.   Once the jumpers are installed – either by the crew or at the request of the crew – do not allow re-scram until after the LGA-006 Blowdown.(do not de-energize ARI, stall with jumpers, etc..

9.   "A" MSL steam leak / Fails to isolate

   a.   Trigger 8 to insert the "A" MSL leak.

   b.   Trigger 8 will also ramp the MS tunnel temp and RT temp to above Max Safe values requiring an LGA-006 ATWS Blowdown. Delete SDV malfunctions after B/D

10. ATTACHMENT 04

Scenario Validation Checklist
Page 1 of 1

		Initial
1	Verify with the Simulator Coordinator that the current training load is based on the current plant core.	
2	The scenario performance objectives/tasks are listed in the scenario guide.	
3	Simulator initial conditions are achievable.	
4	The scenario guide clearly indicates the instructor station commands needed to achieve the performance objectives.	
5	All malfunctions and other instructor station commands are entered in the sequence described in the scenario guide, and all items responded to support the performance objectives.	
6	The simulator requires the operator to take the same action on the simulator as in the plant, using the reference plant operating procedures.	
7	For annual exam scenarios and OBEs, the scenario is validated in real time by an operating team consisting of SRO certified or licensed personnel using all referenced procedures and adhering to management expectations.	
8	The responses of the simulator during the scenario were realistic, and observed changes correspond to expected plant response. - Important / Critical Parameters (e.g., Flow, Power, Pressure, Radiation Level, Temperature, and Water Level) - Annunciators - System or component status indications	
9	Tech Spec items / LCO declarations are correct. Appropriate documentation available.	
10	Reportability requirements identified.	
Note:	Wind speed and direction may be variable based on simulator modeling. ENSURE that these parameters are verified when validating the scenario.	
11	Emergency Action Level classifications and PARs are identified, including whether or not there is a radiological release, the wind speed, and wind direction.	
12	Critical tasks determined if applicable.	
13	Shutdown scenarios include shutdown risk assessment, time to boil calculations and shutdown status board information.	
14	Procedure steps that may be confusing or disagree with higher-level procedures are discussed with operations management and expectations defined. Suggested enhancements are entered into the appropriate tracking system.	
15	Management expectations are re-enforced.	
16	Scenario run time is in accordance with the stated quantitative attribute time.	

```
##################################################
# Cae for ILT NRC 09-1-3
#
# Events
# 1. Swap CD/CB PPs.
# 2. Turbine # 5 BP fails open
# 3. RCIC drain popt drain fails closed
# 4. LPRM fails downscale
# 5. Steam Seal Ebvaporator PCV fails closed
# 6. Turbine Lube Oil TCV fails open / Main Turbine Shaft Bow / Scram
# 7. ATWS
# 8. "A" MSL steam leak / fails to isolate
##################################################
#
# 1. Swap CD/CB pps
#
# 2. Main Turbine BP #5 fails open
imf mms047 (2 0) | 1 | 1


