No. 97887290

RIS 05

VIRGINIA POWER
SURRY POWER STATION

FIRE CONTINGENCY ACTION

NUMBER	PROCEDURE TITLE	REVISION
FCA-1.02	LIMITING ESGR, CABLE VAULT TUNNEL OR CONTAINMENT FIRE	00.03
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PURPOSE

Provide guidance for operating personnel to respond to and mitigate the consequences of a limiting fire in the Emergency Switchgear Room, Cable Vault/Tunnel, or containment.

USER

SPS Operations Personnel

ENTRY CONDITIONS

Any of the following exist:

1) Transition from FCA-1.00, Safe Shutdown Area Fire

2) Shift Supervisor direction.

REVISION RECORD

REV.00.00	PAGE(S):	Entire Procedure	DATE: 12-14-84
REV.00.01	PAGE(S):	1,3,4 and 5 of 26	DATE: 09-05-85
REV.00.02	PAGE(S):	Entire Procedure	DATE: 03-19-86
REV.00.03	PAGE(S):	Entire Procedure	DATE: DEC 18 1987
REV.	PAGE(S):		DATE:
REV.	PAGE(S):		DATE:
REV.	PAGE(S):		DATE:

APPROVAL RECOMMENDED	APPROVED	DATE
J.A. Barley		
QC REVIEW S.A.W. E. Popowski	CHAIRMAN STATION NUCLEAR SAFETY AND OPERATING COMMITTEE	12/18/87

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	VERIFY REACTOR TRIPPED: * Manually trip the reactor	
2	VERIFY TURBINE TRIPPED: * Turbine stop valves - CLOSED	Manually trip the turbine.
3	TRIP RCP's	Locally trip RCP's
	NOTE: RCS and secondary HI/LO pressure boundary valves closed in the following steps may be operated under Shift Supervisor direction after evaluation or system integrity.	
4	ESTABLISH RCS HI/LO INTERFACE INTEGRITY BY PLACING THE CONTROL SWITCHES TO CLOSE * SOV-RC-( )00A-1 and B-1 * SOV-RC-( )01A-1 and B-1 * PCV-( )455C * PCV-( )456 * HCV-( )137 * LCV-( )460A	
5	CHECK CONTAINMENT FIRE CONDITIONS DO NOT EXIST	Go to Step 7

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	ESTABLISH SG HI/LO INTERFACE INTEGRITY: a) Using emergency close switch - close MSTVs b) Disable the SG PORV's by opening the control circuit in the affected units semi-vital distribution panel * Unit 1 CKT 6 and 26 * Unit 2 CKT 6 and 7	
7	NOTIFY OPERATIONS PERSONNEL OUTSIDE THE MCR TO REPORT TO THE MCR ANNEX	
8	INITIATE EPIP-1.01, STATION EMERGENCY MANAGER CONTROLLING PROCEDURE	
9	ESTABLISH COMMUNICATIONS IAW FCA-1.00 ATTACHMENT 6	
10	ESTABLISH REMOTE MONITORING IAW FCA-1.00 ATTACHMENT 9	
	NOTE: Initial equipment conditions may require cross connecting emergency buses to restore equipment functions necessary to achieve cold shutdown. If required the actions associated with FCA-1.00 Attachment 18 may be performed at any time during the completion of this procedure.	
11	VERIFY UNAFFECTED UNIT AC EMERGENCY BUSES - AT LEAST ONE ENERGIZED	Initiate AP-17 EDG restoration

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	NOTE: IA failure should be anticipated if off site power is lost and both J Buses are de-energized. Efforts to restore IA should be made depending on compressor availability and power source.	
12	CHECK ONE CHARGING PUMP RUNNING	Manually start any available charging pump
	CAUTION: Spurious operation of HCV-( ) 311 could result in RCS pressure reduction when charging line flow is established.	
13	VERIFY FCV-( )122 CONTROLLING CHARGING FLOW	Place FCV-( )122 in MANUAL and control charging flow. IF flow is HIGH, THEN dispatch personnel to close ( )-CH-304 and control flow by throttling ( )-CH-305. IF flow is LOW, THEN continue this procedure.
	NOTE: Under Shift Supervisor direction fire affected unit emergency buses may be de-energized if continued operation affects fire fighting efforts or results in spurious equipment operation affecting safe shutdown conditions.	
	NOTE: IF a charging pump cannot be started or fire conditions threaten continued pump operation THEN cross connecting charging systems will be necessary.	
14	ESTABLISH A CHARGING AND SEAL INJECTION FLOW PATH IAW FCA-1.00 ATTACHMENT 7	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	CHECK CHARGING PUMP COOLING	
	a) Verify one charging SW pump operating	a) Locally cross connect charging pump SW systems * If Unit 2 affected open 1-SW-269 to supply from Unit 1 * If Unit 1 affected open 2-SW-443 to supply from Unit 2
	b) Verify one charging CCW pump operating	b) Verify charging pump suction on RWST
	NOTE: SGs should be maintained at similar levels and steamed at equal rates.	
	NOTE: SGs without level indication on scale should be isolated if not required for RCS temperature control.	
	NOTE: ECST levels must be monitored and alternate AFW pump suction sources provided in a timely manner.	
	NOTE: Flow from either MDAFW pump or the TDAFW pump is sufficient to maintain SG levels under natural circulation conditions.	
16	CHECK AFW PUMPS	
	a) Verify MDAFW pumps - running	a) If power supply available start MDAFW pumps
	b) Verify TDAFW pump - running	b) Start TDAFW pump. IF pump fails to start check the overspeed trip reset and steam supply PCVs open.
	c) Verify at least one AFW pump - running	c) Initiate AFW cross connect IAW FCA-1.00 Attachment 15

