1503 Lake Road Ontario, New York 14519-9364 585.771.3000



December 12, 2005

U.S. Nuclear Regulatory Commission Document Control Desk Washington, D.C. 20555

Subject: Emergency Operating Procedures R.E. Ginna Nuclear Power Plant Docket No. 50-244

As requested, enclosed are Ginna Station Emergency Operating Procedures.

Very truly yours,

Dave A. Holm

DAH/jdw

xc: U.S. Nuclear Regulatory Commission Region I
475 Allendale Road King of Prussia, PA 19406-1415

Ginna USNRC Senior Resident Inspector

Enclosure(s):

ATT Index E Index ATT-8.4, Rev 6 ATT-26.0, Rev 1 E-0, Rev 38

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C						C	
NPSP0200 E66429		Ginna Nuclear Power Plant PROCEDURE INDE>			Mon	12/12/2005 2:3 ⁴ Page	1:44 pm ∋1 of 2
INPUT PARAMETER	IS: TYPE: PRATT	STATUS VALUE(S): EF, QU		5 YEARS ON	LY:		
PRATT	EOP ATTACHMENTS						
PROCEDURE		······································		EFFECT	LAST	NEXT	<u></u>
NUMBER	PROCEDURE TITLE		REV	DATE	REVIEW	REVIEW	ST
ATT 1.0			003	02/12/2003	02/12/2003	02/12/2008	
ATT 2.4			000	03/16/2000	03/23/2003	03/25/2010	
ATT 2.2			009	02/01/2001	02/03/2003	02/03/2008	ष
ATT 2.2		n an	000	03/06/2002	03/21/2003	03/21/2008	
ATT 2.4		1	004	05/00/2002	10/31/2004	10/31/2009	67 65
ATT 2 5		6	002	05/30/2003	06/26/2002	06/26/2007	
ATT-3.0		5	000	12/01/2002	02/17/2002	02/17/2009	Ē
ATT-3.1			000	02/17/2004	02/17/2004	02/17/2009	с #
ATT-4.0		· · · · · · · · · · · · · · · · · · ·	003	07/26/1994	03/27/2003	03/27/2008	E T
ATT-5.0	ATTACHMENT COND TO S/G		000	10/10/2003	04/06/2004	04/06/2009	- -
ATT-5.0	ATTACHMENT SAFW		008	05/30/2002	04/06/2004	04/06/2009	FF
ATT-5.2	ATTACHMENT FIRE WATER COOL	ING TO TDAFW PUMP	004	10/07/2004	8//20/51/2	01/28/2009	ਜ
ATT-6 0			003	12/18/1996	02/03/2003	02/03/2008	F
ATT-7.0	ATTACHMENT CR EVAC		006	03/06/2002	02/03/2003	02/03/2008	EF
ATT-8.0	ATTACHMENT DC LOADS		007	02/04/2004	02/04/2004	02/04/2009	F
ATT-8.1	ATTACHMENT D/G STOP		005	03/06/2002	02/03/2003	02/03/2008	F
ATT-8.2	ATTACHMENT GEN DEGAS		008	06/20/2002	05/28/2004	05/28/2009	æ
ATT-8.3	ATTACHMENT NONVITAL		004	03/06/2002	02/03/2003	02/03/2008	Æ
ATT-8.4	ATTACHMENT SI/UV		006	12/12/2005	02/03/2003	02/03/2008	æ
ATT-8.5	ATTACHMENT LOSS OF OFFSITE	POWER	001	08/26/2003	05/02/2002	05/02/2007	F
ATT-9.0	ATTACHMENT LETDOWN		009	01/07/2004	03/06/2002	03/06/2007	F
ATT-9.1	ATTACHMENT EXCESS L/D		006	07/28/2004	10/31/2001	10/31/2006	Æ
ATT-10.0	ATTACHMENT FAULTED S/G		006	03/06/2002	03/27/2003	03/27/2008	뚐
ATT-11.0	ATTACHMENT IA CONCERNS		004	09/01/2004	03/27/2003	03/27/2008	퇀
ATT-11.1	ATTACHMENT IA SUPPLY		003	03/06/2002	03/27/2003	03/27/2008	æ
ATT-11.2	ATTACHMENT DIESEL AIR COMPR	RESSOR	004	11/18/2002	03/10/2003	03/10/2008	盱
ATT-12.0	ATTACHMENT N2 PORVS		005	02/12/2003	02/12/2003	02/12/2008	Æ
ATT-13.0	ATTACHMENT NC		003	02/12/2003	02/12/2003	02/12/2008	æ
ATT-14.0	ATTACHMENT NORMAL RHR COO	DLING	003	03/06/2002	04/06/2004	04/06/2009	Ŧ

