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AR 403		16	24
AR 504		10	24
AR 602		11	24
AR 603		08	24
AR 701		12	24
AR 702		11	24

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CRYSTAL RIVER FLA. 32623
___ (7) QUALITY PROGRAMS PERSONNEL HAVE READ AND UNDERSTOOD THE CHANGES TO THE AFFECTED QAP'S

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Rev. 13 06/18/92

Effective Date 6/22/92

ANNUNCIATOR RESPONSE

AR-303

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

ESC ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

W. Marshall

DATE: 6/22/92

INTERPRETATION CONTACT: Nuclear Operations Superintendent

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1.0 PURPOSE

1.1 Establish a reference document for each Annunciator Window on the ESAB-A Lampbox.

1.2 Establish operator actions for valid Annunciator alarms on the ESAB-A Lampbox.

1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ESAB-A Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

2.1.1 AP-380, Engineered Safeguards Actuation

2.1.2 AP-330, Loss of Nuclear Service Water

2.2 DEVELOPMENTAL REFERENCES

2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

2.2.2 Annunciator Window Engraving Drawing E-224-048

3.0 PERSONNEL INDOCTRINATION

3.1 The Annunciator System is powered from VBDP-5 Breaker 28.

4.0 INSTRUCTIONS

4.1 Respond to alarms on the ESAB-A Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ANNUNCIATOR PANEL LOCATION: ESAB-A — ANNUNCIATOR PANEL: C — VERTICAL COLUMN: 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER &
RC 1 HI PRESS BISTABLE TRIP C-1-1	1. a) RC press < 1500 psi. 2. a) Low RC press.	1. a) One logic channel trip in 2 out of 3 HPI logic. 2. b) Investigate alarm and follow AP-380 (ESA).	1500 PSI	BT-1
RC 4 LO PRESS BISTABLE TRIP C-1-2	1. a) RC press ≤ 500 psi. 2. a) Low RC press.	1. a) One logic channel trip in 2 out of 3 LPI logic. 2. a) Investigate alarm and follow AP-380 (ESA).	500 psi	BT-7
SW BP A/B TRIP C-1-3	1. a) Control switch in normal after start position and breaker open, breaker racked in. 2. a) Mismatch of target and indicating light on control switch. b) NSCCC booster pump auto start alarm (alternate pump). c) NSCCC booster pump low flow alarm. d) CRDM stator high temp alarm.	1. a) Alternate pump starts as result of low flow. 2. a) Insure alternate booster pump starts. b) Investigate reason for pump trip.		CS/SC CS/O
SW BP A/B FLOW LOW C-1-4	1. a) Flow decreases to < 140 gpm for > 5 sec. 2. a) Both booster pumps running. b) NS CCC boost pump trip alarm. c) CRDM high temp alarm.	1. a) Alternate booster pump starts if < 140 gpm for > 2 sec. 2. a) Check CRDM cooling water filter for high Δp and place standby filter in service.	140 gpm	SW-91-FS
C-1-5				
SW BP A/B AUTO START C-1-6	1. a) Decreasing flow alternate pump starts at 140 gpm for > 2 sec. 2. a) Mismatch on control switch target and indicating lights.	1. a) Booster pump starts. 2. a) Investigate reason for pump trip.	140 gpm	SW-91-FS
C-1-7				
SW SURGE TANK LEVEL HIGH/LOW C-1-8	1. a) High level alarm at 11' 6". b) Low level alarm at 8' 6". 2. a) Low or high N_2 press. b) Radiation alarm in SW system. c) Low or high system pressure alarm.	1. a) None. 2. a) If low level alarm: o Add makeup to surge tank o Secure second running SW pump to reseat open relief valves o Refer to AP-330 if level does not recover or if level < 5 feet o Investigate for leaks b) If high level alarm investigate for in leakage from let down coilers.	11' 6" 8' 6"	SW-137-LS

ANNUNCIATOR PANEL LOCATION ESAB-A ANNUNCIATOR PANEL C VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
SW SURGE TANK PRESS HIGH/LOW C-1-9	1. a) High pressure alarm at 95 psig. b) Low pressure alarm at 75 psig. 2. a) High or low press indication. b) High or low level alarm. c) Pump amps not normal.	1. a) None. 2. a) Check N_2 regulator for proper operation. b) If press alarm caused by high or low level correct level.	95 psig 75 psig	SW-134-PS
C-1-10				
RB FAN A/B/C CLG WTR FLOW LOW C-1-11	1. a) SW flow from air handling unit 1A, 1B or 1C < 525 gpm. 2. a) Reactor Building SW System Leak.	1. a) None. 2. a) Check for leak and isolate leaking unit.	525 gpm	SW-47-FS SW-51-FS SW-55-FS
REACTOR BLDG SW SYSTEM LEAK C-1-12	1. a) One of 10 different inputs has caused alarm use annunciator typer to verify cause of alarm. See note C-1-12. 2. a) High temp alarm on affected component. b) Low coolant flow alarm if RB air handling unit. c) Level decreasing in SW surge tank.	1. a) None. 2. a) Establish makeup to SW surge tank. b) Isolate the affected component and place its backup in service.		SW-42, 43, 46, 50, 54, 90, 95, 101, 107, 113-FS
C-1-13				
ES CAB FAN FAILURE C-1-14	1. a) Failure of any cabinet fan. Low cabinet air flow. 2 'Fan Running' lamp not lit.	1. a) None. 2. a) Investigate fan failure and notify Electrical Supervisor. b) Replace door filter.		FSBFX

ANNUNCIATOR PANEL LOCATION ESA9-A ANNUNCIATOR PANEL C VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER &
RC 2 HIGH PRESS BISTABLE TRIP C-2-1	1. a) RC press ≤ 1500 psi. 2. a) Low RC press.	1. a) One logic channel trip in 2 out of 3 HPI logic. 2. a) Investigate alarm and refer to AP-380 (ESA).	1500 psi	BT-2
RC 5 LOW PRESS BISTABLE TRIP C-2-2	1. a) RC press ≤ 500 psi. 2. a) Low RC press.	1. a) One logic channel trip in 2 out of 3 LPI logic. 2. a) Investigate alarm and refer to AP-380 (ESA).	500 psi	BT-8
SWP C TRIP C-2-3	1. a) Control switch in normal after start, breaker open, breaker racked in. 2. a) Low system press alarm. b) SWP-1B or 1A start at 110 psi system header pressure. c) Low bus voltage.	1. a) SWP 1B starts 2 sec after press decreases to < 110 psi if SWP 1B fails to start SWP 1A will start 10 sec. after press decreases to < 110 psi. 2. a) Insure auto start of SWP 1A or 1B. b) Investigate cause of SWP 1C trip and notify Electrical Supervisor.		CS/SC CS/O
SWP C MOTOR OVERLOAD C-2-4	1. a) Overload relay alarm set at 115% rated load. 2. a) Low system pressure. b) High pump amps.	1. a) None. 2. a) Start SWP 1A or 1B secure SWP 1C and investigate cause of overload.		51
SW SYSTEM PRESS LOW C-2-5	1. a) Low header press at 110 psig. 2. a) Tripped SWP alarm. b) Possible SWP overload alarm. c) Possible low surge tank press.	1. a) Start SWP 1A or 1B. 2. a) Insure back up pump starts. b) Check system for leakage.	110 psi	SW-151-PS
SW SYSTEM TEMP HIGH C-2-6	1. a) SW pump suction temp at 105 F. 2. a) Loss of RWP. b) Screen wash trouble alarm. c) SWP abnormal current.	1. a) None. 2. a) Check heat exchanger for possible dirty heat exchanger and place alternate one in service. b) Check screens and RWP's to insure seawater flow to heat exchanger. c) Reduce heat load on SW system if possible.	105°F	SW-5-TS
C-2-7				

ANNUNCIATOR PANEL LOCATION ESAB-A ANNUNCIATOR PANEL C VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
NA OH TANK LEVEL HIGH/LOW C-2-8	1. a) High level alarm at 34.5 ft. b) Low level alarm at 33.3 ft. 2. a) Abnormal tank level indication.	1. a) None. 2. a) Investigate possible flow path to or from tank and correct. b) Restore tank to normal level.	34.5 ft. 33.3 ft.	BS-3-LS
NA OH TANK TEMP HIGH/LOW C-2-9	1. a) High temp alarm at 110°F. b) Low temp alarm at 50°F. 2. a) Abnormal tank temp indication.	1. a) None. 2. a) Check heat tracing for proper operation.	110°F 50°F	BS-7-TS1
C-2-10				
REACTOR BLDG FLOOD LEVEL HIGH C-2-11	1. a) RB Flood Hi-Level ≥ 31" above RB floor (97'7"). 2. a) Increasing RB flood level as indicated on WD-303-LI and WD-304-LI.	1. a) None. 2. a) Transfer LPI pump suction to sump per AP-350.	≥ 31" above RB floor	WD-303-LY WD-304-LY LEVEL TRANSMITTER
REACTOR BLDG SUMP LEVEL HIGH C-2-12	1. a) RB Sump Hi-Level ≥ 4' above sump floor (88' 6"). 2. a) Increasing RB sump level.	1. a) None. 2. a) Notify Assistant Nuclear Operator to investigate.	≥ 4' above RB sump floor	LEVEL TRANSMITTER
REACTOR BLDG SUMP PUMP TROUBLE C-2-13	1. a) RB sump pump A or B auto start. b) RB sump pump A or B trip. c) RB sump level extra high. d) Waste Disposal panel fan failure. 2. a) Changing RB sump level.	1. a) RB sump pump start and stop. 2. a) Investigate possible leak sources. b) Investigate fan failure at Waste Disposal Panel	HI-HI 3' HI 2' LOW 1.5'	ANN PT AUX CONT WD-131-LS WD-222-L2
SW ISO VALVE AIR FAILURE C-2-14	1. a) Supply air low to CIV-34, 35, 40, or 41. b) Supply air pressure decreasing to 80 psig on any of 22 SWV use annunciator typer to verify cause of alarm. See note C-2-14. 2. a) Instrument air press. low.	1. a) Some valves fail closed on loss of air. 2. a) Restore air supply to affected valves.	≤ 80 psig	CI-411-PS CI-412 PS CI-413-PS CI-414-PS SWV-12, 35, 37, 41, 43, 45, 79, 80, 81, 82, 84, 109, 110, 353, 354, 355, 151, and 152-PS

ANNUNCIATOR PANEL LOCATION ESAB-A ANNUNCIATOR PANEL C VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER &
RC 3 HIGH PRESS BISTABLE TRIP C-3-1	1. a) RC press ≤ 1500 psi. 2. a) Low RC press.	1. a) One logic channel trip in 2 out of 3 HPI logic. 2. a) Investigate alarm and refer to AP-380 (ESA).	1500 psi	BT-3
RC 6 LOW PRESS BISTABLE TRIP C-3-2	1. a) RC press ≤ 500 psi. 2. a) Low RC press.	1. a) One logic channel trip in 2 out of 3 LPI log c. 2. a) Investigate alarm and refer to AP-380 (ESA).	500 psi	BT-9
RWP 1 TRIP C-3-3	1. a) Breaker control switch in normal after start position with breaker open. (Breaker racked in.) 2. a) Buss undervoltage.	1. a) RWP 2B starts on decreasing header press at 7 psig. 2. a) Start RWP 2A or 2B if auto start fails. b) Investigate cause of trip.	7 psig	RW-63-PS1 CS/SC CS/O
SW RW PUMP MOTOR OVERLOAD C-3-4	1. a) Overload relay is set at 115% rated load. 2. a) High pump amps.	1. a) None. 2. a) Start RWP 2A or 2B secure RWP1.		51
SW RW SYSTEM PRESS LOW C-3-5	1. a) Low press at 7 psig. 2. a) Decreasing header press. b) Possible RW pump trip.	1. a) RWP 2B auto start. 2. a) Start standby RWP if auto start fails. b) Investigate cause of loss of press.	7 psi	RW-63-PS1
RWP AND SW RW PP RUNNING C-3-6	1. a) RWP 1 and RWP 2A or RWP 2B running at the same time. 2. a) Indication of both pumps running.	1. a) RWP-1 trip after 15 sec. 2. a) Secure one RWP.	15 sec.	52 S/A S (RWP-1,S 2A, 2B)S
C-3-7				
BWST LEVEL HIGH/LOW C-3-8	1. a) BWST Hi/Low operate level at 47' and 45'. b) BWST low level alarm at 3' 9 3/8". c) BWST Lo Lo level alarm at 2' 3 3/8". 2. a) Low level in BWST. b) High level in BWST.	1. a) Cut off heaters. 2. a) BWST Hi or Low level during operation secure operation causing water transfer. b) BWST Lo level alarm following ES actuation shift LPI & RB spray sucticns to RB sump.	47' 45' 3' 9-3/8" 2' 3-3/8"	DH-11-LS DH-007-LS
BWST TEMP HIGH/LOW C-3-9	1. a) BWST high temp at 110°F. b) BWST low temp at 60°F. 2. a) BWST temp indication high or low. b) Bor Wtr temp cont non auto alarm.	1. a) None. 2. a) If high alarm secure heaters, if low place heaters in operation.	60°F 110°F	DH-9-TTS DH-10-TTS

ANNUNCIATOR PANEL LOCATION ESAB-A ANNUNCIATOR PANEL C VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
C-3-10				
DH TO PZR SPRAY VALVE OPEN C-3-11	1. a) DHV-91 not full closed and RC press > 200 psi. b) DH injection line isolation valve to pressurizer spray line (RCV-53) is open and RC pressure ≥ 200 psig. 2. a) Valve control switch indicating lamps b) RC pressure instrumentation.	1. a) None. 2. a) Maintain RC press < 284 psig or close DHV-91 and RCV-53.	VLV OPEN AND RC PRESS ≥ 200 psig	RC-3A-PS7
DH VALVE ACI SYSTEM TROUBLE C-3-12	1. a) ACI subsystem 1 or 2 bypass key in bypass. b) ACI subsystem 1 or 2 module removed. c) RC press greater than 284 psig and DHV 3 or DHV 4 not closed. 2. a) No closed indication on DHV 3 or DHV 4.	1. a) DHV 3 and DHV 4 close. 2. a) If suction is lost to DH sys due to closure of DHV 3 or 4, secure DH removal and correct reason for DHV 3 or DHV 4 closure.		
DH DROP LINE VALVES OPEN C-3-13	1. a) DHV 3 not closed and RC press > 284 psi. b) DHV 4 not closed and RC press > 284 psi. c) DHV 41 not closed and RC press > 200 psi. 2. a) No closed indication on DHV 3, or DHV 4, or DHV 41.	1. a) DHV 3 and DHV 4 close at RC press > 284 psig. 2. a) Maintain RC press < 284 psig. b) If suction is lost to DH sys due to closure of DHV 3, 4 or 41, secure DH removal and correct reason for DHV 3, DHV 4, or DHV 41 closure.	284 psig 200 psig	3RC-3A-PS8 RC3A-PS4
SEISMIC SYSTEM TROUBLE C-3-14	1. a) SEISMIC event occurred. b) SEISMIC panel power loss. c) SEISMIC recorder end of tape. 2. a) Indication of SEISMIC panel.	1. a) None. 2. a) Check SEISMIC panel for cause of alarm.		K4 K3 K2

ANNUNCIATOR PANEL LOCATION	NOTES
C-1-12	1. a) Diff flow to AH unit 1A 90 gpm. (2.34 psid) b) Diff flow to AH unit 1B 90 gpm. (2.34 psid) c) Diff flow to AH unit 1C 90 gpm. (2.34 psid) d) Diff flow to LD cooler A + C 50 gpm. (2.34 psid) e) Diff flow to LD Cooler B 50 gpm. (2.34 psid) f) Diff flow to CRDM'S 10 gpm. (2.34 psid) g) Diff flow to RCP A 20 gpm. (2.34 psid) h) Diff flow to RCP B 20 gpm. (2.34 psid) i) Diff flow to RCP C 20 gpm. (2.34 psid) j) Diff flow to RCP D 20 gpm. (2.34 psid)
C-2-14	1. Supply air press decreasing at 80 psig of the following valves: a) SWV-12 b) SWV-35 c) SWV-37 d) SWV-39 e) SWV-41 f) SWV-43 g) SWV-45 h) SWV-79 i) SWV-80 j) SWV-81 k) SWV-82 l) SWV-83 m) SWV-84 n) SWV-85 o) SWV-86 p) SWV-109 q) SWV-110 r) SWV-353 s) SWV-354 t) SWV-355 u) SWV-151 v) SWV-152

