

Form 3.3-1 Scenario Outline

Facility:	LaSalle	Scenario #:	23-1-1
Scenario Source:	New	Op. Test #:	LAS23-1
Examiners:		Applicants/	
		Operators:	
Initial Conditions:	100% power. 1A WR pump is OOS for coupling maintenance. 1A APRM is bypassed. LPRMs 32-17C and 48-33C are bypassed due to spiking issues.		
Turnover:	Swap EHC pumps to remove running for emergent issues.		
Critical Tasks:	With a radiological release in progress, perform an Emergency Depressurization before exceeding GE release rate (8.26 E+09 μCi/sec). With an Unisolable Steam leak in the steam tunnel and RPS failure to SCRAM initiate ARI prior to performing Emergency Depressurization.		

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP)	Swap running EHC pump
2	MES026 D1258	C (BOP) T (SRO)	HPCS water leg pump trips
3	MNI066	I (ATC) I (BOP) T (SRO)	LPRM 32-49C fails high
4	MRD280	C (ATC)	CRD pump 1A trips
5	MRD106	R (ATC)	Rod drifts out, must be held full in using weighted device
6	MGC001 MGC004	C (BOP) MC(BOP)	GC pump 1A trips and standby fails to auto-start
7	MNB112 MNB116 MVT001 MNB106	M (ALL)	Steam leak in the Steam Tunnel, one main steam line fails to isolate
8	MRP018 IAARIBP	C (ATC) MC (ATC)	RPS B fails to Scram and ARI must be manually initiated.
9	MCMFAIL D(1)	M(ALL)	Rising main stack release rates requires blowdown
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control			

Boundary condition explanation:

With a radiological release in progress, perform an Emergency Depressurization before exceeding GE release rate ($8.26 \text{ E}+09 \text{ } \mu\text{Ci/sec}$).

Per EP-AA-1005 Addendum 3 Release rates at the General Emergency Level out of RG1 will result in offsite doses that will require issuing protective actions for the general public.

Per LPGP-PSTG-02C with offsite release rates approaching GE levels and an Unisolable primary leak an emergency depressurization will direct a majority of the driving energy for the release into primary containment reducing the radioactive release rate.

With an Unisolable Steam leak in the steam tunnel and RPS failure to SCRAM initiate ARI prior to initiating ADS.

Per LPGP-PSTG-02C, with a primary system discharging outside primary and secondary containment with a high offsite release rate a reactor scram is initiated to ensure the reactor is shutdown before RPV blowdown is initiated. ARI will be successful in inserting control rods and prevent procedures requiring reactor pressure to be maintained above 350 psig and allow for complete emergency depressurization of the RPV to maximize the reduction in offsite release rate.

Form 3.3-1 Scenario Outline

Facility:	LaSalle	Scenario #:	23-1-2
Scenario Source:	New	Op. Test #:	LAS23-1
Examiners:		Applicants/	
		Operators:	
Initial Conditions:	Unit 1 at 30% power. 1B TDRFP OOS, 1A TDRFP in service, MDRFP in service through FRV.		
Turnover:	Secure RHR WS per LOP-RH-05.		
Critical Tasks:	With a steam leak in the drywell and drywell temperature greater than 135°F, spray the drywell prior to drywell pressure exceeding 60 psig. With a steam leak in the drywell that causes drywell temperature to exceed 135°F, DO NOT spray the drywell unless drywell conditions are on the safe side of the Drywell Spray Initiation Limit.		

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP)	Secure RHR WS pumps per LOP-RH-05
2	N/A	R (ATC) R (BOP)	Upshift RR pumps Continue power ascension with flow for S/U
3	MRC040	C (ATC) MC (ATC) T (SRO)	RR FCV fails open in auto, doesn't lock up until manually tripped
4	R1191	C (BOP) MC (BOP)	Instrument air header pressure low alarm, requires start of standby SA compressor
5	IAFCV2AX	C (ATC)	CRD flow control valve fails closed due to air issue
6	K1K28B9M MNB080	I (BOP) T (SRO)	RCIC starts at wrong level
7	MNB105	M (ALL)	Steam leak in the drywell
8	MCA009	C (ALL)	Vacuum breaker fails open
9	N/A	M (ALL)	Blowdown on PSP violation
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control			

Boundary condition explanation:

With a steam leak in the drywell and drywell temperature greater than 135°F, perform emergency depressurization prior to drywell pressure exceeding 60 psig: LGA-003 "Primary Containment Control" Directs drywell sprays if drywell temperature cannot be held below 135°F. The requirement in LGA-003 is prior to 340°F, however in this scenario without drywell sprays in service primary containment pressure exceeds 60 psig prior to reaching 340°F. 60 psig is the primary containment pressure above which containment failure is expected to occur.

