

ST-HL-AE-5084

ATTACHMENT 5

0POP05-EO-EC00

LOSS OF ALL AC POWER

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SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

OPOP05-EO-EC00 Rev. 1

LOSS OF ALL AC POWER

DEPARTMENT PROCEDURE

SAFETY RELATED (Q)



MANAGER OPERATIONS SUPPORT

10/19/93
DATE APPROVED

12/22/93
DATE EFFECTIVE

USAGE CONTROL: In Hand Controlling Station Only

LIST OF ATTACHMENTS:

- o Addendum 1, Transfer ESF Busses To The Emergency Transformer
- o Addendum 2, Equipment In Pull To Lock
- o Addendum 3, Failing Air To MSIVs And MSIBs
- o Addendum 4, DC Non Essential Loads
- o Addendum 5, Vital DC Bus Monitoring
- o Addendum 6, Emergency Makeup To AFWST From Fire Protection System
- o Addendum 7, SG PORV Local Operation
- o Addendum 8, Phase A Isolation Verification
- o Addendum 9, Phase A OCIV Verification
- o Addendum 10, Non Phase A CNTMT Isolation Valves
- o Addendum 11, Emergency Makeup To SFP From Fire Protection System
- o Addendum 12, Emergency Electrical Loading Requirements
- o Addendum 13, Resetting ESF Sequencer Mode I Logic
- o Conditional Information Page

This procedure is applicable in Modes 1, 2, 3, and 4.

PURPOSE

This procedure provides actions to respond to a loss of all AC ESF power.

SYMPTOMS OR ENTRY CONDITIONS

- 1) A loss of all power on all AC ESF busses.
- 2) This procedure is entered from OPOP05-EO-EC00, REACTOR TRIP OR SAFETY INJECTION, Step 3, on the indication that all AC ESF busses are deenergized.

ADVERSE CONTAINMENT CONDITIONS

IF any of the following conditions are met, THEN USE adverse containment values:

- o Containment pressure GREATER THAN OR EQUAL TO 5 PSIG.
- o Containment radiation levels GREATER THAN OR EQUAL TO 10^5 R/HR.
- o Containment integrated radiation dose GREATER THAN OR EQUAL TO 10^6 RADS.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE

- o Steps 1 through 2 are IMMEDIATE ACTION steps.
- o CSF status trees should be monitored for information only. Function restoration procedures should NOT be implemented.
- o A loss of offsite power and inoperability of all STBY DGs represents a potential ALERT per OERP01-ZV-IN01, EMERGENCY CLASSIFICATION.
- o A loss of offsite power and inoperability of all STBY DGs for GREATER THAN 15 minutes represents a potential SAE per OERP01-ZV-IN01, EMERGENCY CLASSIFICATION.

1 VERIFY Reactor Trip:

- o Rod bottom lights - LIT
- o Reactor trip and bypass breakers - OPEN
- o Neutron flux - DECREASING

PERFORM the following:

- a. Manually TRIP reactor using both reactor trip switches.
- b. IF reactor trip and bypass breakers will NOT open, THEN DISPATCH operator to open reactor trip and bypass breakers:

(60 ft EAB RM 323)

- o "REACTOR TRIP BREAKER R"
 - o "REACTOR TRIP BREAKER S"
 - o "BYPASS BREAKER R"
 - o "BYPASS BREAKER S"
-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2	VERIFY Turbine Trip:	
a.	All turbine throttle and governor valves - CLOSED	a. PERFORM the following: 1) Manually TRIP turbine. 2) IF turbine will NOT trip, THEN manually RUNBACK turbine. 3) IF turbine throttle and governor valves can NOT be closed, THEN CLOSE the MSIVs and MSIBs. -----
b.	Main generator output breaker - OPEN	b. Manually OPEN breaker. -----
c.	Main steam deaerator valves - CLOSED	c. Manually CLOSE valves. -----

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	CHECK If RCS Is Isolated:	
a.	Pressurizer PORVs - CLOSED	a. IF pressurizer pressure LESS THAN 2335 PSIG, <u>THEN</u> manually CLOSE PORVs.
b.	Letdown orifice header isolation valve - CLOSED	b. PERFORM the following: 1) Manually CLOSE letdown orifice header isolation valve. 2) IF letdown can <u>NOT</u> be isolated from MCB, <u>THEN</u> DISPATCH operator to close letdown OCIV. (29 ft MAB RM 108C) "1(2)-CV-MOV-0024" "CVCS LETDOWN OCIV"
c.	DISPATCH operator to close the RCP seal return OCIV (29 ft MAB RM 108C) "1(2)-CV-MOV-0079" "RCP SEAL WTR RETURN OCIV"	
4	VERIFY AFW Flow - GREATER THAN 576 GPM	PERFORM the following: a. VERIFY turbine-driven AFW pump running. b. IF turbine-driven AFW pump <u>NOT</u> running, <u>THEN</u> manually OPEN steam supply valves. c. VERIFY proper emergency alignment of AFW valves. d. IF AFW valves <u>NOT</u> properly aligned, <u>THEN</u> manually ALIGN valves.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	TRY To Restore Power To Any AC ESF Bus:	
a.	ENERGIZE AC ESF bus with DG:	
1)	START STBY DG - EMERGENCY START	1) PERFORM the following: a) START STBY DG using NORMAL START switch. b) IF STBY DG did NOT start from the control room, THEN DISPATCH operator to attempt to local start a STBY DG. (35 ft DGB at engine control panel)
2)	VERIFY AC ESF bus automatically energized	2) PERFORM the following: a) Manually ENERGIZE AC ESF bus. b) IF bus can NOT be energized, THEN: 1) TRIP STBY DG. 2) ENERGIZE AC ESF bus from the emergency transformer per ADDENDUM 1.
b.	CHECK AC ESF busses - AT LEAST ONE ENERGIZED	b. GO TO Step 6.
c.	START applicable ECW pump	c. PERFORM the following: 1) TRIP the STBY DG. 2) GO TO Step 6.
d.	RETURN TO procedure and step in effect	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Establish RCP Seal Injection Flow:	
a.	CHECK power available to PDP	a. DISPATCH operator to start TSC diesel generator and energize MCC 1G8(2G8) per OPOP02-DB-0005, TECHNICAL SUPPORT CENTER DIESEL GENERATOR.
b.	CHECK VCT level - GREATER THAN 34(14)	b. PERFORM the following: 1) PERFORM Steps 6.f, 6.g and 6.h. 2) <u>WHEN</u> PDP suction is aligned to RWST, <u>THEN</u> PERFORM Steps 6.c, 6.d and 6.e.
c.	OPEN PDP recirculation valve to 100%	
d.	START PDP	
e.	CHECK RCP seal 1 inlet temperatures on PROTEUS RC system display 45 - LESS THAN 230°F o T0181 RCP 1A(2A) o T0182 RCP 1B(2B) o T0183 RCP 1C(2C) o T0184 RCP 1D(2D)	e. PERFORM the following: 1) CLOSE PDP recirculation valve to decrease RCP seal inlet temperatures at a rate of 1°F per minute. 2) GO TO Step 6.g.
f.	Slowly CLOSE PDP recirculation valve to obtain necessary seal injection flow	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 6 continued from previous page.