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ANNUNCIATOR RESPONSE

AR-403

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

PSA H ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

W. Marshall

DATE: 6/22/92

INTERPRETATION CONTACT: Nuclear Operations Superintendent

TABLE OF CONTENTS

1.0 PURPOSE

1.1 Establish a reference document for each Annunciator Window on the PSA-Z Lampbox.

1.2 Establish operator actions for valid Annunciator alarms on the PSA-Z Lampbox.

1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the PSA-Z Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

2.1.1 EP-390, Steam Generator Tube Leak

2.1.2 AP-250, Radiation Monitor Actuation

2.1.3 AP-1050, Flooding

2.1.4 CP-138, Secondary Water Chemistry Guidelines

2.1.5 AP-380, Engineered Safeguards System Actuation

2.1.6 OP-103B, Heat-Up Cooldown Curves

2.1.7 AP-460, Steam Generator Isolation Actuation

2.1.8 SP-146, EFIC Monthly Functional Test

2.1.9 AP-450, Emergency Feedwater Actuation

2.1.10 AP-580, Reactor Trip

2.1.11 OP-302, RC Pump Operation

2.1.12 OP-301, Operation Of The Reactor Coolant System

2.2 DEVELOPMENTAL REFERENCES

2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

2.2.2 Annunciator Window Engraving Drawing E-224-048

3.0 PERSONNEL INDOCTRINATION

3.1 The Annunciator System is powered from VBDP-5 Breaker 28.

4.0 INSTRUCTIONS

4.1 Respond to alarms on the PSA-Z Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ANNUNCIATOR PANEL LOCATION PSA-1 ANNUNCIATOR PANEL H VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
GAMMA RADIATION HIGH H-1-1	1. a) Gamma Hi radiation alarm. b) See annunciator typer and note H-1-1. 2. a) Check rad monitor system as indicated.	1. a) Local alarm sounds. 2. a) Notify Chem/Rad.	SEE RAD MONITOR SETPOINT LOG BOOK	RAD MON PANEL
GAMMA MONITOR WARNING H-1-2	1. a) Gamma monitor indicate instrument failure, or radiation level in excess of warning setpoint. b) See annunciator typer and note H-1-1. 2. a) Check appropriate rad monitor.	1. a) None. 2. a) Notify Instruments and Controls Supervisor. b) Notify Chem/Rad.	SEE RAD MONITOR SETPOINT LOG BOOK	RAD MON PANEL
H-1-3				
H-1-4				
MN STM LINE A/B HIGH RAD MONITOR FAIL H-1-5	1. a) Indicates instrument failure or radiation level in excess of Alarm Setpoint. 2. a) Monitor RMA-12.	1. a) None. 2. a) Check MS Line Monitors. b) Refer to EP-390 (SGTL).		
H-1-6				
DO ST TANK LEVEL HIGH/LOW H-1-7	1. a) High level in DO storage tank $\geq$ 97" H_2O. b) Low level in DO storage tank. 2. a) None.	1. a) None (tank should auto fill). 2. a) Notify Nuclear Auxiliary Operator if alarm persists.	$\geq$ 97" H_2O $\leq$ 33" H_2O	CS-4-LS CO-3-LS
H-1-8				

ANNUNCIATOR PANEL LOCATION PSA-Z ANNUNCIATOR PANEL H . VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER &
ATMOSPHERIC RADIATION HIGH H-2-1	1. a) Atmospheric High Radiation alarm. b) See annunciator typer and note H-2-1. 2. a) Check rad mon panel.	1. a) None. 2. a) Refer to AP-250 (RMA). b) Refer to Note H-2-1 c) Notify Chem/Rad	SEE RAD MONITOR SETPOINT LOG BOOK	RAD MON PANEL
ATMOSPHERIC MONITOR WARNING H-2-2	1. a) Indicates instrument failure, or radiation level in excess of warning setpoint. b) Flow High/Low. See Note H-2-2. c) See annunciator typer and Notes H-2-1 and H-2-2. 2. a) Check rad mon panel.	1. a) None. 2. a) Notify Chemistry and HP	SEE RAD MONITOR SETPOINT LOG BOOK	RAD MON PANEL
H-2-3				
H-2-4				
EDAS SYSTEM TROUBLE H-2-5	1. a) Loss of Multiplexer Power. b) Primary Met. Tower on Back-up Power. c) Primary Met. Tower Back-up Power Out of Sync. d) Primary Met. Tower Signal Failure. e) Primary met. Tower Building Temp High/Low. 2. a) EDAS Alarm Panel.	1. a) None. 2. a) Notify I&C Supervisor.		
SUMP LEVEL HIGH H-2-6	1. a) Aux. Bldg. sump level > 92.5' elevation. b) CH Pit A sump level > 74' elevation. c) CH Pit B sump level > 74' elevation. d) Condensate Pump Pit A sump level > 88.6' elevation. e) Condensate Pump Pit B sump level > 88.6' elevation. f) Nuclear Service Cooler area sump level > 93.5 elevation. g) Tendon Access Gallery sump > 72.5' elevation. 2. a) None.	1. a) None. 2. a) Dispatch personnel to determine source of determine source of flooding. b) Terminate flooding. c) Refer to AP-1050 (Flood).		WD-132-LS WD-133-LS WD-134-LS SD-31-LS SD-32-LS SD-5-LS3 SD-6-LS3

ANNUNCIATOR PANEL LOCATION PSA-Z ANNUNCIATOR PANEL H VERTICAL COLUMN 2

1. INDICATED CONDITION
2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE

1. AUTO ACTION
2. OPERATOR ACTION - VALID ALARM

				ELEMENT NUMBER & LOCATION
BLDG SUMPS/ SUMP PUMP TROUBLE H-2-7	1. a) Diesel generator sump level high. b) DH sump level > 74' elevation and pump not running. c) DH sump pump auto start. d) Aux. Bldg. sump pump auto start or pump trip. e) Laundry and shower sump level > 91.5' elevation or pump auto start or pump trip. f) Turbine Building sump level ≥ 91.5' elevation or oil/water separator trouble. g) Intake electric vault level ≥ 18'. h) Sewage pit level high. i) Waste Gas Comp Seal Leak OR Tk Low Level 2. a) None.	1. a) Sump pump auto start. 2. a) Investigate cause of level increase. b) Return sump to normal level. c) Notify Aux Bldg Operator d) Check oil/water separator		SD-24-LS2 WD-302-LS2
SEC SAMPLE SYSTEM ALARM	1. a) Alarm on secondary sample panel that has not been acknowledged with'n the timer setting. b) Hotwell condensate conductivity high. 2. a) Condensate conductivity recorder.	1. a) None. 2. a) Notify Chemistry. b) Refer to CP-138		SS-0'1-CTR

ANNUNCIATOR PANEL LOCATION PSA-2 ANNUNCIATOR PANEL H VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
LIQUID RADIATION HIGH H-3-1	1. a) Liquid Hi rad. b) See annunciator typer and note H-3-1. 2. a) Check liquid alarm monitors.	1. a) If RML-2 hi rad alarm WDV-891 closes and WDV-892 closes. 2. a) Notify Assistant Nuclear Operator and Chem/Rad. b) Determine source of contamination and isolate. c) Refer to Note H-3-1.		RAD MON PANEL
LIQUID MONITOR WARNING H-3-2	1. a) Indicates instrument failure, or radiation level in excess of warning setpoint. b) See annunciator typer and Note H-3-1. 2. a) Check liquid alarm monitor.	1. a) None. 2. a) Notify Instruments and Controls Supervisor and Chem Rad. b) Determine source of contamination and isolate.		RAD MON PANEL
RH-L2/7 INTERLOCK BYPASSED H-3-3	1. a) Defeat interlock between valve SDV-90 and RWP-3A & 3B. (Interlock does not allow opening of SDV-90 while RWP-3A & 3B are not in operation.) b) Defeat interlock between valve WDV-892 and RWP-2A & 2B. 2. a) None.	1. a) Allows opening of SDV-90 with RWP-2A & 2B running and RWP-3A & 3B idle. b) Allows opening of WDV-892 with RWP-3A or 3B running and RWP-2A & 2B idle. 2. a) None		KEYLOCK SWITCH
H-3-4				
FLUSH WATER SYSTEM PRESS LOW H-3-5	1. a) Decreasing header press at 75 PSIG. 2. a) None (loss of pump).	1. a) None. 2. a) Start flush water pump or b) Start RWP-2A or RWP-2B.	≤ 75 PSIG	DO-2-PS TD-LFP
FLUSH WATER PUMP AUTO STOP H-3-6	1. a) Control switch in normal after start and brk open. 2. a) Brk indicates open.	1. a) None. 2. a) Start standby pump.		CS/SC CS/O
FLUSH WATER PUMP AUTO START H-3-7	1. a) Control switch in normal after stop and brk closed. 2. a) Brk indicates closed.	1. a) None. 2. a) Match target. b) Determine cause of low pressure.		CS/SC CS/O
SW SYSTEM SUPPLYING FLUSH WATER H-3-8	1. a) DOV-238 or DOV-210 open. 2. a) DOV-238 or DOV-210 indicates open.	1. a) None. 2. a) Monitor SW Surge Tank level.		

ANNUNCIATOR PANEL LOCATION PSA-7 ANNUNCIATOR PANEL H VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
MAKEUP TANK LEVEL LOW-LOW H-4-1	1. a) Lo-Lo level ≤ 18". 2. a) Makeup tank level.	1. a) MUV-58 and MUV-73 open. 2. a) Restore normal level.	≤ 18" H_2O	
MAKEUP TANK LEVEL HIGH/LOW H-4-2	1. a) Hi level ≥ 86". b) Low level ≤ 55". 2. a) Makeup tank level.	1. a) None. 2. a) Monitor closely and restore normal level.	< 55" H_2O ≥ 86" H_2O	MU-14-LS1
MAKEUP FLOW HIGH H-4-3	1. a) > 160 GPM through MUV-31 (or bypass). 2. a) Indicated makeup flow > 160 GPM.	1. a) None. 2. a) If high flow continues refer to AP-380 (ESA) or EP-390 (SGTL).	MU-46 MU-47	MU-24-FS
LETDOWN TEMP HIGH H-4-4	1. a) Inlet to prefilters ≥ 130°F. 2. a) Monitor letdown temp.	1. a) None. 2. a) If temperature continues to increase reduce flow or increase cooling water.	≥ 130°F	MU-5-TS
RC PUMP SEAL BLEED OFF HIGH H-4-5	1. a) RCP-A control bleed off ≥ 1.75 gpm.* b) RCP-B control bleed off ≥ 1.75 gpm.* c) RCP-C control bleed off ≥ 1.75 gpm.* d) RCP-D control bleed off ≥ 1.75 gpm.* 2. a) None.	1. a) None. 2. a) Re-establish bleed off.	≥ 1.75 ≥ 1.75 ≥ 1.75 ≥ 1.75	MU-31-FS1 MU-31-FS2 MU-31-FS3 MU-31-FS4
MAKEUP TANK PRESS HIGH/LOW H-4-6	1. a) MU tank press ≥ 15 PSIG. b) MU tank press ≤ 3 PSIG. 2. a) MU tank press/level indication.	1. a) None. 2. a) If press ≤ 3 PSIG, then restore pressure via MUV-141 or MUV-143. b) If press ≥ 15 PSIG, then ensure MUV-141 closed, MUV-143 closed, and MU tank press within the limit of MU tank press/level curve of OP-1039.	≥ 15 PSIG ≤ 3 PSIG	MU-17-PS
RC PUMP SEAL RTN (MUV-253) NOT FULL OPEN H-4-7	1. a) MUV-253 less than full open. 2. a) MUV-253 limit switch lights.	1. a) None. 2. a) Reopen MUV-253.		Relay AF-3MUV-253G
MAKEUP VALVES AIR FAILUR H-4-8	1. a) Control air tank MUV-51, 31, 16 & 253 low press. 2. a) Air fail back lite pushbutton for associated valve is illuminated.	1. a) Valve(s) lock as is. 2. a) To operate valve until air pressure restored, depress air fail pushbutton.		RELAY RACK

*These points have been disabled by IMAR-89-06-14-01

ANNUNCIATOR PANEL LOCATION PSA-2 ANNUNCIATOR PANEL H VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
STM GEN A MAIN STEAM ISO ACTUATED H-5-1	1. a) EFIC CH. A or CH. B Main Steam Isolation Actuation. b) Half trip on EFIC CH A or CH B.	1. a) MSIV on affected OTSG closes. 2. a) Refer to AP-460 (SGIA). b) Notify I&C of EFIC half trip (Refer to SP-146).		
STM GEN A FEEDWATER ISO ACTUATED H-5-2	1. a) EFIC CH. A or CH. B Main Feed Isolation Actuation. b) Half trip on EFIC CH A or CH B.	1. a) Main FW Block valve closes. b) LO Load FW Block valve closes. c) SU Block valve closes. d) FWP Suction valve closes. 2. a) Refer to AP-460 (SGIA). b) Notify I&C of EFIC half trip (Refer to SP-146).		
MAIN STEAM ISO VLV AIR FAILURE H-5-3	1. a) Air supply pressure low for MSV-411, MSV-412. b) Air supply pressure low for MSV-413, MSV-414. 2. a) Instrument air pressure.	1. a) Possible closure of 2 MSIV's. 2. a) IF 2 MSIV's close, THEN trip reactor. b) IF reactor tripped, THEN refer to AP-580 (RT).	$\leq$ 80 PSIG	MS-98-PS MS-99-PS
LETDOWN PRESS HIGH H-5-4	1. a) Outlet of block orifice $\geq$ 145 PSIG. 1. a) None.	1. a) None. 2. a) IF alarm does not clear, THEN shut MUV-49. b) Determine cause of Hi press before reopening MUV-49.	$\geq$ 145 PSIG	MU-6-PS
MAKEUP FILTERS Δ PRESS HIGH H-5-5	1. a) Makeup Postfilter DP $\geq$ 25 psid. b) Makeup Prefilters DP $\geq$ 12 psid. 2. a) Control Board Indication.	1. a) None. 2. a) Shift to clean filter if available. b) If not reduce letdown flow.	$\geq$ 25 psid $\geq$ 12 psid	MU-18-DPS MU-81-PS
MAKEUP DEMIN Δ PRESS HIGH H-5-6	1. a) DP $\geq$ 14 psid. 2. a) Indication $\geq$ 14 psid.	1. a) None. 2. a) Shift to standby demin or bypass. (Reducing letdown flow will lower DP).	$\geq$ 14 psid	MU-75-DPS
RC PUMP SEAL FLOWS HIGH/LOW H-5-7	1. a) Total seal flow high/low. b) RCP-A seal flow low. c) RCP-B seal flow low. d) RCP-C seal flow low. e) RCP-D seal flow low. 2. a) Indicated seal flow low.	1. a) None. 2. a) Re-establish normal seal flow as soon as cause is found. Refer to OP-302.	$\geq$ 42 gpm $\leq$ 22 gpm $\leq$ 3 gpm $\leq$ 3 gpm $\leq$ 3 gpm $\leq$ 3 gpm	CU-27-FS MU-7-FS1 MU-7-FS2 MU-7-FS3 MU-7-FS4
BWST VLV INTERLOCK BYPASS H-5-8	1. a) MUT Low Low Level interlock defeated. 2. a) None.	1. a) None. 2. a) If switch not indicated by operators, then investigate cause of switch misposition.		In 'B' RSP Cab.

