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

Examiners: Operators:

Objectives: Evaluate the crew's ability to swap condensate booster pump sets
Evaluate the crew's ability to diagnose and respond to a VCT level control channel failure
Evaluate the crew's ability to diagnose and respond to a MFW pump controller problem
Evaluate the crew's ability to diagnose and respond to a Turbine Control failure in Auto
Evaluate the crew in using EOPs during an ATWS
Evaluate the crew in using the EOPs during a LOCA caused by rod ejection
Evaluate the crew's ability to diagnose and respond to a loss of TDAFW and MDAFW pumps
Evaluate the crew in using EOPs during an FRH condition

Initial Conditions: 100% power, equilibrium Xe, 1150 ppm, BOL (IC-1) MDAFW pump 1-2 OOS last 12 hours for bearing inspection, back in service in 8 hours. PRA good.

Turnover: Start Standby Condensate Booster Pump set, place set 1-1 in standby.

Time min	Event No.	Malf. No.	Event Type*	Event Description
3	1		N, BOP	Swap Condensate Booster Pump sets
10	2		N,R, ALL	Commence power reduction to 80% (NO report Htr 2 DP oil leak)
20	3	mal tur4, 3	C, BOP	Turbine control failure requiring manual ramp
30	4	Xmt cvc19	I, RO	VCT Level channel 112 fail high
40	5	Ovr cc3049e Ovr cc3049h	C, ALL	MFW Pump master controller failure requiring manual control
On MFWP trip	6	mal ppl5	I, ALL	ATWS
Cond on 13D/E open	7	mal rod5a/b	M, ALL	SBLOCA from 2 ejected rods
Cond on 13D/E open	8	pmp afw2 mal afw1	C, ALL	Loss of All Feedwater (MDAFW and TDAFW Pump failure)

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

SCENARIO 01 TEST 01 OVERVIEW

The Crew will swap condensate booster pump sets, referencing OP C7A:I

The Turbine Building NO will report an oil leak on Heater 2 Drip Pump, requiring a power reduction to 80% in preparation for tripping the pump. OP L-4 will be used for the power reduction, providing guidance on boration and setup of the turbine controls. A boration will commence and a controlled power reduction follows.

The Turbine controls will then shift to manual following a fault in the auto circuitry. This produces no alarms, but indications on the turbine control panel will indicate the change as well as the changes in plant parameters when the power reduction stops with boron injection underway. The crew will have to choose between stopping the ramp, or ramping manually to prepare for tripping the Heater 2 Drip Pump.

VCT Level channel 112 fails, giving a high VCT level alarm and diverting letdown to the hold up tanks. The crew should recognize the channel failure and respond per AP-19. Letdown should be restored to the VCT. The ramp may be stopped, but should be recommenced after the crew determines the failure does not impact the ramp.

The Master Feedwater Pump controller fails, requiring the crew to take manual control of both Main feedwater Pumps. The operator may not be able to analyze the problem and take corrective actions quick enough, which will then result in a Reactor Trip signal from low SG levels. If the operator does react and take control of the pumps manually, the crew will be forced to make a decision on continuing a manual ramp with manual feedwater, or trip the unit.

The unit will not trip on an auto trip signal or a manual trip initiation. The crew will be forced to use the RNO of E-0 and open breakers 13D and 13E. This will cause the rods to fall into the core. The crew will continue with E-0 actions.

Upon opening 13D/E, a SBLOCA will be occur as a result of 2 ejected rods. The crew should recognize a Safety Injection signal and procedure with E-0 for a LOCA.

Upon opening 13D/E, the TDAFW pump and remaining MDAFW pump will trip and not restart. The crew should recognize a RED path on Heat Sink, and following transition from E-0 to E-1, enter FR-H.1. The scenario will end when forward flow is established. Bleed and Feed may be established if SG level criterion is met, but the crew should continue to pursue and achieve forward flow from Condensate pumps.