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17	THROTTLE AFW DISCHARGE MOV's TO MAINTAIN SG WIDE RANGE LEVEL 70% AND 90%	Control SG levels IAW FCA-1.00 Attachment 15
	NOTE: Fire damage may result in a loss of all PRZR heaters. If all PRZR heaters fail minimizing PRZR level oscillations will reduce heat losses.	
18	CHECK PRZR LEVEL	
	a) PRZR level - greater than 15%	a) Control charging flow to establish PRZR level greater than 15%
	b) Adjust charging flow to maintain a constant PRZR level	b) Isolate charging line flow line flow
	c) Seal injection flow rates may be reduces to a minimum of 3 GPM per RCP as necessary to control PRZR level	
19	OPERATE AVAILABLE PRZR HEATER BANKS TO MAINTAIN RCS HOT LEG TEMPERATURE SUBCOOLING - GREATER THAN 50°F	
20	CONTROL RCS TEMPERATURE	
	a) Check HCV-MS-( )04 decay heat release operable	a) Establish alternate steam release path IAW FCA-1.00 Attachment 8
	b) Check RCS hot leg temperature stable or decreasing	b) Adjust steam release rate to provide a stable or decreasing temperature

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	CHECK RCS HOT LEG SUBCOOLING - GREATER THAN 50°F	Adjust steam release rate to achieve RCS hot leg subcooling greater than 50°F
22	CHECK VENTILATION IAW FCA-1.00 Attachment 10	
23	CHECK COMPONENT COOLING WATER SYSTEM	
	a) CCW pumps - at least one per unit running	a) Cross connect CCW systems by opening 1-CC-589 1-CC-590
	b) Reduce CCW heat loads IAW SS direction * SFP * Boron evaporators * RHR system on previously shutdown unit	
24	CHECK LOW LEVEL INTAKE:	
	a) Dispatch personnel to the intake structure with portable radio and lanterns.	
	b) Check power to either 1G or 2G - AVAILABLE	b) Locally start all emergency SW pumps. GO TO d).
	c) Locally operate CW pumps as directed by SS	
	d) Position CW/SW MOVs IAW FCA-1.00 Attachment 17.	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: If at any time after a loss of offsite power it becomes available and sufficient personnel are on site, efforts should be made to accomplish the following goals:

* Establish access to the fire affected area,
* Return all ac emergency buses to service,
* Return canal level to normal,
* Establish conditions for starting RCPs and continuing with forced flow cooldown,
* Establish normal ventilation,
* Establish normal charging and letdown flow paths,
* Establish condensate/feedwater systems to feed the SGs,
* Establish condenser vacuum for steam dump capability,
* Establish normal communications,
* Secure unloaded EDGs.

* *

CAUTION: If RCPs are operated on fire affected units, the Shift Supervisor should evaluate the desirability of pump operation based on availability of indication and support equipment.

CAUTION: Operation of RCPs without any PRZR heaters operable or spray valves not fully closed may result in loss of RCS pressure.

* *

NOTE: RCPs should be run in order of priority to provide PRZR spray.

NOTE: If conditions can be establish for starting an RCP during this procedure, step 26 should be repeated.

NOTE: Electrical department assistance will be required to determine RCP cable feed condition.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25	ESTABLISH CONDITIONS FOR STARTING ONE RCP IAW OP-5, RCP OPERATION	Go to Step 27
26	START ONE RCP	Go to Step 27
27	VERIFY ONE CRDM SHROUD COOLING FAN OPERATING IN EACH EXHAUST DUCT	Start available fans

NOTE: If charging cross connect is in operation then emergency borate flow can only be performed on the unit with the running charging pump.