ANNUNCIATOR PANEL LOCATION PSA-Z ANNUNCIATOR PANEL H VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATES CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2 OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
STM GEN B MAIN STEAM ISO ACTUATED H-6-1	1. a) EFIC CH. A or CH. B Main Steam Isolation Actuation. b) Half trip on EFIC CH A or CH B.	1. a) MSIV on affected OTSG closes. 2. a) Refer to AP-460 (SGIA). b) Notify I&C of EFIC half trip (Refer to SP-146).		
STM GEN B FEEDWATER ISO ACTUATED H-6-2	1. a) EFIC CH. A or CH. B Main Feed Isolation Actuation. b) Half trip on EFIC CH A or CH B.	1. a) Main FW Block valve closes. b) LO Load FW Block valve closes. c) SU Block valve closes. d) FWP Suction valve closes. 2. a) Refer to AP-460 (SGIA). b) Notify I&C of EFIC half trip (Refer to SP-146).		
EMERG FW ACTUATION H-6-3	1. a) Manual Actuation. b) Both MFWPT's Tripped and not in S/U Bypass. c) Either OTSG EFIC Low range level <6 inches. d) Either OTSG Pressure <600 PSIG. e) Both ES HPI Actuations Present. f) Reactor Power >25% and MFW Flow <17%. g) Loss of all RCP's	1. a) EFP-1 and 2 Start EFV-55, 56, 57, 58 Control OTSG Level. 2. a) Refer to AP-450 (EFA). b) Notify I&C of EFIC half trip (Refer to SP-146).		
H-6-4				
H-6-5				
EFIC BYPASS H-6-6	1. a) EFIC CH. A, B, C or D in Maintenance Bypass. b) RPS Ch. A, B, C or D in Ch. Bypass. c) Any EFIC Test Switch in other than normal position. d) Any EFIC Cabinet Circuit Breaker Open. e) EFIC Module withdrawn. f) Internal EFIC Cabinet Power Supply Failure. 2. a) None.	1. a) Bypass of other EFIC or RPS channels IS blocked. 2. a) Return Bypass switches to normal position when not testing. b) Notify I&C Supervisor		
EFIC SHUTDOWN BYPASS H-6-7	1. a) EFIC CH. A or B, or CH. C or D Main Steam Isolation Actuation Bypassed. 2. a) None.	1. a) Low Pressure Isolation of OTSG's IS blocked. 2. a) Reset channel when OTSG pressure > 600 psi and increasing.		
EFIC AH SYSTEM TROUBLE H-6-8	1. a) AHF-54A or 54B Low Flow - control switch in Norm after start. b) EFIC Room Temp High/Low. c) EFIC Room AHF 54A or 54B Duct temp high. d) EFIC Room AHF 54A or 54B smoke.	1. a) None. 2. a) Investigate.	70% of design flow ≥ 85°F ≤ 65°F	

ANNUNCIATOR PANEL LOCATION PSA-2 ANNUNCIATOR PANEL H VERTICAL COLUMN 7

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
EF TANK LEVEL LOW-LOW H-7-1	1. a) EF tank level ≤ 8'8" (39,000 gal). 2. a) EF tank level indication.	1. a) None. 2. a) Refer to AP-450 (EFA).	8'8"	
EF PUMP 1 AUTO START H-7-2	1. a) Control switch in "Normal After Stop" and auto start signal present. 2. a) Red indicating light on control switch. b) Flow indication on emergency flow meters.	1. a) Pump start on loss of both main FW pumps. b) Pump start on low level of both OTSG's. 2. a) Verify pump start.		
EF PUMP 1 START FAILURE H-7-3	1. a) Alarms when EFP breaker is open with breaker racked in and control switch is in the "Normal After Start" position. b) Switch in "Normal After Start" with discharge pressure < 1100 PSIG. 2. a) Flow indication. b) EFP-1 control switch lights.	1. a) None. 2. a) Verify that turbine-driven EFW pump is running. b) Attempt to start pump manually. c) Have Operator check breaker at LS bus.		
EF PUMP 1 TRIP H-7-4	1. a) Control switch in normal after start and brk open. 2. a) Pump brk indicates open.	1. a) None. 2. a) If required start steam driven pump.		SWITCHGEAR
EF PUMP 1 OUT OF SERVICE H-7-5	1. a) Loss of DC control power, brk not fully racked in. 2. a) Control switch indicating lites not on.	1. a) None. 2. a) Rack in breaker. b) Close DC knife switch.		SWITCHGEAR
EF PUMP 1 MOTOR OVERLOAD H-7-6	1. a) Motor overcurrent. 2. a) Motor brk open.	1. a) Pump brk trips. 2. a) If required, start steam driven pump. b) Place control switch in normal after stop. c) Notify Electrical Supervisor.		SWITCHGEAR
FWP-7 TRIP H-7-7	1. a) Control switch in normal after start and breaker open. 2. a) Pump breaker indicates open.	1. a) None. 2. a) Notify Electrical Supervisor.		SWITCHGEAR
FWP-7 OVERCURRENT H-7-8	1. a) Motor overcurrent. 2. a) Motor breaker open.	1. a) Pump breaker trips. 2. a) Place control switch in normal after stop. b) Notify Electrical Supervisor.		SWITCHGEAR

ANNUNCIATOR PANEL LOCATION PSA-2 ANNUNCIATOR PANEL H VERTICAL COLUMN E

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
EF TANK LEVEL HIGH/LOW H-8-1	1. a) EF tank level high ≥ 37'2" (174,600 gal). b) EF tank level low ≤ 34'7" (160,800 gal). 2. a) EF tank level indication.	1. a) None. 2. a) Check for proper nitrogen overpressure. b) Check for proper valve line up. c) Fill/drain tank.	37'2" 34'7"	
EF PUMP 2 AUTO START H-8-2	1. a) ASV-5 in "Auto" and 50 seconds after auto start signal with discharge pressure > 1100 PSIG. b) ASV-204 in "Auto" and 50 seconds after auto start signal with discharge pressure > 1100 PSIG. 2. a) Flow indication.	1. a) Auto start on loss of both main FWP's. b) Auto start on both OTSG low levels. 2. a) Verify pump start.		
EF PUMP 2 START FAILURE H-8-3	1. a) ASV-5 in "Auto" and 50 seconds after auto start signal with discharge pressure < 1100 PSIG. b) ASV-204 in "Auto" and 50 seconds after auto start signal with discharge pressure < 1100 PSIG. 2. a) Flow indication.	1. a) None. 2. a) Check ASV-5 for full open and OTSG pressure.		
EF PUMP 2 TRIP H-8-4	1. a) ASV-50 closed. 2. a) ASV-50 indicates closed.	1. a) None. 2. a) Notify NAO to relatch and open ASV-50.		ASV-50
EF PUMP 2 OUT OF SERVICE H-8-5	1. a) MSV-55 or 56 fully closed. b) ASV-5 or ASV-204 fully closed and auto open signal present for 5 seconds. 2. a) MSV-55 and MSV-56 position lights. b) ASV-5 and ASV-204 position lights.	1. a) None. 2. a) Insure valve lineup is normal for present operating condition.		
EMERG FW VALVE NOT FULL OPEN H-8-6	1. a) EFV-3, 4, 7, 8, 11, 14, 32, or 33 not fully open. 2. a) Valves position indication.	1. a) None. 2. a) IF valves required open and will not open, THEN open manually AND initiate a work request.		
H-8-7				
H-8-8				

ANNUNCIATOR PANEL LOCATION	NOTES
H-1-1	1. Any one or more of the following monitors: a) RM-G1 b) RM-G2 c) RM-G3 d) RM-G4 e) RM-G5 f) RM-G6 g) RM-G7 h) RM-G8 i) RM-G9 j) RM-G10 k) RM-G11 l) RM-G12 m) RM-G13 n) RM-G14 o) RM-G15 p) RM-G16 q) RM-G17 r) RM-G18
H-2-1	1. Any one or more of the following monitors: a) RM-A1 (PART) b) RM-A1 (GAS) c) RM-A1 (IODINE) d) RM-A2 (PART) e) RM-A2 (GAS) f) RM-A2 (IODINE) g) RM-A3 (GAS) h) RM-A4 (GAS) i) RM-A5 (GAS) j) RM-A5 (IODINE) k) RM-A6 (GAS) l) RM-A6 (IODINE) m) RM-A7 (GAS) n) RM-A8 (GAS) o) RM-A11 (GAS) p) RM-A12 (GAS) q) RM-A13 (GAS) r) RM-A14 (GAS) s) RM-A15 (GAS) 2. IF RM-A11 is or should have tripped, THEN notify AB Operator to ensure WGDT recycle valves and WGDT release valve are closed (WDV-393, WDV-394, WDV-395, and WDV-439)

ANNUNCIATOR PANEL LOCATION	NOTES
H-2-2	Air flow to one or more of the following above normal or ≤ 5 SCFM: a) RM-A1 b) RM-A2 c) RM-A3 d) RM-A4 e) RM-A5 f) RM-A6 g) RM-A7 h) RM-A8 i) RM-A14 j) RM-A15
H-3-1	1. Any one or more of the following monitors: a) RM-L1 b) RM-L2 c) RM-L3 d) RM-L5 e) RM-L6 f) RM-L7 2. IF RM-L1 is or should have tripped, THEN refer to OP-301, Operation of the Reactor Coolant System, Section 4.13. IF RM-L2 is or should have tripped, THEN notify AB Operator to ensure release valves are closed (WDV-891 and WDV-892). IF RM-L3 is or should have tripped, THEN refer to OP-301, Operation of the Reactor Coolant System, Section 4.12. IF RM-L5 is or should have tripped, THEN refer to OP-301, Operation of the Reactor Coolant System, Section 4.12. IF RM-L6 is or should have tripped, THEN refer to OP-301, Operation of the Reactor Coolant System, Section 4.12. IF RM-L7 is or should have tripped, THEN notify AB Operator to ensure SDV-90 is closed.

Rev. 10 06/18/92

Effective Date 6/22/92

ANNUNCIATOR RESPONSE

AR-504

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

ICS L ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

W. Marshall

DATE: 6/22/92

INTERPRETATION CONTACT: Nuclear Operations Superintendent

TABLE OF CONTENTS

1.0 PURPOSE

1.1 Establish a reference document for each Annunciator Window on the ICS-CY4 Lampbox.

1.2 Establish operator actions for valid Annunciator alarms on the ICS-CY4 Lampbox.

1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the ICS-CY4 Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

2.1.1 AP-545 - Plant Runback

2.1.2 OP-605 - Feedwater System

2.2 DEVELOPMENTAL REFERENCES

2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

2.2.2 Annunciator Window Engraving Drawing E-224-048

3.0 PERSONNEL INDOCTRINATION

3.1 The Annunciator System is powered from VBDB-5 Breaker 28.

4.0 INSTRUCTIONS

4.1 Respond to alarms on the ICS-CY4 Lampbox as indicated in Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ANNUNCIATOR PANEL LOCATION ICS-CY4 ANNUNCIATOR PANEL L VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
FWP A TRIP L-1-1	1. a) FWPT-A control oil supply press ≤ 55 PSIG. b) FWPT-A lube oil supply press ≤ 5 PSIG. 2. a) FWPT oil pumps indicating lights/switch position. b) Low oil sump level alarm. c) Control oil pressure indication. d) Lube oil pressure indication.	1. a) ICS runback. b) FWV-28 (FW cross-tie) opens. 2. a) Refer to AP-545 (PR).	≤ 55 PSIG ≤ 5 PSIG	FW-135-PS FW-188-PS
FWP A VIBRATION HIGH L-1-2	1. a) FWP A shaft vibration ≥ 3.5/4.0 mils (alert/danger). b) FWPT A shaft vibration ≥ 2.4/3.5 mils (alert/danger). 2. a) Vibration indicator reading high. b) OK light out. ALERT/DANGER light on.	1. a) None. 2. a) Reduce flow thru pump if DANGER.	3.5/4.0 Mils 3.5/4.0 Mils 2.4/3.5 Mils	FW-267-MIS FW-265-MIS FW-239-MIS FW-241-MIS1
FWP A OIL PRESS LOW L-1-3	1. a) FWPT A lube oil pressure ≤ 18 PSIG. b) FWPT A lube oil pressure ≤ 12 PSIG. c) FWPT control oil pressure ≤ 90 PSIG. 2. a) FWPT oil pumps indicating lights/switch position. b) Low oil sump level alarm. c) High filter DP alarm. d) Lube oil pressure indication. e) Control oil pressure indication.	1. a) Auto start aux AC oil pump at 18 psi lube oil or 80 PSIG control oil. b) Auto start emerg DC oil pump at 12 PSIG. 2. a) Check the turb oil system and restore.	≤ 18 PSIG ≤ 12 PSIG ≤ 90 PSIG	FW-186-PS FW-187-PS FW-195-PS

ANNUNCIATOR PANEL LOCATION ICS-CY4 ANNUNCIATOR PANEL L VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
FWP A LUBE OIL PUMP TRIP L-1-4	1. a) FWPT A AC normal oil pump off with control switch in Normal After Start. b) FWPT A AC back up oil pump off with control switch in Normal After Start. c) FWPT A DC emergency oil pump off with control switch in Normal After Start. 2. a) Individual indicating lights/switch position.	1. a) Auto start of alternate pump. 2. a) Notify the secondary plant operator to check the turbine oil system.		CS/SC CS/O 42B
FWP A EMERG OIL PP AUTO START L-1-5	1. a) FWPT A AC normal oil pump running with control switch in Normal After Stop. b) FWPT A AC back up oil pump running with control switch in Normal After Stop. c) FWPT A DC emergency oil pump running with control switch in Normal After Stop. 2. a) Individual indicating lights/switch position.	1. a) Auto start aux AC oil pump at 80 PSIG control oil or 18 PSIG lube oil. b) Auto start DC Emerg. oil pump at 12 PSIG lube oil. 2. a) Notify the secondary plant operator to check the turboil system.		CS/SC CS/O 42A
FWP A LUBE OIL RESVR LEVEL HIGH/LOW L-1-6	1. a) FWPT A lube oil tank level $\geq$ 33 inches. b) FWPT A lube oil tank level $\leq$ 18 inches. 2. a) None.	1. a) None. 2. a) Check oil level on local gauge glass. b) Check for water in lube oil. c) Add oil and check system for leaks.	33 inches 18 inches	FW-207-LS

ANNUNCIATOR PANEL LOCATION ICS-CY4 ANNUNCIATOR PANEL L VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
FWP B TRIP L-2-1	1. a) FWPT-B control oil supply press ≤ 55 PSIG. b) FWPT-B lube oil supply press ≤ 5 PSIG. 2. a) FWPT oil pumps indicating lights/switch position. b) Low oil sump level alarm. c) Control oil pressure indication. d) Lube oil pressure indication.	1. a) ICS runback. b) FWV-28 (FW cross-tie) opens. 2. a) Refer to AP-545 (PR).	≤ 55 PSIG ≤ 5 PSIG	FW-136-PS FW-193-PS
FWP B VIBRATION HIGH L-2-2	1. a) FWP B shaft vibration ≥ 3.5/4.0 mils (alert/danger). b) FWPT B shaft vibration ≥ 2.4/3.5 mils (alert/danger). 2. a) Vibration indicator reading high. b) OK light out. ALERT/DANGER light on.	1. a) None. 2. a) Reduce flow thru pump if DANGER.	3.5/4.0 Mils 3.5/4.0 Mils 2.4/3.5 Mils	FW-268-MIS FW-270-MIS FW-240-MIS FW-242-MIS1
FWP B OIL PRESS LOW L-2-3	1. a) FWPT B lube oil pressure ≤ 18 PSIG. b) FWPT B lube oil pressure ≤ 12 PSIG. c) FWPT control oil pressure ≤ 90 PSIG. 2. a) FWPT oil pumps indicating lights/switch position. b) Low oil sump level alarm. c) High filter DP alarm. d) Lube oil pressure indication. e) Control oil pressure indication.	1. a) Auto start aux AC oil pump at 18 PSIG lube oil or 80 PSIG control oil. b) Auto start emerg DC oil pump at 12 PSIG. 2. a) Check the turb oil system and restore.	≤ 18 PSIG ≤ 12 PSIG ≤ 90 PSIG	FW-191-PS FW-192-PS FW-198-PS

