Engineering requests increase of letdown flow from 75 to 120 gpm (Event 1) to determine one CCP capacity to handle 120 gpm letdown. SFM directs BOP to increase letdown per OP B-1A:XII step 6.13.

PZR Pressure channel PT-456 fails high (Event 2). The SFM enters OP AP-5 to address the failed channel. The SFM directs the RO to Select an alternate channel.

CWP 1-2 trips on overcurrent (Event 3). The SFM directs a ramp down to 50% power. The SFM enters OP AP-25, Rapid Load Reduction, for guidance during the load ramp and recovery thereafter.

VCT level channel LT-112 fails high (Event 4). Letdown diverts to the LHUTs, actual VCT level decreases. Auto makeup is not available. The SFM goes to AR PK04-24. The BOP selects VCT position on the letdown divert valve. The RO will have to makeup to the VCT in manual as required.

Loss of condenser vacuum requires load reduction (Event 5). An air leak into the main condenser causes alarm PK12-04, Polishers Effluent DO_2 Hi, then alarm PK10-11, Condenser Press / Level. The SFM goes to OP AP-7, Degraded Condenser. Vacuum decreases to the point of requiring a reactor trip / turbine trip. The SFM enters EOP E-0.

(Event 6) Following the reactor trip, the SFM has transitioned to EOP E-0.1, when a 2000 gpm LOCA develops over 2 minutes. The crew should diagnose the LOCA and the SFM may direct a manual Safety Injection. The SI causes the small LOCA to increase in size to a design basis LOCA. The RHR Pps will trip when the RWST reaches 33%. The crew will transition to EOP E-1.3. The scenario should be terminated after step 9 of EOP E-1.3.

Train A of Safety Injection fails to activate (Event 7). The RO should recognize the failure and manually actuate each component.

Train A of Containment Isolation Phase A fails to activate (Event 8). The RO should recognize the failure and manually actuate each component.

Facility: DCPP Units 1 & 2 Scenario No.: 4 Op-Test No.: 3

Examiners: Operators:

Objectives: Evaluate the crew's ability to diagnose and respond to a PZR pressure channel failing high.

Evaluate the crew's ability to diagnose and respond to a CWP tripping on overcurrent.

Evaluate the crew's ability to diagnose and respond to a VCT level channel failing high.

Evaluate the crew in using EOPs during a loss of condenser vacuum requiring ramp down.

Evaluate the crew in using EOPs during a small break LOCA ramping to a large break LOCA.

Evaluate the crew's ability to diagnose and respond to a Train A Safety Injection failure.

Evaluate the crew 's ability to diagnose and respond to a Train A Contmt Iso Phase A failure.

Initial Conditions: 100% power, equilibrium xenon, Middle of cycle (IC-25)

Turnover: CCP 1-1 OOS for maintenance.

Engineering requests 120 gpm letdown for evaluation.

Time min	Event No.	Malf. No.	Event Type*	Event Description
0	1		N, BOP, CO	Increase letdown from 75 to 120 gpm.
5	2	xmt pzr18	I, CO, SFM	PZR pressure channel, PT-456, fails high.
10	3	pmp cws2	C, All R, RO, SFM	CWP 1-2 trips on overcurrent. Reduce power due to loss of CWP 1-2
20	4	xmt	I, BOP,	VCT level channel, LT-112, fails high.

		cvc19	SFM	
28	5	loa cnd1	C, BOP, SFM	Loss of condenser vacuum due to air in leakage.
cond on trip	6	mal rcs3d mal rcs1	M, All	RCS leak – LOCA (Small break ramping to large break LOCA).
cond on SI	7	mal ppl3a	C, RO, SFM	Train A of Safety Injection fails to activate.
cond on SI	8	mal ppl1a	C, RO SFM	Train A of Contmt Iso Phase A fails to activate.

