

Facility: Ginna Scenario No.: 1 Op-Test No.: 01-01

Examiners: Laughlin (Bissett) Operators: _____
 Fish _____
 Silk _____

Initial Conditions: Plant is at ~48% reactor power, MOL. $C_B = 824$ ppm. Power was reduced 4 hours ago for condenser tube leakage and is ready to go back to full power. BAST $C_B = 11,000$ ppm. "B" MDAFW pump and "C" charging pump are OOS.

Turnover: Plant is at ~48% reactor power, MOL. $C_B = 824$ ppm. Power was reduced 4 hrs ago for condenser tube leakage and is ready to go back to full power. BAST $C_B = 11,000$ ppm. "C" charging pump is OOS for excessive leakage, "B" MDAFW pump is OOS for check valve repair.

Event No.	Malf. No.	Event Type*	Event Description
1	N/A	N(CRF) R(HCO)	Raise power to 100% IAW O-1.2. . <i>(Rods in manual)</i>
2	NIS07A	I(CRF, HCO)	PR channel N41 fails high, rods insert. (Enter ER-NIS.3, TS entry) <i>b/s tripped by CG</i>
3	ROD2A	C(CRF, HCO)	Dropped control rod <i>(2A)</i> (Enter AP-RCC.2 for RCC malfunction, O-5.1 for load reduction) <i>11/14/78</i>
4	CND07 A	C(All)	Loss of condenser vacuum-east 1B, results in turbine/Rx trip. (Enter AP-TURB.4 and E0)
5	EDS01 A&B	M(All)	Loss of offsite power. (Enter AP-ELEG.1) "A" EDG runs on bus 14.
6	GEN04 B	C(All)	"A" EDG runs on bus 14, "B" EDG fails to auto-start but can be started manually.
7	GEN04 A	M(All)	"A" EDG trips, station blackout. (Enter ECA-0.0) Terminate when transition to ECA-0.1

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

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Event Description: Raise reactor power to 100% IAW)-1.2

Time	Position	Applicant's Actions or Behavior
	CRF	Direct start of "B" MFW pump per attachment "MFW Pump B" (Steps 7.0- 13.0) <i>Step 5.8.12</i>
	CO	Lineup Service Water to MFW pump B oil cooler Take B MFW out of Pull Stop Verify MFW pump recirculation valve opens (AOV-4148) Start "B" MFW pump Verify MFW pump discharge pressure and open discharge valve MOV-3976
	CRF	Direct AO to close B MFW pump discharge bypass valve MOV-3976A
	CO	Place HDT Level Controller LT ^{LL} -2013A in Auto
	CRF	Direct AO to check MFW pump warmup valves closed
	HCO	Check Delta I cumulative time on PPCS Verify QPTR is <1.02
	CRF	Verify RP has a leak rate determined from the air ejector sample
	CO	Raise valve position limit to 100% Raise Setter and start load increase
	HCO	Manually operate control rods/dilute as necessary to control Tave

Op-Test No.: _____ Scenario No.: 1 Event No.: 2Page 2 of 6Event Description: PR Channel N41 Fails High