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

Examiners: Operators:

Objectives: Evaluate the crew's ability to increase Accumulator Pressure
Evaluate the crew's ability to reduce power
Evaluate the crew's ability to diagnose and respond to failure in RMUW system
Evaluate the crew's ability to diagnose and respond to a PT 505 failure
Evaluate the crew's ability to diagnose and respond to a failed PZR spray valve controller
Evaluate the crew in using EOPs during a Steam Space LOCA
Evaluate the crew's ability to diagnose and respond to of failure of the SI signal

Initial Conditions: 100% power, equilibrium Xe, BOL 1150 ppm, (IC-1). MDAFW pump 1-2 OOS last 12 hours for bearing inspection, back in service in 8 hours. PRA good.

Turnover: Increase Accumulator 1-1 pressure per OP B-3B:I.

Time min	Event No.	Malf. No.	Event Type*	Event Description
3	1		N, RO	Increase Accumulator Pressure
10	2		R, All	Commence Power Decrease (EPOS request fast ramp to 850 MW)
On Boration	3	Ovr cc2010c	C, RO	43/MU fail to auto borate, manual boration required
20	4	xmt TUR2	I, BOP	PT 505 failure low
30	5	cnh pzr3	I, ALL	PRZ spray valve controller fails open in Auto
40	6	Mal pzr1	M, ALL	PZR steam space LOCA
On SI	7	ppl3a ppl3b	I, ALL	Failure of SI to actuate (manual alignment necessary)

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

Scenario 01 Test 02 Outline

Following a tailboard, the crew will increase pressure in Accumulator 1-1 to normal using OP B-3B:I.

After the Accumulator pressure increase, a call from EPOS will request a fast ramp to < 850 MW. The crew will tailboard the ramp and reactivity needs. A boration will start and a ramp commenced.

The boration will fail, the Makeup deviation alarm will alarm. 43/MU will not work in borate mode and must be used in the manual mode. The crew will use PK5-11 and AP-19 to determine the problem and use the alternate method to continue the ramp as requested.

After the crew commences manual boration and the ramp is started again, PT-505 will fail low, causing rods to drive in. The RO must recognize an instrument failure and take the rods to manual. Discussion on tripping bistables in 6 hour per ITS 3.3.1-1 should take place.

The PZR spray controller will fail in auto mode next, requiring the RO to take manual control of the spray valves to control pressure. The SFM will use PK5-17 and AP-13 to guide the crews response.

A PZR steam space LOCA takes place over 10 minutes to a final value of 850 gpm. This will require the crew to diagnose the pressure reduction with minimal PZR level change, and to quantify the leak.

After the leak size is sufficient, an SI will be required. The crew should SI before the low pressure setpoint, however an Over Power reactor trip may cause a reactor trip before the crew can respond. The SI signal will fail, requiring a manual SI signal initiation and manually aligning the valves and pumps for injection.

The scenario will terminate after transition to E-1.2 is completed.

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

Examiners: Operators:

Objectives: Evaluate the crew's ability to swap CCW heat exchangers
Evaluate the crew's ability to decrease reactor power
Evaluate the crew's ability to diagnose and respond to a Tc instrument drift
Evaluate the crew's ability to diagnose and respond to a loss of non-vital 120 VAC
Evaluate the crew's ability to diagnose and respond to an LDTV failure
Evaluate the crew in using EOPs during a Seismic event
Evaluate the crew's ability to diagnose and respond to a failure of Train A ECCS Equipment
Evaluate the crew in using EOPs during a Main Feedline Break
Evaluate the crew in using EOPs during a LBLOCA

Initial Conditions: 100% power, equilibrium Xe, 1150 ppm BOL (IC-1) DEG 1-1 OOS for fuel pump replacement. OOS 12 hours, expected return in 8 hours. PRA good.

Turnover: Swap CCW Heat Exchangers.