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

Op-Test No.:__3 __ Scenario No.: ____4_____ Event No.: ____1____ Page __1__ of __10__

Event Description: _____Increase letdown from 75 to 120 gpm _____ _____ _____

Time	Position	Applicant's Actions or Behavior
	BOP	Go to OP B-1A:XII step 6.13 per SFM directions
		Coordinate with RO to place 120 gpm letdown in service
	RO	Coordinate with BOP to place 120 gpm letdown in service
		Monitor Regenerative HX outlet temperature and increase charging as required
	SFM	Direct crew to place 120 gpm letdown in service per OP B-1A:XII

Op-Test No.:__3 __ Scenario No.: ____4_____ Event No.: ____2____ Page __2__ of __10__

Event Description :_____PZR pressure channel, PT-456, fails high _____

Time	Position	Applicant's Actions or Behavior
	BOP	Identify and report PZR pressure channel, PT-456, failing high
		Recognize and report two PZR PORVs open (PCV-456 and PCV-474)
	RO	Acknowledge and report alarm PK05-16, PZR Press High
		Identify and report PZR pressure channel, PT-456, failing high
		Select alternate pressure channel per SFM direction • PT-455 / PT-474
	SFM	Acknowledge reports of PZR pressure channel PT-456 failing high • Go to AR PK05-16, PZR Pressure High
		Go to OP AP-5, Malfunction of Protection or Control Channel • Direct RO to select alternate pressure channel (PT-455 / PT-474)
		Contact Maintenance Services to trouble shoot and repair
		Refer to Tech Specs 3.3.1 and 3.3.2

		6 hour action statement to trip bistables

-Test No.:__3 __ Scenario No.: ____4_____ Event No.: ____3____ Page __3__ of __10__

Event Description :_____CWP 1-2 trips on overcurrent _____

_____ _____

Time	Position	Applicant's Actions or Behavior
	BOP	Recognize and report trip of CWP 1-2
		Monitor primary and secondary parameters during the load ramp • Check Load Transient Bypass (LTB) actuated • Check proper operation of Steam Dump
		Stabilize Plant after load ramp • Reset LTB per SFM directions
	RO	Acknowledge and report CWP 1-2 trip • PK13-11, Circ Water Pp 1-2
		Decrease load to 50% power per SFM directions • Set up DEHC and Go • Verify control rod operation • Emergency borate as necessary
	SFM	Acknowledge reports of CWP 1-2 trip

		Go to OP AP-25, Rapid Load Reduction • Direct load decrease to 50% power • Go to OP AP 6, Emergency Boration, as required • Direct Plant stabilization following load decrease • Direct reset of LTB
		Notify Maintenance Services to trouble shoot and repair CWP 1-2

Test No.:___3 ___ Scenario No.: ____4_____ Event No.: ____4____ Page __4__ of __10__

Event Description: _____VCT level channel, LT-112, fails high _____

_____

Time	Position	Applicant's Actions or Behavior
	BOP	Recognize and report VCT level channel, LT-112, failed high • Compare LI-112 to PPC recording LT-114
		Select VCT position on letdown divert valve per SFM direction
	RO	Acknowledge and report alarm PK04-24, VCT Press, Level, Temp
		Identify and report VCT level channel, LT-112, failed high
		Use manual makeup to the VCT as required
	SFM	Acknowledge reports of VCT level channel, LT-112, failed high
		Go to AR PK04-24 • Direct BOP and RO to compare LI-112 to PPC point for LT-114.
		Refer to OP AP-19, Malfunction of Reactor Makeup Control System • Refer to Appendix A, Guide to failed VCT Level Channel • Direct BOP to Select VCT position on letdown divert valve

		• Direct RO to use manual makeup to the VCT as required per OP B-1A:VII
		Notify Maintenance Services to troubleshoot and repair LT-112

t No.:__3 __ Scenario No.: ____4_____ Event No.: ____5 ___ Page __5__ of __10__

Event Description: _____Loss of Condenser Vacuum due to air in leakage _____

_____

Time	Position	Applicant's Actions or Behavior
	BOP	Recognize symptoms of a loss of condenser vacuum and report to SFM • Alarm PK12-04, Polishers Effluent DO_2 Hi • Alarm PK10-11, Condenser Press / Level • Increasing absolute pressure
		Closely monitor condenser absolute pressure and update the SFM
		Perform immediate actions of EOP E-0
	RO	Recognize and report loss of condenser vacuum
		Closely monitor condenser absolute pressure and update the SFM
		Reduces unit load as directed by SFM
		Trips the reactor as directed by SFM
		Perform immediate actions of EOP E-0

t No.:__3 __ Scenario No.: ____4_____ Event No.: ____5 ___ Page __6__ of __10__

Event Description: _____ Loss of Condenser Vacuum due to air in leakage _(continued)
_____