Time	Position	Applicant's Actions or Behavior
	All	Identify failed PR channel
	HCO	Place rod control bank selector switch in manual
	HCO/CO	Adjust Tave/ Tref as necessary
	CRF	Address Technical Specifications (ITS3.2.3)
		Direct NIS channel 41 to be defeated per "Attachment N-41 Defeat"
	HCO	Verify rod control bank selector switch in manual
	HCO/CO	Place DROPPED ROD MODE switch to bypass and verify
		following alarms - DROPPED ROD BYPASS is lit;
		POWER RANGE ROD DROP BYPASS is lit;
		Annunciator E-7 NIS TRIP BYPASS is lit
		Place T/405E DELTA T DEFEAT switch to LOOP A UNIT 1
		Place OVERTEMP TRIP bistable switch to DEFEAT and verify
		the following - F-23 RCS OT \wedge T CHANNEL ALERT is lit
		Red bistable status light OT \wedge T LOOP A TC405C is lit
		Place OVERPOWER TRIP B/S switch to DEFEAT and verify the
		following: F-32 RCS OP \wedge T CHANNEL ALERT is lit
		Red B/S status light OP \wedge T LOOP A TC405A is lit
		Place UPPER SECTION DEFEAT switch to the PRN41 position &
		verify the following: Local light for CHANNEL DEFEAT is lit
		Place LOWER SECTION DEFEAT switch to the PRN41 position &
		verify the following: Local ight for CHANNEL DEFEAT is lit
		Place POWER MISMATCH BYPASS switch to BYPASS PRN41
		Place ROD STOP BYPASS switch to BYPASS PRN41
		Place COMPARATOR CHANNEL DEFEAT switch to N41 & verify
		the following COMPARATOR DEFEAT light is lit -

Op-Test No.: _____ Scenario No.: 1 Event No.: 2 (con't)_____Page 3 of 6 Event Description: PRN41 Failure

Time	Position	Applicant's Actions or Behavior
	HCO/CO	Remove 118V 5A AC INSTR POWER fuses & verify the following
		E-18 POWER RANGE LOSS OF DETECTOR VOLTAGE
		E-19 POWER RANGE HI RANGE CHANNEL ALERT 108%
		E-21 POWER RANGE OVERPOWER ROD STOP 103%
		E-27 POWER RANGE LO RANGE CHANNEL ALERT 24%
		E-28 POWER RANGE ROD DROP ROD STOP 5%/5 SEC
		Verify the following red bistable lights (MCB) are lit
		HI POW RANGE P-10 NC41M
		HI POW RANGE P-8 NC41N
		LO POW RANGE TRIP NC41P
		HI POW RANGE TRIP NC41R
		HI POW RANGE P-9 NC41S
		Verify various status light on PR N41A drawer are lit
		Verify following status lights on PRN41B drawer are extinguished
		INSTRUMENT POWER ON
		CHANNEL ON TEST
	CRF	Notify I&C to install jumpers
	HCO/CO	Restore ROD CONTROL back to AUTO
		Reset dropped rod rod stop signals at RR NIS drawers
	CRF	Check Tech Specs
		Notify Operations supervision I&C and Reactor Engineering

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Event Description: Dropped Control Rod ~~2A~~ (Enter AP-RCC.2 for RCC malfunction, O-5.1 for load reduction) Annunciator C-5 Rod Deviation light lit, Annunciator F-29 PPCS or QUADRANT POWER TILT lit.

Time	Position	Applicant's Actions or Behavior
	HCO/CRO	Place Rod Control Bank Selector Switch to MANUAL
		Check Dropped Rod Indication - Pwr and Tave decreasing
		Go to AP-RCC.3 (Dropped Rod Recovery)
	CO	Place EH control in MANUAL
		Reduce turbine load as necessary to match Tave and Tref
		Verify Annunciator G-15 STEAM DUMP ARMED- EXTINGUISHED
		Check Main Generator Load - GREATER THAN 15 MW
		Establish Stable Plant Conditions
		Check REGEN HX Letdown Indications
	CRF	Evaluate Control Rod Operability
	HCO/CO	Go to ER-RCC.1 RETRIEVAL OF A DROPPED ROD (are we going to try and retrieve?)

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Event Description: Loss of condenser vacuum- east 1B resulting in a turbine/Rx trip

