Form ES-D-1 Scenario Outline Appendix D Vermont Yankee (1999 NRC)Modified Scenario No.: 1 Op-Test No.: Facility: ACRO Operators: Examiners: _____ CRO CRS Objectives: Evaluate the crew's ability to operate plant equipment to support a normal power ascension, respond to and evaluate (Technical Specification) a level instrument failure and the resultant reactivity addition transient. Recognize and take action for a Recirc Pump failure, recognize and limit the positive reactivity from a Recirc Pump speed transient. Determine the affect of a loss of a 480 VAC ECCS bus on plant operation, and to implement the EOPs to monitor and control plant parameters for a major primary containment steam leak resulting in emergency depressurization as well as recognizing the inability to spray the drywell Initial Conditions: IC-67(Snapshot) 30% power, approaching conditions for second Feedwater Pump Start Turnover: See Attached "Shift Turnover" Sheet Event Event Malf. Event Type* Description No. No. CRO R 1 Continue power ascension IAW OP 0105 CRS CRO 2 Ν Start the second Feedwater Pump CRS ACRO Inadvertent RCIC initiation (TS) Kev 1 3 L CRO **RC04** 5 minutes after RFP start CRS Key 2 CRO **RR07B** С "B" Recirc Pump lower and upper seal failure 4 CRS RR08B Key 3 CRO **RR10** 5 I. "A" Recirc Pump speed controller failure, pump speed increasing CRS 100% @ 3600 sec ACRO Key 4 С 6 CRO 480 VAC ECCS Bus 8 fails ED05C CRS Key 5 .4% @ ACRO 300 sec CRO 7 MS06 Μ Steam line leak in the drywell – emergency depressurization CRS Key 6 10% @ 1000 sec 8 RH03A С ACRO Drywell Spray Valve does not open (B valves have no power) Preinsert N/A HPCI aux oil pump ACB open - out of service for governor oil leak repair Preinsert RFHP05 (R)eactivity (I)nstrument. (C)omponent, (M)ajor (N)ormal,

SIMULATOR OPERATOR INSTRUCTIONS FOR SCENARIO (#1)

GENERAL REQUIREMENTS

- > All chart recorders will be rolled forward, timed and dated.
- Paper from selected chart recorders will be saved for the examination team as requested.
- All procedures, flow charts, curves, graphs, etc., will be returned to their normal storage place and closed.
- > All markable procedures, boards, etc., will be erased.
- All paper used by the previous crew will be removed and kept for the examination team as requested.
- The simulator operator, or designated person, will keep a rough log of all communications into and out of the "control room " during the scenario as requested by the examination team.

INITIAL SETUP

- > IC- 67. setup for ~30% power getting ready to start the "C" Feedwater Pump
- > Ensure the "A" Feedwater Pump is running with "C" in Standby
- Place HPCI out of service (Preinsert RFHP05, Aux oil pump ACB open) PTL aux oil pump switch
- > Preinsert RH03A (RHR "A" Cont Spray 26A fails to open)
- > Mark con-demin status board A/B/C in service

DURING THE SCENARIO

The examination team will determine when each event is to be inserted and when to "freeze" and will inform the simulator operator.

- EVENT 1 Provide copy of VYOPF 2404.02 for rod withdraw sequence. Support crew as Reactor Engineer as requested.
- EVENT 2 If crew continues to raise power direct them to start the second feedpump at 40% power. When directed as AO to perform prestart checks for Feedpump start inform Control Room checks are completed. Seal water temperatures are normal after the feedwater pump start
- EVENT 3 After conditions stable for 5 minutes insert RCIC start. Acknowledge request as I&C. They know of no reason why RCIC started. Report that RCIC initiation relays K-1 and K-2 are energized, and the investigation continues.
- EVENT 4 Insert seal leak rate low and ramp up after recognized by crew. Use RDR12 to secure seal purge. Recirc cooling is SWR 58

- EVENT 5 Insert malfunction after the A pump is on master control. Attempt to provide a slow speed increase to allow operators to recognize it and take actions. Master Controller fails. If they place "A" in "Manual" pump speed control will work. Acknowledge request as I&C to respond to CR to investigate Recirc Flow Control trouble.
- EVENT 6 Insert malfunction as soon as plant stable following Event 5. Allow crew time to discuss plant status, plans for continued operation/shutdown. Support crew as requested on bus failure. It will not be available anytime soon.
- EVENT 7 Insert leak at the lower severity. After the scram insert the leak at the higher severity
- EVENT 8 Acknowledge request to attempt manual opening of Outbd Drywell Spray Valve (RHR-26A). At Exam Team direction after ED is performed, remotely open requested valve to allow sprays. Rf RH 46 (RHR26A)
- **TERMINATION** After vessel depressurization and RHR 26A opened via local manual operation or as Exam Team directs.

SIMULATOR OPERATOR INSTRUCTIONS FOR SCENARIO (#1) (con't)

Event No.	Malf. No.	Ever	nt Type*	Event Description
	Verify RWM latched to GRP 64		, X. W.	
	RFHP05 Preinsert			PLT HPCI aux oil pump, open ACB
	RH03A Preinsert			RHR CONT SPR VLV (26A) FAIL TO OPEN
1		R	CRO CRS	Continue power ascension IAW OP 0105
2		N	CRO CRS	Start the second Feedwater Pump
3	RC04 Key 1	l	ACRO CRO CRS	Inadvertent RCIC initiation (TS)
4	RR07B Key 2 RR08B Key 2	с	CRO CRS	"B" Recirc Pump lower and upper seal failure
5	RR10 Key 3 100% @ 3600 sec		CRO CRS	After A pump is on the master controller "A" Recirc Pump speed controller failure, pump speed increasing
6	ED05C Key 4	С	ACRO CRO CRS	480 VAC ECCS Bus 8 fails
7	MS06 Key 5 .4% @ 300 sec	М	ACRO CRO CRS	Steam line leak in the drywell emergency depressurization After drywell RRUs started post loss of Bus 8
	MS06 Key 6 10% @ 1000 sec			Steam leak will cause drywell temperature to exceed 280 degrees and require RPV-ED. After manual or auto scram on high drywell pressure
8	RH03A Preinsert	с	ACRO CRO	RHR Cont Spray 26A fails to open

SHIFT TURNOVER (#1)

PLANT CONDITIONS:

- Approximately 30% power
- Sequence A2 Group 64, Control rod 10-27
- No rapid shutdown sequence is available

INOPERABLE EQUIPMENT/LCOS:

• HPCI is out of service for repair of a governor oil leak

SCHEDULED EVOLUTIONS:

- OP 0105 Phase 4 step 24 page 82
- Raise power to 40% CTP at 1%/ 1 min
- Start "C" RFP at 40% power for PMT of seal replacement. Place A RFP in STBY
- At 45% speed transfer Recic pump speed control to master manual control

SURVEILLANCES DUE THIS SHIFT:

None

ACTIVE CLEARANCES:

• N/A

GENERAL INFORMATION:

CONTROL ROOM SHIFT TURNOVER CHECKLIST

Scenerio 1

Parameter/	Allowable	Chec	xs
Component	Cond/Limit	06	18
Vernon Bus Tie	3900-4500 v		
DG A/B	No Alarms/Opr	1	
DG Volt Req	8 White Lights	~	
DG A/B ACB's	Operable	~	
DG A/B BKR CONT SELECT			
Switches	In REMOTE	0	
Bus 8/9	435-506 v	~	
Bus 3/4	3700-4400 v	V	
Other 4KV ACB's	Opr	V	
S/U Transformer	Energized	V	
Aux Transformer	Energized	~	
Cond Backpress	1-5 in HgA	U	
SW PPs A/B/C/D	Operable	V	
Cond Sys	Operable	V	
Feed Sys	Operable	V	
CST Level (ER20001509_06)	20-90%		
Inst. Air Press	95-107 psig	U	
Rx Water Level	155-165 inches		
Rx Press	950-1030 psig	V	
Rx Power	≤1593 MWt	V	
SLC Sys	No Alarms/Opr	U	
SLC Tk Level	81-92%	V	
SLC-18	Open	V	
SLC Squib A/B	Energized	2	
SLC PP A/B	Operable	U	
SDV Level	~0	V	
APRM/IRM/SRM/RBM Byp Sw			
(ER960026_03)	Neutral Position		
Scram Air Press	70-75 psig		
RCU Sys	No Alarms/Opr		
RCU Inlet Cond	<1 µmho/cm		
CU-15, 18, 68	Operable	V	
RCIC Sys	No Alarms/Opr	V	
RCIC-15,16,18,20	Open/Opr	v	
RCIC-131,27,30,21,41,39	Closed		
RCIC T/T and Gov	Open	V	
RCIC Flow Cont/Tape/Flow	AUTO/400/<10	V	
MSIVs, MS-74, 77	Operable	V	
Pri Cont Vent Iso Valves	Operable	V	
SV-70A/B Ind	Closed	4	
Relief Valves	No Alarms/Opr	10	
ADS Bypass Switch	NORMAL Pos.	~ ~	

Parameter/	Allowable	Che	cks
Component	Cond/Limit	06	18
CS A/B Sys	No Alarms/Opr	~	
CS-7 A/B	Open	V	
CS PP A/B	AUTO/Opr	~	
CS-5 A/B, 11 A/B	Open	1	
CS-26 A/B, 12 A/B	Closed		
CS FI-14-50A/B	±500 gpm	~	
RHR Sys	No Alarms/Opr	~	
RHR PP A/B/C/D	AUTO/Opr	~	
RHR-13 A/B/C/D	Open	V	
RHR-25 A/B	Open	V	
RHR-65 A/B	Open	V	
RHR-16A/B	Open	V	
Other RHR RHRSW Vlvs	Closed	~	
RHR FI-10-139A/B	±1500 gpm	V	
Torus Water Temp	≥50 - <87.3°F	~	
HPCI Sys	No Alarms/Opr	NO	
HPCI Turb Trip/Inhibit SW	In AUTO	1	
HPCI Sys Ready Light	ON	V	
HPCI-15, 16, 17, 20	Open	V	
HPCI-14, 25, 19,		V	
21, 57, 58	Closed		
HPCI Flow			
Cont/Tape/Flow	AUTO/4250/<100		
	NORM/Alt Pwr	,,	i
RPS MG A/B Power	Avail.		
Off-Gas Act	Norm Trend	V	
Stack Gas Act	Norm Trend	~	
Ref-2 A/B	AUTO/Opr	U	
SBGT 9KW Htrs EUH-2&4	AUTO	v	
SGT-2A/3A	Open	U	
SGT-1A/B, 2B, 3B, 4A/B, 5		V	
	Closed		
Rx Bldg D/P	-0.25 to -2.0 inches H_2O	~	
TVS-86	Closed	V	
Drywell/Torus D/P	>1.8 psid	U.	
Torus Water Level	OP 2115, Fig 1		

	SM	CRS	STA	CRO	ACRO		ME	REMARKS:	INITIALS
Operations Log						0 00	20	HOCT removed	AR
Switching/Tagging Log								fir of rentro	· Ma
WOR Listing								trem service	
CRP Walkthrough (Note 1 & Note 3)									
Night Order Book									
CR Shift Turnover Cklist									
Tech Spec Sys/Comp Inop Sht									
Surveillance Schedule									
Reviews Completed:									
06-18 SHIFT	A								
18-06 SHIFT		MY_	GALA	aller	010-	Ш			
			-		- ~				

NOTE 1: STA walkthrough to include status check of the Control Room Pyrotronics Panel.

NOTE 2: In the event minimum shift staffing levels cannot be met, actions to be initiated are specified in AP 0894.