_____
_____

Time	Position	Applicant's Actions or Behavior
	SFM	Acknowledge reports of loss of condenser vacuum
		Make plant announcement of vacuum loss
		Go to AR PK10-11, Condenser Press / Level
		Go to Op AP-7, Loss of Condenser Vacuum • Uses foldout page and monitors condenser absolute pressure • Directs RO to reduce turbine load to maintain vacuum
		When absolute pressure increases above limits, may direct reactor trip
		Go to EOP E-0 • Direct immediate actions • Transition to EOP E-0.1

t No.:__3 __ Scenario No.: ____4_____ Event No.: ____6 ___ Page __7__ of __10__

Event Description: _____RCS leak – LOCA (Small break ramping to large break LOCA)
_____

_____
_____

Time	Position	Applicant's Actions or Behavior
	BOP	Recognize and report symptoms of small LOCA
		Perform Immediate Actions of EOP E-0
		Recognize and report symptoms of a large LOCA
	RO	Recognize and report symptoms of small break LOCA
		Perform manual Safety Injection as directed by SFM
		Train A of SI failure (See Event 7) Train A of Phase A failure (See Event 8)
		Recognize and report symptoms of a large break LOCA
		Recognize and inform SFM when RCP trip criteria are met • Trip RCPs ** Critical Task
		Recognize and report trip of RHR Pps at 33% RWST level • Transfer to Cold Leg Recirculation per SFM directions

		** Critical Task

t No.:__3 __ Scenario No.: ____4_____ Event No.: ____6 ___ Page __8__ of __10__

t Description: _____RCS leak – LOCA (Small break ramping to large break LOCA) _(continued) _____

_____

Time	Position	Applicant's Actions or Behavior
	SFM	Acknowledge reports of small break LOCA
		May direct RO to do a manual Safety Injection
		Transition back to EOP E-0
		Train A of SI failure (See Event 7) Train A of Phase A failure (See Event 8)
		Acknowledge reports of large break LOCA
		Direct RO to trip RCPs ** Critical Task
		Transition to EOP E-1, Loss of Reactor or Secondary Coolant
		Transition in and out of EOP FR-P.1, Response to Imminent Pressurized Thermal Shock
		Transition to EOP E-1.3 at 33% RWST level • Direct transfer to Cold Leg Recirculation ** Critical Task

	NOTE:	Scenario should be terminated after step 9 of EOP E-1.3

Op-Test No.:__3 __ Scenario No.: ____4_____ Event No.: ____7 ___ Page __9__ of __10__

Event Description: _____Train A of Safety Injection fails to activate _____

Time	Position	Applicant's Actions or Behavior
	BOP	Monitor primary and secondary parameters
		Perform Appendix E of EOP E-0
	RO	Recognize and inform SFM of Train A of Safety Injection failure to activate
		Start safeguards pumps and align Safety Injection components ** Critical Task
	SFM	Direct RO to start safeguards pumps and align Safety Injection Components ** Critical Task

Op-Test No.:__3 __ Scenario No.: ____4_____ Event No.: ____8 ___ Page __10__ of __10__

Event Description: _____ Train A of Containment Iso Phase A fails to activate _____

Time	Position	Applicant's Actions or Behavior
	BOP	Monitor primary and secondary parameters
	RO	Recognize and inform SFM of Train A of Containment Iso Phase A failure to activate
		Align Containment Iso Phase A components
	SFM	Direct RO to align Containment Iso Phase A components

NRC SCENARIO 04 SETUP

SIMULATOR SET-UP

CONSOLE ENTRY	DESCRIPTION
INIT 25	Initialize the simulator at 100% power, equilibrium xenon, MOL
DRILL 6040	• Clears CCP 1-1
Control Boards	• Place CAUTION sticker on CCP 1-1 control switch