Time	Position	Applicant's Actions or Behavior
	CO	Identifies decreasing vacuum, monitors condenser indications
	CRF	Directs entry into AP-TURB.4 LOSS OF CONDENSER VACUUM
		Dispatches AO to perform local actions
	CRF	Directs Rx Trip and entry into E-0
	HCO/CO	Performs Immediate Actions of E-0
		Verify Rx Trip
		Verify Turbine Stop Valves Shut
		Verify BothTrains of AC Emergency Buses Energized
		Check if SI is Actuated
		SI NOT Required - Transition to ES 0.1 Reactor Trip Response
		Monitor RCS Tave
		Check S/G Feed Flow Status
		Verify all rods on bottom
		Verify All AC Buses ENERGIZED BY OFFSITE POWER - NO
		Perform RNO actions of step 4 of ES-0.1
		Verify at Least Two SW Pumps running - NO
		Start one SW pump per RNO step 5
		Verify IA Available
		Check PZR Level Control - start charging pump(s) per RNO step 7
		"A" D/G trips - Loss of all AC
	CRF	Directs transition to ECA-0.0 Loss of all AC

Appendix D

Operator Actions

Form ES-D-2

Op-Test No.: _____ Scenario No.: 1 Event No.: 5,6,7 Page 6 of 6

Event Description: Loss of all AC _____

Time	Position	Applicant's Actions or Behavior
	CRF	Directs immediate actions of ECA-0.0
	CO	Close MSIVs
	HCO	Isolate RCS by closing AOV 200A, B, C, AOV 371, 427 & AOV 310
	CO	Verify adequate TDAFW flow >200 gpm
		Try to restart a D/G
	CRF	Direct AO to locally restart a D/G
	HCO/CO	Pull Stop Equipment
		Isolate RCP seal injection
		Place hotwell level control in manual at 50%
		Check S/G status - intact
	CRF	Direct manual start of "B" D/G
	CO	Manually control ARV to stabilize RCS temp
		Restore SW pumps
		Verify equipment loaded on available AC emergency buses
	CRF	Direct AO to check battery chargers
		Direct transition to ECA-0.1
	CRF	Site Area Classification

Facility: Ginna Scenario No.: 01-02 Op-Test No.: _____

Examiners: Bissett Operators: _____
Fish _____
Laughlin _____

Initial Conditions: Plant is at 100% power, BOL, C_B 1329, xenon equilibrium. PORV-430 isolated due to high leakage. MOV-516 closed. BAST C_B - 11,000 ppm.

Turnover: _____

only IA
 fails to count

Event No.	Malf. No.	Event Type*	Event Description
1	PZR01 A	C(CRF, HCO)	PZR spray valve PCV-431A fails open approx 50%. (Enter AP-PRZR.1)
2	NIS8A	I (CRF, HCO)	Blown fuse on intermediate range A channel 35. (Enter ER-NIS.2) <i>PER 425 fails low</i>
3	TUR05 C	C(CRF) R(HCO)	Turbine vibration increases. (Enter AP-TURB.3, requires load reduction to stabilize vibration)
4	SGN04 A	M(All)	SGTR on S/G 1A at 700 <i>400</i> gpm. (Enter E-0, E-3, O-6.10 <i>AP-56.1</i>)
5	TUR02 TUR11 D	C(CRF, CO)	Turbine fails to trip. (Manually trip turbine per E-0)
6	SIS03B	C(CRF, HCO)	1B SI pump fails to start.
7	PZR05 B	C(CRF, HCO)	PORV 431 fails open, resulting in SBLOCA. (Enter ECA-3.1, AP-PRZR.1, AP-RCS.4) Terminate when RCS cool-down is underway.

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

Op-Test No.: _____ Scenario No.: 2 Event No.: 1

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Event Description: Pzr spray valve PCV-431A fails open (~50%)

Time	Position	Applicant's Actions or Behavior
	HCO	Identifies stuck open spray valve, RCS pressure decrease
	CRF	Directs entry into AP-PRZR.1 "Abnormal Pressurizer Pressure"
	HCO	Checks Pzr Pressure, Reactor Power, Pzr Heater Status, Pzr Spray valve closed
		Place controllers in manual @0% demand Check Pzr Pressure controller 431K, Demand <50%
		Check PORVs closed,
		Check Pzr safety valves closed
		Check Aux Spray valve closed
		Restore Pzr pressure control
		Check PRT Indications
	CRF	Notify plant supervision and maintenance and reactor Engineering