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NPSP0200 E66429		Ginna Nuclear Power Plant PROCEDURE INDE			Mon	12/12/2005 2:31 Page	1:44 pm
INPUT PARAMET	ERS: TYPE: PRATT	STATUS VALUE(S) : EF. QU		5 YEARS ON	LY:	, ugu	
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PROCEDURE		· · · · · · · · · · · · · · · · · · ·		EFFECT	LAST	NEXT	 et
ATT-14.1	ATTACHMENT RHR COOL		008	04/10/2005	01/08/2002	01/08/2007	F
ATT-14.2	ATTACHMENT RHR ISOL		003	02/12/2003	02/12/2003	02/12/2008	EF
ATT-14.3	ATTACHMENT RHR NPSH		003	03/06/2002	01/28/2004	01/28/2009	F
ATT-14.5	ATTACHMENT RHR SYSTEM		003	03/20/2003	02/03/2003	02/03/2008	F
ATT-14.6	ATTACHMENT RHR PRESS REDUCTION		002	03/06/2002	01/28/2004	01/28/2009	æ
ATT-14.7	ATTACHMENT ADJUST RHR FLOW		001	02/17/2005	02/17/2004	02/17/2009	F
ATT-15.0	ATTACHMENT RCP START		010	01/11/2005	01/11/2005	01/11/2010	F
ATT-15.1	ATTACHMENT RCP DIAGNOSTICS		003	04/24/1997	02/03/2003	02/03/2008	F
ATT-15.2	ATTACHMENT SEAL COOLING		005	03/06/2002	02/03/2003	02/03/2008	æ
ATT-16.0	ATTACHMENT RUPTURED S/G		013	01/11/2005	01/11/2005	01/11/2010	F
ATT-16.1	ATTACHMENT SGTL		003	09/01/2004	06/27/2005	06/27/2010	æ
ATT-16.2	ATTACHMENT RCS BORON FOR SGTL		004	04/10/2005	06/27/2005	06/27/2010	F
ATT-17.0	ATTACHMENT SD-1		020	04/10/2005	01/21/2005	01/21/2010	F
ATT-17.1	ATTACHMENT SD-2		007	09/01/2004	01/30/2001	01/30/2006	æ
ATT-18.0	ATTACHMENT SFP - RWST		005	03/06/2002	02/03/2003	02/03/2008	F
ATT-20.0	ATTACHMENT VENT TIME		004	09/01/2004	02/03/2003	02/03/2008	F
ATT-21.0	ATTACHMENT RCS ISOLATION		002	03/06/2002	02/03/2003	02/03/2008	F
ATT-22.0	ATTACHMENT RESTORING FEED FLOW		004	11/17/2004	01/22/2002	01/22/2007	F
ATT-23.0	ATTACHMENT TRANSFER 4160V LOAD	S .	000	02/26/1999	01/28/2004	01/28/2009	æ
ATT-24.0	ATTACHMENT TRANSFER BATTERY TO	TSC	002	09/28/2005	09/28/2005	09/28/2010	₽
ATT-26.0	ATTACHMENT RETURN TO NORMAL OP	ERATIONS	001	12/12/2005	10/31/2001	10/31/2006	F
PRATT	TOTAL: 51						