Time min	Event No.	Malf. No.	Event Type*	Event Description
3	1		N, RO	Swap CCW heat exchangers
10	2		N, R, ALL	Power decrease to 80% (EPOS: Fire at Midway)
20	3	Xmt rcs138	I, RO	RCS Tc (TE-441) fail high
30	4	Mal eps2a	C, RO	Loss of non-vital 120 VAC (PY-15)
40	5	Xmt tur22	C, ALL	Turbine Governor Valve failure (FCV-142)
50	6	Mal sei1		Seismic event
Cond on seismic	7	Mal mfw5d	M, ALL	SG 1 MFL Break IC
0	8	Mal ppl3b (3)	C, ALL	Failure of Tr A ECCS
Seismic + 5 mi	9	Mal rcs1(1)	M, ALL	RCS Loop 1 25% DBA

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

The crew will tailboard swapping the CCW heat exchanger for run time. This will entail swapping the running ASW train, and aligning the CCW heat exchanger per OP E-5:IV. The crew will start ASW pump 1-2, make alignments, and secure ASW pump 1-1 and make associated valve lineups.

EPOS will call requesting a decrease to 900 MW due to a fire at the Midway station. The crew will tailboard the ramp and reactivity change. A crew will borate and start a ramp per OP L-4.

During the ramp, Loop 4 Tc (TE-441) will fail high, causing rods to step in on a false high Tave. The crew should recognize the failed instrument and place rods in manual. The SFM stop the ramp, and reference OP AP-5 to ensure the plant is stable and for Tech Spec requirements on tripping bistables in 6 hours and deselecting that channel from Tave recording and control. Rods should be placed back to auto.

Before bistables are tripped, PY-15, Non-Vital 120 VAC will fail, causing many unrelated alarms. The crew should let rods control Tave to Tref because MSRs have been lost. The SFM will reference AP-4, and should request PY-15 be placed on backup power, which will restore the bus and clear the most of the alarms associated with the failure. The ramp should be reinstated if stopped.

Following the restoration of PY-15, the Turbine Governor valve, FCV-142, will fail causing a load rejection. The SFM will enter AP-25 and stabilize the plant. The Asset Team will be contacted for repair.

A Seismic event will take place, causing a Main Feed Line Break on SG 1-1 inside containment and a LBLOCA on Loop 1. The MSL Break will mask the LOCA initially. Train A SI will also fail to initiate and will require manual alignment of valves and pumps. The crew will isolate SG 1-1 using E-2, identify the LOCA and transition to E-1 where they will meet conditions to trip the RCPs. The scenario will continue until transition to E-1.3.

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

Examiners: Operators:

Objectives: Evaluate the crew's ability to increase reactor power
Evaluate the crew's ability to diagnose and respond to a PZR level channel failure low
Evaluate the crew's ability to restore letdown
Evaluate the crew's ability to respond to a SGTL
Evaluate the crew's ability to diagnose and respond to an SG pressure channel failure
Evaluate the crew's ability to diagnose and respond to a vacuum leak
Evaluate the crew's ability to diagnose and respond to a unit trip
Evaluate the crew in using EOPs during an Faulted/Ruptured SG
Evaluate the crew's ability to diagnose and respond to a failure of Phase A

Initial Conditions: 30% power, 235 ppm EOL. (IC-42) MDAFW pump 1-2 OOS last 12 hours for bearing inspection, back in service in 8 hours. PRA good.

Turnover: Increase power per OP L-4 to 100%.

Time min	Event No.	Malf. No.	Event Type*	Event Description
3	1		N, R, ALL	Increase power to 50%
10	2	xmt pzr40	I, RO	PZR level channel failure low
15	3		N, ALL	Restore Letdown
25	4	xmt mss58	C, BOP	SG 1 pressure channel PT- 516 fail hi (manually close PCV – 19)
35	5	Mal rcs4a	C, ALL	SGTL on SG 1-1 (approx. 5 gpm)
45	6	loa cnd1	C, ALL	Vacuum leak / power reduction
50	7	Mal sei1		Seismic Event (below Rx Trip Setpoint)
Cond on Seismic	8	Mal gen1	C, ALL	Main Generator lockout / unit trip
Cond on Seismic	9	Mal mss3a	M, ALL	SG 1-1 MSL fault
Manually Seismic + 5 min	10	Mal rcs4a	M, ALL	SGTR 1-1 (increase SGTL to 1215 gpm over 5 minutes)
0	11	Mal ppl1b	I, RO	Failure of Train B Phase A

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

The scenario starts at 30% during a startup. The crew will tailboard and commence a ramp to 50% per OP L-4 and dilute as necessary.