- ___ g. DISPATCH operator to open RWST to charging pump suction isolation valve

(10 ft MAB charging pump valve RM 044)

"1(2)-CV-MOV-0112C"
"RWST TO CHG PUMP SUCTION ISOL"

- g. DISPATCH operator to open RWST to charging pump suction isolation valve.

(21 ft MAB mezzanine RM 033 in covered pit)

"1(2)-CV-MOV-0113B"
"RWST TO CHG PUMP SUCTION ISOL"

- ___ h. DISPATCH operator to close at least one of the VCT outlet isolation valves

(41 ft MAB CVCS valve RM 226)

o "1(2)-CV-MOV-0112B"
"VCT OUTLET ISOL"

o "1(2)-CV-MOV-0113A"
"VCT OUTLET ISOL"

CAUTION

An ECW pump SHALL be kept available to automatically load on its AC ESF bus to provide STBY DG cooling.

- ___ 7 CHECK AC ESF Busses - AT LEAST ONE ENERGIZED

o RETURN TO procedure and step in effect

PERFORM the following:

- a. PLACE equipment switches on Addendum 2 in PULL TO LOCK position.

- b. GO TO Step 8.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	CHECK RCP Seal Injection Flow - ESTABLISHED	<p>PERFORM the following:</p> <p>a. PLACE valve switches for the following valves in CLOSED position:</p> <ul style="list-style-type: none">o RCP seal injection OCIVso RCP thermal barrier CCW return OCIVs <p>b. DISPATCH operator to close the following valves:</p> <ul style="list-style-type: none">o RCP seal injection OCIV<ul style="list-style-type: none">(29 ft MAB RM 108D)<ul style="list-style-type: none">"1(2)-MOV-0033A""RCP 1A(2A) SEAL WTR""INJECTION ISOL""1(2)-MOV-0033B""RCP 1B(2B) SEAL WTR""INJECTION ISOL""1(2)-MOV-0033C""RCP 1C(2C) SEAL WTR""INJECTION ISOL""1(2)-MOV-0033D""RCP 1D(2D) SEAL WTR""INJECTION ISOL" o RCP thermal barrier CCW return OCIV<ul style="list-style-type: none">(41 ft MAB PEN area)<ul style="list-style-type: none">"1(2)-CC-MOV-0404""CCW OCIV FROM""RCPS/RCDT/EXCS""LTDN HX""1(2)-CC-FV-4493""CCW RETURN FROM RCPS""COMMON HDR ISOL BYPASS"

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	DISPATCH Personnel To Restore AC Power Per OPOP04-AE-0001, LOSS OF ANY 13.8KV OR 4.16KV BUS	
10	CHECK SG Status:	
a.	MSIVs and MSIBs - CLOSED	a. PERFORM the following: 1) CLOSE MSIVs and MSIBs. 2) IF MSIVs or MSIBs can NOT be closed, THEN DISPATCH operator to close valves per Addendum 3. -----
b.	FWIVs - CLOSED	b. Manually CLOSE FWIVs. -----
c.	FWIBs - CLOSED	c. Manually CLOSE FWIBs. -----
d.	Preheater bypass valves - CLOSED	d. Manually CLOSE preheater bypass valves. -----

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 10 continued from previous page.

___ e. FW regulating valves - CLOSED:

e. PERFORM the following:

- 1) Manually CLOSE FW regulating valves.
- 2) IF FW regulating valves can NOT be closed, THEN DISPATCH operator to close valves:

(29 ft TGB Southeast by exit door)

- o "1(2)-FW-0068"
"SG 1A(2A) FW REG VLV"
"ISOL VLV"
- o "1(2)-FW-0042"
"SG 1B(2B) FW REG VLV"
"ISOL VLV"
- o "1(2)-FW-0093"
"SG 1C(2C) FW REG VLV"
"ISOL VLV"
- o "1(2)-FW-0109"
"SG 1D(2D) FW REG VLV"
"ISOL VLV"

Step 10 continued on next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 10 continued from previous page.

— f. Low power FW regulating valves -
CLOSED

f. PERFORM the following:

- 1) Manually CLOSE low power FW regulating valves.
- 2) IF low power FW regulating valves can NOT be closed, THEN DISPATCH operator to close valves:

(29 ft TGB Southeast by exit door)

o "1(2)-FW-0193"
"SG 1A(2A) LOW POWER"
"FW REG VLV ISOL VLV"

o "1(2)-FW-0191"
"SG 1B(2B) LOW POWER"
"FW REG VLV ISOL VLV"

o "1(2)-FW-0189"
"SG 1C(2C) LOW POWER"
"FW REG VLV ISOL VLV"

o "1(2)-FW-0187"
"SG 1D(2D) LOW POWER"
"FW REG VLV ISOL VLV"

Step 10 continued on next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 10 continued from previous page.

___ g. SG blowdown isolation valves -
CLOSED

g. PERFORM the following:

- 1) Manually CLOSE SG blowdown isolation valves.
- 2) IF valve(s) can NOT be closed, THEN CLOSE SG blowdown flow control valve(s).
- 3) IF SG blowdown can NOT be isolated from the control room, THEN DISPATCH operator to close manual isolations:

(25 ft IVC)

- o "1(2)-SB-0149"
"SG 1A(2A) BLOWDOWN"
"ISOLATION VALVE"
- o "1(2)-SB-0150"
"SG 1B(2B) BLOWDOWN"
"ISOLATION VALVE"
- o "1(2)-SB-0151"
"SG 1C(2C) BLOWDOWN"
"ISOLATION VALVE"
- o "1(2)-SB-0152"
"SG 1D(2D) BLOWDOWN"
"ISOLATION VALVE"

___ h. SG sample isolation valves -
CLOSED

h. Manually CLOSE SG sample isolation valves.

Step 10 continued on next page.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 10 continued from previous page.

___ j. MSIV above seat drain valves -
CLOSED

i. IF MSIV above seat drains can NOT
be closed, THEN DISPATCH operator
to unlock and close isolation(s):

(46 ft IVC)

- o "1(2)-MS-0543"
"MSIV 1A(2A) ABOVE SEAT"
"DRAIN MANUAL ISOL"
- o "1(2)-MS-0544"
"MSIV 1B(2B) ABOVE SEAT"
"DRAIN MANUAL ISOL"
- o "1(2)-MS-0545"
"MSIV 1C(2C) ABOVE SEAT"
"DRAIN MANUAL ISOL"
- o "1(2)-MS-0546"
"MSIV 1D(2D) ABOVE SEAT"
"DRAIN MANUAL ISOL"

CAUTION

There is sufficient stored energy in the PORV hydraulic unit accumulators for only one and one half strokes. SG PORVs should NOT be opened GREATER THAN 50t and SG PORV operation should be minimized to avoid depletion of hydraulic pressure.