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GRAND TOTAL: 51

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NPSP0200		Ginna Nuclear Po	ower Plant			Mon	12/12/2005 2:31	l:58 pm
E66429		PROCEDURE	INDE)				Page	1 of 1
INPUT PARAME	TERS: TYPE: PRE	STATUS VALUE(S) :	ef, qu		5 YEARS ON	LY:		
PRE	EMERGENCY PROCEDURE							
PROCEDURE	PROCEDURE TITLE			REV	EFFECT	LAST	NEXT REVIEW	ST
E-0	REACTOR TRIP OR SAFETY INJECTION			038	12/12/2005	03/24/2003	03/24/2008	F
E-1	LOSS OF REACTOR OR SECONDARY COOLANT			032	08/03/2005	03/24/2003	03/24/2008	Ŧ
E-2	FAULTED STEAM GENERATOR ISOLATION			012	11/17/2004	03/24/2003	03/24/2008	æ
E-3	STEAM GENERATOR TUBE RUPTURE			038	11/17/2004	03/24/2003	03/24/2008	F
PRE	TOTAL: 4		· · · · · · · · · · · · · · · · · · ·					

GRAND TOTAL: 4

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EOP:	TITLE:	REV: 6
ATT-8.4	ATTACHMENT SI/UV	PAGE 1 of 1
Respon: <u>NOTE</u> :	This attachment is used for information only. I the loads lost with SI only and with SI and eith offsite power or associated D/G output breaker of must be reset before attempting to restore any o	2005 t lists er loss of closed. SI of these loads.
NOTE:	The capacity of the power source should be consi before restoring any loads.	dered
LOADS 1	OST ON AN SI SIGNAL ONLY	
•	Charging pumps • Standby Aux Feed P	umps
•	Pressurizer heaters • G Aux Bldg Exhaust	Fan
•	Motor fire pump • Main feed water pu	mps
•	Spent fuel pool pump B • CREATS heating and	cooling system
•	Bus ties 17-18, 15-16, 16-14, 13-14	
•	MCC-G	
•	Intake heaters	
LOADS 1	OST ON AN SI SIGNAL WITH EITHER OF THE FOLLOWING	
	SS OF OFFSITE POWER OR SOCIATED D/C OUTPUT BKR CLOSED	
•	All of the above	
•	CCW pumps	
•	Boric acid transfer pumps	
•	Reactor compartment cooling fans	
•	Penetration cooling fans	
•	RCDT pumps	
•	Reactor makeup water pump	
•	Spent fuel pool pump A	
•	RWST purification pump	
•	Aux Building exhaust fan C	

• MCC C Breaker 1H (spare breaker used for STBY SFP pump)