# 3. RCIC drain pot drain fails closed
#    Event Trigger 3, Fail the RCIC drain pot
imf r0563 (3 0) on | 2 | 2
# Automatic opening of the 1E51-F054 on alarm
ior k1n24bnm (3 2) open | 3 | 3


# 4. LPRM fails downscale
#    LPRM 48-33C downscale
imf mni095 (4 0) | 4 | 4


# 5. Steam Seal Evaporator PCV fails closed
# This will close the upstream Steam Seal Stop Valve


# Initial Conditions
set vtmsg51r = 1e7 | 5 | 5
ior q5h03rg1 true | 6 | 6          # 1GS-S1 Open light ON
ior q5h03lr1 false | 7 | 7         # 1GS-S1 Closed light OFF
#ior k5i04jn1 false | 8 | 8         # Prevent opening 1GS-S2
ior k5j04jn1 false | 9 | 9         # Prevent opening 1GS002


# Manual Event Trigger 5
# This will close 1GS-S1 but it will look like it is open
trg 5 "set vtmsg51 = 0" | 10 | 10     # Override 1GS-S1 CLOSED


# Automatic Event Trigger 6
trgset 16 "q5j03lr1 .ge. 0.9" | 11 | 11 # TRUE when 1GS001 starts to CLOSE
trg 16 "dor k5j04jn1" | 12 | 12       # Allow 1GS002 to be manually opened


# Automatic Event Trigger 17
```

```
# Delete the overrides on 1GS-S1 so students can close it per the LOA
# when 1GS-S6 indicates full-open.
trgset 17 "(q5j05lg1 .LT. 0.1) .and. (q5j05rr1 .GT. 0.9)" | 13 | 13
trgset 18 "et_array(7)" | 14 | 14     # True when Trigger 7 is TRUE
trgset 22 "et_array(7)" | 15 | 15     # True when Trigger 7 is TRUE
trgset 23 "et_array(7)" | 16 | 16     # True when Trigger 7 is TRUE
trg 17 "set vtmsg51 = 1.0" | 17 | 17   # Opens 1GS-S1
trg 18 "set vtmsg51r = 20" | 18 | 18   # Returns 1GS-S1 ramp speed to normal
trg 22 "dor q5h03rg1" | 19 | 19        # 1GS-S1 Open light NORMAL
trg 23 "dor q5h03lr1" | 20 | 20        # 1GS-S1 Close Light NORMAL


# Automatic event trigger 10 and 11
trgset 10 "k5h03jc1 .GT. 0.9" | 21 | 21 # True when 1GS-S1 HS in closed
trgset 11 "et_array(10)" | 22 | 22     # True when trigger 10 is true
trg 10 "ior q5h03lr1 true" | 23 | 23    # to simulate going closed
trg 11 "dor q5h03rg1 (0 20)" | 24 | 24      # Makes OPEN light go off


# 6. TLO TCV fails open / main turbine shaft bow / scram
# Manual Event Trigger 6 (Fails the Turbine Oil Temperature Controller)
irf iactlvlv (6) 130 5:00    | 25 | 25   # Turbine Oil TCV Setpoint to 130F
irf vhsw32bd (6) 0           | 26 | 26   # 1WS032B Turbine Oil Cooler Inlet CLOSED


# Automatic Event Trigger 28
trgset 28 "tat7012 .GE. 125"  | 27 | 27   # True when Oil Temperature is >125F
imf r0837 (28) on            | 28 | 28   # Turbine Oil Reservoir Temperature ALARM


# Automatic Event Trigger 29
trgset 29 "tat7012 .GE. 133"  | 29 | 29   # True when Oil Temperature is >133F
imf mms056 (29) 12 10:00      | 30 | 30   # Turbine Shaft Bow malfunction


#  7. ATWS
imf mrd277 50 | 31 | 31
imf mrd278 45 | 32 | 32


# 8. "A" MSL leak / fails to isolate
imf mnb109 | 33 | 33
imf mnb113 | 34 | 34
imf mnb106 (8 0) 300 | 35 | 35


# Increase RT area temps (for forced B/D - 2 areas)
ior gka02p21 (8 0) 220 360 | 36 | 36
ior gma02p21 (8 0) 224 360 | 37 | 37
# Expand SDV to ensure rods insert
set rdwsdvlk=8e4 | 38 | 38
# override 1FW026 and 18 lights off
ior q4e00lgy off | 39 | 39
ior q4f00lgy off | 40 | 40
```