NOTE 3: Control Room staff shall contact VELCO whenever abnormal yard conditions exist. (CAR91037OP1)

VYAPF 0152.01 AP 0152 Rev. 22 Page 1 of 1 LPC #5

TECH. SPEC./TECHNICAL REQUIREMENTS MANUAL SYSTEMS/COMPONENTS INOPERABLE

SYSTEM/COMPONENT	TECH. SPEC./TRM PARAGRAPH	DATE/TIME DECLARED INOPERABLE	UNPLANNED LCO	OPERATIONS REQUIRED LOGGING, TESTING OR OTHER ACTION (ER970390_03)	ALLOWABLE TIME INOPERATIVE	DATE/TIME DECLARED OPERABLE	SM/CRS INITIALS INOP OP
HPCI	3.5.E. 2	Today 0500		ROIC admin OP-yes	14 days		Def
		*					0
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VYAPF 0152.02 AP 0152 Rev. 22 Page 1 of 1 Scenario

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		te S):	oN) bənned (No	Evolutions in progress or Plant Startu
	stirmed operable-xes	<pre>/ketc opera (Note 1): (Note 1):</pre>	ut of Service	Significant Equipment O HocL - RCC ADS/
HP Clock (Note 3)	160 Rx Pressure: 948	Rx Water Level:	%02	Plant Status: Rx Power_
		Night		Mode Switch Position:
	SEING CHECKFIST	SHIFT BRIF	(0	

	Previous twelve hour full power average during steady state operation >1592 MWt?
7010 51	Control Room Supervisor
NOTO	Briefing Conducted By:
79 "A" and I them applage	AT 40% power start "C" REP For PMT of Seal
ortups rotzon of motors	AT 45% recirc pump speed tranter the recirc
T I 'NIMI/O	Kaise reactor founds to 90% with Flow at 19
00106301065)	Special Instructions or Considerations (Pertinent Night Orders, Unusual Conditions) (M

Duty Shift Manager

Approved by:

Previous twelve hour tuil power average during steady state operation 2000 for the support. (Startup in progress)

Sec. Shift Supv.			ATS
 Rad. Prot. Tech.		<u></u>	СКО
 Shift Chem Tech.	<u></u>		SM OF CRS
	Spare Shift		
			:səəpuəttA

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OA	<u> </u>			
OA		·····		
ACRO				
ACRO				
ATS			Sec. Shift Supv.	
СКО	<u></u>		Rad. Prot. Tech.	
SM OF CRS		<u> </u>	Shift Chem 1 ech.	

be taken and list those actions. (ER970390_01 & _02) Note I: Include Tech. Spec. Systems/Components entered on VYAPF 0152.02 for which active measures by Operations must

brought to the attention of the Radiation Protection Technician. Note 2: Ensure evolutions that may affect radiological conditions such as HPCI, RCIC, Core Spray and RHR operations are

Note 3: State HP clock number. IF clock has been reset, discuss the event that resulted in the reset.

CFC #2 I to I age I AP 0152 Rev. 22 VYAPF 0152.03

Scenaria 1 CONTROL ROOM TURNOVER SHEET Date: Today Shift: Nights Days (Existing, Annunciators New, Nuisance, Disabled. Restored) NONE that are new Surveillances Done/Due RETE administratively operable - Done D Plant Startup in progress @ 230% NOW B Raise reactor power to 40% with Flow @ 1%/1min B AT 45% recir pump speed transfer control to the master controller AT 40% Power start "C"RFP for Seal PMT. Place "A" RFP in Star (Y) Equipment Out of/Returned to Service April Out of/Returned to Service HPCI - aux oil pump PTL/ACB open - main. is working on a governor oil Leak Rod Sequence Az/Group 64 / Rod 10-27 Other NO RAPID 5/0 Sequence

VYAPF 0152.04 AP 0152 Rev. 22 Page 1 of 1

Form ES-D-2 Required Operator Actions Appendix D Scenario No.: 1 Event No.: 1 Page 1 of 10 Op-Test No.: 1 Event Description: Increasing reactor power from 30% CTP to 40% with flow IAW OP 0105 Applicant's Actions or Behavior Position Time Perform crew brief for the power increase CRS Direct continued power ascension IAW OP 0105 Phase 4 step 24 CRS Request a peer check for the reactivity increase if one is not assigned Raise reactor power with flow 1% CTP/1 Min, For each flow increase: Turns controller 2-184-16-1A/1B manual knob in the clockwise direction Monitors recirc pumps for expected speed increase CRO Directs RBAO to monitor MG lube oil temperatures Maintains pump speeds within 5% of each other Monitors nuclear instrumentation for proper response Monitors feedwater level control system response to the power increase Monitor plant parameters/assist as necessary ACRO Make preparations for second Feedwater Pump start Report recirc speeds at 45% as indicated on controller 2-184-16-1A/1B CRO CRS Direct recirc flow control transferred to master manual control Transfer recirc flow control to master manual control as flows Verify A/B speed > or equal to 45% on 2-184-16-1A/!B • Ensure feedwater low flow interlock is clear (Alarms 9-4-B-6/F-6 Use "D" (Display) button on controllers 2-184-16-1A/B to observe "P" and "S" values Adjust master controller SC-2-184-14 to match the speed on the CRO Individual controllers If necessary adjust the Bias on the second controller to be shifted to match it's speed to the master controllers speed When speed signals are matched transfer to the master Controller by depressing the auto/manual push button on the Individual controllers A(B).

Form ES-D-2 Required Operator Actions Appendix D Op-Test No.: 1 Scenario No.: 1 Event No.: 2 Page 2 of 10 Event Description: Start second Feedwater pump prior to 40% CTP Applicant's Actions or Behavior Time Position Direct startup of "C" Feedwater Pump per Phase 4 section B of OP 0105 CRS Start the second feedwater pump per OP 0105 Phase 4.B Review Phase 2 & 4 Precautions and Administrative Limits Verify both heater strings are in service • Verify Standby Lube Oil pimp in service Close feed pump discharge valve (FDW-4C) Position "C" pump control switch to "Start" ACRO Verify pump breaker closes, discharge valve opens and auxiliary lube oil pump stops Check seal water temp Monitor lube oil and bearing temps until stabilized • Monitor running current (max. 666 amps) Check Bus 3 / 4 undervoltage relay targets CRO Request a peer checker if one is not assigned CRO Observe system flow and reactor level stabilizes Report "C" Feedwater Pump placed in service Place "A" Feedwater Pump in Standby ACRO Control switch placed in "Auto" • Open Feedwater Pump Discharge Valve (FDW-4A)

Appendix	D	Requ	Form ES-D-						
Op-Test I	No.: <u>1</u>	Scenario No.: _	1	Event No.:	3	Page <u>3</u> of <u>10_</u>			
Event De	scription: Inadver	tent RCIC start. E	Electrical sh	nort in low level sen	sing circu	uit (K1 & K2 energize)			
Initial Aut Effects (C	omatic Actions: R 3eneral Sequence	CIC initiation and e): Power and leve	injection, N I increase.	No alarms, except fo Very minor (positiv	or alarm t e reactiv	typer ity addition)			
Time	Position		Applicant's Actions or Behavior						
	CRO / ACRO	Recognize/repo	rt RCIC init	iation and injection	beginnin	g, inform CRS.			
	CRS	Enter/direct action May refer to OT	ons IAW O 3114, "Rea	T 3110, "Positive R actor High Level"	eactivity	Insertion".			
	ACRO	Verifies by two or more independent indications that RCIC initiation is spurious, informs CRS. Secure RCIC Press RCIC Turbine Trip pushbutton Verify turbine trips and RPM decreasing 							
	CRO	Verify reactor po	wer and le	vel return to norma	I.				
CRS HPCI is Inoperable. Declare RCIC Inoperable IAW 3.5.E.3 co shutdown to <150 PSIG within 24 hours. May call 3.5.G.3 Sam Direct I&C investigate cause of failure.						5.E.3 commence a 5.3 Same actions			
CRS Informs Operations Management of 24 hours shutdown LCO						LCO			
			······						
<u></u>									

Required Operator Actions

Op-Test I	No.: <u>1</u>	Scenario No.:1 Event No.:4 Page _4 of _10_							
Event De	Event Description: "B" Recirc Pump lower and upper seal failure								
Cause: W	Cause: Worn seals								
Initial Aut	omatic Actions: Ir	nitially receive alarms 9-4 G-1 & G-2							
Effects (C	Effects (General Sequence): Both seals on the "B" Recirc pump fail requiring pump removal and isolation, increasing drywell temperature/pressure until isolated								
Time	Position	Position Applicant's Actions or Behavior							
		Recognize/take action IAW 9-4 G-2 & G-1, inform CRS							
		Monitor "B" Recirc Pump parameters							
	CRO / ACRO	Determine failure of both pump seals, inform CRS							
	- 10-1	 Monitor Drywell equipment drain sump, temperature and drywell pressure 							
		Enter/direct actions IAW ON 3142, "Recirc Pump Seal Failure"							
		Direct "B" Recirc Pump shutdown and isolation							
	CRS	Enter/direct actions IAW OT 3117, "Rector Instability", and OT 3118, "Recirc Pump Trip"							
		May direct monitoring for reactor instabilities							
		Refer to Tech Spec 3.6.G and direct actions for single loop operation, inform RE							
		Secure and isolate the "B" recirc pump IAW ON 3142							
		Open "B" Recirc Pump MG Set Drive Motor Breaker							
	000	Close suction valve RV-43B							
	CRU	 When suction indicates closed, close discharge bypass valve RV- 54B and discharge valve RV-53B 							
		Direct Aux Operator to secure seal purge IAW OP 2111							
		Determine operating point on COLR Figure 2.4-1							
	CRO	Monitor LPRM readings by selecting STBLTY on ERFIS							
May initiate stability monitoring									

Required Operator Actions

Op-Test N	No: 1	Scenario No : 1 Event No.: 5 Page 5 of 10						
	····							
Event Des	scription: "A" Re	ecirc Pump speed controller failure, pump speed increasing						
Cause: M	aster Controller	r output failure high						
Initial Auto	nitial Automatic Actions: Reactor power rise, alarms 9-5 D-2 & D-3							
Time	Position	Applicant's Actions or Behavior						
	CRO	Recognize/report rising reactor power, inform CRS Recognize/report "A" Recirc Pump speed rising, inform CRS Recognize/take actions IAW 9-5 • Monitor flow and power to confirm control rod blocks						
	CRS	 Enter/direct actions IAW OT 3110, "Positive Reactivity Insertion" Direct the manual control of "A" Pump controller 						
	CRO	 When directed adjust speed of "A" Recirc Pump to 50-70% Place pump controller in "Manual" by depressing the auto/manual controller push button on controller 2-184-16-1A adjust pump speed by turning the manual knob on 2-184-16-1A to adjust pump speed to 50-70% speed Do not exceed 1% CTP/min power change 						
	CRS	Contact I&C and inform them of the recirc flow controller failure						
	ACRO	Monitor RPV level pressure and power for return to normal Assist as necessary						
	·······							