ANNUNCIATOR PANEL LOCATION ICS-CY4 ANNUNCIATOR PANEL 1 VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
FWP B LUBE OIL PUMP TRIP L-2-4	1. a) FWPT B AC normal oil pump off with control switch in Normal After Start. b) FWPT B AC back up oil pump off with control switch in Normal After Start. c) FWPT B DC emergency oil pump off with control switch in Normal After Start. 2. a) Individual indicating lights/switch position.	1. a) Auto start of alternate pump. 2. a) Notify the secondary plant operator to check the turbine oil system.		CS/SC CS/O 42B
FWP B EMERG OIL PP AUTO START L-2-5	1. a) FWPT B AC normal oil pump running with control switch in Normal After Stop. b) FWPT B AC back up oil pump running with control switch in Normal After Stop. c) FWPT B DC emergency oil pump running with control switch in Normal After Stop. 2. a) Individual indicating lights/switch position.	1. a) Auto start aux AC oil pump at 80 PSIG control oil or 18 PSIG lube oil. b) Auto start DC Emerg. oil pump at 12 PSIG lube oil. 2. a) Notify the secondary plant operator to check the turboil system.		CS/SC CS/O 42A
FWP B LUBE OIL RESVR LEVEL HIGH/LOW L-2-6	1. a) FWPT B lube oil tank level $\geq$ 33 inches. b) FWPT B lube oil tank level $\leq$ 18 inches. 2. a) None.	1. a) None. 2. a) Check oil level on local gauge glass. b) Check for water in lube oil. c) Add oil and check system for leaks.	33 inches 18 inches	FW-208-LS

ANNUNCIATOR PANEL LOCATION ICS-CY4 ANNUNCIATOR PANEL - VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
FWBP A TRIP L-3-1	1. a) FW booster pump breaker is open and the control switch is in the normal after start position. 2. a) FW boost pps overload alarm. b) FWBP aux oil pp auto start alarm. c) "Unit master in tracking" alarm.	1. a) ICS runback to 55% FP. 2. a) Ensure that the ICS properly controls unit for existing plant conditions. b) Determine cause of pump trip and restore per OP-605. c) Refer to AP-545 (Pk).		SWGR BKR CONTACTS
L-3-2				
FWP TROUBLE L-3-3	1. a) FWPT A/B speed ≥ 6600 rpm. b) FWPT A/B speed ≤ 1/12 rpm and turning gear not engaged. c) FWPT A/B exhaust vacuum ≥ 0 in-Hg. d) FWPT A/B exhaust temp. ≥ 230°F. e) FWPT A/B shaft position ≥ 10/20 mils. (Alert/Danger). f) FWPT A/B shaft eccentricity ≥ 2.4/3.5 mils (Alert/Danger). g) FWPT A/B speed ≤ 100 rpm. h) FWPT A/B trip blocked. i) FWPT A/B oil filter dp ≥ 20 psi. j) FWPT A/B emergency oil pump motor overload. k) FWPT A/B turning gear overload. 2. a) FWPT speed indication. b) None. c) Main Turbine Vacuum indication. d) None. e) FWPT Vibration Monitoring Panel. f) FWPT Vibration Monitoring Panel. g) FWPT Speed indication. h) FWPT Test in progress. i) FWPT control oil pressure indication. j) None. k) None.	1. a) FWP Trip - ICS runback. 2. a) Refer to AP-545 (PR). b) Manually engage turning gear. c) Reduce plant load to available CW flow. d) Increase steam flow through turbine. e) Reduce FW flow if DANGER. f) Reduce FW flow if DANGER. g) Increase speed prior to releasing missing speed pushbutton. h) Complete test. i) Clean filter. j) Secure pump if as soon as system conditions allow. k) Secure turning gear. Check for rubs.	6600 rpm 1/12 rpm 0 in-Hg 230°F 10/20 mils 2.4/3.5 mils 100 rpm 20 psi	74-TTAX 74-TTBX 62X FW-104-PS FW-105-PS FW-102-TS FW-103-TS FW-237-KIS FW-238-KIS FW-241-MIS2 FW-242-MIS2 74TMAX 74TMBX FW-201-PS FW-202-PS 49 49X

ANNUNCIATOR PANEL LOCATION ICS-CY4 ANNUNCIATOR PANEL L VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
FWP BRG OIL DRAIN TEMP HIGH L-3-4	1. a) FWPT A/B bearings #1/#2 drain temperature ≥ 170°F. 2. a) Loss of cooling water to lube oil cooler. b) Lube oil flow low. c) Lube oil pressure low.	1. a) None. 2. a) Determine cause of high temperature and reduce load on FWPT as required.	170°F	FW-143-TS FW-144-TS FW-145-TS FW-146-TS
FWP OIL CLR OUTLET TEMP HIGH L-3-5	1. a) FWPT A/B oil cooling outlet temperature ≥ 140°F. 2. a) FWPT BRG drain temp high alarm.	1. a) None. 2. a) Determine cause of high temperature and reduce load on FWPT as required. b) Check for: 1. Reduced cooling water flow to cooler. 2. Increases in return oil temperature.	140°F	FW-211-TS FW-212-TS
(MSV-53/ MSV-54) NOT FULL OPEN L-3-6	1. a) Turbine bypass isolation valves (MSV-53 & MSV-54) not full open. 2. b) Valve open indicating lamp.	1. a) None. 2. a) Re-open valve(s) if plant conditions permit.		33 80

ANNUNCIATOR PANEL LOCATION ICS-CY4 ANNUNCIATOR PANEL L VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER &
FWBP B TRIP L-4-1	1. a) FW booster pump breaker is open and the control switch is in the normal after start position. 2. a) FW boost pps overload alarm. b) FWPB aux oil pp auto start alarm. C) "Unit master in tracking" alarm.	1. a) ICS runback to 55% FP. 2. a) Ensure that the ICS properly controls unit for existing plant conditions. b) Determine cause of pump trip and restore per OP-605. c) Refer to AP-545 (PR).		SWGR BKR CONTACTS
FWBP MOTOR OVERLOAD L-4-2	1. a) FW booster pump A and/or B overcurrent. 2. a) High feedwater flow rate. b) Motor amp indication.	1. a) None. 2. a) Determine cause of alarm and correct.		SWGR 51
FWBP LUBE OIL PUMP TRIP L-4-3	1. a) FW booster pump A/B auxiliary oil pump off and control switch in Normal After Start. 2. a) Breaker position indication.	1. a) None. 2. a) Stop the affected booster pump if the oil pressure is not being maintained by the shaft driven gear oil pp. b) Determine cause of aux oil pump trip and correct.		SWGR BKR CONTACTS
FWBP LUBE OIL PUMP AUTO START L-4-4	1. a) FWBP A/B running and control switch in Normal After Stop. 2. a) None.	1. a) Auto start if oil press $\leq$ 5 PSIG. 2. a) Check for malfunction of main lube oil pump. b) Check for low lube oil level.	5 PSIG	SWGR BKR CONTACTS
FWP SEAL POT LEVEL LOW L-4-5	1. a) FWP seal return pot level $\leq$ 7 3/8". 2. a) None.	1. a) None. 2. a) Notify Nuclear secondary plant Operator to check GWV-6.	7 3/8"	GW-36-LS
L-4-6				

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ANNUNCIATOR RESPONSE

AR-602

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

TGF N ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

W. Marshall

DATE: 6/22/92

INTEREPRETATION CONTACT: Nuclear Operations Superintendent

TABLE OF CONTENTS

1.0 PURPOSE

1.1 Establish a reference document for each Annunciator Window on the TGF-AX2 Lampbox.

1.2 Establish operator actions for valid Annunciator alarms on the TGF-AX2 Lampbox.

1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the TGF-AX2 Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

2.1.1 AR-971, CXAR Annunciator Response

2.2 DEVELOPMENTAL REFERENCES

2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

2.2.2 Annunciator Window Engraving Drawing E-224-049

3.0 PERSONNEL INDOCTRINATION

3.1 The Annunciator System is powered from VBDP-5 Breaker 28.

4.0 INSTRUCTIONS

4.1 Respond to alarms on the TGF-AX2 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER &
N-1-1				
CONDENSER VAC PUMP TRIP N-1-2	1. a) Condenser vacuum pump A or B breaker open and control switch in normal after start. 2. a) Condenser vacuum pump A or B breaker indication.	1. a) Standby pump starts at 26" Hg condenser vacuum decreasing. 2. a) Ensure standby vacuum pump starts. b) Monitor condenser vacuum. c) Maintain: o Hotwell temp < 130 F o Exhaust hood temp < 165 F	26" Hg	SWITCHGEAR
CONDENSER VAC PUMP TROUBLE N-1-3	1. a) Condenser vacuum pump A or B breaker closed and control switch in Normal After Stop. b) Thermal overload on condenser vacuum pump A or B. c) Thermal overload on condenser vacuum seal pump A or B. 2. a) Pump breaker indication.	1. a) Standby vacuum pump starts at 26" Hg condenser vacuum decreasing. 2. a) IF HP Turbine steam seal pressure is Low AND GSV-63, plant steam dump regulator, is open, THEN throttle GSV-62, steam dump regulator inlet. b) IF LP Turbine steam pressure is Low, THEN open: LPT-3A LPT-3B GSV-34 GSV-26 GSV-40 GSV-6 c) Start standby vacuum pump if not running. d) If seal pump trips, ensure associated vacuum pump is not running.	26" Hg	SWITCHGEAR
N-1-4				
HOTWELL LEVEL HIGH/LOW N-1-5	1. a) Hotwell A or B level ≥ 103' 8 1/2". (8' 8 1/2") b) Hotwell A or B level ≤ 103' 2 1/2". (8' 2 1/2") 2. a) Hotwell level indication.	1. a) None. 2. a) Drastic changes in hotwell level are the result of abnormal changes in plant conditions or the result of a failure in the hotwell level control system. Both should be corrected if they occur.	103'8 1/2" (8'8 1/2") 103'2 1/2" (8'2 1/2") 103'8 1/2" (8'8 1/2") 103'2 1/2" (8'2 1/2")	CD-1-LS CD-2-LS CD-3-LS CD-4-LS

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
N-1-6				
N-1-7				
COND DEMIN PANEL TROUBLE N-1-8	1. a) Any drop target alarm on condensate demineralizer regeneration panel that has not been acknowledged. 2. a) None.	1. a) None. 2. a) Notify Nuclear Auxiliary Operator. b) Refer to AR-971.		
CONDSR CNTRL AIR PRESS LOW N-1-9	1. a) Condensate demineralizer instrument air pressure ≤ 80 psig. 2. a) Instrument air pressure indication.	1. a) None. 2. a) Start standby instrument air compressor if not running.	80 psig	AR-19-PS AR-26-PS
N-1-10				

ANNUNCIATOR PANEL LOCATION TGF-AK2 ANNUNCIATOR PANEL N VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
CDSTE PUMP A TRIP N-2-1	1. a) Condensate Pump A breaker open and control switch in Normal After Start. 2. a) Deaerator level ≥ 13' 6 1/2". b) Condensate Pump A breaker indication.	1. a) None. 2. a) Take level control of pump. Restart and recouple when cause of problem is corrected.	13'6 1/2"	SWITCHGEAR
CDSTE PUMP A UNCOUPLED N-2-2	1. a) Normal or emergency magnetic coupling, whichever selected, is de-energized. 2. a) Zero condensate pump discharge pressure. b) No condensate flow if this is the only condensate pump running. c) Low condensate pump motor amps.	1. a) None. 2. a) If not a result of operator action, select alternate coupling to keep pump in operation.		SWITCHGEAR
CDSTE PUMP MOTOR OVERLOAD N-2-3	1. a) Condensate Pump Motor A or B ≥ 115% rated power. 2. a) Motor amp indication.	1. a) None. 2. a) Reduce flow thru pump.	115%	SWITCHGEAR
  N-2-4				
CDV 100 OPEN N-2-5	1. a) CDV-100 not fully closed. 2. a) Low hotwell level.	1. a) None. 2. a) This indicates that hotwell level is decreasing at a rate not within capabilities of normal makeup. Verify hotwell levels and establish make-up if necessary.		

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
CDSTE STOR TANK LEVEL HIGH/LOW N-2-6	1. a) Tank level ≥ 31 feet. b) Tank level ≤ 26 feet. 2. a) CDSTE tank level instrumentation.	1. a) None. 2. a) Fill or drain tank as necessary to return to normal level.	31' 26'	CD-58-LS CD-59-LS
N-2-7				
N-2-8				
N-2-9				
N-2-10				

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
CONDENSATE PUMP B TRIP N-3-1	1. a) Condensate Pump B breaker open and control switch in Normal After Start. 2. a) Deaerator level ≥ 13'6 1/2". b) Condensate Pump B breaker indication.	1. a) None. 2. a) Take manual control of pump. Restart and recouple when cause of problem is corrected.	13' 6 1/2"	SWITCHGEAR
CONDENSATE PUMP B UNCOUPLED N-3-2	1. a) Normal or emergency magnetic coupling, whichever selected, is de-energized. 2. a) Zero condensate pump discharge pressure. b) No condensate flow if this is the only condensate pump running. c) Low condensate pump motor amps.	1. a) None. 2. a) If not a result of operator action, select alternate coupling to keep pump in operation.		SWITCHGEAR
N-3-3				
N-3-4				
N-3-5				

ANNUNCIATOR PANEL LOCATION 1GF-AK2 ANNUNCIATOR PANEL N VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
N-3-6				
N-3-7				
N-3-8				
N-3-9				
N-3-10				

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
CDSTE HTR 1A/B LEVEL HIGH N-4-1	1. a) Heater 1A or 1B level ≥ 8.3" above "NWL" 2. a) None.	1. a) HDV-102 or HDV-104 open. 2. a) Monitor level, check for LP heaters 1A/B valve not closed alarm.	8.3" above "NWL"	HD-20-LS HD-22-LS
CDSTE HTR 1A/B DUMP VALVES NOT FULL CLOSED N-4-2	1. a) HDV-102 or HDV-104 not fully closed. 2. a) Turbine trip causes valves to open.	1. a) None. 2. a) Monitor heater level. b) Check valve lineup.	8.3" above "NWL"	HDV-102 HDV-104
DEAERATOR LEVEL HIGH/LOW N-4-3	1. a) Deserator level ≥ 11' 9 1/2" b) Deaerator level ≤ 7' 0". 2. a) Deaerator level indication.	1. a) HDV-53 and HDV-54 closes at 12' 3 1/2" increasing. b) HDV-83 opens at 12' 3 1/2" increasing. c) The condensate pumps trip at 13' 6 1/2" increasing. 2. a) Increase, decrease or recirc condensate flow as necessary to maintain proper deaerator level.	11'9 1/2" 7'0"	FW-6-LS
  N-4-4				
FW HEATER 3/5/6 LEVEL HIGH N-4-5	1. a) Heater 3A or 3B level ≥ 8.3" above "NWL" b) Heater 5A or 5B level ≥ 8.3" above "NWL" c) Heater 6A or 6B level ≥ 8.3" above "NWL" 2. a) None.	1. a) HDV-123 or HDV-124 open. b) HDV-55 or HDV-56 open. c) HDV-63 or HDV-64 open. 2. a) Monitor level, check for LP heaters valves not closed alarm.	8.3" above "NWL" 8.3" above "NWL" 8.3" above "NWL"	HD-28-LS HD-30-LS HD-69-LS HD-70-LS HD-71-LS HD-72-LS