LaSalle County Station

DYNAMIC SIMULATOR SCENARIO GUIDE

ILT CLASS 09-01 NRC Exam

NRC 09-1-4

Rev. 0

05/27/2010

DEVELOPED BY:

Facility Author	Date

APPROVED BY:

Facility Representative	Date

Facility: <u>LaSalle County Station</u>   Scenario No.: <u>09-1-4</u>   Op-Test No.: <u>09-1 NRC Exam</u>

Examiners: _____   Operators: _____
           _____   _____
           _____   _____

Initial Conditions:
- Unit 1 at 85% power
- "A" IN Compressor OOS

Turnover:
- Unit 1 at 85% power ramping to full power.
- LOS-LP-Q1 needs completed from step A.6.
- Ramping to full power

Event No.	Malf. No.	Event Type*		Event Description
1	N/A	R	RO,SRO	Ramp to full power
2	N/A	N	BOP,SRO	Complete LOS-LP-Q1
3	MRW001	C	RO	"A" RT Pump trips
4	CAE	C	RO	"A" TDRFP lube oil leak
5	MRM009	I	BOP	"A" OG Post treat rad high (TS)
6	R1165 R0517	I	SRO	Primary Containment CAM 1PL75J and 1PL15J INOP (TS)
7	MNB104	M	ALL	Main Steam Line Leak in DW before restrictor
8	MMS048-052	C	BOP,SRO	Main Turbine Bypass Valves Fail Closed
9	MRC033	C	BOP,SRO	Primary Containment Bypass Path
10	VMRH16A	C	BOP	RHR Drywell Spray 16A fails closed.

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

NARRATIVE SUMMARY

Event(s)	Description
1	Unit 1 is at 85% power ramping to full power following rod shuffle.
2	LOS-LP-Q1, LPCS pump quarterly surveillance needs performed from step A.6 of Att. 1A.
3	"A" RT Pump trips requiring the RO to refer to LOA-RT-101 and open the 1G33-F354.
4	"A" TDRFP will develop a lube oil leak, requiring the pump to be tripped. The crew will trip the TDRFP and allow the MDRFP to auto start.
5	The "A" OG post treat radiation monitor will fail high requiring the crew to enter ODCM 12.2.c.1 and place the monitor in the tripped condition.
6	RP will be performing Cams and Manifolds Checks causing 1PL15J and 1PL75J alarms. These alarms will cause both the 1PL15J and 1PL75J to be declared INOP and will cause an entry into T.S. 3.4.7 condition B1 requiring a D/W sample once per 12 hours.
7	A Main Steam Line Leak before the restrictor in the Drywell will occur, increasing Drywell pressure, requiring a scram and entry into LGA-001 and LGA-003.
8	Following the scram, the main turbine bypass valves will fail closed, requiring pressure control via alternate methods.
9,10	A primary containment bypass path will develop. With the Main Turbine Bypass valves unavailable, RHR "B" tripped, and the "A" RHR Drywell spray failed closed, he crew will depressurize per LGA-004 when unable to maintain less than the Pressure Suppression Pressure Limit. (PRA)

CRITICAL TASKS

1. With primary containment pressure above 1.93 psig, containment flood level below 723 feet, and pumps not needed for adequate core cooling available; start suppression chamber spray.
2. When suppression chamber pressure cannot be restored and held inside the Pressure Suppression Pressure Limit (PSP) curve, initiate emergency depressurization.

Shift Turnover Information

⇒ **Day of week and shift**

  ♦ Monday Day Shift

⇒ **Weather conditions**

  ♦ No adverse whether conditions expected in the next 24 hours

⇒ **(Plant power levels)**

  ♦ Unit 1 85% power, ramping to full power following rod shuffle.   ♦ Unit 2 – 100% Power

  ♦ 2969 MWt   ♦ 3454 MWt

  ♦ 975 MWe   ♦ 1149 MWe

  ♦ 76 Mlbm/hr CORE FLOW   ♦ 107 Mlbm/hr CORE FLOW

⇒ **Thermal Limit Problems/Power Evolutions**

  ♦ Ramping to full power. Ramp at 50 MWE to 90% and hold for further QNE direction.   ♦ None

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

  ♦ None   ♦ None

⇒ **LOSs in progress or major maintenance**

  ♦ LOS-LP-Q1 at step A.6.   ♦ None

⇒ **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)
                                                      ♦ Unit 2 is in a Division 2 work week.

Operator Actions

Event No. (s):	1,2		Page	1	**of**	1

Description: After the crew has taken the shift, the SRO should direct the RO to continue ramping to full power with RR flow and perform LOS-LP-Q1 from step A.6 of Att. A.