Required Operator Actions

On-Test N	lo · 1	Scenario No.: 1 Event No.: 6 Page 6 of 10							
Event Des	Event Description: Loss of 480 VAC Bus 8								
Initial Auto	omatic Actions: H	aif scram, PCIS Group 3 isolation, multiple alarms							
Time	Position	Applicant's Actions or Behavior							
		Recognize/take actions IAW 9-5 K-1, inform CRS							
	CRO / ACRO	 Recognize half scram and PCIS GP 3 isolation 							
		Recognize loss of 480 VAC Bus 8							
		Take actions for loss of Bus 8							
		Direct identification of lost loads							
		Direct backup of PCIS GP 3							
		Refer to Tech Spec 3.5.B							
	CRS	Determine 7 day LCO required. B EDG INOP IAW OP 2143 Precaution g							
		Tech Spec 3.10.A.4. Buses 3. 4. 8. 9. energized and operable							
		No action statement							
		 Recommend a 24 hour cold shutdown IAW AP 0151 page 5 							
		responsibility 23. As Time permits or by follow-up questions							
		Direct troubleshooting/repair							
		Determine the following loads lost on Bus 8, inform CRS							
		Drywell RRUs							
		A RPS half scram							
		PCIS GP 3 Isolation							
		B BBCCW nump							
	CRO / ACRO	A TBCCW pump							
		• BRHR							
		• BCS							
		B SBGT							
		Stack Flow Indicator FT-108-22 ODCM Table 3.1.2							
	CRO	B SBLC pump							
· ·		Stack Gas I, II indication loss							
		Loss of RWCU (CU-15 loss of power)							
	ACKU	Vital MG Set swap to DC drive							
		Loss of RCIC (RCIC-15 loss of power)							

Required Operator Actions

Op-Test N	lo.: 1	Scenario No.: 1	Event No.:	6 (cont'd)	Page	7	of	10	
		Backup Group 3 isolation IA	N posted Ope	rator Aid					
		CRP 9-3	CR	P 9-26					
		AC-8, DRYWELL PURGE	HV	AC-9, RB VENT S	UPPLY				
		AC-7A, DRYWELL VENT	HV	AC-10, RB VENT	SUPPLY				
		AC-6A, DRYWELL 3" VENT	HV	AC-12, RB VENT	EXHAUST				
		AC-20, N ₂ MAKE-UP	HV	AC-11, RB VENT	EXHAUST				
		AC-10, TORUS PURGE	RB	supply/exhaust fa	ins off				
		AC-7B, TORUS VENT	RS	F-1A off REF	-1A off				
		AC-6B, TORUS 3" VENT	RS	F-1B off REF	-1B off				
		AC-9, AIR PURGE SUPPLY							
		AC-22B, DRYWELL MAKE-UP	CR	P 9-25					
	ACRO	SGT-6, VENT TO SBGT	SB	SBGT					
		AC-23, N2 FORGE SUPPLI AC-7, VENT TO RTF-5	RE	F-2A on F-2B on					
		AC-22A, TORUS MAKE-UP							
		CA-38A, CTMT COMPR SUCT	CR	P 9-47					
		CA-38B, CTMT COMPR SUCT	VG	-26, CAM SUPPL	Y INBD				
			VG	-76A, CAM RETU	RN INBD				
			VG	-23, CAM SUPPL	Y OUTBD				
			VG	-76B, CAM RETU)			
			CA	D Panel "A"					
			NG	11A, 12A, 13A					
			VG	22A, 9A					
	CRS	Direct drywell RRUs restarte	d	· · · · · · · · · · · · · · · · · · ·					
		Restart drywell RRUs	····	· • • • • • • • • • • • • • • • • • • •					
	ACRO	• CRP 9-25 RRU 3	A/B control sw	itch to A&B ru	n				
		• CRP 9-25 RRU 4	A/B control sv	itch to A&B ru	n				

ppendix I	D	Required Operator Actions Form ES-D						
Op-Test I Event De	No.: <u>1</u>	Scenario No.: <u>1</u> Event No.: <u>7</u> Page <u>8</u> of <u>10</u> eak in drvwell – emergency depressurization						
Cause: "/	A" MSL 18 inch pi	pe rupture between reactor vessel and flow restrictor						
Initial Aut	omatic Actions: H	ligh drywell pressure scram						
Effects (0	Seneral Sequence	Slowly rising drywell pressure to scram setpoint then rapid increase						
Time	Position	Applicant's Actions or Behavior						
		Recognizing rising drywell pressure, inform CRS						
		Check backpanel indications						
		Recognize/take actions IAW 9-5 G-1 & F-1						
		Check for leaks						
	CRO / ACRO	Maximize drywell cooling						
		 MCA keylock to bypass on CRP 9-25 						
		 CRP 9-25 RRU 3A/B control switch to A&B run. (already done) 						
		CRP 9-25 RRU 4A/B control switch to A&B run. (already done)						
		Enter/direct actions IAW OT 3111, "High Drywell Pressure"						
	CRS • Direct power reduction/transfer house loads/manual scra							
		Direct manual scram per OT 3100 and enter/direct actions IAW EOP-1 and 3.						
		Insert manual scram when directed/recognize automatic scram on high drywe pressure, inform CRS.						
		Press manual scram pushbuttons						
		Depress PB 1 on feedwater master controller CRP 9-5						
		Reactor mode switch to shutdown CRP 9-5						
		Insert IRMs/SRMs on CRP 9-5						
	CRO	Select IRM recorders on CRP 9-5						
		Report reactor power <2%						
		Report all control rods inserted						
		After verifying the RPV is recovering leave one RFP running, and						
		place one in standby, and one in pull to lock CKP 9-0						
		Verify closed scram discharge vent and drain valves (o) on CRP 9-5						
		Recognize/report EOP-1 and 3 entries on high drywell pressure.						
		Monitor and report RHR, CS, EDG and SBGT initiations and PCIS GROUP 2 3. noting failures from previous power failure						
	ACRO	Group II valve switches to the closed position						
		I RW 82/83/94/95 on CRP 9-4						

Op-Test N	lo.: 1	Scenario No.: 1 Event No.: 7 (cont'd) Page 9 of									
Time	Position		Applicant's Actions or Behavior								
	ACRO	Close MSIVs to control of auxiliaries. Attempt reactor pressure with MSIVs closed. Report drywell/torus pre-	cooldown rate if nec e control below 1055 ssure trending up to	essary due to 5 psig, report p 10 psig.	steam flow from pressure lowering						
;	CRS	Direct Torus Sprays on '	'A" RHR loop before	torus pressur	e reaches 10 psig.						
	ACRO	Spray the torus a Spray the torus a Place A and D RHF OR B and C RHF Close/verify of Verify adequa demand. Verify no mod IF a LPCI initiation signal AUTOSTOP OVERRIDE (3-M-2 will annunciate). Start RHRSV When conditions permit, If necessary, adjust RHF Maintain RHF Maintain RHF IF reactor water level is turn the RHR to MAN. Open TORU	A RHR loop before as directed R pumps in PULL TO closed HX BYPASS ate SW pumps are of re than one SW pum al is present, THEN p SWITCH keylock s V pump A or C verify RHRSW pum RSW DISCHARGE, RSW heat exchange RSW heat exchange RSW pressure great greater than TAF, T A/C LOGIC CTMT	D LOCK. D LOCK. RHR-65A operating to hat operating to hat	e reaches to psig. Indle RHRSW pump y mode. PP A&C LPCI JAL OVERRD er flow is 3 – 6 gpm. ollows: 3140 gpm. d above RHR						
	CRS	Direct drywell sprays wit DWSIL graph • Verify torus le • Verify safe or • Verify RRUs	h "A" RHR loop befo evel < 22.8 ft and in n DSIC tripped or order shu	ore reaching "U "Safe" tdown	Jnsafe" region of						

Required Operator Actions

Op-Test N	lo.: <u>1</u>	Scenario No.:1 Event No.:8 Page _10 _ of _10					
Event Des	scription: Drywell	spray valve does not open					
Cause: Co	Cause: Containment spray valve mechanically binds in the closed position						
Initial Auto	omatic Actions: N	J/A					
Effects (G	eneral Sequence	a): Valve will not onen from Control Room					
Time	Position	Applicant's Actions or Behavior					
		Place "A" RHR loop in Drywell spray per OP 2124, Appendix C					
		Open RHR-31A					
	ACRO	Open RHR-26A					
		 Recognize loss of valve position indication when drywell spray valve opened 					
		Report inability to open RHR-26A					
		Direct ACRO to coordinate with Aux Operator to locally open RHR-26A loop spray valve					
		 Recognize RHR-26B not available due to bus loss 					
СТ	CRS	Recognize torus level/pressure cannot be maintained in the "safe" region of PSP graph or drywell temperature cannot be maintained below 280°F, Exits EOP-1, RPV pressure leg, enter/direct actions IAW EOP-5					
		 Direct rapid depressurization with bypass valves. May go direct to Emergency Depressurization 					
	ACBO	 Open bypass valves by going to raise on the bypass opening jack on CRP 9-7 					
	ACRO	 Do not exceed 40% steam flow as indicated on CRP 9-5 steam flow indicators 					
		Perform an Emergency Depressurization when directed					
		Prevent injection from CS and RHR Pumps:					
		 Core spray A/B pump control switches pull to lock 					
		 RHR A/B/C/D pump control switches pull to lock 					
		Open all SRVs on CRP 9-3					
	ACRO	RV-71A switch to open					
		RV-71C switch to open					
		RV-71B switch to open					
		RV-71D switch to open					
		Report Aux Operator is able to manually open "A" RHR Drywell Spray valve					
		 Recognize/report lowering drywell pressure once valve is open if RHR A loop pumps are running at that time. 					
	0.00	Classify event IAW AO 3125					
		Alert per A-3-b/A-3-a					

Appendi	(D		·····	Scenario Outline	Form ES-D-1	
Facility: Examine	Vermont Vers:	rankee	e (new)	Scenario No.: Operators:	2 Op-Test No.: ACRO	
Objectives: Evaluate the crew's ability to transformers during closed off-site power source, and Recognize a stuck FWRV a and respond to an LPRM u vacuum, ATWS, and SLC s			i's ability ng closed irce, and k FWRV n LPRM (and SLC	to operate plant equipment in re d cycle operation. Evaluate the commence a plant shutdown to and take actions to avert a high upscale failure. Recognize and system failures.	CRS esponse to a loss of the startup Technical Specification for a loss of one ensure NPDES compliance. reactor water level scram. Recognize respond to a loss of main condenser	
Initial Co	onditions: IC-9,	100%	power, p	preparing to chlorinate the Circ V	Vater System	
Turnove	er: See Attached	d "Shift	Turnove	er" Sheet		
Event No.	Malf. No.	Ever	nt Type*		Event Description	
1		N	ACRO CRS	Place CW in Closed Cycle for chlorination		
2	Key 1 ED-02A	с	ACRO CRO CRS	Loss of Startup Transformers		
3	Preinsert FW-09A ANN Failure 9-5-E-2	R C	CRO CRS	Power Reduction with stuck F Soft panel FRV A lockup red I	eedwater regulating valve ight out	
4	Key 2 NM2-24-41B NM5D 97%	1	ACRO CRO CRS	LPRM upscale failure, APRM APRM D failure is Automatica bypassed	D upscale Ily deleted when LPRM 24-41B is	
5	Key 3 MC-8 7%	с	ACRO CRO CRS	Main Condenser air inleakage	(minor)	
	Key 3 modify MC-8 50% 120 Sec	м	ACRO CRO CRS	After control rod insertion for e Main Condenser large air Lea Loss of Vacuum Turbine Trip	event 5 has started. ak / LNP	
6	Preinsert RD 12A 69% RD 12B 74%	м	ACRO CRO CRS	Hydraulic ATWS / Level Powe	er Control	
7	Preinsert SLO1 A SLO2 B	с	CRO CRS	SLC A Pump Failure / B Squit	o Failure	
	Bypass APRM A Preinsert NM-06A			APRM A INOP, Bypass APRM	A prior to insertion	
* (N)or	mal, (R)ead	ctivity		(I)nstrument, (C)omponen	t, (M)ajor	

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SIMULATOR OPERATOR INSTRUCTIONS FOR SCENARIO (#2)

GENERAL REQUIREMENTS

- > All chart recorders will be rolled forward, timed and dated.
- Paper from selected chart recorders will be saved for the examination team as requested.
- > All procedures, flow charts, curves, graphs, etc., will be returned to their normal storage place and closed.
- > All markable procedures, boards, etc., will be erased.
- > All paper used by the previous crew will be removed and kept for the examination team as requested.
- The simulator operator, or designated person, will keep a rough log of all communications into and out of the "control room " during the scenario as requested by the examination team.