___ j. PLACE SG PORV controllers in
MANUAL

___ k. CONTROL SG pressures between
1180 psig to 1190 psig

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

A faulted or ruptured SG that is isolated should remain isolated EXCEPT SG 1D(2D). Steam supply to the turbine-driven APW pump SHALL be maintained from SG 1D(2D).

11 CHECK If SG Secondary Pressure Boundary Intact:

a. CHECK pressure in all SGs - CONTROLLED OR INCREASING

a. ISOLATE faulted SG(s):

1) DISPATCH operator to close AFW OCIV(s) to faulted SG(s), EXCEPT to SG 1D(2D):

(25 ft IVC)

o "1(2)-AF-MOV-0048"
"SG 1A(2A) AFW OCIV"

o "1(2)-AF-MOV-0065"
"SG 1B(2B) AFW OCIV"

o "1(2)-AF-MOV-0085"
"SG 1C(2C) AFW OCIV"

2) ENSURE SG PORV(s) closed.

3) IF SG PORV(s) can NOT be closed, THEN DISPATCH operator to close isolation valve(s):

(58 ft IVC)

o "1(2)-MS-0021"
"SG 1A(2A) PORV ISOL"

o "1(2)-MS-0038"
"SG 1B(2B) PORV ISOL"

o "1(2)-MS-0055"
"SG 1C(2C) PORV ISOL"

o "1(2)-MS-0072"
"SG 1D(2D) PORV ISOL"

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	CHECK If SG Tubes Are Intact: <ul style="list-style-type: none">o Main steamline radiation - NORMALo SG blowdown radiation - NORMALo CARS pump radiation - NORMAL	TRY to identify ruptured SG(s): <ul style="list-style-type: none">a. <u>WHEN</u> ruptured SG(s) identified, <u>THEN</u> ISOLATE ruptured SG(s):<ul style="list-style-type: none">1) DISPATCH operator to close AFW OCIV(s) to ruptured SG(s), EXCEPT to SG 1D(2D): (25 ft IVC)<ul style="list-style-type: none">o "1(2)-AF-MOV-0048" "SG 1A(2A) AFW OCIV"o "1(2)-AF-MOV-0065" "SG 1B(2B) AFW OCIV"o "1(2)-AF-MOV-0085" "SG 1C(2C) AFW OCIV"2) <u>WHEN</u> SG pressure LESS THAN 1225 PSIG, <u>THEN</u> ENSURE SG PORV(s) closed.3) <u>IF</u> SG PORV(s) can <u>NOT</u> be closed, <u>THEN</u> DISPATCH operator to close isolation valve(s): (58 ft IVC)<ul style="list-style-type: none">o "1(2)-MS-0021" "SG 1A(2A) PORV ISOL"o "1(2)-MS-0038" "SG 1B(2B) PORV ISOL"o "1(2)-MS-0055" "SG 1C(2C) PORV ISOL"o "1(2)-MS-0072" "SG 1D(2D) PORV ISOL"

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	CHECK Intact SG Levels:	
a.	NR levels - GREATER THAN 5% [26%]	a. MAINTAIN maximum AFW flow to restore NR level GREATER THAN 5% [26%] in 1D(2D) SG. -----
b.	MONITOR intact SG NR levels - LESS THAN 50%	b. IF NR level in any SG continues to increase in an uncontrolled manner, <u>THEN</u> ISOLATE ruptured SG: 1) DISPATCH operator close AFW OCIV to faulted SG(s), EXCEPT SG 1D (2D): (25 ft IVC) o "1(2)-AF-MOV-0048" "SG 1A(2A) AFW OCIV" o "1(2)-AF-MOV-0065" "SG 1B(2B) AFW OCIV" o "1(2)-AF-MOV-0085" "SG 1C(2C) AFW OCIV" 2) <u>WHEN</u> SG pressure LESS THAN 1225 PSIG, <u>THEN</u> ENSURE SG PORV(s) closed. 3) IF SG PORV(s) can <u>NOT</u> be closed, <u>THEN</u> DISPATCH operator to close isolation valve(s): (58 ft IVC) o "1(2)-MS-0021" "SG 1A(2A) PORV ISOL" o "1(2)-MS-0038" "SG 1B(2B) PORV ISOL" o "1(2)-MS-0055" "SG 1C(2C) PORV ISOL" o "1(2)-MS-0072" "SG 1D(2D) PORV ISOL" -----

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

IF the power supply to the ESP load sequencer is deenergized, THEN auto sequencing of ECW upon power restoration will not occur.

14 CHECK DC Bus Loads:

- a. SHED all large non-essential DC loads per Addendum 4
- b. MONITOR DC power supplies per Addendum 5

15 CHECK AFWST Level - GREATER THAN 138,000 GALLONS (26%)

Perform the following:

- a. INITIATE AFWST makeup per OPOP02-AF-0001, AUXILIARY FEEDWATER.
- b. IF unable to initiate makeup per OPOP02-AF-0001, THEN DISPATCH operator to fill AFWST from Fire Protection System per Addendum 6.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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16 CHECK RCP Seal Conditions:

a. Seal injection flow - 6 TO 8 GPM
PER RCP

a. PERFORM the following:

- 1) IF the PDP is NOT supplying seal injection, THEN GO TO Step 17, OBSERVE cautions and notes prior to Step 17.
- 2) CLOSE PDP recirculation valve to increase seal injection flow.
- 3) ENSURE individual seal injection flows are balanced.

b. Number 1 seal leakoff flow - LESS
THAN 5 GPM PER RCP

b. GO TO Step 17, OBSERVE cautions and notes prior to Step 17.

c. Pressurizer level - GREATER THAN
8V [44V] AND STABLE

c. GO TO Step 17, OBSERVE cautions and notes prior to Step 17.

d. GO TO Step 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

- o SG pressure should remain GREATER THAN 255 PSIG to prevent injection of accumulator nitrogen into the RCS.
- o There is sufficient stored energy in the PORV hydraulic unit accumulators for only one and one half strokes. SG PORVs should NOT be opened GREATER THAN 50% and SG PORV operation should be minimized to avoid depletion of hydraulic pressure.

NOTE

- o The SG(s) should be depressurized at maximum rate to minimize RCS inventory loss.
- o Pressurizer level may be lost and reactor vessel upper head voiding may occur due to depressurization of SG(s). Depressurization should NOT be stopped to prevent these occurrences.