	EOP: TITLE:	REV: 1
	ATT-26.0 ATTACHMENT RETURN TO NORMAL OPERATIONS	PAGE 1 of 1
	Responsible Manager <u>My Ump</u> Date $\frac{12-12}{12-12}$. This attachment provides actions to be considered when returning to normal plant procedures following an event requiring entry to EOPs.	2005
· .	***************************************	* * * * * * * * * * * * * * *
	CAUTION	
	BEFORE PERFORMING ANY ITEM IN THIS ATTACHMENT, CAREFUL MUST BE GIVEN REGARDING THE INITIATING EVENT, CURRENT I CONDITIONS, AND DESIRED PLANT OPERATING MODE. CONSULT NECESSARY.	CONSIDERATION PLANT PLANT STAFF AS
	***************************************	****
	 Restore offsite power to all AC busses (refer to ER- Place DGs in auto standby (refer to ATT-8.1) Restore power to MCCs (reset UV load shed if necessa Maintain desired SG level using AFW pumps Open SW isolation valves Restore Instrument/Service Air Systems (refer to T-2 Restore normal charging and letdown (refer to S-3.2E Reset CVI 	ELEC.1) ary) 2 series) 2)
	 Address existing YELLOW path FRs Refer to 0-6.13 for normal MCB component alignment. align components as necessary. Restore CNMT penetrations affected by CI 1. Place valve switch in closed position 2. Reset xy relays 	Manually
	 3. Place/verify valve in desired position Restart CNMT and Plant Vent radiation monitor pumps Stop any operating redundant equipment that is no lo (CCW Pump, SW Pumps, CRFCs, etc.) Restore motor and diesel fire pumps Restore SFP cooling (refer to S-9 series) Realign CREATS per T-351, FUNCTIONAL ALIGNMENT OF THE 	nger required E CONTROL
	 ROOM AIR HANDLING UNIT. Review MCB annunciator panels - alarm status valid f conditions 	or plant
	 Restore Generator Seal Oil system (refer to T-34 ser Restore SG blowdown and sample system (refer to T-14 Restore CNMT recirculation fans to control CNMT temp 	ies) series) erature/pressure
	 within ITS limits Verify SDM (refer to O-3 series) Restore PRT to normal conditions (refer to AR-F-1, A 	R-F-9, AR-F-17)
\mathbf{U}	 "match flags" on MCB Restore Aux Bldg ventilation (refer to T-35A) Borate 650 gallons for each rod not fully inserted 	
	 Block AMSAC Perform T-8A for any non-operating CW pump 	

EOP: E-0

TITLE:

GINNA STATION CONTROLLED COPY NUMBER _______

RESPONSIBLE MANAGER

<u>/2-12-2005</u> EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:_____

EOP:	TIRE:	REV:	38	
E-0	REACTOR TRIP OR SAFETY INJECTION	PAGE	2 of	2

A. PURPOSE - This procedure provides actions to verify proper response of the automatic protection systems following manual or automatic actuation of a reactor trip or safety injection and to assess plant conditions, and identify the appropriate recovery procedure.

B. ENTRY CONDITIONS/SYMPTOMS

- 1. The following are symptoms that require a reactor trip, if one has not occurred:
 - Any plant parameter reaches a reactor trip setpoint and logic as listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
 - o Operator discretion.
- 2. The following are symptoms of a reactor trip:
 - o Any First Out reactor trip annunciator lit.
 - o A rapid decrease in core neutron level as indicated by nuclear instrumentation.
 - o MRPI indicates all control and shutdown rods on bottom.
 - o Reactor trip breakers indicate open.
- 3. The following are symptoms that require a reactor trip and safety injection, if one has not occurred:
 - Any plant parameter reaches the Safety Injection setpoint and logic listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
 - o Operator discretion.
- 4. The following are symptoms of a reactor trip and safety injection:
 - o Any SI annunciator lit.
 - o Safeguards sequencing started.

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TIME:

REACTOR TRIP OR SAFETY INJECTION

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	EOP: TITLE:	AFETY INJECTION	REV: 38
			PAGE 4 of 29
J.			•
	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
•	4 Check if SI is Actuated:		н.
	a. Any SI Annunciator - LIT	a. <u>IF</u> any of the follow conditions are met, manually actuate SI	ing <u>THEN</u> and CI:
		o PRZR pressure les 1750 psig	s than
		- OR -	
		o Steamline pressur 514 psig	e less than
		-OR-	
		o CNMT pressure gre 4 psig	ater than
)		- OR -	
		o SI sequencing sta	rted
		- OR -	
		o Operator determin required	es SI
		<u>IF</u> SI is <u>NOT</u> require to ES-0.1, REACTOR T RESPONSE, Step 1.	d. <u>THEN</u> go RIP
	b. SI sequencing - BOTH TRAINS STARTED.	b. Manually actuate SI	and CI.