Initiation: Following shift turnover on the signal of lead examiner

Cues: Directed by SRO

Time	Position	Applicant's Actions or Behavior
	RO	Per REMA and LOP-RR-07, Operation of the Reactor Recirc. Flow Control System, increases Reactor power.
	BOP	Per SRO direction, continues LOS-LP-Q1, LPCS Service Inservice test from step A.6 of Att. 1A (provide copy of LOS-LP-Q1, Att. 1A to evaluators for reference)
	SRO	Directs power increase and performance of LOS-LP-Q1, LPCS Service Inservice test.
Terminus		Per Lead Evaluator

NOTES:

Provide a prompt from the QNE to hold at a certain point (90%) and direct the BOP to perform LOS-LP-Q1 at this point.

Operator Actions

Event No. (s): 3			Page 1 **of** 2

Description: "A" RT pump trip.

Initiation: During power increase and performance of LOS-LP-Q1 (at step A.7 of LOS-LP-Q1).

Cues: Per lead evaluator direction.

Time	Position	Applicant's Actions or Behavior

____	BOP	Per LOR-1H13-P602-A106 – Refer to LOA-RT-101:
		Per LOA-RT-101:
		• OPEN 1G33-F354, RWCU Filt Demin Bypass Valve.
		• Directs EO to place RT F/D control switches to ISOLATE and check F/D inlet and outlet valves closed.
		• Start Standby RWCU pump per LOP-RT-02.
		  • VERIFY the following valves are CLOSED:
		  • 1(2)G33-F033, RWCU Reject Flow Control Valve.
		  • 1(2)G33-F034, RWCU Reject to Main Condenser Vlv.
		  • 1(2)G33-F035, RWCU Reject to Waste Surge Tk Vlv.
		• VERIFY the following valves OPEN:
		  o 1(2)B33-F023A, 1(2)A RR Pmp Suct Vlv
		     AND
		  o 1(2)G33-F100, RWCU Suct From A RR Pmp
		
		  o 1(2)B33-F023B, 1(2)B RR Pmp Suct Vlv.
		     AND
		  o 1(2)G33-F106, RWCU Suct From B RR Pmp
		
		    • 1(2)G33-F102, RWCU RR Pmps Suct Isol Vlv.
		    • 1(2)G33-F101, RWCU Suct from Bottom Head Drn.
		    o 1(2)G33-F042, RWCU Return Upstream Isol Vlv.
		    • 1(2)G33-F354, RWCU Filter Demin Bypass Vlv.
		• VERIFY RWCU System pressure is approximately equal to Reactor Pressure.
		  • With RWCU System pressure approximately equal to Reactor Pressure, VERIFY 1(2)G33-F004, RWCU Suct Otbd Isol Vlv, is OPEN
		• CLOSE 1(2)G33-F042 promptly to prevent reverse system flow.

NOTES:

Operator Actions

Event No. (s):	3 (cont)		Page 2 of 2
Time	**Position**	**Applicant's Actions or Behavior**	

Time	Position	Applicant's Actions or Behavior
____	BOP	If 1(2)G33-F040, RWCU Return Dwnst Isol Vlv is <u>NOT</u> OPEN: • PLACE O/L Bypass for vlvs 1(2)B21-F065A/B, 1(2)G33-F040 on panel 1(2)H13-P601 to TEST. • <u>If</u> required, enter 8 hour LCO and Log positioning of O/L Bypass switch. • OPEN 1(2)G33-F040, RWCU Return Dwnst Isol Vlv. • PLACE O/L Bypass for vlvs 1(2)B21-F065A/B, 1(2)G33-F040 on panel 1(2)H13-P601 to NORMAL. • <u>If</u> required, exit 8 hour LCO and Log positioning of O/L Bypass switch. Dispatch EO to perform section E.1.2 FLUSH/WARM the RWCU system per subsection E.2 **NOTE: As SM inform the crew that flushing/warming is not required.** From Control Room Panel 1(2)H13-P602, PERFORM the following**:** • VERIFY reactor power acceptable for RWCU Recirc pump start • FULLY CLOSE 1(2)G33-F354, RWCU Filter Demin Bypass Vlv. • VERIFY OPEN 1(2)G33-F042, RWCU Return Upstream Isol Vlv • THROTTLE OPEN 1(2)G33-F354, RWCU Filter Demin Bypass Vlv until dual indication is received (approx 10% open) • START one (1) RWCU Recirc pump, 1(2)G33-C001A/B • THROTTLE 1(2)G33-F354, Filter Demin Bypass Valve as necessary, to maintain adequate flow at indicated on RWCU System flow indicator 1(2)G33-R609. (Nominal 270 - 300 gpm, Maximum 360 gpm.) • Monitor motor cavity temperatures < 135 degrees. • Check B741, B742 and B718 (System inlet temp., system outlet temp. and flow) are reading correctly (LOS-CX-S00).
	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.