INITIAL SETUP

- > IC-9 Summer Time IC-Hybrid Cycle
- > APRM A INOP and bypassed

DURING THE SCENARIO

The examination team will determine when each event is to be inserted and when to "freeze" and will inform the simulator operator.

- EVENT 1 If asked, chemistry is chlorinating service water. When asked if weir is overflowing:
 - if level is > 225 ft, yes
 - if level is < 225 ft, no
 - When directed report traveling screens in off and service water strainer breakers open
- EVENT 2 OSAO when asked report MOD T-3 open on all 3 phases, and visible damage to the startup transformers. If chemistry is asked, no chlorine has yet been added to the circ water system
- EVENT 3 If TBAO is sent to the "A" FWRV report no obvious damage is visible. If the crew recommends "locking up" the A FWRV direct them as Operations Management to transfer control to local manual and lock up the valve.

- EVENT 4 If reactor engineer is asked about bypassing LPRM 24-41B, inform them that as long as Technical Specifications are satisfied it can be bypassed. When LPRM 24-41B is bypassed verify that APRM D failure (NM05D) automatically deletes itself. If not delete it manually.
- > **EVENT 5** No cause for the main condenser air leak will be found
- EVENTS 7 & 8 Squib valve "B" (this infers an SLC switch failure)

TERMINATION

- SLC injecting
- > RPV level controlled > -19"
- > Control rod insertion in progress
- > Containment parameters under control
- > Exam Team directs

SIMULATOR OPERATOR INSTRUCTIONS FOR SCENARIO (#2) (con't)

Event No.	Malf. No.	Even	it Type*	Event Description
1		N	ACRO CRS	Place CW in Closed Cycle for chlorination
2	Key 1 ED-02	С	ACRO CRO CRS	Loss of Startup Transformers
3	Preinsert FW-09A ANN Failure 9-5-E-2	R C	CRO CRS	Power Reduction with stuck Feedwater regulating valve Soft panel A FRV lockup light out
4	Key 2 NM2 24-41B NM6D		ACRO CRO CRS	LPRM upscale failure, APRM upscale failure
5	Key 3 MC-8 7%	С	ACRO CRO CRS	Main Condenser air inleakage (minor)
6	Key 4 MC-8 50% 120 sec	м	ACRO CRO CRS	Main Condenser large air Leak Loss of Vacuum Turbine Trip / LNP
7	Preinsert RD 12A 69% RD 12B 74%	М	ACRO CRO CRS	Hydraulic ATWS / Level Power Control
8	Preinsert SLO1 A SLO2 B	с	CRO CRS	SLC A Pump Failure / B Squib Failure

SHIFT TURNOVER (#2)

PLANT CONDITIONS:

- Approximately 100% powerRapid shutdown sequence is latched

INOPERABLE EQUIPMENT/LCOS:

• APRM A is INOP and bypassed

SCHEDULED EVOLUTIONS:

- Place Circ Water in closed cycle for chlorination after relieving the watch
 Service water is to be chlorinated also

SURVEILLANCES DUE THIS SHIFT:

None

ACTIVE CLEARANCES:

• N/A

GENERAL INFORMATION:

Scenorio Z

CONTROL ROOM SHIFT TURNOVER CHECKLIST

Parameter/	Allowable	Che	cks
Component	Cond/Limit	06,	18
Vernon Bus Tie	3900-4500 v	V	-
DG A/B	No Alarms/Opr		
DG Volt Req	8 White Lights		
DG A/B ACB's	Operable	~	
DG A/B BKR CONT SELECT			
Switches	In REMOTE		
Bus 8/9	435-506 v	~	_
Bus 3/4	3700-4400 v		
Other 4KV ACB's	Opr	~	
S/U Transformer	Energized	\mathbf{V}	
Aux Transformer	Energized		
Cond Backpress	1-5 in HgA	V	
SW PPs A/B/C/D	Operable		
Cond Sys	Operable		
Feed Sys	Operable	V	
CST Level (ER20001509_06)	20-90%	~	
Inst. Air Press	95-107 psig	V	
Rx Water Level	155-165 inches	V	
Rx Press	950-1030 psig	V	
Rx Power	≤1593 MWt		
SLC Sys	No Alarms/Opr	V	
SLC Tk Level	81-92%		
SLC-18	Open	V.	
SLC Squib A/B	Energized		
SLC PP A/B	Operable	V	
SDV Level	~0	V	
APRM/IRM/SRM/RBM Byp Sw		AVA	
(ER960026_03)	Neutral Position	NO	
Scram Air Press	70-75 psig	V	
RCU Sys	No Alarms/Opr	V	
RCU Inlet Cond	<1 µmho/cm	V	
CU-15, 18, 68	Operable	1	
RCIC Sys	No Alarms/Opr		
RCIC-15,16,18,20	Open/Opr		
RCIC-131,27,30,21,41,39	Closed	1	
RCIC T/T and Gov	Open		
RCIC Flow Cont/Tape/Flow	AUTO/400/<10	V	
MSIVs, MS-74, 77	Operable		
Pri Cont Vent Iso Valves	Operable		
SV-70A/B Ind	Closed		
Relief Valves	No Alarms/Opr	1	
ADS Bypass Switch	NORMAL Pos.		

Parameter/	Allowable	Che	ecks	
Component	Cond/Limit	06	18	
CS A/B Sys	No Alarms/Opr	ν.		
CS-7 A/B	Open			
CS PP A/B	AUTO/Opr			
CS-5 A/B, 11 A/B	Open	V		
CS-26 A/B, 12 A/B	Closed			
CS FI-14-50A/B	±500 gpm	1		
RHR Sys	No Alarms/Opr	V.		
RHR PP A/B/C/D	AUTO/Opr			
RHR-13 A/B/C/D	Open			
RHR-25 A/B	Open	<i>V</i> .		
RHR-65 A/B	Open			
RHR-16A/B	Open	V		
Other RHR RHRSW VIvs	Closed			
RHR FI-10-139A/B	±1500 gpm	<		
Torus Water Temp	≥50 - <87.3°F			
HPCI Sys	No Alarms/Opr	~		
HPCI Turb Trip/Inhibit SW	In AUTO	<		
HPCI Sys Ready Light	ON	V		
HPCI-15, 16, 17, 20	Open	4		
HPCI-14, 25, 19,				
21, 57, 58	Closed	V		
HPCI Flow		1		
Cont/Tape/Flow	AUTO/4250/<100			
	NORM/Alt Pwr			
RPS MG A/B Power	Avail.			
Off-Gas Act	Norm Trend			
Stack Gas Act	Norm Trend			
Ref-2 A/B	AUTO/Opr	V		
SBGT 9KW Htrs EUH-2&4	AUTO	V		
SGT-2A/3A	Open			
SGT-1A/B, 2B, 3B, 4A/B, 5				
	Closed			
	-0.25 to -2.0 inches	1		
Rx Bldg D/P	H ₂ O			
TVS-86	Closed	/		
Drywell/Torus D/P	>1.8 psid	-		
Torus Water Level	OP 2115, Fig 1			
		<u> </u>	L	
		<u> </u>	L	
			L	

	SM	CRS	STA	CRO	ACRO	TIME	REMARKS:	INITIALS
Operations Log						0500	APRM"A" IN	of See
Switching/Tagging Log						0000	d lunara I	``` ₩ ₽
WOR Listing						6	INA BYPASSED	
CRP Walkthrough (Note 1 & Note 3)								
Night Order Book								
CR Shift Turnover Cklist								
Tech Spec Sys/Comp Inop Sht								
Surveillance Schedule								
Reviews Completed:								
06-18 SHIFT								
18-06 SHIFT	10m	121	TENT	1 Km	out			
		ļ	7		'			

NOTE 1: STA walkthrough to include status check of the Control Room Pyrotronics Panel.

NOTE 2: In the event minimum shift staffing levels cannot be met, actions to be initiated are specified in AP 0894.

NOTE 3: Control Room staff shall contact VELCO whenever abnormal yard conditions exist. (CAR91037OP1)

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TECH. SPEC./TECHNICAL REQUIREMENTS MANUAL SYSTEMS/COMPONENTS INOPERABLE

SYSTEM/COMPONENT	TECH. SPEC./TRM PARAGRAPH	DATE/TIME DECLARED INOPERABLE	UNPLANNED LCO	OPERATIONS REQUIRED LOGGING, TESTING OR OTHER ACTION (ER970390_03)	ALLOWABLE TIME INOPERATIVE	DATE/TIME DECLARED OPERABLE	SM/CRS INITIALS INOP OP
APRM "A"	Table 3.1.1	Today 0500		NONE	Indef		1K
	TRM 3.2.5	Todaylosos		NONE	Indef		AK
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		·					
			· · ·				

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Scenario Z

Scenario Z
SHIFT BRIEFING CHECKLIST Mode Switch Position: Rup Date: Today Shift: Day Night
Plant Status: Rx Power 100% Rx Water Level: 160" Rx Pressure: 1005 HP Clock (Note 3) 10
Significant Equipment Out of Service (Note 1): APRM A - INOP and Bypassed
Evolutions in progress or planned (Note 2): //ace CW in closed cycle chlorinate CW and SW Special Instructions or Considerations (Pertinent Night Orders, Unusual Conditions) (MOOID93010P2)
Briefing Conducted By: Control Room Supervisor
Previous twelve hour full power average during steady state operation >1592 MWt?
\mathbf{X} Yes $\mathbf{\nabla}$ No $\mathbf{\nabla}$ N/A If no and unplanned, notify the Supervisor, Operations Support.
Attendees:
Spare Shift
SM OR CRS Shift Chem Tech
CRO Rad. Prot. Tech.

Duty Shift Manager

STA

ACRO

ACRO AO AO AO

Approved by:

Note 1: Include Tech. Spec. Systems/Components entered on VYAPF 0152.02 for which active measures by Operations must be taken and list those actions. (ER970390_01 & _02)

Sec. Shift Supv.

- Note 2: Ensure evolutions that may affect radiological conditions such as HPCI, RCIC, Core Spray and RHR operations are brought to the attention of the Radiation Protection Technician.
- Note 3: State HP clock number. IF clock has been reset, discuss the event that resulted in the reset.