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Event Description: ~~Blown fuse on intermediate range A channel 35~~

PZR LT 428 fails low

Time	Position	Applicant's Actions or Behavior
	HCO	Identifies IR channel 35 failure
	CRF	Directs entry into ER-NIS 2 "IR Malfunction"
	HCO	Defeats reactor trip and rod stopfunction for IR35 by placing level Bypass position
		Contacts I&C
	CRF	Refers to TS Section 3.3.1, Table 3.3.1-1, Function #3 and #16a

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Event Description: Turbine vibration increase resulting in a load reduction

Time	Position	Applicant's Actions or Behavior
	CRF	Recognize hi turbine vibration, enter AP-TURB.3
		Verify turbine trip not required
	CRF/CO	Reduce turbine load to stabilize vibrations
		Continue load reduction until vibrations stabilize, then stop load
		decrease
	HCO	Stabilize primary systems
	CRF	Direct walkaround inspection of turbine
		Notify higher supervision
		Notify Maintenance Mgr.

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Event Description: SGTR on S/G A at 400gpm

Time	Position	Applicant's Actions or Behavior
	HCO	Identifies prz level decrease and pressure decrease
	CO	Identifies SF/FF mismatch on A S/G
	HCO	Charging pump speed alarm/flow increase
		Increasing radiation levels on R-15, R-19 and R-31
		Start additional charging pumps
		Close loop B cold leg to regen Hx AOV-427
	CRF	Enter AP-SG.1 Steam Generator Tube Leak
		Direct Rx Trip if charging pumps running at max speed with Letdown isolated

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Event Description: Rx Trip, turbine fails to trip, 1B SI pump fails to start

Time	Position	Applicant's Actions or Behavior
	CRF	Direct actions of E-0
	HCO/CO	Verify Rx Trip
		Verify turbine stop valves closed- NO- MANUALLY TRIP TURBINE
		Verify AC Emergency Busses Energized
		Check if SI Actuated
		Verify SI/RHR pumps running -NO-MANUALLY START B SI PUMP
		Verify CNMT RECIRC FANS running
		Verify CNMT Spray NOT required
		Check if Main Steamlines should be isolated
		Verify MFW Isolation
		Verify AFW Pumps Running
		Verify at least Two SW Pumps running
		Verify CI and CVI
		Check CCW System Status
		Verify SI and RHR Pump Flow
		Verify AFW Flow > 200 GPM
		Verify AFW Valve Alignment
		Verify SI Pump and RHR Pump Emergency Alignment
		Check CCW Flow to RCP Thermal Barriers
		Check PZR PORVs and Spray Valves
		Monitor RCP Trip Criteria
		Check if S/G Secondary Side is Intact
		Check if S/G Tubes are Intact - NO- Transition to E-3

Op-Test No.: _____ Scenario No.: <u>2</u> Event No.: <u>7</u>		Page <u>6</u> of <u>7</u>
Event Description: <u>Steam Generator Tube Rupture</u>		
Time	Position	Applicant's Actions or Behavior
	CRF	Direct actions of E-3 Steam Generator Tube Rupture
	HCO/CO	Monitor RCP Trip Criteria
		Identify Ruptured S/G- 1A S/G
		Isolate Flow From Ruptured 1A S/G
		Complete Ruptured S/G Isolation
		Check Ruptured S/G Level
		Verify Ruptured S/G Isolated
		Establish Condenser Steam Dump Pressure Control
		Reset SI
		Initiate RCS Cooldown
		Monitor Intact S/G Levels
		Check PZR PORVs and Block Valves
		Reset CI
		Monitor AC Busses - Energized by Offsite Power
		Verify SW Flow
		Establish IA to CTMT - AOV 5392 FAILS to OPEN
		Check if RHR Pumps should be stopped
		Establish Charging Flow
		Check if RCS Cooldown Should be Stopped
		Depressurize RCS to minimize break Flow and Refill Pzr via PORV
		Check RCS Pressure INCREASING - NO - TRANSITION TO
		ECA-3.1