	SRO	• Directs restart of RWCU per LOP-RT-02.
		• Ensures operations are conducted within the bounds of Tech Specs and IAW Operations standards and approved procedures.
		• Enforces OPS expectations and standards.
		   • Notifies SM.
		   • Notifies QNE of potential impact on powerplex.

Terminus: "B" RT pump in service per lead evaluator direction.

NOTES:

Operator Actions

Event No. (s):	4		**Page** 1 **of** 1

Description: "A" TDRFP lube oil leak**.**

Initiation: After the crew has restarted RWCU at the direction of the signal of lead examiner.

Cues: EO notification of lube oil leak.

Time	Position	Applicant's Actions or Behavior

	RO	• Note and inform US of lowering TDRFP lube oil pressure.
		• Reduces power per SRO direction.
		• If 1PM02J-A403 (TDRFP VIBR HI) is received, take actions to remove "1A" TDRFP and place the MDRFP on line.
		• Take action IAW LOR-1PM03J-A104 (TDRFP Bearing Oil Pressure Low).
		   • Determine the "A" pump is the only one affected.
		   • Place the MDRFP in service IAW LOP-FW-03 Step E.2. (Provide copy of LOP-FW-03 to evaluators).
		      • Directs EO to perform local actions for MDRFP S/U.
		   • Transfer level control per LOP-RL-01 step E.6.1.
		S/D "A" TDRFP IAW LOP-FW-05 or trip "A" TDRFP on field report from field supervisor.

	BOP	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	• Directs power reduction and actions to remove "A" TDRFP from service and place the MDRFP on line.
Terminus		"A" TDRFP off, MDRFP on, per lead evaluator direction

NOTES:

Operator Actions

Event No. (s):	5		**Page** 1 **of** 1

Description: "A" Off Gas Post Treatment Rad High	

Initiation: Per Lead Evaluator, following "A" TDRFP event.

Cues: LOR-1N62-P600-B207, OFF GAS POST-TRTMT RAD HI

Time	Position	Applicant's Actions or Behavior
	RO	• Monitors reactor to ensure operations remain within established bands • Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	BOP	• CHECK Off Gas Post Treatment Radiation Level is equal to or greater than Alarm Setpoint. • MONITOR Main Condenser Vacuum. • CHECK Off-Gas Pre-Treatment Radiation indications for increase. • Charcoal Adsorber Vault Radiation indications for increase. Charcoal Adsorber Vault Radiation indications for increase. • NOTIFY Chemistry Management and REQUEST a Pre-Treatment and Post-Treatment sample. • NOTIFY Load Dispatcher that loss of affected Unit's Turbine Generator is possible. • REFER to LOA-PR-101, Unit 1 Process Radiation Monitoring System Abnormal. • REFER to NF-AA-430, Failed Fuel Action Plan. • REFER to ODCM 12.2.2.A and 12.4.2.A. • Per ODCM 12.2.2.A – C.1 place instrument channel in tripped condition within 1 hour by placing it in STANDBY..
	SRO	• Directs actions per LOR-1N62-P600-B207, OFF GAS POST-TRTMT RAD HI, and ODCM 12.2.2.A C.1.
Terminus		"A" OG PRM placed in tripped condition, per lead evaluator.