17 DEPRESSURIZE Intact SG(s) To
355 PSIG:

a. MONITOR SG NR levels - GREATER
THAN 5% [26%] IN AT LEAST ONE SG

a. PERFORM the following:

- 1) STOP SG depressurization.
- 2) MAINTAIN maximum AFW flow to restore NR level GREATER THAN 5% [26%] in 1D(2D) SG.
- 3) WHEN NR level GREATER THAN 5% [26%] in 1D(2D) SG, THEN PERFORM Steps 17.b, 17.c, 17.d, and 17.e.
- 4) GO TO Step 18.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
Step 17 continued from previous page.		
___ b.	OPEN intact SG PORV(s) to 50%	b. DISPATCH operator to dump steam using SG PORVs per Addendum 7. -----
___ c.	CHECK RCS cold leg temperatures - GREATER THAN 274°F	c. PERFORM the following: 1) CONTROL SG PORVs to stop SG depressurization. 2) GO TO Step 18. -----
___ d.	CHECK SG pressures - LESS THAN 355 PSIG	d. PERFORM the following: 1) <u>WHEN</u> SG pressures decreased to LESS THAN 355 PSIG, <u>THEN</u> PERFORM Step 17.e. 2) GO TO Step 18. -----
___ e.	CONTROL SG PORVs to maintain SG pressures at 355 psig	e. DISPATCH operator to control SG PORVs per Addendum 7 to maintain SG pressure at 355 psig. -----

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE

Performance of Step 14, Addendum 5, removed control power and instrument power from N-31 source range.

18 CHECK If N-32 Should Be Energized:

a. CHECK IR flux - LESS THAN
10⁻¹⁰ AMPS

a. PERFORM the following:

1) WHEN IR flux LESS THAN
10⁻¹⁰ AMPS, THEN PERFORM Steps
18.b and 18.c.

2) GO TO Step 19.

b. VERIFY N-32 SR detector -
ENERGIZED

b. Manually ENERGIZE SR detector.

c. TRANSFER NR-45:

- o N-32
- o Highest IR channel

19 CHECK Reactor Subcritical - ZERO OR
NEGATIVE STARTUP RATE

o QDPS - SUBCRITICALITY S

OR

o QDPS - QUAL PAMS

PERFORM the following:

a. IF QDPS is unavailable, THEN
CHECK zero OR negative startup
rate:

o "IR SUR NI-0035D/0036D"

o "SR SUR NI-0031D/0032D"

b. IF startup rate GREATER THAN
ZERO, THEN CONTROL SG PORVs to
stop SG depressurization and
allow RCS to heat up.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20	CHECK SI Signal Status:	
a.	SI - ACTUATED	a. PERFORM the following: 1) <u>WHEN</u> SI actuated, <u>THEN</u> PERFORM Steps 20.b, 21, 22 and 23. 2) GO TO Step 24. -----
b.	RESET SI	
21	VERIFY Containment Isolation Phase A:	
a.	Phase A - ACTUATED	a. Manually ACTUATE Phase A. -----
b.	Phase A valves - CLOSED	b. PERFORM the following: 1) Manually CLOSE valves. 2) <u>IF</u> charging <u>OR</u> letdown can <u>NOT</u> be isolated, <u>THEN</u> DISPATCH operator to isolate charging or letdown per Addendum 9. -----
1)	REFER TO Addendum 8	
22	VERIFY Containment Ventilation Isolation:	
a.	Containment atmosphere radiation monitor isolation valves - CLOSED	a. Manually CLOSE valves. -----
b.	Dampers - CLOSED	b. Manually CLOSE dampers. -----

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	CHECK Containment Pressure - HAS REMAINED LESS THAN 9.5 PSIG (CPO18) o "PRESS PR-0934" o "EXTD RNG PRESS PR-9759"	PERFORM the following: a. VERIFY containment spray signal actuated. b. IF containment spray <u>NOT</u> actuated, <u>THEN</u> manually ACTUATE. c. VERIFY containment isolation phase B valves closed. d. IF phase B valves <u>NOT</u> closed, <u>THEN</u> manually CLOSE valves. e. IF valves can <u>NOT</u> be manually closed, <u>THEN</u> DISPATCH operator to close the following CCW OCIVs: (41 ft MAB PEN area under grating) o "1(2)-CC-MOV-0291" "CCW OCIV TO" "RCPS/RCDT/EXCS" "LDTN HX" o "1(2)-CC-MOV-0318" "CCW OCIV TO" "RCPS/RCDT/EXCS" "LDT HX" o "1(2)-CC-MOV-0404" "CCW OCIV FROM" "RCPS/RCDT/EXCS" "LDTN HX" o "1(2)-CC-MOV-4493" "CCW RETURN FROM RCPS" "COMMON HDR ISOL BYPASS" f. RESET containment spray signal. ----- DISPATCH operators to close SI pump discharge valves per Addendum 10. -----
24	CHECK Containment Radiation - LESS THAN 2000 R/HR	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE

Failure to energize at least one AC ESF bus within 8 hours represents a potential GE as OERP01-EV-IN01, EMERGENCY CLASSIFICATION.

25 CHECK If AC ESF Power Is Restored:

a. CHECK AC ESF busses - AT LEAST
ONE ENERGIZED

a. CONTINUE to control RCS
conditions and MONITOR plant
status:

1) CHECK status of local actions:

- o AC power restoration.
- o RCP seal isolation, if
required.
- o DC power supply.

2) DISPATCH operator to verify
Spent Fuel Pool level GREATER
THAN 65.5 FT.

3) IF Spent Fuel Pool level LESS
THAN 65.5 FT, THEN DISPATCH
operator to initiate makeup
per Addendum 11.

4) RETURN TO Step 11.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	VERIFY ECW System Operation:	
a.	VERIFY ECW pumps - RUNNING	a. Manually START ECW pumps.
b.	VERIFY ECW valve alignment:	b. PERFORM the following:
	o ECW discharge valves - OPEN	1) ENSURE 480V LCs loaded on AC ESF bus.
	o ECW blowdown isolation valves - CLOSED	2) Manually ALIGN ECW valves.
27	CONTROL SG PORVs To Stabilize SG Pressures	DISPATCH operator to control SG PORVs per Addendum 7.

CAUTION

The loads placed on the energized AC ESF busses SHALL NOT exceed the capacity of the power source (STBY DG 7 day loading capacity - 5935 KW).