With a steam leak in the drywell that causes drywell temperature to exceed 135°F, DO NOT spray the drywell unless drywell conditions are on the safe side of the Drywell Spray Initiation Limit: When DRYWELL SPRAYS are required Drywell sprays are not initiated unless on the safe side of the Drywell Spray Initiation Limit to prevent evaporative cooling pressure drop from creating a negative pressure in the drywell and challenging the primary containment negative pressure limit.

Form 3.3-1 Scenario Outline

Facility:	LaSalle	Scenario #:	23-1-3
Scenario Source:	New	Op. Test #:	LAS23-1
Examiners:		Applicants/	
		Operators:	
Initial Conditions:	Unit 1 is at 90% power.		
Turnover:	Swap SPEs per LOP-GS-05.		
Critical Tasks:	With a failure to SCRAM >3% and a loss of the main heat sink, Main Turbine Tripped and ALL Bypass valves closed, place suppression pool cooling in service within 10 minutes. During failure to SCRAM with Reactor power >3% and early SBLC failures, inject SBLC before suppression pool temperature reaches 188°F.		

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP)	Swap SPE 1A/A to 1A/B IAW LOP-GS-05
2	N/A	T (SRO)	U2 reports their Div 2 diesel INOP
3	MCW014	C (BOP) C (ATC) MC (ATC)	1A WR pump trips, RT valve 1G33-F004 fails to auto-close
4	MMS067	C (ATC) T (SRO)	TSV closure
5	MNI107	I (ATC)	1B APRM fails Downscale (INOPERABLE)
6	MCF025	C (BOP) MC (BOP) R (ATC)	FW heater 13B tube rupture with failure to auto-isolate, will isolate manually
7	MEH001 MEH002	M (ALL)	Loss of all EHC pumps
8	MRD277 MRD278	C (ATC) C (BOP)	Degraded SDV results in an initial 20% RTP ATWS
9	IASCTRPA	C (ATC)	First started SBLC pump trips

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control

Boundary condition explanation:

With a failure to SCRAM >3% and a loss of the main heat sink, place suppression pool cooling in service within 10 minutes: LGA-010 contains an override at step LQ/L-5 to verify RHR HXs in service within 10 minutes with all heat from RPV going into PC. The point at which the ten minute timer starts is when the turbine is tripped and all bypass valves go closed, or MSIVs go closed.

IR #1117543 was written by Engineering after EC #372022 was approved as part of revising Calculation L-001536, Rev. 2. The temperature of the suppression pool when RHR and RHRSW are started is important and it is also important for the analyses that these systems are in operation within 600 seconds (10 minutes) of the accident commencement. Therefore, Operations management made the decision to add this caution to the PSTGs concerning this need in a DBA LOCA, ATWS, or SBO event.

During failure to SCRAM with Reactor power >3% and early SBLC failures, inject SBLC prior to Suppression Pool Temperature exceeding 188°F: 188°F is the Boron Injection Initiation Temperature (BIIT). If injection of boron is initiated prior to BIIT, emergency depressurization may be precluded at reactor power levels at or below the APRM downscale setpoint. With suppression pool cooling maximized and no SBLC injection BIIT is exceeded in approximately 35 minutes.

Form 3.3-1 Scenario Outline

Facility:	LaSalle	Scenario #:	23-1-4
Scenario Source:	New	Op. Test #:	LAS23-1
Examiners:		Applicants/	
		Operators:	
Initial Conditions:	Unit 1 at 90% power. MDRFP is still I/S due to investigating abnormal vibrations on the 1B TDRFP, investigation and 24-hour confidence run is complete and MDRFP can be secured. 1D CD/CB pump is OOS for maintenance. B DDFP is OOS for maintenance.		
Turnover:	Secure MDRFP.		
Critical Tasks:	With drywell pressure greater than 1.93 psig, initiate suppression chamber sprays prior to drywell sprays to mitigate chugging in the downcomers leading to a drywell to suppression chamber bypass. With suppression chamber pressure greater than 12 psig, initiate drywell sprays before violating PSP.		