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Event Description: PORV 431 Fails Open During RCS Depressurization

Time	Position	Applicant's Actions or Behavior
	CRF	Direct actions of ECA-3.1
	HCO/CO	Reset SI and CI
		Verify adequate SW Flow
		Establish IA to CTMT - NO -
		AC Busses energized by offsite power
		Monitor CTMT Spray Pumps - STOPPED
		Check Ruptured 1A S/G Level
		Stopped RHR Pumps
		Evaluate Plant Status
		Establish 75 GPM Charging Flow
		Check S/G Secondary Side and Intact S/G Levels
		Initiate RCS Cooldown to Cold Shutdown
	CRF	Classify as Alert

Facility: Ginna Scenario No.: 01-03 Op-Test No.:

Examiners: Bissett Operators:
 Fish
 Laughlin

Initial Conditions: The plant is at 100% power BOL xenon equilibrium. Boron=1329ppm, BAST conc. = 11,000. Circuit 751 is OOS due to an auto accident, "D" SW pump is OOS due to motor failure.

Turnover:

Event No.	Malf. No.	Event Type*	Event Description
1	PZR2D	I(CRF, HCO)	PZR pressure channel PT-449 fails high. (Enter AP-PRZR.1, ER-INST.1 to defeat channel)
2	RCS14 B	C(CRF, HCO)	"B" RCP #3 seal failure. (Enter AP-RCP.1)
3	RCS2A	C(CRF, HCO)	RCS leak inside containment from loop A hot leg, 15 gpm. (Enter AP-RCS.1) <i>(Notify Cue to Start Shutdown)</i>
4	N/A	N(CRF) R(HCO)	Perform plant shutdown in response to RCS leak. (Enter O-2.1, 100% to 95%) <i>(AP-TURB.5)</i>
5	CND8	C(CRF, CO)	Condensate header break 20K gpm, complete loss of main feedwater. (Enter E-0, E-1) <i>(AP-FW.1)</i>
6	RPS5A &B	M(All)	ATWS (Enter FR-S.1)
7	TUR2	C(CRF, CO)	Main turbine fails to automatically trip.
8	CVCS15	C(CRF, HCO)	BA flow transmitter, FT110 fails to selected value won't allow boron addition. (Enter ER-CVCS.1)
			Terminate drill when SI termination criteria met in E-1.

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

Op-Test No.: _____ Scenario No.: 3 Event No.: 1 Page 1 of 8
 Event Description: PZR pressure channel failure PT-449 fails HI

Time	Position	Applicant's Actions or Behavior
	CRF	PT-449 fails HI, Directs entry into AP-PZR.1Abnormal PZR PRESS
	HCO/CO	Acknowledges ANN F-2 and F-10
		Checks PZR Press - Refers to ER-INST.1
		Place 431K in MANUAL @ ~50%
		Refer to Attachment PZR PRESSURE PI-449 YELLOW CHANNEL
		to defeat failed channel
		Place P/429A to DEFEAT-1 (PLP PZR PRESS/LVL RACK)
		Place T/405F DELTA T DEFEAT switch to LOOP B UNIT 2
		(RIL INSERTION LIMIT Rack)
		In Y-1 PROTECTION CHANNEL 4 rack Place B/S switches
		To DEFEAT
		408 LOOP B-2 - OVER TEMP TRIP
		449 CHANNEL 4 - LOW PRESS TRIP
		Place PZR pressure recorder to position 1-3 (MCB)
		Delete 404/408 from the PPCS
		Restore PZR Pressure Control to automatic
	CRF	Refer to ITS for applicable LCOs
		Section 3.3.1 Table 3.3.1-1 Functions 5 and 7a
		Section 3.3.3 Table 3.3.3-1 Functions 1 and 6
		Check TRM 3.4.3 ATWS mitigation
		Notify maintenance and higher supervision

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Event Description: RCS leak inside CTMT from A loop hot leg