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Scenario Z CONTROL ROOM TURNOVER SHEET Date: Today Shift: Day Nights Annunciators (Existing, New, Nuisance, Disabled, Restored) NO NEW ANNUNCIATORS Surveillances Done/Due NONE Evolutions/Transients in closed cycle place cw in closed cycle Chlorinate CW and SW Equipment Out of/Returned to Service APRM "A" INOP and bypassed Other

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Appendix D		Required Operator Actions Form ES-D-
Op-Test No.: <u>1</u> Event Description: Place C		Scenario No.: <u>2</u> Event No.: <u>1</u> Page <u>1</u> of <u>12</u> CW in closed cycle for chlorination
Time	Position	Applicant's Actions or Behavior
	CRS	Direct traveling screens to off, service water strainer breakers opened and circ water placed in closed cycle for chlorination
	CRO	Review prerequisites and admin limits to ensure they are satisfied
	CRO	Verify all CW and CWB pumps running Verify sufficient fans o to maintain condenser vacuum 1.0 to 5.0 inches
	CRO	Call Chemistry to determine if service water will also be chlorinated
	CRO	Request a peer check
	CRO	 Open recirc gate to > 70% Recirc gate switch on CRP 9-6 positioned to open and held (Throttle) Position verified >70% on CRP 9-6 PI-104-3 Recirc gate switch released
	CRO	Verify wier level < 225 ft (LI-104-10-1) on CRP 9-7
	CRO	Direct an AO to check CW-7 open sufficiently to ensure no flow over of weir
	CRO	 Close/check closed all intake gates A intake gate control switch positioned to closed on CRP 9-6 B intake gate control switch positioned to closed on CRP 9-6 C intake gate control switch positioned to closed on CRP 9-6 Intake gates verified closed on CRP 9-6 POI-104-1A POI-104-1B POI-104-1C
······	ACRO / CRO	Verify backpressure < 5.0" (monitor backpressure)

Required Operator Actions

Op-Test Nc Event Desc	xiption: Loss of	Scenario No.: <u>2</u> Event No.: <u>2</u> Page <u>2</u> of <u>12</u> f Startup Transformers
Time	Position	Applicant's Actions or Behavior
	ACRO	Diagnose and report loss of startup transformers
	CRS	Enter ON 3150, Loss of Startup Transformers
	CRS	Send an operator to the relay house to complete VYOPF 2141.01/02. Verify MOD T-3 open. Visually inspect startup transformers.
	CRS	 Consult Technical Specifications 3.10.A.4, 3.10.B.3, 3.5.D.C Within 1 hour verify Main Transformer backfeed is available – observation of plant status Enter 7 day LCO IAW 3.10.B.C
	CRS	Direct voltages checked on Bus 3, 4, 8, 9, on panel meters and ERFIS
	ACRO	Check voltages on Bus 3, 4, 8, 9 as directed Bus 8 EI-9-8-27 Bus 9 EI-9-8-28 Bus 3 Bus 4
	SE	Check voltages on Bus 3, 4, 8, 9, on ERFIS (ECCS status screen)
	CRS	Direct EDG availability checked
	ACRO	Check CRP 9-8 for normal standby conditions (no EDG alarm)
	CRS	Direct Circ Water shifted to open cycle

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Required Operator Actions

Op-Test No	.: 1	Scenario No.: 2 Event No.: 2 (cont'd) Page <u>3</u> of <u>12</u>
		Shift Circ water to open cycle
	1	 Inform Chemistry proceeding to open cycle
		Open intake gates to 100%
		 A intake gate control switch positioned to open on CRP 9-6
		 B intake gate control switch positioned to open on CRP 9-6
		 C intake gate control switch positioned to open on CRP 9-6
		Intake gates verified open on CRP 9-6
		• POI-104-1A
	-	• POI-104-1B
	ACRO	POI-104-1C Fully along the matrix mate
	ACRU	Fully close the recirc gate
		• Recirc gate switch on CRP 9-6 positioned to closed and held (Throttle)
		 Position verified 0% on CRP 9-6 PI-104-3
		Recirc gate switch released
		Fully lower bypass gates (A & B)
		Bypass gate A control switch to open on CRP 9-6
		Bypass gate B control switch to open on CRP 9-6
		Monitor fore-bay level on LI-104-2A on CRP 9-6
		Monitor fore-bay level on LI-104-2B on CRP 9-6 Monitor ERELS and report NDDES status
	CRS	Notify DCO and Operations Manager
	CRS	Direct power reduction to < 25 CTP at \leq 10%/minute to 27.0 to 27.5 mlbm/hr
	CREW	Monitor river temperature points MO36/MO37
	ACRO/CRO	Notify ISO New England of power reduction
		Brief crew on plant status
	 < 25% CTP as soon as possible Hot shutdown in 24 hours Unusual Event on Loss of Startup Transformers Startup Transformer status 	 < 25% CTP as soon as possible
		Hot shutdown in 24 hours
		Onusual Event on Loss of Startup Transformers Startup Transformer status
		Startup Hansionner status Potential I NP on a reactor scram
	CRS	Request maintenance point of contract assigned
	CREW	Direct Chemistry technician notify stake holders of unplanned power reduction
	CREW	Contact ISO/VELCO, inform them of power reduction
	CRS	Direct stability monitor verified operable
		Reduce recirc pump speed to a core flow of 27.0 to 27.5 mlbms/br at the rate
	CPO	directed by the CRS
	UKU	Turns controller 2-184-16-1A/1B manual knob in the counterclockwise direction on CRP 9-5
	ACRO	Adjust speed load changer per Figure 2 of OP 0105

Required Operator Actions

Op-Test N	lo.: <u>1</u>	Scenario No.:2 Event No.:3 Page _4 of _12				
Event Description: Power re		eduction with a stuck feedwater regulating valve				
Time	Position	Applicant's Actions or Behavior				
	CRO	Report increasing reactor level				
	CRS	Direct power reduction stopped until reactor level can be stabilized				
	CREW	Check actual FRV positions on ERFIS. Determine "A" FRV is not responding.				
	CRS	Contact Operations Management and recommend actions to deal with the stuck FWRV				
	CRS	Brief crew on plans to deal with stuck feedwater regulating valve				
	CRS	Direct the A FWRV transferred to individual manual and then to local manual Control and locked up				
	CRO	 Transfer the A FWRV to individual manual control as follows: Press the display push button on FDW 12A individual controller Compare the "S' and "V" signals Verify the "S" and "V" signals are matched Depress the A/M push button on the FDW 12A controller Verify the green auto Led goes out on the FDW 12A controller Verify the red manual Led comes illuminates on the FDW 12A controller Then direct an AO to establish communications with the control room and take local manual control of the A FWRV in accordance with OP 2172 				

Required Operator Actions

Op-Test N	lo.: <u>1</u>	Scenario No.: 2 Event No.: 4 Page <u>5</u> of <u>12</u>		
Event Des	Event Description: LPRM Upscale Failure, ½ scram RPS			
Time	Position	Applicant's Actions or Behavior		
	CRO	Report LPRM 24-41B upscale failure, APRM D hi hi, ½ scram		
	CRS	Direct ACRO check LPRM 24-41B on back panel		
	CRS	May direct APRM "D" bypassed at this time and the ½ scram reset, if not it will be done in the subsequent steps		
	ACRO	Check and report LPRM 24-41B failed upscale and APRM D reading 120%		
	CRS	Direct LPRM 24-41B bypassed in accordance with ARS-9-5-M-1/M-3/N-7 OP 2456		
	ACRO/CRO	 Obtains OP 2456 Notifies Shift Manager of APRM Rod block specification in TRM Table 3.2.5 not satisfied with APRMs A & D bypassed Record time of bypass Bypass LPRM 24-41B and verify bypass light on Reports APRM "D" returned to normal Determine APRM GAFs are/are not required Return APRM D to service Record time APRM D returned to service 		
	CRS	Enters control rod block LCO of TRM 3.2.5		
	CRS	Directs 1/2 scram reset if not already done		

Required Operator Actions

Op-Test N Event Des	lo.: <u>1</u>	Scenario No.: 2 Event No.: 5 Page 6 of 12 Condenser Air Inleakage
Time	Position	Applicant's Actions or Behavior
	CREW	Report increased AOG flow/lowering condenser vacuum
	CRS	Enter ON 3120, High Condenser Backpressure, and direct actions
	ACRO	 Verify all circ water and circ water booster pumps running on CRP 9-6 Circ water pump A red light on Circ water pump B red light on Circ water pump C red light on Circ water Booster pump A red light on Circ water Booster pump B red light on Circ water Booster pump C red light on Circ water Booster pump C red light on
	ACRO	Verify 516 A open/throttled
	ACRO	Verify steam seal pressure > 1 psig on PI-101-7 on CRP 9-7
	CRS	Direct core flow reduced t 29.5 to 29 mlbm @ less than or equal to 10% CTP/Min •
	CRO	 Reduce core flow to 27.5 to 29.0 mlbm as directed Master flow controller on CRP 9-5 rotated counter clockwise
	CRO	Report increasing RPV level
	Crew	Diagnose/recall the "A" FRV as stuck using ERFIS, hold power reduction until RPV level is controlled
	CRS	Direct ACRO to monitor reactor level due to stuck FRV
	ACRO	Monitor and control RPV level as directed
	CRS	Direct control rods inserted to maintain backpressure < 5"
	CRO	 Insert control rods as directed (Rapid S/D seq) Turn on select power Depresses select button for control rod Drives control rod in with continuous insert to to insert limit of the rapid shutdown sequence Selects next rod in sequence and repeats step
	CRS	Brief crew that if a scram is necessary and LNP will occur causing a Loss of Feedwater/Condensate/MSIVs

	Ap	pend	dix D
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Required Operator Actions

Op-Test N Event Des Power	lo.: <u>1</u> scription: Main Co	Scenario No.: <u>2</u> Event No.: <u>6</u> Page <u>7</u> of <u>12</u> ondenser large air inleakage, Loss of Vacuum, Turbine Trip, Loss of Normal
Time	Position	Applicant's Actions or Behavior
	CRS	Direct manual scram prior to 6.5" vacuum
	CRO	Scram the reactor as directed
	CRO	Attempt manual scram, report partial rod motion, reactor power >2%
·······		· ·

Required Operator Actions

Op-Test N	lo.: <u>1</u>	Scenario No.:2 Event No.:7 Page <u>8</u> of <u>12</u>
Event Des	scription: Hydrau	lic ATWS / Level power control
Time	Position	Applicant's Actions or Behavior
	CRO	Initiate ARI/RPT
	CRO	 Trip recirc pump drive motor breakers Scram response Depress PB 1 on feedwater master controller CRP 9-5 Reactor mode switch to shutdown CRP 9-5 when steam flow <40% Insert IRMs/SRMs on CRP 9-5 Select IRM recorders on CRP 9-5 Report reactor power when RPV level reaches 90" Report when reactor power is <2% After verifying the RPV is recovering leave one RFP running, and place one in standby, and one in pull to lock CRP 9-6 when reactor power/steam flow allows Verify closed scram discharge vent and drain valves (6) on CRP 9-5
	CRS	Enter EOP-1 Direct Table A automatic action confirmed
СТ	CRS	 Enter EOP-2 and direct: ADS inhibited Reactor mode switch to shutdown when steam flow is < .5 mlbm/hr Confirm ARI/RPT
СТ	ACRO	 Inhibit ADS Logic A inhibit collar depressed and rolled clockwise on CRP9-3 Logic B inhibit collar depressed and rolled clockwise on CRP9-3
	STA	Confirm Table A when directed
СТ	CRS	Direct injection into the RPV terminated IAW OE 3107 Appendix GG

Op-Test N	lo.: 1	Scenario	No.: 2	2	Event No .:	7 (cont'd)	Page 9 of	12
		Terminate	injection IA	N OE 310)7 Appendix (G G		
		•	3 clockwise	l by depr	essing and ro	tating the inni	bit collar on Ch	KP 9-
		Inhibit RH	R/CS by plac	cing conti	ol switches o	n CRP 9-3 in	pull to lock	
		•	RHR A					
СТ	ACRO	•	RHR B					
		•	RHR D					
		•	CS A					
		Inhibit fee	сов dwater and c	ondensa	te by placing			
		•	RFP A/B/C	on CRP	9-6 pull to loc	k		
	<u> </u>	•	FWRV A/B	shut usin	g feedwater	master contro	ller	
СТ	CRS	Continue	o lower RPV	level un	til reactor pow	/er is < 2%		
СТ	CRS	Direct bor	on injection b	pefore tor	us temperatu	re is > 110°F	· · · · · · · · · · · · · · · · · · ·	
					<u> </u>			
					·····			
			<u></u>					
			<u></u>			······································	·	
							····	
							1 18 11 - 20 m.	