ANNUNCIATOR PANEL LOCATION TCF-A32 ANNUNCIATOR PANEL K VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
N-4-6				
REHEATER SHELL LEVEL HIGH N-4-7	1. a) Reheater Shell A, B, C, D level ≥ 6" above "NWL". 2. a) None.	1. a) None. 2. a) Monitor heater level. b) Check valve lineup.	6" above "NWL"	HD-98-LS HD-101-LS HD-104-LS HD-107-LS
RTHR DRN AND FLASH TNK LVL HIGH N-4-8	1. a) Reheater A, B, C, D HP flash tank level ≥ 4" above "NWL" b) Reheater A, B, C, D LP flash tank level ≥ 135° 5/8". 2. a) None.	1. a) None. 2. a) Ensure HP dump valves operate at 150°3".	4" above "NWL" 135° 5/8"	HD-43-LS thru HD-50-LS
N-4-9				
N-4-10				

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
CDSTE HTR 2A/B LEVEL HIGH N-5-1	1. a) Heater 2A or 2B level ≥ 9.3" above "NWL". 2. a) None.	1. a) HDV-113 or HDV-114 open. 2. a) Monitor level, check for LP heaters 2A/B valves not closed alarm.	8.3" above "NWL"	HD-24-LS HD-26-LS
CDSTE HTR 2A/B DUMP VALVES NOT FULL CLOSED N-5-2	1. a) HDV-113 or HDV-114 not fully closed. 2. a) Turbine trip causes valves to open.	1. a) None. 2. a) Monitor heater level. b) Check valve lineup.	8.3" above "NWL"	HDV-113 HDV-114
DEAERATOR LEVEL HIGH/HIGH N-5-3	1. a) HDV-83 not full closed. 2. a) Deaerator level indication.	1. a) Dump valve HDV-83 opens. 2. a) Reduce CD flow. b) Monitor deserator level.	13" 3 9/16"	HDV-83
N-5-4				
FW HEATER 3A/B/6 LEVEL LOW N-5-5	1. a) Heater 3A or 3B level ≤ 1 1/2" below "NWL". b) Heater 5A or 5B level ≤ 2 1/2" below "NWL". c) Heater 6A or 6B level ≤ 2" below "NWL". 2. a) None.	1. a) None. 2. a) Check heater valves not closed alarm.	1 1/2" below "NWL" 2 1/2" below "NWL" 2" below "NWL"	HD-175-LS thru HD-180-LS

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
N-5-6				
MS VLV TO AS/DEATR NOT FULL OPEN N-5-7	1. a) MSV-179 or MSV-180 not full open. 2. a) Position indication MSV-180 or MSV-179.	1. a) None. 2. a) Open valves if plant condition require.		MNI. CAB
N-5-8				
N-5-9				
N-5-10				

ANNUNCIATOR PANEL LOCATION TGF-AX2 ANNUNCIATOR PANEL N VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
EH FLUID PUMP TRIP N-6-1	1. a) EH Pump A or B breaker open and control switch in Normal After Start. 2. a) Breaker position indication.	1. a) None. 2. a) Reset EH pump lockout relay. b) Place standby pump in run if not running.		SWITCHGEAR
EH FLUID SUPPLY PRESS LOW N-6-2	1. a) EH fluid supply press ≤ 1600 psig. 2. a) None.	1. a) EH pump auto start at 1350 psig. 2. a) Place standby pump in service. b) Notify Nuclear Auxiliary Operator.	1600 psig	1a-243-PS
EH FLUID TANK LEVEL LOW N-6-3	1. a) EH fluid tank level ≤ 17 1/4". b) EH fluid tank level ≤ 11 5/8". c) EH fluid tank level ≤ 7 5/8". 2. a) EH fluid pump trip ≤ 7 5/8".	1. a) EH pumps trip at 7 5/8". 2. a) Notify Nuclear Auxiliary Operator to restore tank level. b) Reset EH pump lockout relay.	17 1/4" 11 5/8" 7 5/8"	TB-236-LS TB-235-LS 86 LFT
TURB EHC On MANUAL N-6-4	1. a) EHC system not in normal automatic control mode. 2. a) Turbine control panel indication. b) > 50 PSI header pressure error.	1. a) ICS cannot control turbine. 2. a) Return unit to full ICS auto control.		
EH FLUID PUMP AUTO START N-6-5	1. a) EH Pump A or B breaker closed and control switch in Normal After Stop. 2. a) Breaker position indication. b) EH fluid pressure ≤ 1350 psig.	1. a) EH pump auto starts at 1350 psig. 2. a) Notify Nuclear Auxiliary Operator if cause of auto start not apparent.	1350 psig	SWITCHGEAR TB-242-PS

ANNUNCIATOR PANEL LOCATION TGF-AXG ANNUNCIATOR PANEL N VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
EH FLUID SYSTEM TROUBLE N-6-6	1. a) EH fluid tank level ≥ 22". b) EA fluid supply press ≥ 2200 psig. c) EH fluid drain fluid return press 30 ≥ psig d) EH fluid filter A or B ≥ 100 psid. 2. a) None.	1. a) None. 2. a) Notify Nuclear Auxiliary Operator. b) Check for clogged filters or dirty cooler. c) Shift to standby EH pump and filter.	22" 2200 psig 30 psig 100 psid	TB-235-LS TB-239-PC TB-237-PS TB-231-PS TB-232-PS
N-6-7				
N-6-8				
N-6-9				
N-6-10				

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ANNUNCIATOR RESPONSE

AR-701

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

SSF P ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

W. Marshall

DATE: 6/22/92

INTERPRETATION CONTACT: Nuclear Operations Superintendent

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1.0 PURPOSE

1.1 Establish a reference document for each Annunciator Window on the SFF-A1 Lampbox.

1.2 Establish operator actions for valid Annunciator alarms on the SSF-A1 Lampbox.

1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the SSF-A1 Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

2.1.1 AP-580, Reactor Trip

2.1.2 OP-305, Operation of the Pressurizer

2.2 DEVELOPMENTAL REFERENCES

2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

2.2.2 Annunciator Wndow Engraving Drawing E-224-049

3.0 PERSONNEL INDROCTRINATION

3.1 The Annunciator System is powered from VBDP-5 Breaker 28.

4.0 INSTRUCTIONS

4.1 Respond to alarms on the SSF-A1 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
STARTUP XFMR FAULT P-1-1	1. a) Overcurrent timed neutral ground relay actuation. b) Start-up transformer #3 sudden pressure relay actuation. c) Start-up transformer #3 differential relay actuation. d) Plant line 4; primary differential operation, back-up differential operation, differential cutout. 2. a) Loss of #3 start-up transformer.	1. a) See Note P-1-1 2. a) Notify System Dispatcher.		86 TNSTV-1 MN CONT BD 85 TSTU-1 MN CONT BD
BREAKER 1691/1692 OPEN P-1-2	1. a) Breaker 1691 or 1692 open. b) Ground fault on 1692. 2. a) Brk 1691 and 1692 indication.	1. a) None. 2. a) If not caused by normal operation of BRK, notify Control Room of Unit 1 & 2. b) Notify System Dispatcher.		52W/1661 52W/1662
STARTUP XFMR MAJOR ALARM P-1-3	1. a) Top oil temp high alarm ≥ 90°C. b) Winding temp high alarm ≥ 120°C. c) Pressure relief device alarm. d) Combustible gas monitor alarm. 2. a) Possible start-up trans #3 minor alarm.	1. a) None. 2. a) Notify System Dispatcher. b) Reset Local Alarm	90°C 120°C	63 PRX, 26QX, 49X, 63 GDRX START-UP AUX XFMR CONT PANEL
STARTUP XFMR MINOR ALARM P-1-4	1. a) Normal aux power failure alarm. b) Emergency aux power failure alarm. c) Control Circuit power failure alarm. d) Low oil flow alarm. e) Low oil level alarm. f) Loss of DC power system alarm. g) Plant Line 4 differential relay cutout. 2. a) None.	1. a) None. 2. a) Notify System Dispatcher. b) Reset Local Alarm		27DC, 74X, 83X, 27EX, 86 EX, 63QLX START-UP XFMR CONT PANEL
BREAKER 1692 TROUBLE P-1-5	1. a) Bkr 1692 LP air pressure low. b) Bkr 1692 HP air pressure low. c) Bkr 1692 air compressor running too long. 2. a) None.	1. a) None. 2. a) Notify System Dispatcher.		

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
230 KV GRID DEGRADING P-1-6	1. a) 4160V ES BUS Voltage ≤ 3965.5V for > 2 Sec. 2. a) ES BUS Volt Meters.	1. a) None. 2. a) Dispatcher to take action to stabilize 230 KV grid to prevent tripping SLURS relay.	3965.5V 2 Sec	
P-1-7				
P-1-8				
P-1-9				
P-1-10				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
OFFSITE PWR SOURCE XFMR FAULT P-2-1	1. a) Overcurrent timed neutral ground relay actuation. b) Transformer sudden pressure relay actuation. c) Transformer differential relay actuation. 2. a) Loss of offsite power source transformer.	1. a) See Note P-2-1. 2. a) Notify System Dispatcher.		71T9 TD 78D9 78OC 9 71T9 SP 71T9 TN
BREAKER 4900/4902 TRIP P-2-2	1. a) Breaker 4900 open and control switch in normal after close. b) Breaker 4902 open and control switch in normal after close. c) 230 KV Bus A or B differential Trip. 2. a) Breaker 4900 and 4902 position indication.	1. a) None. 2. a) If not caused by normal operation of BRK, notify Control Room of Unit 1 & 2. b) Notify System Dispatcher. c) Notify Relay Department to Reset Lockouts in 500KV Blockhouse per dispatchers direction (Panels 48 and 50)		78D8 BU 78D8 PRI 78DA BU 78DA PRI
OFFSITE PWR SOURCE XFMR MAJOR ALARM P-2-3	1. a) Top oil temp $\geq$ 90°C. b) Winding temp $\geq$ 110°C. c) Low oil level. d) Pressure relief device alarm. 2. a) Possible trans minor alarm.	1. a) Fans auto-start at 70°C. b) Fans and pump auto-start at 80°C. 2. a) Notify System Dispatcher. b) Reset Local Alarm	70°C 80°C 110°C	
OFFSITE PWR SOURCE XFMR MINOR ALARM P-2-4	1. a) Loss of primary or Alt. AC Power. b) Low oil flow. c) Loss of DC control power. 2. a) None.	1. a) None. 2. a) Notify System Dispatcher. b) Reset Local Alarm		
BREAKER 4900/4902 TROUBLE P-2-5	1. a) Bkr 4900 or 4902 gas press low. b) Bkr 4900 or 4902 spring charge low. c) Bkr 4900 or 4902 failed to trip. 2. a) None.	1. a) None. 2. a) Notify System Dispatcher.		48EE 48FF 48KK 48LL

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
P-2-6				
P-2-7				
P-2-8				
P-2-9				
P-2-10				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
6.9KV BUS A DEAD P-3-1	1. a) Undervoltage on 6.9kv Bus A. 2. a) 6.9kv Bus A voltage indication.	1. a) RCP A and RCP C undervoltage trip. 2. a) Refer to AP-580 (RT).		27Y SWITCHGEAR
4KV UNIT BUS A DEAD P-3-2	1. a) Undervoltage on 4160V Unit Bus A. 2. a) 4160V Unit Bus A voltage indication.	1. a) UV trip on Bus A equipment. 2. a) Investigate cause of UV condition.		27Y SWITCHGEAR
4KV RX Aus Bus Dead P-3-3	1. a) Undervoltage on 4160V Reactor Aux Bus. 2. a) 4160V Reactor Aux. Bus Voltage Indicator	1. a) UV trip on Bus Equipment. 2. a) Investigate cause of UV condition		32RA
480V TURB AUX BUS A DEAD P-3-4	1. a) Undervoltage on 480V Tur Bus A. 2. a) 480V Turb Aux Bus A voltage indication.	1. a) UV trip on Bus A equipment. 2. a) Investigate cause of UV condition.		27Y SWITCHGEAR
480V RX AUX BUS A DEAD P-3-5	1. a) Undervoltage on 480V Reactor Aux Bus A. 2. a) 480V Reactor Aux Bus A voltage indication.	1. a) UV trip on Bus A equipment. b) CRD Breaker A trip. 2. a) Investigate cause of UV condition.		27Y SWITCHGEAR

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
480V INTAKE BUS A DEAD P-3-6	1. a) Undervoltage on 480V Intake Bus A. 2. a) 480V Intake Bus A voltage indication.	1. a) UV trip on Bus A equipment. 2. a) Investigate cause of UV condition.		27Y SWITCHGEAR
480V PLANT AUX BUS DEAD P-3-7	1. a) Undervoltage on 480V Plant Aux. Bus. 2. a) 480V plant Aux. Bus voltage indication.	1. a) UV trip on bus equipment. b) CRD Breaker B trip. 2. a) Investigate cause of UV condition.		27Y SWITCHGEAR
6.9KV RX AUX XFMR TEMP HIGH P-3-8	1. a) Transformer winding temperature ≥ 200°C 2. a) None	1. a) None 2. a) Ensure correct temperature with Local Reading b) Secure unneeded equipment being fed from transformer c) Notify Electrical Supervisor	≥ 200°C	K3
480V MCC BREAKER OPEN P-3-9	1 a) Any of the twenty MCC feeder breakers open. See Note P-3-9. 2. a) Breaker position indication.	1. a) None. 2. a) Repower MCC from alternate source if alternate source is available. b) Investigate cause of open breaker.		R-B SWGR
P-3-10				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
6.9KV BUS B DEAD P-4-1	1. a) Undervoltage on 6.9kv Bus B. 2. a) 6.9kv Bus B voltage indication.	1. a) RCP B and RCP D undervoltage trip. 2. a) Refer to AP-580 (RT).		27Y SWITCHGEAR
4KV UNIT BUS B DEAD P-4-2	1. a) Undervoltage on 4160V Unit Bus B. 2. a) 4160V Unit Bus B voltage indication.	1. a) UV trip on Bus B equipment. 2. a) Investigate cause of UV condition. b) Repower bus. c) Restart equipment.		27Y SWITCHGEAR
P-4-3				
480V TURB AUX BUS B DEAD P-4-4	1. a) Undervoltage on 480V Tur Bus B. 2. a) 480V Turb Aux Bus B voltage indication.	1. a) UV trip on Bus B equipment. 2. a) Investigate cause of UV condition. b) Repower bus. c) Restart equipment.		27Y SWITCHGEAR
480V RX AUX BUS B DEAD P-4-5	1. a) Undervoltage on 480V Reactor Aux Bus B. 2. a) 480V Reactor Aux Bus voltage indication.	1. a) UV trip on Bus B equipment. 2. a) Investigate cause of UV condition. b) Repower bus. c) Restart equipment.		27Y SWITCHGEAR

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
480V INTAKE BUS B DEAD P-4-6	1. a) Undervoltage on 480V Intake Bus B. 2. a) 480V Intake Bus B voltage indication.	1. a) UV trip on Bus B equipment. 2. a) Investigate cause of UV condition. b) Repower bus. c) Restart equipment.		27Y SWITCHGEAR
480V PLANT HTG BUS DEAD P-4-7	1. a) Undervoltage on 480V Heating Aux. Bus. 2. a) 480V Heating Aux. Bus voltage indication.	1. a) UV trip on Bus equipment. 2. a) Investigate cause of UV condition. b) Repower bus. c) Restart equipment.		27Y SWITCHGEAR
480V XMFR TEMP HIGH P-4-8	1. a) Any one of eight 480V transformers having winding temperatures $\geq$ 200°C. See Note P-4-8. b) Either of the two 480V intake transformers having winding temperatures $\geq$ 90°C. 2. a) None.	1. a) None. 2. a) Ensure correct temperature with local reading. b) Secure unneeded equipment being fed from transformer. c) Notify Electrical Supervisor.	$\geq$ 200°C $\geq$ 90°C	Hot Spot Switchgear
PZR MCC BREAKER OPEN P-4-9	1. a) Breaker 3355 or 3356 open. 2. a) Loss of pressurizer heaters from affected MCC or loss of all pressurizer heaters.	1. a) None. 2. a) Investigate reason for breaker being open. b) Refer to OP-305 Section 4.3 or 4.4.		R/B SWGR
  P-4-10				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
INVERTER A FAILURE P-5-1	1. a) Loss of both AC and battery input to Inverter A. 2. a) Inverter A status light out.	1. a) VBXS-1A and 3A transfer to alternate source. 2. a) Ensure VBDP-3 and 8 are energized.		
INVERTER A TROUBLE P-5-2	1. a) Inverter A battery input 250 amps. b) Inverter battery input voltage ≤ 105 VDC. c) Inverter A battery input overcurrent ≥ 168 amps. d) Inverter A AC output voltage low ≤ 114 VAC. e) Inverter A batt input voltage ≥ 140V. 2. a) None.	1. a) Trips battery input breaker. b) Trips DC Input Breaker. 2. a) Determine reason for battery supplying inverter loads and return to AC supply when possible. b) Check operation of battery charger. c) When condition is corrected, reclose DC input breaker. d) Make preparation to shift vital bus to alternate supply by bypassing inverter if necessary. e) Inform Electrical Supervisor of problem.	250 amps 105 VDC 168 amps 114 VAC 140 VDC	RL 2 INVERTER RL 6 INVERTER RL 3 INVERTER RL 1 INVERTER RL 7 INVERTER
P-5-3				
P-5-4				
P-5-5				