Time	Position	Applicant's Actions or Behavior
	CRF	Directs actions of AP-RCS.1 REACTOR COOLANT LEAK
	HCO/CO	Acknowledges ANN F-14, A-2, E-16, F-4
		Check PZR level (Decreasing) RNO actions
		Start additional charging pumps
		Check VCT M/U System
		Check if RCS leakage in CTMT
		Dispatch AO to Aux Bldg
		Check for leak to CCW System
		Check CVCS Conditions
		Check AUX Bldg radiation levels
		Check PRT Indications
		Check S/Gs for Leakage
		Check SI Accumulator levels
		Check RCP Seal Leakoff Flows
		Check RCDT Leak Rate
		Check Valve Leakoff Temps
		Establish Stable Plant Conditions
		Evaluate RCS Leakage
		RNO - Commence Plant Shutdown at 1%/min
	CRF	Notify higher supervision

Op-Test No.: _____ Scenario No.: 3 Event No.: 6Page 6 of 8Event Description: ATWS and Failure of Main Turbine to Trip

Time	Position	Applicant's Actions or Behavior
	CRF	Direct actions of E-0
	HCO/CO	Verify Rx Trip - NO
		Manually trip the reactor - NO -
	CRF	Transition to FR-S.1
	HCO/CO	Verify Rx Trip - NO
		RNO- Manually trip reactor
		Manually insert rods
		Verify Turbine Stop Valves closed - NO
		Manually trip turbine
		Verify AFW flow
		Initiate Emergency Boration
		Check PZR PORV status - NO
		Open PORVs as necessary to control pressure
		Verify CTMT ventilation isolation
	CRF	Dispatch AO to locally trip reactor - YES
		Transition to E-0
		Direct actions of E-0
	HCO/CO	Verify Rx Trip
		Verify turbine stop valves closed
		Verify AC emergency busses
		Check if SI is actuated
		Verify SI and RHR pumps running
		Verify CTMT recirc fans running
		Verify CTMT spray not actuated

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Event Description: ATWS and Failure of Main Turbine to Trip

Time	Position	Applicant's Actions or Behavior
	HCO/CO	Check if any main steamline should be isolated
		Verify MFW isolation
		Verify AFW pumps running
		Verify CI and CVI
		Check CCW system status
		Verify SI and RHR flow
		Verify AFW flow > 200 gpm
		Verify SI pump and RHR pump emergency alignment
		Check CCW flow to RCP Thermal barriers
		Check if TDAFW pump can be stopped
		Monitor RCS Tave- stable or trending to 547 degrees
		Check PZR PORVs and Spray valves
		Monitor RCP Trip Criteria
		Check if S/G Secondary side is intact
		Check if S/G Tubes are intact
		Check if RCS is intact - NO
		Transition to E-1

Op-Test No.: _____ Scenario No.: 3 Event No.: _____Page 8 of 8Event Description: Loss of Reactor or Secondary Coolant (E-1)

Time	Position	Applicant's Actions or Behavior
	CRF	Direct actions of E-1
	HCO/CO	Monitor RCP Trip Criteria
		Check if S/G secondary side intact
		Monitor intact S/G levels
		Monitor if secondary radiation levels are normal
		Monitor PRZ PORV status
		Reset SI and CI
		Verify adequate SW flow
		Establish IA to CTMT
		Check normal power to charging pumps
		Check if charging flow has been established
		Check if SI should be terminated
		Monitor if CTMT spray should be stopped
		Monitor if RHR pumps should be stopped
		Check RCS and S/G pressures
		Check if EDGs should be stopped
		Check if RHR should be throttled
		Verify CTMT sump recirculation capability
		Evaluate Plant Status
		NOTE: SHOULD MEET SI TERMINATION CRITERIA PER
		FOLDOUT PAGE CRITERIA OR STEP 12 OF E-1
	CRF	Transition to ES-1.1, SI TERMINATION
		Classify as a Site Area