Appendix D)	Required Operator Actions Form ES-D-2		
Op-Test N Event Des	lo.: <u>1</u> scription: SLC "/	Scenario No.: 2 Event No.: 8 Page 10 of 12 A" Pump failure, "B" Squib failure, (ATWS Continuing)		
Time	Position	Applicant's Actions or Behavior		
	CRO	Inject boron SLC control switch on CRP 9-5 to SYS1 or SYS 2 Confirm pump start by red light for pump on CRP 9-5 Verify RWCU isolates on CRP 9- 4 CU 15 shut by green light only on CRP 9- 4 CU 18 shut by green light only on CRP 9- 4 CU 68 shut by green light only on CRP 9- 4 Verify squib valve fires by Amber light out of CRP 9-5 ANN 9-5-A-1 squib continuity loss Discharge pressure on CRP 9-5 PI-11-65 do not indicate the pump dead headed Red flow light on on CRP 9-5 indicating flow >30 GPM SLC tank level lowering as indicated on CRP 9-5 LI-11-66 If system fails start other system Diagnose the A SLC pump failed to start and the B squib valve failed to fire Inject SLC with the B pump Report to the CRS the SLC system failures of A SLC pump, B Squib 		
	CRO	report SLC is injecting		
ст	CRS	When reactor power is < 2%, direct injection reestablished to maintain RPV level > 19" and the level at which power went below 2% using HPCI/RCIC/CRD		
СТ	CRO	Reestablish RPV injection to maintain RPV level in the ordered band		
СТ	CRS	Direct control rods inserted IAW Appendix BB/G		

Required Operator Actions

Op-Test N	lo.: 1	Scena	rio No.:	2	Event No.:	8 (cont'd)	Page <u>11</u> of <u>12</u>							
			Insert con	trol rods	as directed									
			APP G											
		•	Start all	available CRD	pumps.									
			•	Position	the RWM keylo	ock bypass switch to	BYPASS concurrently							
			•	lf neces valve.	sary, perform th	ne following to open	the CRD flow control							
			•	Place F	IC 3-301 CRD F	low Control in man	ual.							
			•	Adjust F	FIC 3-301 CRD	Flow Control to rest	ore drive water pressure.							
			•	Close C	RD-56 CRD Ch	arging Water Head	er Supply							
			•	Adjust C achieve 500 psid	CRD-PCV-20 DI drive water diff d.	RIVE WTR PRESS erential pressure to	CONTROL VALVE to between 300 and							
			•	The app an aid, i	propriate rod sel if desired.	ect template (I/II) m	ay be used as							
	CRO	•	The ope provided	erator may initia d after each cor	l, checkoff, or comm trol rod as appropria	ent in the space ate.								
СТ		CRO •			 Continuously insert control rods, using the ROD MOVEME CONTROL switch, to position 00 as follows: 									
					Insert control rods using the sequence given on Figure I.									
					IF the set the CRS proceed	equence of Figu S, insert all poss t to the sequence	re II is inadvertently bible control rods in the given on Figure I.	v started, THEN notify that sequence and						
										•	IF, while notify th sequen	e inserting contr le CRS, insert th ce.	ol rods, a control ro nat control rod to 00	d is mispositioned, THEN and continue in the
													•	IF, while partially the sequ
				•	IF, while be move sequen	e inserting contr ed or is at 00, T ce.	ol rods, a control ro HEN skip that contro	d in the sequence cannot of rod and continue in the						
			•	WHEN THEN c	all possible con continue to inser	trol rods have been t control rods per Fi	inserted per Figure I(II), gure II(I).							
			•	WHEN I	all control rods f nform the CRS.	hat can be inserted	have been inserted,							
			APP BB											
			•	Start all	available CRD	pumps.								
			•	Close C	RD-56 CRD Ch	arging Water Head	er Supply.							
	CF	RO	•	Fully Of	PEN CRD-PCV-	20 DRIVE WTR PR	ESS from CRP 9-5.							
			•	Adjust C different	CRD-PCV-22 Cl tial pressure be	G WTR PRESS to tween 300 and 500	achieve drive water psid.							
			•	When a inform t	II control rods th	hat can be inserted l	nave been inserted, Then							

•

Op-Test N	lo.: 1	Scena	rio No.:	2	Event No.:	8 (cont'd)	Page <u>12</u> of <u>12</u>
	CF	२ऽ	Enter and • •	direct ac Restart Initiate t Before t	tions in EOP-3 Drywell RRUs torus cooling torus pressure re	eaches 10 psig, sp	ray the torus
	AC	RO	Restart al	I drywell I MCA ke CRP 9-2 CRP 9-2 CRP 9-2 CRP 9-2 CRP 9-2	RUs when dire ylock to bypass 25 Blocking relay 25 RRU 1A/B co 25 RRU 2A/B co 25 RRU 3A/B co 25 RRU 4A/B co	cted. on CRP 9-25 y reset push buttor introl switch to A&B introl switch to A&B introl switch to A&B introl switch to A&B	n depressed 3 run B run B run B run
	AC	RO	Initiate tor Place IF a LPCI AUTOSTO (3-M-2 will When cor If necessa IF reactor	A and D O B and C Close/ve Verify a demand Verify n initiation OP OVEF I annunci Start RH ditions pe ary, adjus Maintain pressur water lev turn the BYPAS Open T RUS CO(g when directed RHR pumps in R RHR pumps in erify closed HX I dequate SW pur l o more than one signal is presen RIDE SWITCH ate). RSW pump A c ermit, verify RHF t RHRSW pump A c ermit, verify RHF t RHRSW DISC n RHRSW beat on n RHRSW press e. /el is greater tha RHR A/C or B/I S to MAN. TORUS SPRAY/ DLING RHR-34,	PULL TO LOCK. PULL TO LOCK. SYPASS RHR-65A mps are operating SW pump is in sta t, THEN place RHI keylock switch to f or C /B or D RSW pump cooling HARGE, RHR-89A exchanger flow 299 ure greater than 20 n TAF, THEN D LOGIC CTMT S CLG RHR-39A/391 A/34B	VB to handle RHRSW pump andby mode. RSW PP A&C LPCI MANUAL OVERRD 9 water flow is 3 – 6 gpm. VB as follows: 50 to 3140 gpm. 0 psid above RHR SPRAY VLV LPCI SIG B
	AC	RO	Spray the	torus wh Open R	en directed. HR 39A/B		
	CF	RS	After Free	ze, deter	mine EAL in acc	ordance with AP 3	3125 as S-7-c.
	,		1				

Appendix	D		Scenar	io Outline		Fo	rm ES-D-1
Facility: Examiner	vermon s:	t Yankee	New	_ Scenario No.: _ Operators:	<u>3R</u>	Op-Test No.:	
Objective Technica TBCCW (complete the alarm breakers condensa the turbin 3122 (LN After the pressure are initiat RPV-ED Multiple in above TA Initial Con	Objectives: Evaluate the crews response to a fault on 480 volt Bus 89B and to take the required Technical Specification actions for the bus loss. Recognize and take action for a trip of the running TBCCW pump with a failure of the automatic and manual start of the standby RBCCW pump. The complete loss of TBCCW will cause condensate and feedwater pump bearing temperatures to rise to the alarm set points. They will attempt to transfer house loads to the startup transformers but the breakers will not close. They will scram the reactor due to degrading conditions in the feed and condensate pump bearings. The fast and residual bus transfer to the startup transformers will fail when the turbine trips after the scram causing an LNP. The crew will enter OT 3100 / EOP 1 (scram) and OT 3122 (LNP). After the plant is stabilized a steam leak will occur in the drywell compounded by a loss of high pressure feed. EOP 3 will be entered to control primary containment parameters. After drywell sprays are initiated HPCI will trip. RPV level will lower due to the loss of high pressure feed sources and an RPV-ED will be preformed to allow low pressure injection sources to restore RPV level above TAF. Multiple injection valve auto open failures will occur requiring operator actions to restore RPV level above TAF. Initial Conditions: IC-9 100% power. RCIC is out of service						
Turnover	See Attach	ed "Shift Turr	nover" Sheet	······			
Event No.	Malf. No.	Event Type*		C	Event escription		
	RC05 Preinsert	N/A	RCIC isolat	ion (RCIC OOS)		<u> </u>	
	RF RCR05	N/A	RCIC 15 A	CB opened after F	RCIC 15 is clos	ed (RCIC OO	S)
	CS03A	1		<u> </u>			
	preinsert		Core Spray	A injection valve	auto open failu	ure	
	CS03B			, <u> </u>	·		
	preinsert	I	Core Spray	B injection valve	auto open failu	ure	
	RH07A	1					
	Preinsert	I	RHR A inje	ction valve auto o	pen failure		
	ED21					· 24* / · · · · · · · · · · · · · · · · · ·	
	Preinsert	C	Failure of b	reaker 23 to close	manually		

Appendix D	Scenario C	Dutline	

	EDdi08swz Preinsert	С	Failure of breaker 13 to close manually (Switch I/O) No malfunction for this side is available
	ED12A ED12B		
	Preinsert	<u> </u>	Failure of Bus 1 and 2 to auto transfer to the startup transformers
1	ED19B	С	Loss of Bus 89B
2	SW14A SWdi06sw12b	С	Trip of A TBCCW pump and failure of auto and manual starts of the B TBCCW pump
3	N/A	N	Power reduction due to increasing component temperatures
4	RR01A .5% @ 800 sec ramp	М	Recirc loop rupture
5	HP01	С	HPCI turbine trip, loss of all high pressure feed
6	See above preinserts		Failure of injection valves to auto open
* (N))or			(l)potrumont (0)omnonont (M)oior

SIMULATOR OPERATOR INSTRUCTIONS FOR SCENARIO (#3R)

GENERAL REQUIREMENTS

- > All chart recorders will be rolled forward, timed and dated.
- Paper from selected chart recorders will be saved for the examination team as requested.
- All procedures, flow charts, curves, graphs, etc., will be returned to their normal storage place and closed.
- > All markable procedures, boards, etc., will be erased.
- All paper used by the previous crew will be removed and kept for the examination team as requested.
- The simulator operator, or designated person, will keep a rough log of all communications into and out of the "control room " during the scenario as requested by the examination team.

INITIAL SETUP

➢ IC-9, 100% CTP, RCIC OOS

DURING THE SCENARIO

The examination team will determine when each event is to be inserted and when to "freeze" and will inform the simulator operator.

- EVENT 1 If the Control Room sends maintenance or an AO to investigate the loss of RUPS "B"/Bus 89B, inform the crew that:
 - at RUPS 1B the Gen over/under voltage lite is on and BKR "CB" is open (AC output BKR).
 - at MCC 89B breaker "feed from UPS 1B" is open. If the crew attempts to close the maintenance tie, it will trip.
 - if requested maintenance should inform the crew that there appears to be a fault on MCC89B and a work order is being initiated.
- EVENT 2 If sent to investigate the loss of TBCCW report the A TBCCW pump breaker tripped and no reason for the start failure of the B TBCCW pump.

EVENT 3 When directed to control recirc lube oil temperatures insert SWR 58.

After the manual scram and LNP if VELCO/AO/Maintenance are asked to report a cause for the LNP no cause will be found.

- EVENT 5 When sent to investigate the cause for the HPCI trip report a large oil leak has caused a loss of hydraulic and bearing oil.
- > **EVENT 6** If sent to manually open RHR 27B it will not open.

TERMINATION:

Reactor water level restored to above TAF and controlled with low pressure ECCS pumps. Exam Team directs.