NOTES:

Operator Actions

Event No.(s):	6		**Page** 1 **of** 1

Description: Primary Containment CAM 1PL75J and 1PL15J INOP

Initiation: Following "A" OG PRM event, on the signal of lead evaluator.

Cues: LOR-1PM13J-A501, ATMOS CNMT MON PANEL 1PL15JTROUBLE
LOR-1PM13J-B501, PRIMARY CNMT CAM PNL 1PL75J TROUBLE

Time	Position	Applicant's Actions or Behavior

	BOP	Per LOR-1PM13J-A501, ATMOS CNMT MON PANEL 1PL15JTROUBLE:
		• If alarm is due to 1PL15J Trouble:
		    • If alarm is from low flow proceed as follows:
		        • If 1PL15J is declared inoperable, 1PL75J can be used as a redundant monitor.
		        • If both 1PL15J and 1PL75J are inoperable, a portable CAM, such as the one located on the Refuel Floor, can be connected to monitor Primary Containment. However, this will <u>NOT</u> satisfy Tech Spec 3.4.7 because there is no Control Room annunciation provided. (UFSAR 5.2.5.2.f)
		
		Per LOR-1PM13J-B501, PRIMARY CNMT CAM PNL 1PL75J TROUBLE:
		• If alarm is due to 1PL75J Trouble:
		    • If alarm is from low flow proceed as follows:
		        • If 1PL75J is declared inoperable, 1PL15J can be used as a redundant monitor.
		        • If both 1PL15J and 1PL75J are inoperable, a portable CAM, such as the one located on the Refuel Floor, can be connected to monitor Primary Containment. However, this will <u>NOT</u> satisfy Tech Spec 3.4.7 because there is no Control Room annunciation provided. (UFSAR 5.2.5.2.f)

	RO	• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions.
	SRO	Directs actions per LOR-1PM13J-A501 / B501 Enters T.S. 3.4.7 RA B.1. (12 hour grab samples)

Terminus: T.S. 3.4.7 actions addressed, per lead evaluator.

NOTES:

Operator Actions

Event No.(s):	7	Page 1 of 1

Description: Main Steam Line Leak in Drywell before restrictor

Initiation: Following 1PL15J and 1PL75J event, per lead evaluator.

Cues:**.** 1H13-P603-B501, PRI CONT PRESS HI/LO,1PM13J-A204, DW COOLER COND FLOW RATE HI

Time	Position	Applicant's Actions or Behavior
	BOP	Per LOR-1H13-P603-B501, PRI CONT PRESS HI/LO: • CHECK primary cont. pressure equal to or greater than hi setpoint or equal to or lower than low setpoint. Per LOR 1PM13J-A204, DW COOLER COND FLOW RATE HI: • CHECK applicable plant parameters for cause of excessive condensation from Drywell cooler. • MONITOR plant parameters and ENTER appropriate LGA, if applicable.
	RO	Monitors reactor to ensure operations remain within established bands Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. As directed by SRO, scrams reactor and performs LGP 3-2.
	US	Directions actions per LOR-1H13-P603-B501, PRI CONT PRESS HI/LO and LOR-1PM13J-A204, DW COOLER COND FLOW RATE HI. Enters LGA-003. Directs reactor scram on increasing Drywell pressure.

Terminus: N/A, continues to next event.

NOTES:

Operator Actions

Event No.(s):	8	**Page** 1 **of** 1

Description: Main Turbine BP valves fail closed.

Initiation: Following scram.

Cues:. BP valve indication closed.

Time	Position	Applicant's Actions or Behavior
	RO	Performs LGP 3-2. • Inform Supervisor of Control Room Status and Reactor Power. • Report to US Reactor level and pressure trend. • Verify Reactor Recirc. Pumps have downshifted. • Verify Main Turbine/Generator Trip.
	BOP	• Monitors control room panels and notifies the SRO of any unusual or unexpected conditions. • Controls reactor pressure via alternate method as directed by SRO.
	SRO	Directs alternate method of pressure control.

Terminus: N/A, continued to next event,

NOTES:

Operator Actions

Event No.(s):	9,10		**Page** 1 **of** 2

Description: Primary Containment Bypass Path / RHR DW Spray (16A) fails closed.