28 INITIATE EMERGENCY BORATION OF RCS

a) Switch boric acid transfer pump to - fast

b) Open MOV-( )350

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CAUTION: Alternate water sources for AFW pumps will be necessary if ECST level decreases to less than 20% by MCR indication or 5 ft. local indication.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

29 INITIATE RCS COOLDOWN

a) Determine RCS cooldown rate IAW Attachment 13

b) Establish RCS cooldown

* Dump steam from HCV-MS-( )04

OR

* Throttle ( )-AS-3 IAW FCA-1.00 Attachment 8

c) Maintain SG level - between 70% and 90%

d) Maintain RCS hot leg temperature within limits established in FCA-1.00 Attachment 13

e) Adjust charging and seal injection rates to maintain a stable PRZR level

30 REDUCE RCS TO 1950 PSIG IAW FCA-1.00 ATTACHMENT 13

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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	CAUTION: SI will automatically unblock if PRZR pressure increases have 2000 psig or RCS Tave increases above 543°F.	
	* * * * * * * * * * * * * * * * * * * *	
31	BLOCK SI	
	a) Verify RCS hot leg temperature - less than 543°F	a) Return to Step 29
	b) Verify RCS pressure less than 2000 PSIG	b) Return to Step 32
	c) Block SI in MCR	c) IF SI will NOT block in MCR, THEN block SI IAW FCA-1.00, Attachment 14
32	CHECK RCS COLD LEG TEMPERATURE - LESS THAN 450°F	Maintain cooldown rate IAW FCA-1.00 Attachment 13 until cold leg temperature decreases to less than 450°F
33	ESTABLISH LETDOWN IAW FCA-1.00 ATTACHMENT 12	
34	CHECK CSD BORON	
	a) Sample RCS or letdown	
	b) Verify RCS boron increased at least 500 PPM	b) Check emergency boration initiated. Continue with step 35. When requirement of step 34 b) met, THEN do step 34c).
	c) Stop emergency boration	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
35	REDUCE RCS PRESSURE WHILE CONTINUING COOLDOWN IAW FCA-1.00 ATTACHMENT 13	
36	CHECK PRZR LEVEL - NO UNEXPECTED LEVEL INCREASE	Repressurize RCS within limits of FCA-1.00 Attachment 13 to collapse potential voids and check seal injection flows at established rate.
37	CHECK RCS PRESSURE - LESS THAN 1000 PSIG	Return to Step 35
38	ISOLATE SI ACCUMULATORS USING KEY SWITCHES IN THE MCR	
	a) Close isolation MOVs * MOV-( )865A * MOV-( )865B * MOV-( )865C	a) Operate MOV breakers IAW FCA-1.00 Attachment 11. IF power is not available manually place valves in the closed position.
	b) Open MOV power supply breakers	
39	CHECK IF RHR SYSTEM CAN BE PLACED IN SERVICE	
	a) RCS hot leg temperature - less than 350°F	a) Continue RCS cooldown IAW FCA-1.00 Attachment 13
	b) RCS pressure - less than 450 PSIG	b) Continue RCS depressurization IAW FCA-1.00 Attachment 13
	c) Verify CSD boron concentration	c) Maintain letdown path and borate as necessary to achieve CSD boron concentration

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	NOTE: If normal letdown is not established, alternate letdown will be isolated when placing the RHR system in service.	
40	CHECK ALTERNATE LETDOWN IN SERVICE	Go to Step 45
41	ESTABLISH EXCESS LETDOWN IAW OP-8.8.1	Go to Step 43
42	GO TO STEP 45	
43	VERIFY RCP THERMAL BARRIER FLOW a) If available MCR flow indication OR b) TV-CC-( )07 locally verified open	Reduce charging and seal injection flow rates to maintain stable PRZR level during RHR operation. Go to Step 45.
44	SECURE SEAL INJECTION FLOW * Close MOV-( )373	
45	PLACE RHR SYSTEM IN SERVICE IAW FCA-1.00 ATTACHMENT 12	
46	PLACE OVERPRESSURE MITIGATION SYSTEM IN SERVICE	Refer to Technical Specifications 3.1.G for additional requirements.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
47	REMOVE SI FROM SERVICE a) Lockout LHSI pumps b) Close MOV-( )890C c) Lockout 2 of 3 CHARGING/SI pumps	
48	REMOVE ENGINEERED SAFEGUARDS FROM SERVICE a) Lockout CS pumps b) Lockout RS pumps	
49	REDUCE RCS TEMPERATURE TO LESS THAN 200°F IAW FCA-1.00 ATTACHMENT 13	
50	COORDINATE FURTHER RECOVERY ACTIONS WITH TSC	
51	TERMINATE FCA-1.02	

-END-

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SEE APERTURE CARDS

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