28 VERIFY Following Equipment Loaded On AC ESF Bus:

o 480V LCs

o MCCs powered from LCs

Manually LOAD desired equipment on AC ESF bus, REFER TO Addendum 12.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29	ENERGIZE DC Bus Loads:	
a.	CHECK Channel I and IV NSSS inverters - ENERGIZED	a. DISPATCH operator to energize Channel I and IV NSSS inverters per OPOP02-AE-0004, 120 VAC ESF VITAL DISTRIBUTION POWER SUPPLIES.
1)	REFER TO Addendum 5	
b.	ENERGIZE any DC loads previously shed that are now supported by AC power, REFER TO Addendum 4 and Addendum 5	
c.	RESET ESF load sequencers	
d.	CHECK ESF load sequencers Mode 1 logic - RESET	d. DISPATCH operator to reset ESF load sequencers per Addendum 13.
30	SELECT Recovery Procedure:	
a.	CHECK RCS subcooling based on core exit T/Cs - GREATER THAN 35°F [45°F]	a. GO TO OPOP05-EO-EC02, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.
b.	CHECK pressurizer level - GREATER THAN 8% [44%]	b. GO TO OPOP05-EO-EC02, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.
c.	CHECK SI equipment - HAS REMAINED IN STANDBY UPON AC POWER RESTORATION	c. <u>IF</u> SI equipment has actuated, <u>THEN</u> GO TO OPOP05-EO-EC02, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.
d.	GO TO OPOP05-EO-EC01, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, Step 1	

-END-

ADDENDUM 1

TRANSFER ESF BUSES TO THE EMERGENCY TRANSFORMER

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
------	--------------------------	-----------------------

CAUTION

The emergency transformer is sized to carry only one bus in each unit.

NOTE

The preferred emergency bus for loading on emergency transformer is E1C(E2C), E1A(E2A), E1B(E2B).

___ 1 VERIFY power available from the emergency transformer

RETURN TO procedure Step 6.

___ 2 OPEN feeder breakers from normal power source to deenergized ESF busses:

o E1C(E2C) - "STBY BUS 1H(2H)"
"TO XFMR E1C(E2C)"
"BKR SW - NORM"

o E1A(E2A) - "STBY BUS 1F(2F)"
"TO XFMR E1A(E2A)"
"BKR SW - NORM"

o E1B(E2B) - "STBY BUS 1G(2G)"
"TO XFMR E1B(E2B)"
"BKR SW - NORM"

ADDENDUM 1

TRANSFER ESF BUSES TO THE EMERGENCY TRANSFORMER

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	OPEN motor operated disconnects from normal power source to deenergized ESF busses: <ul style="list-style-type: none">o E1C(E2C) - "STBY BUS 1H(2H)" "TO XFMR E1C(E2C)" "DISC SW - NORM"o E1A(E2A) - "STBY BUS 1F(2F)" "TO XFMR E1A(E2A)" "DISC SW - NORM"o E1B(E2B) - "STBY BUS 1G(2G)" "TO XFMR E1B(E2B)" "DISC SW - NORM"	DISPATCH operator to OPEN motor operated disconnects to deenergize ESF busses from normal power source, REFER TO OPOP02-AE-0001, AC ELECTRICAL DISTRIBUTION BREAKER LINEUP (located next to associated ESF transformer): <ul style="list-style-type: none">o "E1C(E2C)" "MOTOR OPERATED DISCONNECT" "FROM STBY BUS 1H(2H)"o "E1A(E2A)" "MOTOR OPERATED DISCONNECT" "FROM STBY BUS 1F(2F)"o "E1B(E2B)" "MOTOR OPERATED DISCONNECT" "FROM STBY BUS 1G(2G)"
4	VERIFY open emergency feeder breakers from 1L(2L) to ESF busses: <ul style="list-style-type: none">o E1C(E2C) - "EMER BUS 1L(2L)" "TO XFMR E1C(E2C)" "BKR SW - EMER"o E1A(E2A) - "EMER BUS 1L(2L)" "TO XFMR E1A(E2A)" "BKR SW - EMER"o E1B(E2B) - "EMER BUS 1L(2L)" "TO XFMR E1B(E2B)" "BKR SW - EMER"	OPEN emergency feeder breakers from 1L(2L) to ESF busses.

ADDENDUM 1

TRANSFER ESF BUSES TO THE EMERGENCY TRANSFORMER

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	<p>CLOSE motor operated disconnects from emergency bus 1L(2L) to one deenergized ESF bus:</p> <ul style="list-style-type: none"> o E1C(E2C) - "EMER BUS 1L(2L) " "TO XFMR E1C(E2C) " "DISC SW - EMER" o E1A(E2A) - "EMER BUS 1L(2L) " "TO XFMR E1A(E2A) " "DISC SW - EMER" o E1B(E2B) - "EMER BUS 1L(2L) " "TO XFMR E1B(E2B) " "DISC SW - EMER" 	<p>DISPATCH operator to close motor operated disconnects to one deenergized ESF bus from the emergency transformer, REFER TO OPOP02-AE-0001, AC ELECTRICAL DISTRIBUTION BREAKER LINEUP (located next to associated ESF transformer):</p> <ul style="list-style-type: none"> o "E1C(E2C) " "MOTOR OPERATED DISCONNECT" "FROM EMERGENCY BUS 1L(2L) " o "E1A(E2A) " "MOTOR OPERATED DISCONNECT" "FROM EMERGENCY BUS 1L(2L) " o "E1B(E2B) " "MOTOR OPERATED DISCONNECT" "FROM EMERGENCY BUS 1L(2L) " <p>-----</p>
6	<p>CLOSE emergency transformer feeder breaker to emergency bus 1L(2L)</p> <p>"EMER XFMR TO BUS 1K/1L(2K/2L) SPLY"</p>	
7	<p>CLOSE emergency feeder breakers from emergency bus 1L(2L) to energize desired ESF transformer:</p> <ul style="list-style-type: none"> o E1C(E2C) - "EMER BUS 1L(2L) " "TO XFMR E1C(E2C) " "BKR SW - EMER" o E1A(E2A) - "EMER BUS 1L(2L) " "TO XFMR E1A(E2A) " "BKR SW - EMER" o E1B(E2B) - "EMER BUS 1L(2L) " "TO XFMR E1B(E2B) " "BKR SW - EMER" 	
8	<p>CLOSE supply breaker from ESF transformer to ESF bus</p>	
9	<p>RETURN TO procedure Step 5.b</p>	

ADDENDUM 2
EQUIPMENT IN FULL TO LOCK

- ___ o RCPCs
- ___ o CS pumps
- ___ o CCW pumps
- ___ o HHSI pumps
- ___ o LHSI pumps
- ___ o CCPs
- ___ o Motor-driven AFW pumps
- ___ o Control RM supply fans
- ___ o Control RM return fans
- ___ o Control RM C/U fans
- ___ o Control RM makeup fans
- ___ o EAB supply fans
- ___ o EAB exhaust fans
- ___ o FHB exhaust fans
- ___ o FHB exhaust booster fans
- ___ o Essential chilled water chillers
- ___ o Essential chilled water pumps
- ___ o Battery RM exhaust fans

ADDENDUM 3
FAILING AIR TO MSIVs AND MSIBs

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
------	--------------------------	-----------------------

NOTE

The following steps will vent air to both the MSIV and MSIB.