ENCLOSURE 1 (Page 10 of 19)

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNC ATOR PANEL P VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
P-5-6				
P-5-7				
P-5-8				
P-5-9				
P-5-10				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
INVERTER B FAILURE P-6-1	1. a) Loss of both AC and battery input to Inverter B. 2. a) Inverter B status light out.	1. a) VBXS-1B and 3B transfer to alternate source. 2. a) Ensure VBDP-4 and 10 are energized.		
INVERTER B TROUBLE P-6-2	1. a) Inverter B battery input 250 amps. b) Inverter battery input voltage ≤ 105 VDC. c) Inverter B battery input overcurrent ≥ 168 amps. d) Inverter B AC output voltage low ≤ 114 VAC. e) Inverter B batt input voltage ≥ 140V. 2. a) None.	1. a) Trips battery input breaker. b) Trips DC Input Breaker. 2. a) Determine reason for battery supplying inverter loads and return to AC supply when possible. b) Check operation of battery charger. c) When condition is corrected, reclose DC input breaker. d) Make preparation to shift vital bus to alternate supply by bypassing inverter if necessary. e) Inform Electrical Supervisor of problem.	250 amps 105 VDC 168 amps 114 VAC 140 VDC	RL 2 INVERTER RL 6 INVERTER RL 3 INVERTER RL 1 INVERTER RL 7 INVERTER
P-6-3				
P-6-4				
P-6-5				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
BATTERY A DISCHARGE HIGH P-6-6	1. a) Battery A1 and/or A2 high discharge rate. 2. a) Emergency equipment running with no battery charger. b) Battery ground.	1. a) None. 2. a) Normal if emergency equipment operating. b) If battery ground perform ground isolation, if necessary open battery disconnect. c) Increase system (grid) voltage, if below normal.		AMMETER ALARM RELAY AMMETER BUS
P-6-7				
P-6-8				
P-6-9				
P-6-10				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 7

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
INVERTER C FAILURE P-7-1	1. a) Loss of both AC and battery input to Inverter C. 2. a) Inverter C status light out.	1. a) V8XS-1C and 3C transfer to alternate source. 2. a) Ensure V8DP-5 and 9 are energized.		
INVERTER C TROUBLE P-7-2	1. a) Inverter C battery input 250 amps. b) Inverter battery input voltage ≤ 105 VDC. c) Inverter C battery input overcurrent ≥ 168 amps. d) Inverter C AC output voltage low ≤ 114 VAC. e) Inverter C batt input voltage ≥ 140V. 2. a) None.	a) Trips battery input breaker. b) Trips DC input Breaker. 2. a) Determine reason for battery supplying inverter loads and return to AC supply when possible. b) Check operation of battery charger. c) When condition is corrected, reclose DC input breaker. d) Make preparation to shift vital bus to alternate supply by bypassing inverter if necessary. e) Notify Security that Inverter C is being supplied from batteries. f) Inform Electrical Supervisor of problem.	250 amps 105 VDC 168 amps 114 VAC 140 VDC	PL 2 INVERTER RL 6 INVERTER RL 3 INVERTER RL 1 INVERTER RL 7 INVERTER
INVERTER BYPASSED P-7-3	1. a) Any of the vital bus transfer switches to alternate source. b) Inverter E transfer switch to alternate source. 2. a) None.	1. a) None. 2. a) When inverter is in service, place vital bus back on inverter. b) Notify Security if Inverter C is bypassed.		
P-7-4				
P-7-5				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 7

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
BATTERY B DISCHARGE HIGH P-7-6	1. a) Battery S1 and/or B2 high discharge rate. 2. a) Emergency equipment running with no battery charger. b) Battery ground.	1. a) None. 2. a) Normal if emergency equipment operating. b) If battery ground, perform ground isolation if necessary open battery disconnect. c) Increase system (grid) voltage, if below normal.		AMMETER ALARM RELAY AMMETER BUS
P-7-7				
BATTERY CHARGER TROUBLE P-7-8	1. a) Battery charger A, B, C, D, E, F, G, H, and/or 1 AC power failure. b) Battery charger A, B, C, D, E, F, G, H, and/or 1 AC volts low. c) Battery charger A, B, C D, E, F, G, H, and/or 1 high voltage. d) Battery charger A, B, C, D, E, F, G, H, and/or 1 high volts. 2. a) None.	1. a) Battery charger shutdown. 2. a) Determine reason for loss of AC to inverter. b) Increase system (grid) voltage, if low normal. c) If fault of signal battery charger, remove charger from service. d) If possible, place standby charger in service. e) Inform Electrical Supervisor of condition.		ACPF AR CHARGER PCLVAR CHARGER DCHVAR CHARGER RSVD CHARGER
BATTERY GROUND P-7-9	1. a) Batt A ground. b) Batt B ground. c) Batt C ground. 2. a) None.	1. a) None. 2. a) Check battery ground detector. b) Inform Electrical Supervisor of ground.	DPGD-1A DPGD-1B DPGD-1C ≤ 10 Kohm	
P-7-10				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL F VERTICAL COLUMN 8

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
INVERTER D FAILURE P-8-1	1. a) Loss of both AC and battery input to Inverter D. 2. a) Inverter D status light out.	1. a) VBXS 1D and 3D transfer to alternate source. 2. a) Ensure VBDP-6 and 11 are energized.		
INVERTER D TROUBLE P-8-2	1. a) Inverter D battery input 250 amps. b) Inverter battery input voltage ≤ 105 VDC. c) Inverter D battery input overcurrent ≥ 168 amps. d) Inverter D AC output voltage low ≤ 114 VAC. e) Inverter D batt input voltage ≥ 140V. 2. a) None.	1. a) Trips battery input breaker. b) Trips DC input Breaker. 2. a) Determine reason for battery supplying inverter loads and return to AC supply when possible. b) Check operation of battery charger. c) When condition is corrected, reclose DC input breaker. d) Make preparation to shift vital bus to alternate supply by bypassing inverter if necessary. e) Inform Electrical Supervisor of problem.	250 amps 105 VDC 168 amps 114 VAC 140 VDC	RL 2 INVERTER RL 6 INVERTER RL 3 INVERTER RL 1 INVERTER RL 7 INVERTER
INVERTER E FAILURE P-8-3	1. a) Loss of both AC and battery input to Inverter E. 2. a) Plant computer de-energized.	1. a) None. 2. a) Manually transfer VBDP-7 to alternate source.		
INVERTER E TROUBLE P-8-4	1. a) Inverter E battery input 250 amps. b) Inverter battery input voltage ≤ 105 VDC. c) Inverter E battery input overcurrent ≥ 168 amps. d) Inverter E AC output voltage low ≤ 114 VAC. e) Inverter E batt input voltage ≥ 140V. 2. a) None.	1. a) Trips battery input breaker. b) Trips DC Input Breaker. 2. a) Determine reason for battery supplying inverter loads and return to AC supply when possible. b) Check operation of battery charger. c) When condition is corrected, reclose DC input breaker. d) Make preparation to shift vital bus to alternate supply by bypassing inverter if necessary. e) Inform Electrical Supervisor of problem.	250 amps 105 VDC 168 amps 114 VAC 140 VDC	RL 2 INVERTER RL 6 INVERTER RL 3 INVERTER RL 1 INVERTER RL 7 INVERTER
P-8-5				

ANNUNCIATOR PANEL LOCATION SSF-A1 ANNUNCIATOR PANEL P VERTICAL COLUMN 8

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
BATTERY C DISCHARGE HIGH P-8-6	1. a) Battery C1 and/or C2 discharge rate ≥ 10 amps. 2. a) Emergency equipment running with no battery charger. b) Battery ground.	1. a) None. 2. a) Normal if emergency equipment operating. b) If battery ground, perform ground isolation, if necessary open battery breaker. c) Increase system (grid) voltage, if below normal.	10 AMPS	DPDP-1C
BATTERY C BREAKER OPEN P-8-7	1. a) DPDS-1C open. 2. a) None.	1. a) None. 2. a) Determine reason for breaker being open. b) Close breaker as soon as possible.		DPDS-1C
P-8-8				
P-8-9				
P-8-10				

ANNUNCIATOR WINDOW LOCATION	NOTES
P-1-1	Auto Action a) Breaker 3103 trips. b) Breaker 3104 trips. c) Breaker 3203 trips. d) Breaker 3204 trips. e) Breaker 3205 trips. f) Breaker 3206 trips. g) Breaker 1691 trips. h) Breaker 1692 trips. i) Plant line 4 differential (starts breaker failure timing sequence on 1691 and 1692).
P-2-1	Auto Action a) Breaker 4900 trips b) Breaker 4902 trips c) Breaker 3211 trips d) Breaker 3212 trips

ANNUNCIATOR WINDOW LOCATION	NOTES
P-3-9	a) ES MCC 3A1 Breaker 3341
	b) ES MCC 3A2 Breaker 3351
	c) ES MCC 3A3 Breaker 3331
	d) ES MCC 3B1 Breaker 3340
	e) ES MCC 3B2 Breaker 3350
	f) ES MCC 3B3 Breaker 3330
	g) Intake MCC Breaker 3357
	h) Intake MCC Breaker 3358
	i) Reactor MCC 3A1 Breaker 3345
	j) Reactor MCC 3A2 Breaker 3365
	k) Reactor MCC 3B1 Breaker 3346
	l) Reactor MCC 3B2 Breaker 3366
	m) Turbine MCC 3A Breaker 3343
	n) Turbine MCC 3B Breaker 3344
	o) Ventilation MCC 3A Breaker 3363
	p) Ventilation MCC 3B Breaker 3364
	q) Water Treatment MCC Breaker 3347
	r) Water Treatment MCC Breaker 3348
	s) Water Treatment MCC 3A Breaker 3353
	t) Water Treatment MCC 3B Breaker 3354

ANNUNCIATOR WINDOW LOCATION	NOTES
P-4-8	a) ES Transformer 3A
	b) ES Transformer 3B
	c) Heating Aux. Transformer
	d) Plant Aux. Transformer
	e) Reactor Aux. Transformer 3A
	f) Reactor Aux. Transformer 3B
	g) Turbine Aux. Transformer 3A
	h) Turbine Aux. Transformer 3B

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ANNUNCIATOR RESPONSE

AR-603

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

TGF O ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

W. N. Marshall

DATE: 6/22/92

INTERPRETATION CONTACT: Nuclear Operations Superintendent

TABLE OF CONTENTS

1.0 PURPOSE

1.1 Establish a reference document for each Annunciator Window on the TGF-AX3 Lampbox.

1.2 Establish operator actions for valid Annunciator alarms on the TGF-AX3 Lampbox.

1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the TGF-AX3 Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

2.1.1 AP-660, Turbine Trip

2.1.2 OP-607, Condenser Vacuum System

2.1.3 AP-450, Emergency Feedwater Actuation

2.1.4 OP-701, Operation of the Main Electrical Generator Systems

2.1.5 AR-921, Hydrogen Panel Annunciator Response

2.1.6 AP-580, Reactor Trip

2.2 DEVELOPMENTAL REFERENCES

2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

2.2.2 Annunciator Window Engraving Drawing E-224-049

3.0 PERSONNEL INDOCTRINATION

3.1 The Annunciator System is powered from VBDP-5 Breaker 28.

4.0 INSTRUCTIONS

4.1 Respond to alarms on the TGF-AX3 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP ACTIONS

None

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL 0 VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
TURB GEN BRG OIL PUMP TRIP 0-1-1	1. a) Brk for IG Brg Pump open with control switch in normal after stop. 2. a) Pump breaker indication.	1. a) DC Emergency oil pump starts. 2. a) Ensure DC emergency oil pump starts. b) Start HP seal oil backup pump; check main lube oil system.		SWITCHGEAR
0-1-2				
0-1-3				
TURB GEN BRG OIL PUMP AUTO START 0-1-4	1. a) Brk closed with control switch in Normal after stop. 2. a) Pump breaker indication.	1. a) Auto Starts at Lo Lube Oil Press ≤ 12 psig. 2. a) Place control switch for applicable pump in Normal after start. b) Check main lube oil pressure.	12 psig	SWITCHGEAR
HP SEAL OIL BACKUP PUMP TRIP 0-1-5	1. a) Brk open with control switch in Normal after start. 2. a) Pump breaker indication.	1. a) None. 2. a) Ensure either AC or DC Brg Lube Oil Pumps running.		SWITCHGEAR
HP SEAL OIL BACKUP PUMP AUTO START 0-1-6	1. a) Brk closed with control switch in Normal after stop. 2. a) Pump breaker indication.	1. a) Auto Starts ≤ 10 psig. 2. a) Check Brg. Oil pumps running. b) Check main lube oil pressure.	10 psig	SWITCHGEAR
TURB GEN LUBE OIL SYS TROUBLE 0-1-7	1. a) Any one of eight lube oil alarms. See Note 0-1-7. 2. a) None.	1. a) None. 2. a) Notify Nuclear Auxiliary Operator.		
0-1-8				

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL 0 VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & ELEMENT
GLAND STEAM DRN TANK LEVEL LOW 0-1-9	1. a) Gland steam drain tank level $\leq$ 29 in (Dump vlv to cond not shut). 2. a) Decreasing condenser vacuum.	1. a) Solenoid dump valve shuts. 2. a) If alarm persists, notify Nuclear Aux Operator.	29 IN	TD-3-LS
GLAND STEAM SYSTEM TROUBLE G-1-10	1. a) GS exhauster A or B breaker open and control switch in normal after start. b) GS exhauster pressure $\geq$ 10" H_2O. c) Hi pressure turbine gland steam pressure > 6.1 psig. d) Governor end #1 LP turbine GS pressure low < 0.5 psig. e) Generator end #1 LP turbine GS pressure low < 0.5 psig. f) Governor end #1 LP turbine GS pressure low < 0.5 psig. g) Generator end #1 LP turbine GS pressure low < 0.5 psig. 2. a) Low GC pressure; condenser vacuum decreasing. b) Gland steam exhauster breaker indication.	1. a) None. 2. a) Start standby gland steam exhauster. b) Check local pressure regulators and bypass with manual valves if necessary.	6.1 psig 0.5 psig 0.5 psig 0.5 psig 10" H_2O	GS-6-PS GS-28-PS GS-29-PS GS-32-PS GS-34-PS GS-1-PS SWITCHGEAR