Initiation: Loaded in CAE.

Cues: Hi Drywell pressure alarm.

Objective	Position	Applicant's Actions or Behavior
	RO	Per LGP-3-2 Attachment E (hardcard): • Arm and Depress scram pushbuttons • Place mode switch in Shutdown • Insert IRMs and SRMs • Check rods in and power decreasing • Operate FW to control level as specified by US. • Report level and pressure trends
	BOP	Performs additional EOP actions as directed by SRO • Coordinates with BOP to maintain/restore RPV level in band specified using preferred injection systems • Monitors RPV parameters ° Report lowering RPV level (value, rate, trend) ° Report indications of RR line break Verifies needed auto actions (PCIS, ECCS) Performs additional EOP actions as directed by SRO • Starts 2 loops of suppression pool cooling • Initiates Suppression Chamber Spray **(CT)** • Emergency Depressurizes per LGA-004 or opens main turbine bypass valves – per US direction. Coordinates with RO to maintain/restore RPV level in band specified using preferred injection systems
	SRO	Directs entry and actions of LGA-001 / LGA-003. • Directs Suppression Chamber Spray **(CT)** • Directs Emergency Depressurization per LGA-004.**(CT)**
TERMINUS		Emergency Depressurization performed, containment parameters under control, per lead evaluator

NOTES:

REFERENCES

Procedure	**Title**	**Revision**
LGA-001	RPV Control	10
LGA-003	Primary Containment Control	8
LGA-RH-103	Unit 1 RHR operations in the LGAs	08
LGA-004	RPV Blowdown	05
LOS-LP-Q1	LPCS System Inservice Test	52
LOA-RT-101	Loss of RWCU System	11
LOP-RT-02	RWCU System S/U and Pump Transfer	36
LOR-1PM02J-A403	TDRFP VIBR HI	03
LOR-1N62-P600-B207	OFF GAS POST-TRTMT RAD HI	05
LOR-1PM13J-A501	ATMOS CNMT MON PANEL 1PL15JTROUBLE	01
LOR-1PM13J-B501	PRIMARY CNMT CAM PNL 1PL75J TROUBLE	01
LOR-1H13-P601-F404	LD MSL Pipe Tunnel Amb Temp Hi	03

Simulator Operator Instructions

Initial Setup

1. Recall **a full power IC**

2. Reduce power to 85% via RR.

3. Provide marked up copy of LOS-LP-Q1.

4. Perform simulator startup checklist.

5. Place simulator in RUN.

6. Load and run the setup CAEP written for this scenario (nrc-09-1-4.cae on jump drive)

Event Triggers and Role Play

<u>Event #</u>

1. Ramp to full power
    a. No triggers required, respond as requested.

2. Complete LOS-LP-Q1
    a. Have a copy of LOS-LP-Q1 available and respond as EO to steps requested. Time compress as necessary per lead evaluator permission.

3. "A" RT pump trips
    a. Trigger 3.
    b. Have a copy of LOP-RT-02 available and respond as EO to steps requested. Time compress as necessary per lead evaluator permission.
    c. As SM, warming of RT is not required for restart.
    d. As EO, if requested, CRD purge is 2 gpm.
    e. When RT F/D isolation requested, go to RT2 and ramp both inlet and outlets closed.

4. "A" TDRFP lube oil leak
    a. Trigger 4
    b. As EO, report there's a significant lube oil leak. As Field Supervisor, recommend tripping it immediately.
    c. If requested as EO, report local actions completed for MDRFP start.

5. "A" OG post treat rad high.
    a. Trigger 5
    b. As chemistry, report you'll take the required samples and provide results when obtained.

6. Primary Containment Cam Panel 1PL15J and 1PL75J INOP
    •   Role play as RP – Inform the control room that you will be doing the Cams and Manifolds including the 1PL15J and 1PL75J.
    •   Trigger 6 to to cause the 15J and 75J alarms to come in, with the 75J delayed two minutes.
    •   Role play as RP – report that you thought the 15J panel was restored to operation prior to moving to the 75J.