___ 1 CLOSE IA isolation to MSIV and MSIB:

(58 ft IVC, on wall by MSIV)

A - "1(2)-IA-0555 SUB HEADER ISOL"

B - "1(2)-IA-0551 SUB HEADER ISOL"

C - "1(2)-IA-0547 SUB HEADER ISOL"

D - "1(2)-IA-0559 SUB HEADER ISOL"

___ 2 VENT IA line to atmosphere by
opening petcock on air regulator to
MSIB:

(58 ft IVC)

A - "1(2)-MS-7412"
"SG 1A(2A) MAIN STM ISOL BYPASS"

B - "1(2)-MS-7422"
"SG 1B(2B) MAIN STM ISOL BYPASS"

C - "1(2)-MS-7432"
"SG 1C(2C) MAIN STM ISOL BYPASS"

D - "1(2)-MS-7442"
"SG 1D(2D) MAIN STM ISOL BYPASS"

___ 3 RETURN TO procedure step in effect

ADDENDUM 4
DC NON ESSENTIAL LOADS

<u>DEVICE</u>	<u>POSITION</u>	<u>CHECK</u>
<u>TRAIN C</u> - E1C11(E2C11)		
CUB 7B - "ESF LOAD SEQUENCER CABINET C - ZLP803"	OPEN	_____
125V DC Panels		
PL-39C/BKR 3 - "RCP 1D(2D) 15KV CLASS 1E CUB D" (60 ft EAB RM 319)	OPEN	_____
<u>TRAIN B</u> - E1B11(E2B11)		
CUB 5B - "ESF LOAD SEQUENCER CABINET B - ZLP802"	OPEN	_____
CUB 5C - "TRAIN B RX TRIP SWGR CONTROL PWR"	OPEN	_____
125V DC Panels		
PL-39B/BKR 3 - "RCP 1C(2C) 15KV CLASS 1E CUB C" (35 ft EAB RM 213)	OPEN	_____
<u>TRAIN A</u> - E1A11(E2A11)		
CUB 4A - "TRAIN A RX TRIP SWGR CONTROL PWR"	OPEN	_____
CUB 5C - "ESF LOAD SEQUENCER CABINET A - ZLP801"	OPEN	_____
125V DC Panels		
PL-39A/BKR 5 - "RCP 1A(2A) 15KV CLASS 1E CUB A" (10 ft EAB RM 007)	OPEN	_____
PL-40A/BKR 3 - "RCP 1B(2B) 15KV CLASS 1E CUB B" (10 ft EAB RM 009)	OPEN	_____

ADDENDUM 4
DC NON ESSENTIAL LOADS

120V AC NON-1E DISTRIBUTION PANELS - (10 ft EAB passageway)

DP002/BKR 9 - "EHC CABINET PWR SPLY"	OPEN	_____
DP002/BKR 11 - "TURBINE SUPERVISORY CONTROL CABINET" "PWR SPLY"	OPEN	_____
DP002/BKR 13 - "MN TURB EMERG TRIP CAB ZRR037"	OPEN	_____
DP002/BKR 15 - "REHEAT CONTROL CABINET PWR SPLY"	OPEN	_____
DP001/BKR 25 - "MN TURB EMER TRIP CAB ZRR037"	OPEN	_____

ADDENDUM 5
VITAL DC BUS MONITORING

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
------	--------------------------	-----------------------

NOTE

- o IF the Loss of All AC Power event will last LESS THAN TWO HOURS, THEN no load shedding of 120 VAC vital busses is required.
- o IF the Loss of All AC Power event will last GREATER THAN OR EQUAL TO TWO HOURS, THEN it is recommended to shed loads on Channel I and IV NSSS inverters within 30 minutes after event initiation.

- | | | |
|-----|--|--|
| — 1 | Expected duration of event -
GREATER THAN OR EQUAL TWO HOURS
HOURS | RETURN TO procedure step in
effect. |
|-----|--|--|

- | | | |
|-----|--|--|
| — 2 | DISPATCH operator to
deenergize Channel I and IV
NSSS inverters: | |
|-----|--|--|

"CH I INST/CONT PWR"
"NSSS INVERTER DC PWR"
E1A11(E2A11)/5E

"CH IV INST/CONT PWR"
"NSSS INVERTER DC PWR"
E1C11(E2C11)/5E

- | | | |
|-----|---|--|
| — 3 | REFER TO OPOP04-VA-0001, LOSS OF
120 VAC CALSS VITAL DISTRIBUTION,
for loads lost by the following: | |
|-----|---|--|

o DP1201

o DP1204

ADDENDUM 5
VITAL DC BUS MONITORING

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
------	--------------------------	-----------------------

CAUTION

Do NOT allow battery voltage to drop to LESS THAN 106 VDC for plant equipment protection.

- | | | |
|-------|---|--|
| 4 | DISPATCH operator to CHECK voltage on all four channels of the 1E 125 VDC system - GREATER THAN 107 VDC | IF voltage on train A, B or C decreases to LESS THAN OR EQUAL TO 107 VDC, <u>THEN</u> DISPATCH operator to open its associated battery output breaker to conserve battery should a STBY DG become available, REFER TO Table 1. |
| ----- | | |
| 5 | MONITOR 1E 125 VDC bus voltages for duration of event | DISPATCH operator to monitor 1E 125 VDC bus voltages. |
| ----- | | |
| 6 | RETURN TO procedure step in effect | |

ADDENDUM 5
VITAL DC BUS MONITORING

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
------	--------------------------	-----------------------

TABLE 1

Battery Output Breakers	
"BTRY E2B11 MAIN BKR" "CB-1B"	
"BTRY E2C11 MAIN BKR" "CB-1B"	
"BTRY E2D11 MAIN BKR" "CB-1B"	
"BTRY E2A11 MAIN BKR" "CB-1B"	

ADDENDUM 6
EMERGENCY MAKEUP TO AFWST FROM FIRE PROTECTION SYSTEM

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	CONNECT two 50 ft sections of connected fire hose from fire hose box located on top of the AFWST	
2	CONNECT fire hose to emergency fill connection on top of AFWST	
3	OPEN emergency fill valve on top of AFWST "1(2)-AF-0357" "AFWST EMERG FILL"	
4	ALLOW fire hose, located on top of AFWST, to be lowered to ground	
5	CONNECT two 50 ft sections of fire hose from fire hose cabinet located west of cold chemical lab to the fire hose connected to the AFWST emergency fill connection	
6	ESTABLISH fire hose connection to fire hydrant, FH-07 (FH-20), located across road from fire hose cabinet (FR-20 inside fire hose cabinet)	
7	OPEN fire hydrant valve to fill AFWST	
8	VERIFY a diesel fire pump starts	START diesel fire pumps as necessary. -----
9	VERIFY flow to AFWST via walkdown of fire hose and connections	
10	MAINTAIN AFWST level - GREATER THAN 138,000 GALLONS (26%)	
11	RETURN TO procedure step in effect	

ADDENDUM 7
SG PORV LOCAL OPERATION

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
------	--------------------------	-----------------------

CAUTION

- o There is sufficient stored energy in the PORV hydraulic unit accumulators for only one and one half strokes. SG PORVs should NOT be opened GREATER THAN 50%.
- o A safety belt is required to locate and operate the manual override knobs on the PORV hydraulic actuators.