SIMULATOR OPERATOR INSTRUCTIONS FOR SCENARIO (#3R) (con't)

Event No.	Malf. No.	Event Type*	Event Description
	RC05		
	Preinsert	N/A	RCIC isolation (RCIC OOS)
	RF RCR05	N/A	RCIC 15 ACB opened after RCIC 15 is closed (RCIC OOS)
	CS03A		
	preinsert	I	Core Spray A injection valve auto open failure
	CS03B		
	preinsert	I	Core Spray B injection valve auto open failure
	RH07A		
	Preinsert	Ι	RHR A injection valve auto open failure
	ED21		
	Preinsert	C	Failure of breaker 23 to close manually
	EDdi08swz		Failure of breaker 13 to close manually (Switch I/O) No malfunction for
	Preinsert	C	this side is available
	ED12A		
	ED12B		
	Preinsert	I	Failure of Bus 1 and 2 to auto transfer to the startup transformers
1	ED19B	C	Loss of Bus 89B
	SW14A		Trip of A TBCCW pump and failure of auto and manual starts of the
2	SWdi06sw12b	С	B TBCCW pump
3	N/A	N	Power reduction due to increasing component temperatures
	RR01A		
	.5% @ 800		
	sec ramp	<u>M</u>	Recirc loop rupture
5	HP01	C	HPCI turbine trip, loss of all high pressure feed
_	See above		
6	preinserts		Failure of injection valves to auto open
		· · · · · · · · · · · · · · · · · · ·	
* (N)orm	al, (R)	eactivity	(I)nstrument, (C)omponent, (M)ajor

SHIFT TURNOVER (#3R)

PLANT CONDITIONS:

- Approximately 100% power
- Rapid shutdown sequence is latched
- RCIC is OOS due to a failed steam flow D/P cell causing a spurious isolation

INOPERABLE EQUIPMENT/LCOS:

• RCIC 14 days Technical Specifications 3.5.G.2. Entered 8 hours ago

SCHEDULED EVOLUTIONS:

• I/C is working on the failed RCIC steam flow D/P cell

SURVEILLANCES DUE THIS SHIFT:

• None

ACTIVE CLEARANCES:

• N/A

GENERAL INFORMATION:

Scenario 3

CONTROL ROOM SHIFT TURNOVER CHECKLIST

Parameter/	Allowable	Checks		
Component	Cond/Limit	06	18	
Vernon Bus Tie	3900-4500 v	V,		
DG A/B	No Alarms/Opr	V.		
DG Volt Req	8 White Lights	<i>V</i> .		
DG A/B ACB's	Operable			
DG A/B BKR CONT SELECT				
Switches	In REMOTE	V,		
Bus 8/9	435-506 v			
Bus 3/4	3700-4400 v	V.		
Other 4KV ACB's	Opr			
S/U Transformer	Energized			
Aux Transformer	Energized			
Cond Backpress	1-5 in HgA	2		
SW PPs A/B/C/D	Operable	2		
Cond Sys	Operable	V		
Feed Sys	Operable	U		
CST Level (ER20001509_06)	20-90%			
Inst. Air Press	95-107 psig	V		
Rx Water Level	155-165 inches	V		
Rx Press	950-1030 psig			
Rx Power	≤1593 MWt	V		
SLC Sys	No Alarms/Opr			
SLC Tk Level	81-92%	V		
SLC-18	Open			
SLC Squib A/B	Energized	V		
SLC PP A/B	Operable			
SDV Level	~0	フ		
APRM/IRM/SRM/RBM Byp Sw				
(ER960026_03)	Neutral Position	V		
Scram Air Press	70-75 psig	V		
RCU Sys	No Alarms/Opr			
RCU Inlet Cond	<1 µmho/cm			
CU-15, 18, 68	Operable			
RCIC Sys	No Alarms/Opr	NO		
RCIC-15,16,18,20	Open/Opr 🕰	NO		
RCIC-131,27,30,21,41,39	Closed	V		
RCIC T/T and Gov	Open			
RCIC Flow Cont/Tape/Flow	AUTO/400/<10	v		
MSIVs. MS-74, 77	Operable	2		
Pri Cont Vent Iso Valves	Operable	\overline{v}		
SV-70A/B Ind	Closed	7		
Relief Valves	No Alarms/Opr			
ADS Bypass Switch	NORMAL Pos.	2		

Parameter/	Allowable	Che	cks
Component	Cond/Limit	06,	18
CS A/B Sys	No Alarms/Opr	ν,	
CS-7 A/B	Open	V	
CS PP A/B	AUTO/Opr	V.	
CS-5 A/B, 11 A/B	Open	V	
CS-26 A/B, 12 A/B	Closed	V,	
CS FI-14-50A/B	±500 gpm		
RHR Sys	No Alarms/Opr	1	
RHR PP A/B/C/D	AUTO/Opr		
RHR-13 A/B/C/D	Open	1	
RHR-25 A/B	Open	2	
RHR-65 A/B	Open	1	
RHR-16A/B	Open	V.	
Other RHR RHRSW Vivs	Closed	7	
RHR FI-10-139A/B	±1500 gpm	VI	
Torus Water Temp	≥50 - <87.3°F	V.	
HPCI Sys	No Alarms/Opr	V.	
HPCI Turb Trip/Inhibit SW	In AUTO	1	
HPCI Sys Ready Light	ON		
HPCI-15, 16, 17, 20	Open	2	
HPCI-14, 25, 19,		./	
21, 57, 58	Closed	V	
HPCI Flow			
Cont/Tape/Flow	AUTO/4250/<100	V	
	NORM/Alt Pwr		
RPS MG A/B Power	Avail.	V	
Off-Gas Act	Norm Trend		
Stack Gas Act	Norm Trend	V.	
Ref-2 A/B	AUTO/Opr	V	
SBGT 9KW Htrs EUH-2&4	AUTO		
SGT-2A/3A	Open		
SGT-1A/B, 2B, 3B, 4A/B, 5		./	
	Closed	V	
	-0.25 to -2.0 inches		
Rx Bldg D/P	H ₂ O		
TVS-86	Closed	V.	
Drywell/Torus D/P	>1.8 psid	V,	
Torus Water Level	OP 2115, Fig 1		
	L		
	ļ		
	L		L

	SM	CRS	STA	CRO	ACRO	TIME	REMARKS: INITIA	LS
Operations Log						a car	Souciaus RETE AL	2.
Switching/Tagging Log						0 0500	Spannes new TIP	L ~ 1
WOR Listing							Isolation on	
CRP Walkthrough (Note 1 & Note 3)							1 . h D/0	
Night Order Book							high or	100
CR Shift Turnover Cklist						6.00	RCIC MOU-15/16 1	⊿ 173. -
Tech Spec Sys/Comp Inop Sht							at it Aca mil	
Surveillance Schedule							Shur Acoopen	
Reviews Completed:							for mont-15	
06-18 SHIFT				1			10. 1.00 10	
18-06 SHIFT	Anc	1 All	FROM	The	10KD			
	•	• •	· /					

NOTE 1: STA walkthrough to include status check of the Control Room Pyrotronics Panel.

- NOTE 2: In the event minimum shift staffing levels cannot be met, actions to be initiated are specified in AP 0894.
- NOTE 3: Control Room staff shall contact VELCO whenever abnormal yard conditions exist. (CAR91037OP1)

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TECH. SPEC./TECHNICAL REQUIREMENTS MANUAL SYSTEMS/COMPONENTS INOPERABLE

	TECH. SPEC./TRM	DATE/TIME DECLARED	UNPLANNED	OPERATIONS REQUIRED LOGGING, TESTING OR OTHER ACTION	ALLOWABLE TIME	DATE/TIME DECLARED	SM/C INITIA	RS ALS
SYSTEM/COMPONENT	PARAGRAPH	INOPERABLE		(ER970390_03)	INOPERATIVE	OPERABLE		OP
KetC	3.5.6.2	oday/0500		HPCI Uprified Op Admin	14 days		the second	
· · · ·								
		WII						
				······································				
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					·····			
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		·······						

VYAPF 0152.02 AP 0152 Rev. 22 Page 1 of 1 Scenario 3

Scenario 3

	SHIFT B	RIEFING CHECKLIST	
Made Switch Position	Run)		Data: Today
	/e	_	Datt
Shift: Uft)	Night		
Da	y Night		
Plant Status: Rx Powe	er_ <u>/00 %</u> Rx Water Leve	1: <u>/66 ⁽¹)</u> Rx Pressure: <u>/0</u>	65 HP Clock (Note 3) //
Significant Equipmen RCIC - 1	nt Out of Service (Note 1): HPCT was immedia means at 0500 to	tely verified oper	able by administrative
Evolutions in progres Repair of	ss or planned (Note 2): RCT High St	sum Live flow	D/P cell
Special Instructions o	or Considerations (Pertinent Night C	Orders, Unusual Conditions) (MOC	DID9301OP2)
Briefing Conducted E	By:Control Room Su	ipervisor	
Previous twelve hour	full power average during steady s	tate operation >1592 MWt?	
X Yes 🗆 No 🗆 N	N/A If no and unplanned, notify the	Supervisor, Operations Support.	
Attendees:			
	Spara Shift		
SM OR CRS	Spare Shift	Shift Chem Tech	
CPO		Rad Prot Tech	
STA		Sec. Shift Supy	
ACRO		ooo. omit oupv.	
ACRO			
A0			
A0			

Approved by:

AO

Duty Shift Manager

- Note 1: Include Tech. Spec. Systems/Components entered on VYAPF 0152.02 for which active measures by Operations must be taken and list those actions. (ER970390_01 & _02)
- Note 2: Ensure evolutions that may affect radiological conditions such as HPCI, RCIC, Core Spray and RHR operations are brought to the attention of the Radiation Protection Technician.
- Note 3: State HP clock number. IF clock has been reset, discuss the event that resulted in the reset.

VYAPF 0152.03 AP 0152 Rev. 22 Page 1 of 1 LPC #2

Scewario 3

CONTROL ROOM TURNOVER SHEET

Today Date: Shift: Days Nights Annunciators (Existing, New, Nuisance, Disabled, Restored) NO NEW ANNUNCIATORS except RCIG Hi O/p Surveillances Done/Due Done - HPCI operable by administrative means **Evolutions/Transients** Repair RCIC Steam flow Old cell - Itc Equipment Out of/Returned to Service RCIC Other

Required Operator Actions

Op-Test No.:		Scenario No.: <u>3R</u> Event No.: <u>1</u> Page <u>1</u> of <u>9</u>			
Event De	escription: Loss	of 480 volt Bus 89B/RUPS			
Time	Position	Applicant's Actions or Behavior			
	ACRO	Recognize a loss of Bus 89B power.			
	CRS	Enter and direct actions IAW OP 2143 and ARS.			
	CRS	Direct maintenance to investigate the loss of MCC 89B.			
	CRS	Review Tech Specs and determine per 3.10.B.4 and 3.5.A.4.b enter a 7-day LCO for "B" LPCI.			
	ACRO	Direct AO to document indicating lights at RUPS 1B and MCC 89B per OP 2143.			
	CRS	Brief the Crew on the 7 day LCO, and the A LPCI loop will not inject if needed.			
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Appendix D		Required Operator Actions Form ES-D-2
Op-Test Event De	No.:	Scenario No.: 3R Event No.: 2 Page 2 of 9 spond to a loss of TBCCW
Time	Position	Applicant's Actions or Behavior
	CRO	Recognize a loss of running TBCCW pump
	CRO	Attempt to start the standby TBCCW pump, recognize both TBCCW pumps have tripped.
	CRS	Direct maintenance and an AO to attempt to reset the breaker to restart a TBCCW pump
	CRS	Direct the CRO to begin lowering recirc speed to 27.5-29 mlb/hr at a rate not to exceed 10% RTP/min
	CRO	 Begin lowering Recirc speed using the master controller at a rate directed by the CRS Adjusts master controller SC-2-184-14 in the counter clockwise direction
	CRS	Direct the crew to monitor the Condensate and Feed pump bearing temperatures
	STA	Report when ERFIS alarms for Feed and Condensate pump temperatures High
	CRS	Direct the ACRO to transfer House Loads to the Startup Transformers
	ACRO	Attempt to transfer house loads to the startup transformers and report that the breakers will not close Insert sync key in 13 bkr Turn on sync scope Place 13 bkr control switch to close Report 13 bkr close failure Insert sync key in 23 bkr Turn on sync scope Place 23 bkr control switch to close Report 23 bkr close failure
	CRS	Direct a reactor scram and carry out actions in OT3100, and possible LNP.