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL O VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
TURB GEN LIFT OIL PUMP TRIP O-2-1	1. a) Breaker open and control switch in normal after start. (Trips at brg press ≤ 3 psig) 2. a) Breaker indication.	1. a) None. 2. a) If turbine RPM less than 600, attempt to restart pump.	3 psig 600 RPM	SWITCHGEAR
TURB GEN LIFT OIL PRESS LOW O-2-2	1. a) Lift press ≤ 850 psig. 2. a) None.	1. a) None. 2. a) Do not roll turbine until alarm clears. b) Notify Nuclear Auxiliary Operator.	850 psig	TB-331-PS
TURB GEN OIL PRESS PRETRIP O-2-3	1. a) Turbine brg press ≤ 6 psig. 2. a) Check main lube oil pressure.	1. a) Turbine trip. 2. a) Refer to AP-660 (TT).	6 psig	TB-267-PS
TURB GEN EMERG BRG OP OVERLOAD O-2-4	1. a) Thermal overload on pump. 2. a) Breaker indication.	1. a) Pump trips. 2. a) If turbine rolling, start AC lube oil pump. b) Check main lube oil pressure.		SWITCHGEAR
TG LUBE OIL RESVR LEVEL HIGH/LOW O-2-5	1. a) Lube oil reservoir ≥ 6.9 ft. b) Lube oil reservoir ≤ 5.9 ft. 2. a) None.	1. a) None. 2. a) Nuclear Auxiliary Operator.	6.9 ft. 5.9 ft.	TB-248-LS TB-248-LS
TURB GEN BRG OIL PUMP OUT OF SERVICE O-2-6	1. a) AC or DC bearing oil pumps (TBP-3 or TBP-2) are in the "Pull-to-Lock" position. 2. a) Control Switch Position.	1. a) None. 2. a) Take action as necessary to protect the turbine bearings from loss of lube oil.		
TG LUBE OIL VAPOR EXTRCT TROUBLE O-2-7	1. a) Vapor press on seal oil ≥ 0.5" H_2O vacuum. b) Vapor press ≥ 1.3" H_2O. 2. a) None.	1. a) None. 2. a) Notify Nuclear Auxiliary Operator.	0.5" H_2O VAC 0.5" H_2O	TB-304-PS TB-285-PS
O-2-8				
O-2-9				
O-2-10				

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL 10 VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
MAIN TURB TRIP 0-3-1	1. a) Turbine auto stop oil pressure ≤ 45 psig. 2. a) Turbine tripped.	1. a) Turbine tripped. 2. a) Refer to AP-660 (TT).	45 psig	TB-324-PS
TL VACUUM PRETRIP 0-3-2	1. a) CDSTR vacuum ≤ 25" Hg. 2. a) Condenser vacuum indication.	1. a) Backup A.R.P.'s Auto Start. 2. a) Refer to OP-607.	25" Hg	TB-265-PS
TURB THRUST BRG PRETRIP 0-3-3	1. a) Thrust bearing oil pressure ≥ 35 psig. 2. a) None.	1. a) Turbine trip. 2. a) Refer to AP-660 (TT).	35 psig	TB-266-PS
TURB THROTTLE PRESS HIGH/LOW 0-3-4	1. a) Turbine throttle pressure ≥ 939 psig. b) Turbine throttle pressure ≤ 835 psig. 2. a) Turbine header pressure indicator. b) Main steam header pressure indicator.	1. a) None. 2. a) Check pressure setpoint setting. b) Check for instrument failure. c) Switch to alternate pressure transmitter.	939 psig 835 psig	SP-10-PSA-1 SP-10-PSA-2 SP-10-PSB-1 SP-10-PSB-2
0-3-5				
0-3-6				
0-3-7				

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL : O VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
0-3-8				
LOCKOUT RELAY DC POWER LOSS 0-3-9	1. a) One of 26 Lockout Relay has lost DC power. See Note 0-3-9. b) ES Toggle Switch open. 2. a) Lock out relay indication light. b) ES Toggle Switch position.	1. a) None. 2. a) Notify system dispatcher. b) Inform electrical supervisor of condition. c) Check DP-DP 3A fuse #10.	27C/86 CONT BD LOA6 LOA5 TSX1 LOA1 27C/86 TURB 27C/86 LFT	
0-3-10				

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL O VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
TURB EXH STM TEMP HIGH O-4-1	1. a) Lp turbine EX temp ≥ 175°F. Lp turbine EX temp ≥ 250°F. 2. a) High hotwell temp.	1. a) None. 2. a) Start hood sprays if necessary.	175° 250°F	TB-279-TS TB-280-TS
TURBINE STEAM FLOW LOW O-4-2	1. a) ΔP between HP turbine inlet and outlet ≤ 21 psid with Breaker 1661 or 1662 closed. 2. a) Breaker 1661 or 1662 closed with generator load very low.	1. a) Turbine trip in 60 seconds. 2. a) Increase Unit Load. b) Open 1661 and 1662 if conditions warrant.	21 psid 60 sec.	MS-87-OPS 2MS-87-OPS
TURB LIMITED BY VALVE POS O-4-3	1. a) Governor valve position is equal to selected valve position limit. 2. a) Indicated valve position. b) Indicated valve position limit.	1. a) Valve open travel limited. 2. a) Reduce unit load. b) Increase valve position limit.		EMC CONTACT
O-4-4				
TURB GEN ROTOR VIB HIGH O-4-5	1. a) Rotor vibration on any of the 9 bearings ≥ 7 mils. 2. a) Check rotor vibration indication.	1. a) None. 2. a) If at critical speed adjust speed to leave the critical speed area.	7 mils	PD/VB
TURB GEN ROTOR ECC HIGH O-4-6	1. a) Rotor eccentricity (excessive bowing). 2. a) Check rotor eccentricity indications.	1. a) None. 2. a) Notify nuclear aux operator. b) Inspect turbine, reduce load if necessary.	3 mils	PD/RX

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL 1 0 VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
TURB Δ EXPANSION TROUBLE 0-4-7	1. a) Diff expansion on rotors (122 long and 1 and 2 short). 2. a) Check differential expansion indication.	1. a) None. 2. a) Reduce heatup rate to allow for more equal expansion.	GEN-SHORT-1454 mils, LONG-345 mils, GOV-SHORT-618 mils, LONG-158 mils	PD/PE
TURB ROTOR POS TROUBLE 0-4-8	a) Governor end rotor position ≥ 25 mils. b) Generator end rotor position ≥ 95 mils. a) Check rotor position indication.	1. a) None. 2. a) Reduce load and determine cause of alarm.	25mils 95mils	PD/RPCE
TURB GEN SPEED CHANNEL TROUBLE 0-4-9	1. a) Speed channel failure. b) Speed Reference failure. c) Speed Protection Control failure. 2. a) None.	1. a) None. 2. a) Notify Maintenance.		EHC CONTACT
TURB AT ZERO SPEED 0-4-10	1. a) Turbine shaft not turning. 2. a) Turbine speed indication.	1. a) Turning gear engages if in auto. 2. a) Ensure turning gear engaged.	SHAFT SPEED ZERO	14/ZSX

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL 1 0 VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
TURB AMSAC CHANNEL TRIP 0-5-1	1. a) Reactor Power >25% FP and both loop feedwater flows <17% rated flow on AMSAC Channel A or B. 2. a) Reactor power indication. b) Main FW flow indication. c) Startup FW flow indication.	1. a) Main turbine trip if both AMSAC channels trip. b) EFIC actuation if both AMSAC channels trip. 2. a) If both AMSAC channels trip, refer to AP-450 (EFW).	25% FP 17% FW Flow	
TURB AMSAC LOW FLUX BYPASS 0-5-2	1. a) Reactor power <25% FP. 2. a) Reactor power indication.	1. a) AMSAC channels blocked from tripping. 2. a) Verify local cabinet status if reactor power >25%.	25% FP	ATWAS AMSAC
TURB AMSAC CHANNEL IN TEST 0-5-3	1. a) AMSAC Channel A in test. b) AMSAC Channel B in test. 2. a) None.	1. a) Channel not in test is blocked from tripping. 2. a) Verify local cabinet status if testing is not in progress.		ATWAS AMSAC
 0-5-4				
TURB GEN RADIO FREQ SIGNAL HIGH 0-5-5	1. a) Abnormal radio frequencies received from main electrical generator. 2. a) At RFM cabinet, determine which detector(s) abnormal: L1 L2 L3 EL	1. a) None. 2. a) Notify System Engineer to compare with known data to determine operation of unit. b) Refer to OP-701.		RF Mon Cabinet
TURB GEN CONDITION MON HIGH 0-5-6	1. a) High concentration of particles contained within main electrical generator hydrogen gas. 2. a) Auto alarm panel.	1. a) Auto sequence reset activates. 2. a) Notify Chemistry. b) Refer to OP-701.		


0-5-7

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL 10 VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
GEN AIR SIDE DC SEAL PP OUT OF SERVICE 0-5-8	1. a) Loss of power DC for Gen air side seal oil backup pump TBP-10. 2. a) Breaker position indicating lights out.	1. a) None. 2. a) Notify Auxiliary Operator to restore power. b) Take necessary action to monitor area for hydrogen concentrations.		E.R. CAB TBK-110
HYDROGEN PANEL ALARM 0-5-9	1. a) One of the alarms on generator hydrogen Annunciator Panel. 2. a) H_2 purity and H_2 pressure indicators.	1. a) None. 2. a) Notify Nuclear Auxiliary Operator. b) Refer to AR-921.		M2 PANEL LOCAL
HYDROGEN SUPPLY PRESS LOW 0-5-10	1. a) Hydrogen supply pressure < 80 psig. 2. a) None.	1. a) None. 2. a) Check H_2 bulk tank pressure.	80 psig	HY-81-PS

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL 1 0 VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITIO 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
GENERATOR TRIP 0-6-1	1. a) Generator Trip due to one of 10 conditions. See Note 0-6-1. 2. a) Turbine trip. b) Reactor trip (above 45% FP).	1. a) Trip Breakers 3101, 3102, 3201 and 3202. b) Closed Breakers 3103, 3104, 3203 and 3204. c) Turbine Trip. d) Reactor Trip (above 45% FP). 2. a) Refer to AP-660 (TT). b) Refer to AP-580 (RT).	45% FP	
EXCITER BREAKER TRIP 0-6-2	1. a) Indicates exciter breaker is open. 2. a) Check excite breaker position.	1. a) None. 2. a) Notify Electrical Supervisor if trip was not a result of operator action.		SWITCHGEAR
GEN VOLT/HERTZ PRETRIP 0-6-3	1. a) Ratio of Volt/Hertz is such that damage could occur in magnetic devices due to saturation of iron cores. 2. a) Unit Voltage indication. b) Unit Frequency indication.	1. a) None. 2. a) Bring voltage and/or frequency into normal ranges.		59/81
GEN UNDER FREQUENCY 0-6-4	1. a) Generator frequency $\leq$ 58.0 H_Z. b) Generator frequency $\leq$ 58.5 H_Z. c) Generator frequency $\leq$ 59.0 H_Z. 2. a) Frequency indication.	1. a) None. 2. a) Inform system dispatcher. b) Restore generator to 60 H_Z if possible	58.0 H_Z 58.5 H_Z 59.0 H_Z	F2 F1
EXCITER FIRING CKT POWER LOSS 0-6-5	1. a) Loss of power to exciter switchgear firing ckt. Drawer 1 or 2. 2. a) Loss of Exciter.	1. a) None. 2. a) Notify Electrical Supervisor.		FIRING CKT EXC SWGR

ANNUNCIATOR PANEL LOCATION TGF-AX3 ANNUNCIATOR PANEL ! 0 VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
EXCITER GROUND 0-6-6	1. a) Exciter Ground Detected. 2. a) None.	1. a) None. 2. a) Notify Electrical Supervisor.		64 EXC SWGR
EXCITER LIMITED PRETRIP 0-6-7	1. a) Exciter excitation is higher than its preset value. 2. a) Exciter voltage indication.	1. a) None. 2. a) Lower exciter excitation.		EXC SWITCHGEAR
EXCITER RAISE INHIBIT 0-6-8	1. a) Gen rated voltage reached during no load operation < 24KV > 22KV. b) Excitation current for rated voltage at no load reached ≤ 49 Amps ≥ 37 Amps. 2. a) Bkr 1661 and Bkr 1662 open.	1. a) Gen output voltage will not increase when either base adjustor/voltage adjustor placed in raise position. 2. a) This alarm is usually caused by normal relay operation for startup and other no load condition.	24KV 22KV 40 AMPS 37 AMPS	D 3X SWGR
GEN RELAY POT XFMR FAILURE 0-6-9	1. a) Generator potential transformer failure. b) Exciter potential transformer failure. 2. a) None.	1. a) Prevents generator #3 backup relay from operating. b) Prevents generator #3 field fail relay from operating. 2. a) Notify Electrical Supervisor.		60 A 60 B MN CONT BD
ISOLATED PHASE BUS DUCT TROUBLE 0-6-10	1. a) Bus duct blower not running when manual switch in auto and exciter breaker closed (A or B). b) Return temperature ≥ 151°F. c) Low flow in phase bus duct. d) Humidity in phase bus duct ≥ 50%. e) Duct Air Filt Dif Press ≥ 1 in H_2O. 2. a) Bus duct blower auto trip; Lo bus duct flow. b) Auto trip on bus duct blower; Bus duct filter Diff Press Hi.	1. a) None. 2. a) Reduce load as required to limit bus duct temperature. b) Check blower and filter. c) Check belts on running blower. d) Inspect coolers for proper flow and operation.	151°F 50% 1 in H_2O	SWGR TB-338-TS TB-339-FS TB-341-HS TB-340-PS

ANNUNCIATOR WINDOW LOCATION	NOTES
O-1-7	a) Main turbine lube oil purifier circ pump trip.
	b) Main turbine lube oil purifier overflow chamber high
	c) Feedwater pp turbine 3A oil purifier circ pump trip.
	d) Feedwater pp turbine 3B oil purifier circ pump trip.
	e) Turbine oil purifier exhauster trip.
	f) Lube oil purifier level high.
	g) Feedwater turbine lube oil purifier overflow chamber level high.
	h) Feedwater turbine lube oil purifier overflow chamber Level Low.

ANNUNCIATOR WINDOW LOCATION	NOTES
0-3-9	a) Generator Neutral Ground.
	b) Step-up Transformer and Generator Differential.
	c) Generator Differential.
	d) Generator Field Failure.
	e) Exciter Overcurrent and Generator Volt/HZ.
	f) Step-up Transformer Sudden Pressure.
	g) Generator Under Frequency.
	h) Generator Backup and Negative Sequence.
	i) Unit Aux Transformer Neutral Ground.
	j) Unit Aux Transformer Sudden Pressure.
	k) Unit Aux Transformer Differential.
	l) Startup Transformer Neutral Ground.
	m) Startup Transformer Sudden Pressure.
	n) Startup Transformer Neutral Ground.
	o) 480 V ES Bus A Undervoltage.
	p) 480 V ES Bus B Undervoltage.
	q) Reactor Trip.
	r) Turbine Trip.
	s) EH Low Fluid Level.
	t) Offsite Power Source Transformer Lockout Relays

ANNUNCIATOR WINDOW LOCATION	NOTE
O-6-1	a) Reactor Trip.
	b) Generator Differential.
	c) Generator Neutral Ground.
	d) Generator Backup Negative Sequence.
	e) Generator Field Failure.
	f) Exciter Overcurrent and Generator Volt/HZ.
	g) Stepup transformer Sudden Pressure.
	h) Stepup Transformer Differential.
	i) 500 KV Substation Primary Trip.
	j) 500 KV Substation Alternate Trip.

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ANNUNCIATOR RESPONSE

AR-702

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

SSF Q ANNUNCIATOR RESPONSE

THIS PROCEDURE ADDRESSES SAFETY RELATED COMPONENTS

APPROVED BY: Interpretation Contact

W. Marshall

DATE: 6/22/92

INTERPRETATION CONTACT: Nuclear Operations Superintendent

TABLE OF CONTENTS

1.0 PURPOSE

1.1 Establish a reference document for each Annunciator Window on the SSF-A2 Lampbox.

1.2 Establish operator actions for valid Annunciator alarms on the SSF-A2 Lampbox.

1.3 Establish a reference to other procedures which address operator actions for valid Annunciator alarms on the SSF-A2 Lampbox.