___ 1 DEENERGIZE power to the desired PORV

	SG A PV-7411	SG B PV-7421	SG C PV-7431	SG D PV-7441
Servo Amplifiers	"SG 1A(2A)" "PORV SERVO AMP" "PY-7411"	"SG 1B(2B)" "PORV SERVO AMP" "PY-7421"	"SG 1C(2C)" "PORV SERVO AMP" "PY-7431"	"SG 1D(2D)" "PORV SERVO AMP" "PY-7441"
	120 VAC DP001-9	120 VAC DP1203-14	120 VAC DP002-9	120 VAC DP1202-12
	(10 ft EAB RM 007)	(35 ft EAB RM 213)	(60 ft EAB RM 319)	(10 ft EAB RM 009)

___ 2 ESTABLISH continuous communications between control room and local operators

___ 3 CONTROL PORV position per Steps 4 and 5

ADDENDUM 7
SG PORV LOCAL OPERATION

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
------	--------------------------	-----------------------

NOTE

Steps 4 and 5 assume the PORV is initially closed with the manual override knobs in the full OPEN position (counterclockwise).

___ 4 To open PORV:

- ___ a. Simultaneously TURN manual override knobs on solenoids A and B to the CLOSE direction (clockwise)
- ___ b. WHEN the desired PORV position is reached, THEN TURN knob of solenoid A to the full OPEN position (counterclockwise)

PORV	58 ft IVC	Solenoid A location	Solenoid B location
PV-7411	RM 503	West (Unit 2 - West)	East (Unit 2 - East)
PV-7421	RM 502	North (Unit 2 - West)	South (Unit 2 - East)
PV-7431	RM 501	West (Unit 2 - West)	East (Unit 2 - East)
PV-7441	RM 504	North (Unit 2 - North)	South (Unit 2 - South)

___ 5 To close PORV:

- ___ a. TURN manual override knob for solenoid B in the OPEN direction (counterclockwise)
- ___ b. WHEN desired position of PORV is reached, THEN TURN knob of solenoid B to the full CLOSED position (clockwise)

ADDENDUM 7
SG PORV LOCAL OPERATION

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
___ 6	CONSULT TSC Staff regarding installation of portable manual pump on affected SG PORV	
___ 7	<u>WHEN</u> local operation of PORV is no longer desired, <u>THEN</u> :	
___	a. ENSURE PORV is closed	
___	b. VERIFY hydraulic unit pump is operable	
___	c. NOTIFY control room to perform the following:	
	o PLACE affected PORV MANUAL/AUTO controller to MANUAL	
	o DEPRESS and HOLD the lower pushbutton for GREATER THAN 20 seconds	
___	d. TURN manual override knobs for solenoids A and B to the full OPEN position (counterclockwise)	
___	e. ENSURE manual pump suction valve is closed	
___	f. ENSURE accumulator drain valve is closed	
___	g. RESTORE power to PORV	
___	h. NOTIFY control room that SG PORV can now be controlled remotely	
___	i. <u>IF</u> manual pump was installed, <u>THEN</u> CONSULT TSC staff regarding manual pump removal	
___ 8	RETURN TO procedure step in effect	

ADDENDUM 8
PHASE A ISOLATION VERIFICATION

<u>DEVICE</u>	<u>POSITION</u>	<u>CHECK</u>
Fire Water to Containment		
"FIRE WTR OCIV FV-0756"	CLOSED	_____
Instrument Air to Containment		
"IA OCIV FV-8565"	CLOSED	_____
Containment H ₂ Monitoring		
"VPI FV-4101"	CLOSED	_____
"VPI FV-4127"	CLOSED	_____
"VPI FV-4104"	CLOSED	_____
"VPI FV-4133"	CLOSED	_____
"H ₂ SAMPLE INL ICIV FV-4135"	CLOSED	_____
"H ₂ SAMPLE DISCH ICIV FV-4128"	CLOSED	_____
"H ₂ SAMPLE INL ICIV FV-4136"	CLOSED	_____
"H ₂ SAMPLE DISCH ICIV FV-4134"	CLOSED	_____
Primary Sampling System		
"RHR SAMPLE ICIV FV-4823"	CLOSED	_____
"RHR SAMPLE OCIV FV-4461"	CLOSED	_____
"SI ACC SAMPLE ICIV FV-4824"	CLOSED	_____
"SI ACC SAMPLE OCIV FV-4466"	CLOSED	_____
"RCS LOOP 1A(2A) Th SAMPLE ICIV" "FV-4454"	CLOSED	_____

ADDENDUM 8
PHASE A ISOLATION VERIFICATION

<u>DEVICE</u>	<u>POSITION</u>	<u>CHECK</u>
"RCS LOOP 1C(2C) Th SAMPLE ICIV" "FV-4455"	CLOSED	_____
"RCS SAMPLE OCIV FV-4456"	CLOSED	_____
"PRZR LIQ SAMPLE OCIV FV-4451B"	CLOSED	_____
"PRZR LIQ SAMPLE ICIV FV-4451"	CLOSED	_____
"PRZR VAPOR SAMPLE OCIV FV-4452"	CLOSED	_____
"PRZR VAPOR SAMPLE ICIV FV-4450"	CLOSED	_____
Post Accident Sample System		
"CNTMT SUMP SAMPLE OCIV FV-2453"	CLOSED	_____
"RHR SAMPLE OCIV FV-2454"	CLOSED	_____
"RCS SAMPLE OCIV FV-2455/2455A"	CLOSED	_____
"CNTMT AIR SAMPLE OCIV FV-2456"	CLOSED	_____
"RETURN TO PRT OCIV FV-2458"	CLOSED	_____
"CNTMT AIR RETURN OCIV FV-2457"	CLOSED	_____
SI Accumulators		
"TEST LN ICIV FV-3970"	CLOSED	_____
"TEST LN OCIV FV-3971"	CLOSED	_____
"N ₂ SPLY OCIV FV-3983"	CLOSED	_____