During the ramp, PZR Level Channel LT-459 will fail low, giving PZR level and Charging mismatch alarms. The RO will take manual control or charging and maintain seal injection and PZR level in band. The SFM will enter AP-5 and direct LT-459 be removed from input to control and determining per ITS 3.3.1 that bistables must be tripped in 6 hours.

Letdown will then be reestablished per OP B-1A:XII, allowing normal charging and letdown functions in automatic to resume.

SG 1-1 Pressure Channel PT-516 will fail high, causing the atmospheric, PCV-19 to open. There will be no alarms, and only the sound of steam and the indication of a PCV open light will indicate the problem. The BOPCO will have to take manual control of PCV-19 and close the valve. The SFM will respond per AP-5 and ITS 3.3.2 and determine bistables must be tripped in 6 hours.

A small SGTL will develop on SG 1-1 of approximately 5 gpm. The SJAE Rad alarm (PK11-06) will alarm. The BOPCO will also notice RM-15 counts increasing on the chart recorded on VB-1. The SFM will enter AP-3 and direct the RO to determine the leak rate. He will also determine ITS 3.4.13.d limits of 150 gpd has been exceeded and must start planning for a shutdown.

As the shutdown is planned, a small vacuum leak is initiated. Condensate DO2 and conductivity alarms (PK12-04/05) will alarm. The crew will notice vacuum slowly decreasing. The SFM will direct the RO to start a load decrease while entering AP-7. The BOPCO will be directing leak diagnostics outside the control room.

A seismic event will cause the turbine to trip on a lockout, but because the reactor is below P-9, the reactor will stay on line. The SFM must determine that this condition is acceptable and direct the crew to verify normal plant response.

A MSL rupture on SG 1-1 developed from the seismic event, causing a cooldown and SI to occur. The SFM will enter E-0 and E-2 and direct the BOPCO to isolate SG 1-1. The BOPCO will also determine that Phase A train B did NOT occur, and utilizing Attachmnent E, align Phase A manually.

Shortly after the MSL break, a SGTR will develop on SG 1-1. The level increase will be masked from the cooldown and rapid level increases from all AFW pumps running. No rad alarms will occur since these are power dependant on N-16. Once RCS pressure is determined to be too low and SG level response is diagnosed as a SGTR, the SFM will transition to E-3, and direct response from there. He will then transition to ECA-1.3.

The scenario terminates at the transition to ECA-1.3

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

Examiners: Operators:

Objectives: Evaluate the crew's ability to diagnose and respond to a loss of Data A on DRPI
Evaluate the crew's ability to diagnose and respond to a Load Transient Bypass Valve failure
Evaluate the crew's ability to diagnose and respond to a RCP seal failure
Evaluate the crew's ability to shutdown the unit
Evaluate the crew's ability to diagnose and respond to a Loss of RWST
Evaluate the crew in using EOPs during a SBLOCA
Evaluate the crew in using EOPs during a loss of emergency coolant recirculation

Initial Conditions: 100% power, equilibrium xenon, EOL (IC-35). DEG 1-1 OOS for fuel pump replacement. OOS 12 hours, expected return in 8 hours. CSP 1-1 OOS 20 hours for scheduled motor work, expected return 20 hours. PRA good.

Turnover: Maintain Power.