2.0 REFERENCES

2.1 IMPLEMENTING REFERENCES

2.1.1 AP-77C, Emergency Diesel Generator Actuation

2.2 DEVELOPMENTAL REFERENCES

2.2.1 INPO 90-021, Good Practice OP-217, Alarm Response Procedures

2.2.2 Annunciator Window Engraving Drawing E-224-049

3.0 PERSONNEL INDOCTRINATION

3.1 The Annunciator System is powered from 3DP-5 Breaker 28.

4.0 INSTRUCTIONS

4.1 Respond to alarms on the SSF-A2 Lampbox as indicated on Enclosure 1, Annunciator Response.

5.0 FOLLOW-UP-ACTIONS

None

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION TO VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-1-1				
Q-1-2				
Q-1-3				
Q-1-4				
Q-1-5				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 1

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-1-6				
Q-1-7				
Q-1-8				
Q-1-9				
BUS PARALLELED Q-1-10	1. a) Both 3102 & 3104 closed at the same time. b) Both 3101 & 3103 closed at the same time. c) Both 3202 & 3204 closed at the same time. d) Both 3201 & 3203 closed at the same time. e) Any two of the following breakers closed at the same time (3205, 3211, 3207, 3209). f) Any two of the following breaker closed at the same time (3206, 3208, 3210, 3212). 2. a) Both breakers indicate closed.	1. a) None. 2. a) Open one breaker.		52 A SWITCHGEAR

ANNUNCIATOR PANEL LOCATION SSF-AZ ANNUNCIATOR PANEL Q VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
4KV ES BUS A DEAD Q-2-1	1. a) Undervoltage on 4KV ES Bus A. 2. a) 4KV ES Bus A voltage indication.	1. a) Diesel start. 2. a) Refer to AP-770 (EDGA).		27 X RELAY SWITCHGEAR
DIESEL GEN. A BREAKER TRIP Q-2-2	1. a) Brk 3209 open with control switch in normal after close. 2. a) Breaker indication.	1. a) None. 2. a) Refer to AP-770 (EDGA).		CS/AC CS/D SWITCHGEAR
DIESEL GEN A BREAKER CLOSED Q-2-3	1. a) Diesel generator A breaker closed and ES actuation OR b) Diesel generator A breaker closed and Bus UV. 2. a) ES A actuation indication. b) Breaker 3209 breaker indication. c) 4160V ES A bus voltage indication.	1. a) None. 2. a) Refer to AP-770 (EDGA).		
4KV ES A CROSS-TIE BLOCKED Q-2-4	1. a) Indicates brks 3209 and 3210 are closed and either 3206, 3208, or 3112 is closed. 2. a) Breakers indicate closed.	1. a) Blocks closure of 3205 if 3206 closed. b) Blocks closure of 3207 if 3208 closed. c) Blocks closure of 3211 if 3212 closed. 2. a) None.		3-52-5 3206, 8, 9, 10, 12 CB-SSAR-3
DIESEL GEN A VOLTAGE ADJ IN CONTROL RM Q-2-5	1. a) Diesel Generator A voltage adjust selected to Control Room. 2. a) Selector Switch position.	1. a) None. 2. a) Place switch in "Remote" following surveillance testing.		KB SS-CR CB-SSF

ANNUNCIATOR PANEL LOCATION SSF-AZ ANNUNCIATOR PANEL Q VERTICAL COLUMN 2

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-2-6				
480V ES BUS A DEAD Q-2-7	1. a) Undervoltage on 480V ES Bus A 2. a) Voltage on bus indicates low.	1. a) 480V ES A equipment trip on UV. 2. a) Refer to AP-770 (EDGA).		27Y-1 SWITCHGEAR
480V ES BUS A UV LOCKOUT ACT Q-2-8	1. a) ES A actuation and diesel A breaker closed. b) ES A actuation and 4160V ES bus A UV. 2. a) ES status panel. b) Breaker 3209 status indication. c) 4160V ES bus A voltage indication.	1. a) See Note Q-2-8. 2. a) Refer to AP-770 (EDGA)		86/27ESA CB-5SR
Q-2-9				
POTENTIAL TRANSFORMER TROUBLE Q-2-10	1. a) Potential transformer trouble on one of 17 busses. See Note Q-2-10. 2. a) None.	1. a) None. 2. a) Investigate cause of loss of control power and inform Electrical Supervisor. b) Investigate cause of PT trouble and inform Electrical Supervisor.		27 Z 27 Y-1 SWITCHGEAR

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL C VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
DIESEL GEN A OVER 3250 KW C-3-1	1. a) EDG A load ≥ 3250 KW for 10 sec. 2. a) EDG A KW meter. b) EDG A cumulative time meter.	1. a) Breakers 3205, 3207, and 1211 open at 3500 KW. 2. a) Lower load if surveillance testing. b) Refer to AP-770 (EDGA).	3250 KW 10 Sec 3500 KW	62 BX EGEN-1
DIESEL GEN A OVER 3250 KW FOR 24/29 MIN C-3-2	1. a) EDG A cumulative time since last overhaul ≥ 24 min. b) EDG A cumulative time since last overhaul ≥ 29 min. 2. a) EDG A cumulative time meter.	1. a) None. 2. a) Notify Engineering to ensure diesel operability.	3250 KW 29 Min 24 Min	62BX EGEN-1
C-3-3				
4KV ES A UNDERVOLTAGE TRIP BLOCKED C-3-4	1. a) 4KV ES Bus A UV relays being tested. b) No UV protection during test. 2. a) None.	1. a) None. 2. a) Monitor ES bus and take appropriate action if U.V. condition occurs.		15-1 TBS-1 MTCP-15
C-3-5				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 3

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-3-6				
Q-3-7				
Q-3-8				
Q-3-9				
Q-3-10				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-4-1				
Q-4-2				
Q-4-3				
Q-4-4				
Q-4-5				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 4

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-4-6				
Q-4-7				
Q-4-8				
Q-4-9				
Q-4-10				

ANNUNCIATOR PANEL LOCATION SSF-F2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PICPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-5-1				
4KV ES BUS DEGRADED VOLT TRIP Q-5-2	1. a) 4160V ES Bus A or B voltage on one or more phases ≤ 3864V for > 5 sec. 2. a) 4160V ES Bus A or B voltage indication.	1. a) Auto start of diesel generator A or B if ALL 3 phases are affected. 2. a) None.	3864V 5 sec.	32EA/32EB Switchgear
CROSS-TIE BLOCKING LOSS OF DC Q-5-3	1. a) 4160 ES Bus A or B cross tie block LO relay loss of DC power. b) 4160 ES Bus A or B cross tie block circuit loss of DC power. 2. a) None.	1. a) None. 2. a) Investigate cause of loss of DC. b) Inform Electrical Supervisor of condition.		27C-1A CB-SSAR 3 27C-2A 27C-2B
ES BKR DC POWER LOSS Q-5-4	1. a) Loss of DC control power to one of 23 ES breakers. See Note Q-5-4. 2. a) Breaker indicator lights off.	1. a) None. 2. a) Investigate cause of loss of control power. b) Inform Electrical Supervisor of condition.		27C RELAY SWITCHGEAR
ES BREAKER WITHDRAWN Q-5-5	1. a) One or more of 6 ES breakers not in correct position. See Note Q-5-5. 2. a) Brk lights out.	1. a) None. 2. a) Determine reason for breaker being racked out, or in test position.		52 H SWITCHGEAR

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 5

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-5-6				
ES MCC 3AB DEAD Q-5-7	1. a) ES MCC 3AB undervoltage. 2. a) Loss control pressurizer spray valve. b) Loss of equipment supplied by ES MCC 3AB.	1. a) Undervoltage trip on ES MCC 3AB equipment. 2. a) Press manual transfer button and transfer bus to alternate power source.		AR RELAY TRANSFER SWITCH
ES MCC 3AB BREAKER OPEN Q-5-8	1. a) Either 3360 or 3361 open. 2. a) None.	1. a) None. 2. a) Press manual transfer and transfer bus if bus is dead. b) Investigate cause of open breaker.		R/B SWITCHGEAR
Q-5-9				
Q-5-10				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-6-1				
Q-6-2				
Q-6-3				
Q-6-4				
Q-6-5				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL G VERTICAL COLUMN 6

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
G-6-6				
G-6-7				
G-6-8				
G-6-9				
G-6-10				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 7

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
4KV ES BUS B DEAD Q-7-1	1. a) Undervoltage on 4KV ES Bus B. 2. a) 4KV ES Bus B voltage indication.	1. a) Diesel starts. 2. a) Refer to AP-770 (EDGA).		27 Y RELAY SWITCHGEAR
DIESEL GEN B BREAKER TRIP Q-7-2	1. a) Brk 3210 open with control switch in normal after close. 2. a) Breaker indication.	1. a) None. 2. a) Refer to AP-770 (EDGA).		CS/SC CS/O CB-SSF
DIESEL GEN B BREAKER CLOSED Q-7-3	1. a) Diesel generator B breaker closed and ES actuation OR b) Diesel generator B breaker closed and Bus UV. 2. a) ES B actuation indication. b) Breaker 3210 breaker indication. c) 4160V ES B Bus voltage indication.	1. a) None. 2. a) Refer to AP-770 (EDGA).		86B/ESB CB-SSAR3
4KV ES B CROSS-TIE BLOCKED Q-7-4	1. a) Indicates brks 3209 and 3210 are closed and either 3205, 3207, or 3211 is closed. 2. a) Breakers indicate closed.	1. a) Blocks closure of 3206 if 3205 closed. b) Blocks closure of 3208 if 3207 closed. c) Blocks closure of 3212 if 3211 closed.		3-52 3205, 7,9, 10, 11 CB-SSAR-3
DIESEL GEN B VOLTAGE ADJ IN CONTROL RM Q-7-5	1. a) Diesel Generator B voltage adjust selected to Control Room. 2. a) Selector switch position.	1. a) None. 2. a) Place switch in "Remote" following surveillance testing.		KD CB-SST

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 7

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-7-6				
480V ES BUS B DEAD Q-7-7	1. a) Undervoltage on 480V ES Bus B. 2. a) Voltage on bus indicates low.	1. a) 480V ES B equipment trip on UV. 2. a) Refer to AP-770 (EDGA).		27Y SWITCHGEAR
480V ES BUS B UV LOCKOUT ACT Q-7-8	1. a) ES B actuation and diesel B breaker closed. b) ES B actuation and 4160V ES Bus B UV. 2. a) ES status panel. b) Breaker 3210 status indication. c) 41[illegible] ES Bus B voltage indicator.	1. a) See Note Q-7-8. 2. a) Refer to AP-770 (EDGA).		86/2/ESB CB-SSR
Q-7-9				
Q-7-10				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN B

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
DIESEL GEN B OVER 3250 KW Q-B-1	1. a) EDG B Load ≥ 3250 for 10 sec. 2. a) EDG B KW meter. b) EDG B cumulative time meter.	1. a) Breakers 3206, 3208, and 3212 open at 3500 KW. 2. a) Lower load if surveillance testing. b) Refer to AP-770 (EDGA).	3250 KW 10 sec. 3500 KW	63-BX EGEN-2
DIESEL GEN B OVER 3250 KW FOR 24/29 MIN Q-B-2	1. a) EDG B cumulative time since last overhaul ≥ 24 min. b) EDG B cumulative time since last overhaul ≥ 29 min. 2. a) EDG B cumulative time meter.	1. a) None. 2. a) Notify Engineering to ensure diesel operability.	3250 KW 29 min. 24 min.	63-BX EGEN-2
  Q-B-3				TS-1 TBS-2 MTCP-13
4KV ES B UNDERVOLTAGE TRIP BLOCKED Q-B-4	1. a) 4KV ES Sus B UV relays being tested. b) No UV protection. 2. a) None.	1. a) None. 2. a) Monitor ES bus and take appropriate action if UV condition occurs.		
  Q-B-5				

ANNUNCIATOR PANEL LOCATION SSF-A2 ANNUNCIATOR PANEL Q VERTICAL COLUMN 8

WINDOW TITLE	1. INDICATED CONDITION 2. CONTROL ROOM INDICATION WHICH VERIFY OR PINPOINT TROUBLE	1. AUTO ACTION 2. OPERATOR ACTION - VALID ALARM	SETPOINT	SENSING ELEMENT NUMBER & LOCATION
Q-8-6				
Q-8-7				
Q-8-8				
Q-8-9				
Q-8-10				

ANNUNCIATOR WINDOW LOCATION	NOTES
Q-2-8	a) 480V ES A UV Lockout
	b) 480V ES A Tie Breaker (3391)
	c) Spent Fuel Pump A
	d) Chiller A
	e) Chilled Water Pump A
	f) AHF-17A
	g) AHF-18A
	h) AHF-19A
	i) EFIC Room Fan (AHF-54A)
	j) Boric Acid Storage Tank A Heater
	k) BWST Heater A
	l) Breaker 3321
	m) Heat Tracing

ANNUNCIATOR PANEL LOCATION	NOTES
Q-2-10	a) 6900V Reactor Aux Bus A
	b) 6900V Reactor Aux Bus B
	c) 4160V Reactor Aux Bus
	d) 4160V Unit Bus A
	e) 4160V Unit Bus B
	f) 4160V ES Bus A
	g) 4160V ES Bus B
	h) 480V Reactor Aux Bus A
	i) 480V Reactor Aux Bus B
	j) 480V Turbine Aux Bus A
	k) 480V Turbine Aux Bus B
	l) 480V Intake Aux Bus A
	m) 480V Intake Aux Bus B
	n) 480V Plant Aux Bus
	o) 480V Heating Aux Bus
	p) 480V ES Bus A
	q) 480V ES Bus B

ANNUNCIATOR PANEL LOCATION	NOTES
Q-5-4	a) 4160V ES Bus A source from Units 1&2 SU Breaker 3211
	b) 4160V ES Bus B source from Units 1&2 SU Breaker 3212
	c) 4160V ES Bus A source from Unit 3 SU Breaker 3205
	d) 4160V ES Bus B source from Unit 3 SU Breaker 3206
	e) 4160V ES Bus A source from Unit Aux Breaker 3207
	f) 4160V ES Bus B source from Unit Aux Breaker 3208
	g) 4160V Diesel Generator A Breaker 3209
	h) 4160V Diesel Generator B Breaker 3210
	i) 4160V ES Bus A Feed to 480V Breaker 3221
	j) 4160V ES Bus B Feed to 480V Breaker 3220
	k) 480V ES Bus A Tie Breaker 3391
	l) 480V ES Bus B Tie Breaker 3390
	m) 480V ES Bus A Source Breaker 3311
	n) 480V ES Bus B Source Breaker 3310
	o) 480V ES MCC A1 Feeder Breaker 3341
	p) 480V ES MCC A2 Feeder Breaker 3351
	q) 480V ES MCC A3 Feeder Breaker 3331
	r) 480V ES MCC B1 Feeder Breaker 3340
	s) 480V ES MCC B2 Feeder Breaker 3350
	t) 480V ES MCC B3 Feeder Breaker 3330
	u) 480V ES MCC AB From ESA Feeder Breaker 3361
	v) 480V ES MCC AB From ESB Feeder Breaker 3360
	w) 480V Plant Aux XFMR Feeder Breaker 3222

ANNUNCIATOR PANEL LOCATION	NOTES
Q-5-5	a) 4160V ES Bus B Dummy Breaker
	b) 4160V ES Bus A Feed to 480V Breaker 3221
	c) 4160V ES Bus B Feed to 480V Breaker 3220
	d) 480V ES Bus A Source Breaker 3311
	e) 480V ES Bus B Source Breaker 3310
	f) 480V ES MCC AB Feeder Breakers 3360/3361

ANNUNCIATOR WINDOW LOCATION	NOTES
Q-7-8	a) 480V ES B UV Lockout
	b) 480V ES B Tie Breaker (3390)
	c) Spent Fuel Pump B
	d) Chiller B
	e) Chilled Water Pump B
	f) AHF-17B
	g) AHF-18B
	h) AHF-19B
	i) EFIC Room Fan (AHF-54B)
	j) Boric Acid Storage Tank B Heater
	k) BWST Heater B
	l) Breaker 3222
	m) Heat tracing