ADDENDUM 8
PHASE A ISOLATION VERIFICATION

<u>DEVICE</u>	<u>POSITION</u>	<u>CHECK</u>
Pressurizer Relief Tank		
*OCIV FV-3652"	CLOSED	_____
*ICIV FV-3653"	CLOSED	_____
*OCIV FV-3651"	CLOSED	_____
Reactor Coolant Drain Tank		
*OCIV FV-4913"	CLOSED	_____
*ICIV MOV-0312"	CLOSED	_____
*OCIV FV-4919"	CLOSED	_____
*ICIV FV-4920"	CLOSED	_____
Containment Normal Sump		
*DISCH ICIV MOV-0064"	CLOSED	_____
*DISCH OCIV FV-7800"	CLOSED	_____
CVCS Letdown		
*OCIV MOV-0024"	CLOSED	_____
*ICIV MOV-0023"	CLOSED	_____
*LTDN ORIF HDR ISOL FV-0011"	CLOSED	_____
CVCS Seal Return		
*SEAL RTN ICIV MOV-0077"	CLOSED	_____
*SEAL RTN OCIV MOV-0079"	CLOSED	_____

ADDENDUM 8
PHASE A ISOLATION VERIFICATION

<u>DEVICE</u>	<u>POSITION</u>	<u>CHECK</u>
CVCS Charging		
"OCIV MOV-0025"	CLOSED	_____
Personnel Airlock Seal OCIVs		
"INNER SEAL FV-1025"	CLOSED	_____
"INNER SEAL FV-1028"	CLOSED	_____
"OUTER SEAL FV-1026"	CLOSED	_____
"OUTER SEAL FV-1027"	CLOSED	_____

ADDENDUM 9
PHASE A OCIV VERIFICATION

<u>DEVICE</u>	<u>LOCATION</u>	<u>POSITION</u>	<u>CHECK</u>
*1(2)-CV-MOV-0025"	30 ft MAB RM 108C	CLOSED	_____
*CVCS CHG LINE OCIV"	Penetration M-48		
*1(2)-CV-MOV-0024"	30 ft MAB RM 108C	CLOSED	_____
*CVCS LETDOWN OCIV"	Penetration M-46		

ADDENDUM 10
NON PHASE A CNTMT ISOLATION VALVES

<u>DEVICE</u>	<u>LOCATION</u>	<u>POSITION</u>	<u>CHECK</u>
"1(2)-SI-MOV-0004C"	4 ft FHB RM 009		
"HHSI PUMP 1C(2C)"	Penetration M-10	CLOSED	_____
"DISCHARGE ISOL"	SI valve room		
"1(2)-SI-MOV-0018C"	4 ft FHB RM 009		
"LHSI PUMP 1C(2C)"	Penetration M-11	CLOSED	_____
"DISCH ISOL"	SI valve room		
"1(2)-SI-MOV-0004B"	4 ft FHB RM 008		
"HHSI PUMP 1B(2B)"	Penetration M-14	CLOSED	_____
"DISCHARGE ISOL"	SI valve room		
"1(2)-SI-MOV-0018B"	4 ft FHB RM 008		
"LHSI PUMP 1B(2B)"	Penetration M-15	CLOSED	_____
"DISCH ISOL"	SI valve room		
"1(2)-SI-MOV-0004A"	4 ft FHB RM 007		
"HHSI PUMP 1A(2A)"	Penetration M-18	CLOSED	_____
"DISCH ISOL"	SI valve room		
"1(2)-SI-MOV-0018A"	4 ft FHB RM 007		
"LHSI PUMP 1A(2A)"	Penetration M-19	CLOSED	_____
"DISCHARGE ISOL"	SI valve room		

ADDENDUM 11

EMERGENCY MAKEUP TO SFP FROM FIRE PROTECTION SYSTEM

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
___ 1	ENSURE a diesel fire pump - RUNNING	
___ 2	INITIATE makeup to SFP with fire hose reel (68 ft FHB, east end) "1(2)-FP-0810" "HOSE RACK #5 ISOL VLV"	
___ 3	CHECK SFP level - GREATER THAN 65.5 FT	Continue makeup to SFP with fire hose reel. -----
___ 4	RETURN TO procedure step in effect	

ADDENDUM 12
EMERGENCY ELECTRICAL LOADING REQUIREMENTS

Components	Train A (KW)	Train B (KW)	Train C (KW)
Pressurizer Heaters 1A/1B (2A/2B)	431.0	N/A	431.0
Hydrogen Recombiners	N/A	75.0	75.0
RHR Pumps	222.2	222.2	222.2
RMW Pumps	N/A	41.0	41.0
SFPC Pumps	N/A	140.4	140.4
SFP Air Handling Unit	N/A	0.5	0.5
Centrifugal Charging Pumps	450.0	N/A	450.0
BA Transfer Pump Room Fans	0.4	N/A	0.4
BAT Pumps	27.0	N/A	27.0
RMW Pumps Air Handling Unit	N/A	1.9	1.9
480V MCCs 1A5/1B5/1C5 (2A5/2B5/2C5)	171.7	72.5	92.2

ADDENDUM 13
RESETTING ESF SEQUENCER MODE I LOGIC

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	DISPATCH operator with sequencer keys to sequencer rooms (10 ft EAB): <ul style="list-style-type: none">o Train A - Room 015D, ZLP801o Train B - Room 015C, ZLP802o Train C - Room 015B, ZLP803	
2	Momentarily PLACE "MODE I LOGIC" switch at ESF load sequencer panels to "RESET"	
3	VERIFY "MIL PRESENT" indicator - OFF	
4	Momentarily DEPRESS "SEQUENCER COMPLETE/RESET PUSH" button at ESF load sequencer panels	
5	VERIFY sequencer mode one annunciator in control room is clear for the respective sequencer	
6	RETURN TO procedure step in effect	

CONDITIONAL INFORMATION PAGE

RECOVERY ACTIONS START WITH STEP 26

WHEN power is restored to any AC ESF bus AND Steps 1 through 7 have been completed, THEN START recovery actions with Step 26.

RESET SI TO PERMIT MANUAL EQUIPMENT LOADING

IF an SI signal exists OR an SI signal is actuated during this procedure, THEN RESET SI to permit manual loading of equipment on an AC ESF bus.

AFWST MAKEUP CRITERIA

IF AFWST level decreases to LESS THAN 138,000 GALLONS (26%), THEN INITIATE makeup to the AFWST per OPOP02-AF-0001, AUXILIARY FEEDWATER, to prevent inventory problems during cooldown.

IF AFWST level decreases to LESS THAN 138,000 GALLONS (26%) AND OPOP02-AF-0001, AUXILIARY FEEDWATER, can NOT be initiated, THEN DISPATCH operator to fill AFWST from Fire Protection System per Addendum 6.