Time min	Event No.	Malf. No.	Event Type*	Event Description
3	1	Mal rod8a	I, RO	Loss of Data A on DRPI
10	2	Mal cnd1	C, ALL	LTBV (FCV-230) fail open
Cond LTBV	3		R, ALL	Stabilize Power
20	4	Mal rcp2a	C, RO	RCP Seal 2 failure
30	5	Mal rcp2a	C, RO	RCP Seal 1 failure
35	6		R,N, ALL	Controlled Shutdown
40	7	Mal sei		Seismic event
Cond on sei	8	Loa sis1	C, ALL	Loss of RWST
Cond on sei	9	Mal rcs3	M, ALL	SBLOCA

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

A Data A failure on DRPI will occur, alarming PK03-21. The SFM will direct DRPI be selected to B train.

The LTBV valve, FCV-230, will fail open increasing reactor power above 100% and alarming PK10-07. The crew will have to shed load to maintain power below 100%. Rods will step and boration will be required. OPdT runback may occur. The SFM will enter AP-25 and direct the control room in stabilizing the plant.

RCP 1-1 #2 Seal will fail, causing seal leakoff to #1 to decrease and #2 to increase. PK05-01 will alarm and the SFM will direct the RO/BOPCO to start investigating, including Aux Board RCDT trends while monitoring temperature trends and RCP vibration.

RCP 1-1 #1 Seal will subsequently start leaking at 7 gpm, lower than the required trip setpoint and with normal temperatures. This will require a plant shutdown, not a trip. The SFM will tailboard and start an orderly plant shutdown with boration.

A seismic event will cause an increase in RCP seal leakage to 10 gpm requiring a pump trip and closure of the seal leakoff valve, a SBLOCA of 3000 gpm, and a Loss of RWST. No water will be available for injection. The crew will proceed through E-0, E-1 and transition to ECA-1.1 when Cold Leg Recirculation capability cannot be confirmed. The crew will be challenged to NOT trip the RCPs with no SI pumps available and no subcooling. They will proceed until cooldown is established with dumping steam and a 100°F/hr cooldown rate is established.

Facility: DCPP Date of Examination: 10/21/2002
Examination Level (circle one): RO / SRO Operating Test Number: 1

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Mode Requirements	ADMNRC – 01, Perform Sealed Valve Checklist (JPM) RO/SRO
	Plant Parameters	ADMNRC – 12SRO, Verify AFD is within Tech Spec Limits (JPM)
		ADMNRC – 2RO, Perform QPTR (JPM)
A.2	Temporary Mods	ADMNRC – 3RO, Prepare Main Annunciator Problem Evaluation (JPM)
		ADMNRC – 3SRO, Review Main Annunciator Problem Evaluation (JPM)
A.3	Radiation Control	ADMNRC – 4, SCA Frisk (JPM) RO/SRO
A.4	Emergency Plan	Question RO: Responsibilities of Emergency Liaison Coordinator Question RO: Emergency Exposure Limits
		ADMNRC – 5SRO, Perform offsite Dose Assessment (JPM)

Facility: DCPP Date of Examination: 10/21/2002
Examination Level (circle one): RO / SRO Operating Test Number: 2

Administrative Topic/Subject Description		Describe method of evaluation: 1. ONE Administrative JPM, OR 2. TWO Administrative Questions
A.1	Plant Parameters	ADMNRC – 6RO, Calculate SDM (JPM)
		ADMNRC – 6SRO, Verify SDM (JPM)
	Fuel Handling	ADMNRC – 7RO, Determine SFP Heat Load (JPM)
		ADMNRC – 7SRO, Verify SFP Heat Load (JPM)
A.2	Tagging	ADMNRC – 8RO, Perform Clearance Review (JPM)
	Maintenance	ADMNRC – 9SRO, Perform Risk Assessment (JPM)
A.3	Radiation Control	ADMNRC – 10, High Radiation Area Entry (JPM) RO/SRO
A.4	Emergency Plan	Question RO: Notification Times Question RO: OSC Activation and Location
		ADMNRC – 11SRO, Perform offsite Dose Assessment (JPM)