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP)	Secure MDRFP
2	IACF11BX	C (ATC) MC (ATC)	1B TDRFP min flow valve fails open in auto
3	D1082 D1082S	I (BOP) T (SRO)	HPCS spurious initiation on lo lo level, SRO enters TS 3.5.1 condition B, and TS 3.3.5.1 Conditions A and B
4	MRM039	T (SRO)	VC rad monitor fails upscale
5	MRD131	I (ATC) T (SRO)	Loss of control rod position indication requires applying withdrawal jog to restore position indication.
6	MCF119	C (BOP) R (ATC)	Trip of 1B CD/CB pumps
7	MCF034	M (ALL)	Feedwater leak in drywell
8	K4K06PTY	C (ATC)	1B TDRFP trip pushbutton fails
9		C (BOP)	First DW spray valve doesn't open

* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control

Boundary Condition Explanation:

With drywell pressure greater than 1.93 psig, initiate suppression chamber sprays prior to drywell sprays to mitigate chugging in the downcomers: With rising pressure in primary containment suppression chamber sprays are initiated in an attempt to reduce primary containment pressure, suppression chamber sprays are initiated prior to drywell sprays to mitigate the impact of chugging in the downcomers leading to a drywell to suppression chamber bypass.

With suppression chamber pressure greater than 12 psig, initiate drywell sprays before violating PSP: with suppression chamber pressure greater than 12 psig, LGA-003 directs initiating drywell sprays. Failing to spray the drywell will result in a violation of PSP and a violation of PSP will require an emergency depressurization, which will not be required if drywell sprays were initiated.

Form 3.3-1 Scenario Outline

Facility:	LaSalle	Scenario #:	23-1-SPARE
Scenario Source:	New	Op. Test #:	LAS23-1
Examiners:		Applicants/	
		Operators:	
Initial Conditions:	Unit 1 at 100% power. U2 VG is OOS for scheduled maintenance.		
Turnover:	Perform LOS-TG-Q3.		
Critical Tasks:	With an Unisolable Primary system leak into secondary containment, Scram before exceeding maximum safe operating temperature in one area. With tripped TDRFPs, failure of the TDRFP discharge check valves to close and a failure of HPCS to auto-start, restore RPV injection prior to Top of Active Fuel.		

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N (BOP)	Perform LOS-TG-Q3
2	MMS045	R (ATC) C (BOP) T (SRO)	TBV #3 sticks full open and follow up actions to close EHC supply to TBV #3
3	VHRD14AD	C (ATC) MC (ATC)	Loss of CRD pump discharge
4	K5H03JC1 K5H03JN1	I (BOP) MC (BOP)	Steam Seal Pressure control valve fails
5	R1102	T (SRO)	VG heater power failure, SRO enters TS 3.6.4.3 Condition D
6	MES019	M (ALL)	Unisolable Steam Leak on RCIC
7	MCF078 MCF079	C (ATC)	Both TDRFPs trip on first TDRFP trip pushbutton
8	MES005	C (ALL)	HPCS fails to auto-start
* (N)ormal, (R)eactivity, (I)nstrument, (C)omponent, (M)ajor, (TS)Tech Spec, (MC)Manual Control			

Boundary Condition explanation:

With an Unisolable Primary system leak into secondary containment, Scram before maximum safe operating temperature in a space: per LGA-002 when a primary system is discharging into the reactor building and cannot be isolated the crew is directed to Scram before reaching maximum safe.

With tripped TDRFPs, failure of the TDRFP discharge check valves to close and a failure of HPCS to auto-start, restore RPV injection prior to Top of Active Fuel: With a trip of the TDRFPs and a failure of their associated discharge check valves a bypass path is created and the MDRFP will not feed the RPV to maintain level. A failure of HPCS to auto-start removes all high pressure injection sources beside CRD and SBLC and level will lower until it reaches the Top of Active Fuel at which point adequate core cooling will be at risk. In order to restore core cooling and inventory control the crew can manually start HPCS or close the TDRFP discharge isolation valves.