A	p	р	е	n	d	ix	D
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Required Operator Actions

Op-Test N	lo.:	Scenario No.: <u>3R</u> Event No.: <u>3</u> Page <u>3</u> of <u>9</u>	
Event Description: Respond to a Reactor Scram with a loss of Off Site Power.			
Time	Position	Applicant's Actions or Behavior	
	CRO	 Report reactor scram. Take scram actions Press manual scram pushbuttons Depress PB 1 on feedwater master controller CRP 9-5 Reactor mode switch to shutdown CRP 9-5 when steam flow <40% Insert IRMs/SRMs on CRP 9-5 Select IRM recorders on CRP 9-5 Report reactor power <2% Report all control rods inserted After verifying the RPV is recovering leave one RFP running, and place one in standby, and one in pull to lock CRP 9-6 Verify closed scram discharge vent and drain valves (6) on CRP 9-5 Recognize/report EOP-1 and 3 entries on high drywell pressure. 	
	ACRO	 Recognize and inform CRS of Turbine Trip with Loss of Off Site Power Report power on buses 3,4,8,9 from the Diesels 	
	CRS	Enter and direct actions IAW OT 3122 LNP	
	ACRO	Respond to LNP IAW 3122. • Verify DG start • SW pumps start • Station AC start Restart drywell RRUs • Depress blocking relay reset on CRP 9-25	
	ACRO	Inform CRS that Buses 1 and 2 failed to transfer and the 13 and 23 breakers will not close.	
	CRS	Enter and direct crew actions IAW OT 3100, Rx Scram and EOP-1, RPV Control	
	CRS	Direct reactor water level maintained 127" - 177" per EOP-1 with HPCI.	
	CRO	Report feed and condensate is unavailable.	

Required Operator Actions

Form ES-D-2

Op-Test No.:	Scenario No.: 3R Event No.: 3 (cont'd) Page 4 of 9
Op-Test No.:	Scenario No.: 3R Event No.: 3 (cont'd) Page 4 of 9 Maintain reactor water level as directed with HPCI. Open TEST RETURN HPCI-24. Close/check closed PUMP DISCHARGE HPCI-19. • Throttle open FULL FLOW TEST HPCI 21 8-10 seconds. (BMO-200-7R_01) • • Start HPCI GL SL VAC FN-2-1A. • • Verify both trains of SBGT start. (As time permits) • • Open MINIMUM FLOW HPCI-25. • • Open STEAM SUPPLY HPCI 14. • • As time permits, verify that STM LINE DRAIN HPCI-42 and HPCI-43 close. • Start AUX OIL PUMP P-85-1A and monitor SI 23-2 TURBINE SPEED. • As flow increases above 800 gpm, verify that MINIMUM FLOW HPCI-25 closes. • Control recirc flow rate to the CST and turbine speed by: • • Adjusting HPCI FLOW CONTROLLER FIC 23-108, or b. Throttling FULL FLOW TEST HPCI-21 as necessary. • If HPCI FLOW CONTROLLER FIC 23-108 automatic feature fails: 1) • Place HPCI PUMP FLOW CONTROLLER FIC 23-108 automatic feature fails: • Import the following HPCI parameters: • Monitor the following HPCI parameters: • Monitor the following HPCI parameters:
	Control reactor pressure as directed (Expect the use of HPCI)
ACRO	Control reactor pressure as directed.(Expect the use of HPCI)
CRS	Direct torus cooling.

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Required Operator Actions

Op-Test N	Dp-Test No.:		<u>).:</u>	3R		Event No.:	3 (cont'd)	Page 5	of	9
	ACRO	Start torus co Place A B C V dd V IF a LPCI init AUTOSTOP (3-M-2 will at S When condit If necessary, M IF reactor wa IF reactor wa C Open TORU	and and losi erif iati iati iati iati iati iati iati ia	ng as d d D RH OR d C RH e/verify y adequ and. y no mo fERRID nciate) RHRS s permi just RH tain RH tain RH tain RH sure. level is the RH ASS to m TOR	lirected IR purr IR purr IR purr IR purr IR closed uate S ore tha aal is p DE SW W purr IR SW IR SW	d. aps in PULL 7 aps in PULL 7 d HX BYPAS W pumps are an one SW pu resent, THEN ITCH keylock ap A or C /B o y RHRSW pu DISCHARGE heat exchang pressure gre er than TAF, or B/D LOGI PRAY/CLG RI IR-34A/34B	FO LOCK. FO LOCK. S RHR-65A/B operating to h imp is in stand N place RHRSV switch to MAN or D imp cooling wa E, RHR-89A/B a ger flow 2950 t ater than 20 ps THEN IC CTMT SPR/ HR-39A/39B	andle RHRS by mode. W PP A&C L NUAL OVER ater flow is 3 as follows: to 3140 gpm. sid above RH	W pl PCI R R	Jmp
	CRS	Declare UE o May be perfo	lue orm	to loss ed afte	s of Off r the fr	site Power po eeze	er AP 3125, U-	6-a		

Required Operator Actions Form ES-D-2
Scenario No.: <u>3R</u> Event No.: <u>4</u> Page <u>6</u> of <u>9</u>
pond to a high drywell pressure.
Applicant's Actions or Behavior
Report increasing drywell pressure.
Enter EOP-3. Primary Containment Control
Direct ACRO to restart drywell RRU's.
 Restart drywell RRU's. MCA keylock to bypass on CRP 9-25 CRP 9-25 RRU 1A/B control switch to A&B run CRP 9-25 RRU 2A/B control switch to A&B run CRP 9-25 RRU 3A/B control switch to A&B run CRP 9-25 RRU 4A/B control switch to A&B run
Direct torus sprays before torus pressure reaches 10 psig.
 Spray the torus, as directed. Spray the torus as directed Place A and D RHR pumps in PULL TO LOCK. OR B and C RHR pumps in PULL TO LOCK. Close/verify closed HX BYPASS RHR-65A Verify adequate SW pumps are operating to handle RHRSW pump demand. Verify no more than one SW pump is in standby mode. IF a LPCI initiation signal is present, THEN place RHRSW PP A&C LPCI AUTOSTOP OVERRIDE SWITCH keylock switch to MANUAL OVERRD (3-M-2 will annunciate). Start RHRSW pump A or C / B or D When conditions permit, verify RHRSW pump cooling water flow is 3 – 6 gpm. If necessary, adjust RHRSW DISCHARGE, RHR-89A/B as follows: Maintain RHRSW heat exchanger flow 2950 to 3140 gpm. Maintain RHRSW pressure greater than 20 psid above RHR pressure. IF reactor water level is greater than TAF, THEN turn the RHR A/C LOGIC CTMT SPRAY VLV LPCI SIG BYPASS to MAN.

Required Operator Actions

Op-Test No.:		Scenario No.: 3R Event No.: 4 (cont'd) Page 7 of 9							
		Prior to RPV-ED, when torus pressure exceeds the suppression chamber spray initiation pressure, initiate drywell containment spray while in the safe region of the drywell spray initiation limit							
СТ	CRS	Standard:							
		Spray the drywell within 10 minutes of exceeding 10 psig torus pressure AND RPV level not an overriding priority							
	CRS	Verify drywell pressure and temperature allow the drywell to be sprayed.							
	CRS	Direct drywell RRU's secured.							
	ACRO	 Secure drywell RRU's. ON CRP 9-25 four RRU control switches positioned to OFF or MCA keylock returned to normal 							
	CRS	Direct drywell sprays.							
	ACRO/CRO	Spray the drywell as directed. • CRP 9-3Open RHR 26A/B • CRP 9-3 Open RHR 31 A/B							

Required Operator Actions

Form ES-D-2

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Op-Test No.:		Scenario No.: <u>3R</u> Event No.: <u>5</u> Page <u>8</u> of <u>9</u>
Event De	escription: Re	spond to a loss of high pressure feed.
Time	Position	Applicant's Actions or Behavior
	ACRO	Report HPCI trip and contact maintenance.
	CRS	Direct CRD flow maximized to vessel.
	CRO	Start both CRD pumps Pump A switch to start CRP 9-5 Pump B switch to start CRP 9-5
	CRS	Direct SLC tank injected for reactor water level control.
	CRO	Inject SLC, as directed. SLC control switch on CRP 9-5 to SYS1 or SYS 2 Confirm pump start by red light for pump on CRP 9-5 Verify RWCU isolates on CRP 9- 4 (already isolated on low RPV level) CU 15 shut by green light only on CRP 9- 4 CU 18 shut by green light only on CRP 9- 4 CU 68 shut by green light only on CRP 9- 4 Verify squib valve fires by Amber light out of CRP 9-5 ANN 9-5-A-1 squib continuity loss Discharge pressure on CRP 9-5 PI-11-65 do not indicate the pump dead headed Red flow light on on CRP 9-5 indicating flow >30 GPM SLC tank level lowering as indicated on CRP 9-5 LI-11-66
	CRS	Direct injection subsystems CS "A", CS "B" and RHR "A" lined up for injection.
	ACRO	Lineup injection subsystems, as directed. Shut RHR 34 A Shut RHR 39 A Shut RHR 38 A
	CRS	Direct ADS inhibited.
	ACRO/CRO	 Inhibit ADS Logic A inhibit collar depressed and rolled clockwise on CRP9-3 Logic B inhibit collar depressed and rolled clockwise on CRP9-3

Required Operator Actions

Op-Test N	lo.:	Scenario No.: 3R Event No.: 5 (cont'd) Page 9 of 9						
СТ	CRS	With the reactor shutdown and reactor pressure greater than the shutoff head of the low pressure systems, initiate RPV-ED BEFORE RPV level reaches –19 inches Standard: Initiate RPV-ED (begin opening valves) BEFORE RPV level reaches –48 inches						
	CRS	Direct all SRV's opened.						
	ACRO	Open all SRVs on CRP 9-3 • RV-71A switch to open • RV-71C switch to open • RV-71B switch to open • RV-71D switch to open						
СТ	CRS	 Action is taken to restore RPV water level above –19 inches by operating available low pressure ECCS system(s) when RPV pressure decreases below the shutoff head of the low pressure systems Standard: All available ECCS pumps are lined up for injection and running prior to RPV pressure reaching the injection valve open permissive pressure. No pumps are secured until adequate core cooling is assured. Initiate manual opening of injection valves within 1 minute of reaching valve open permissive pressure. 						
	ACRO/CRO	Report failure of RHR-27A, CS-12A and CS-12B to AUTO open and start to open them.						
	CRS	Direct RHR and CS injection valves opened.						
	ACRO/CRO	Manually open RHR 27A and CS 12A and 12B injection valves as directed.						
	CRS	Direct reactor level restored to > TAF and then > 127" using RHR/CS.						
	CRS	Consult AP 3125 and determine an Alert EAL has been reached IAW AP 3125, A-3-a and/or A-3-b. May be performed after the freeze						