NRC SCENARIO 04 SETUP

CONTROL BOARD SETUP

[ ] Copies of all commonly used forms and procedures

[ ] Any tags placed/removed as necessary

[ ] Plant Abnormal Status Board updated as necessary

[ ] Circuit Breaker Flags taken to correct position

[ ] Equipment status lamicoids placed correctly

BA Pp 1-2 **B.A. XFER PP SUPPLYING BLENDER**

CWP 1-1 **SUPPLYING IN-SERVICE SCW HX**

CWP 1-1 **AUTO RECLOSE FEATURE CUTIN ON THIS CWP**

CR Vent Trn 1 Bus F **SELECTED TO BUS 2F**

CR Vent Trn 1 Bus H **SELECTED TO BUS 1H**

[ ] Proper Delta-I curve for Simulator INIT on CC1

[ ] Rod Step Counters indicate correct position

[ ] PPC Setup:

- CC2: QP TAVG, ALM/MODE-1, QP CHARGING.
- Others: BIG U1169, MODE-1.
- RBU is updated.
- DELTAI is updated.
- PENS running.
- R2B blowdown flows at 80 gpm.

[ ] SPDS (screens and time updating), A screen "RM", B screen "SPDS".

[ ] Chart Recorders in operation

[ ] Ensure Annunciator Horn is on (BELL ON) and Sound Effects are on (SOUND ON)

[ ] ALL typewriters ON with adequate paper/ribbons/etc. and are in the "ON LINE" status

[ ] Video and audio recording systems disabled.

[ ] Communications systems turned on and functional

[ ] CREDIT/TEAM setup complete, if applicable

[ ] Print out copy of RISK ASSESSMENT

NRC SCENARIO 04 SETUP

TIMELINE AND INSTRUCTOR ACTIONS FOR SIMULATION

X = manual entry required

INITIATES:

	TIME LINE	CONSOLE ENTRY	SYMPTOMS/CUES/DESCRIPTION
X	**0 min**	**DRILL 6041**	**After SFM reports the crew has taken the watch, load session MALS, OVRs, etc. by FILE or MANUALLY (below)**
	0 min - E1	n/a	Increase letdown from 75 to 120 gpm.
	5 min - E2	xmt pzr18 3,2500,5,300,d,0	PZR pressure channel, PT-456, fails high.
	10 min - E3	pmp cws2 4,0,0,600,d,0	CWP 1-2 trips on overcurrent. Reduce power due to loss of CWP 1-2.
X	**When asked**	**to locally investigate #1 FW Heaters level**	**Investigation finds that levels are high but controlling.**
	20 min - E4	xmt cvc19 3,100,2,1200,d,0	VCT level channel, LT-112, fails high.
	28 min - E5	loa cnd1 act,0.3,300,1680,d,0	Loss of condenser vacuum due to air in leakage.
	Cond on - E6 trip	mal rcs3d act 2000,120,0,c,jpplp4,jpplsi(2) mal rcs1 act 3,4,10,c,jpplsi(2),0	RCS leak - LOCA (Small break ramping to large break LOCA).
	Cond on - E7 SI	mal ppl3a act 3,0,0,d,0	Train A of Safety Injection fails to activate.
	Cond on - E8 SI	mal ppl1a act 2,0,0,d,0	Train A of Contmt Iso Phase A fails to activate.
X	**When requested**	**dsc sis14 act 1** **dsc rhr4 act 1**	**To close breaker 52-1H-20 for 8976.** **To close breaker 52-1F-31 for 8980.**

NRC SCENARIO 04
CREW TURNOVER SHEET

1. Unit 1 is at 100% middle of life and has been there for the last 39 days.

2. Current reactivity management conditions are:
   Diluting RCS approximately 35 gal. every 2 hours.

3. RCS Boron concentration is 949 ppm.

4. Unit 2 is at 50% power for tunnel cleaning.

5. CCP 1-1 OOS for maintenance 1 hour ago. Estimated RTS in 24 hours.

6. Following turnover, Engineering desires an increase in letdown flow to 120 gpm to determine one CCP capacity to handle 120 gpm letdown.

7. No one is in containment, no entries are expected.