7. MSL break in DW before restrictor
    a. Trigger 7.
    b. Increase MSL break to 300 following Supression Pool Spray initiation.

8. Main Turbine Bypass Valves fail closed
    a. Loaded in cae

9. Primary Cont. Bypass Path
    a. Loaded in cae

10. RHR DW Spray 16A fails closed
     a. Loaded in cae

ATTACHMENT 04
Scenario Validation Checklist
Page 1 of 1

		Initial
1	Verify with the Simulator Coordinator that the current training load is based on the current plant core.	_____
2	The scenario performance objectives/tasks are listed in the scenario guide.	_____
3	Simulator initial conditions are achievable.	_____
4	The scenario guide clearly indicates the instructor station commands needed to achieve the performance objectives.	_____
5	All malfunctions and other instructor station commands are entered in the sequence described in the scenario guide, and all items responded to support the performance objectives.	_____
6	The simulator requires the operator to take the same action on the simulator as in the plant, using the reference plant operating procedures.	_____
7	For annual exam scenarios and OBEs, the scenario is validated in real time by an operating team consisting of SRO certified or licensed personnel using all referenced procedures and adhering to management expectations.	_____
8	The responses of the simulator during the scenario were realistic, and observed changes correspond to expected plant response. - Important / Critical Parameters (e.g., Flow, Power, Pressure, Radiation Level, Temperature, and Water Level) - Annunciators - System or component status indications	_____
9	Tech Spec items / LCO declarations are correct. Appropriate documentation available.	_____
10	Reportability requirements identified.	_____
Note:	Wind speed and direction may be variable based on simulator modeling. ENSURE that these parameters are verified when validating the scenario.	
11	Emergency Action Level classifications and PARs are identified, including whether or not there is a radiological release, the wind speed, and wind direction.	_____
12	Critical tasks determined if applicable.	_____
13	Shutdown scenarios include shutdown risk assessment, time to boil calculations and shutdown status board information.	_____
14	Procedure steps that may be confusing or disagree with higher-level procedures are discussed with operations management and expectations defined. Suggested enhancements are entered into the appropriate tracking system.	_____
15	Management expectations are re-enforced.	_____
16	Scenario run time is in accordance with the stated quantitative attribute time.	_____

```
####################################
# ILT NRC 09-1-4 CAE
# Events
# 1) Ramp to full power
# 2) Complete LOS-LP-Q1
# 3) "A" RT pump trips
# 4) "A" TDRFP lube oil leak
# 5) "A" OG Post Treat Rad High
# 6) Pri. Cont. 15J and 75J INOP
# 7) Main Stean Line Line in DW before restrictor
# 8) Main Turbine Bypass Valves fail closed
# 9) Primary Cont. Bypass Path
# 10) RHR DW Spray 16A fails closed
##########################################
# 1) Ramp to full power
# no triggers required

# 2) Complete LOS-LP-Q1
# no triggers required

# 3) "A" RT pump trips
imf mrw001 (3 0) | 1 | 1

# 4) "A" TDRFP lube oil leak
mrf vhtm60ad (4 2) 20 720 | 2 | 2

# 5) "A" OG Post Treat Rad High
imf mrm009 (5 0) | 3 | 3

# 6) Pri. Cont. 15J and 75J INOP
imf r1165 (6 0) on | 4 | 4
imf r0517 (6 120) on | 5 | 5

# 7) Main Stean Line Line in DW before restrictor
imf mnb104 (7 0) 30 | 6 | 6
# 8) Main Turbine Bypass Valves fail closed
imf mms048 | 7 | 7
imf mms049 | 8 | 8
imf mms050 | 9 | 9
imf mms051 | 10 | 10
imf mms052 | 11 | 11

# 9) Primary Cont. Bypass Path
imf mca015 100 | 12 | 12
# 10) RHR DW Spray 16A fails closed
set vmrh16ar=1e20 | 13 | 13
* "B" RHR pp. trip
lmf mrh018 | 14 || 14
```