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT	OBTAINED
<u>NOTE</u> : o FOLDOUT page should be open and	onitored period:	cally.
o Adverse CNMT values should be us greater than 4 psig or CNMT rad:	l whenever CNMT tion is greater	pressure is than 10 ⁺⁰⁵ R/hr.
5 Verify SI and RHR Pumps Running:		
a. All SI pumps – RUNNING	a. Perform the	following:
	1) Ensure S open from	l pump suction supply n RWST.
	2) Manually	start pumps.
b. Both RHR pumps - RUNNING	b. Manually sta	art pumps.
Running:		
Running: a. All fans – RUNNING b. Charcoal filter dampers green status lights – EXTINGUISHED	 a. Manually sta b. Dispatch per with relay popen dampers relay plunge 	art fans. sonnel to relay room cack key to locally s by pushing in trip
Running: a. All fans – RUNNING b. Charcoal filter dampers green status lights – EXTINGUISHED	 a. Manually state b. Dispatch per with relay popen dampers relay plungs AUX RELAY 	art fans. sonnel to relay room ack key to locally by pushing in trip ers. RACK RA-2 for fan A
Running: a. All fans – RUNNING b. Charcoal filter dampers green status lights – EXTINGUISHED	 a. Manually state b. Dispatch per with relay of open dampers relay plunga AUX RELAY AUX RELAY 	art fans. sonnel to relay room ack key to locally s by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C
Running: a. All fans – RUNNING b. Charcoal filter dampers green status lights – EXTINGUISHED	 a. Manually state b. Dispatch per with relay relay relay plungate a. AUX RELAY AUX RELAY 	art fans. sonnel to relay room tack key to locally s by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C
Running: a. All fans – RUNNING b. Charcoal filter dampers green status lights – EXTINGUISHED	 a. Manually state b. Dispatch perwith relay popen dampers relay plungation AUX RELAY AUX RELAY 	art fans. sonnel to relay room ack key to locally s by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C
Running: a. All fans – RUNNING b. Charcoal filter dampers green status lights – EXTINGUISHED	 a. Manually state b. Dispatch perwith relay popen dampers relay plunge AUX RELAY AUX RELAY 	art fans. sonnel to relay room tack key to locally s by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C
<pre>Running: a. All fans - RUNNING b. Charcoal filter dampers green status lights - EXTINGUISHED</pre>	 a. Manually state b. Dispatch perwith relay popen dampers relay plungation AUX RELAY AUX RELAY 	art fans. sonnel to relay room ack key to locally by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C
<pre>Running: a. All fans - RUNNING b. Charcoal filter dampers green status lights - EXTINGUISHED</pre>	 a. Manually state b. Dispatch per with relay of open dampers relay plunga AUX RELAY AUX RELAY 	art fans. sonnel to relay room tack key to locally by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C
<pre>Running: a. All fans - RUNNING b. Charcoal filter dampers green status lights - EXTINGUISHED</pre>	 a. Manually state b. Dispatch per with relay relay popen dampers relay plunga AUX RELAY AUX RELAY 	art fans. sonnel to relay room tack key to locally by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C
<pre>Running: a. All fans - RUNNING b. Charcoal filter dampers green status lights - EXTINGUISHED</pre>	 a. Manually state b. Dispatch perwith relay relay relay plungation AUX RELAY AUX RELAY 	art fans. sonnel to relay room tack key to locally by pushing in trip ers. RACK RA-2 for fan A RACK RA-3 for fan C

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
Required:	verily CNMI spray initiated.
o Annunciator A-27, CNMT SPRAY - EXTINGUISHED	<u>IF</u> CNMT spray <u>NOT</u> initiated, <u>THEN</u> perform the following:
o CNMT pressure - LESS THAN 28 PSIG	a. Depress manual CNMT spray pushbuttons (2 of 2).
	b. Ensure CNMT spray pumps running. <u>IF</u> no CNMT spray pump available, <u>THEN</u> go to Step 8.
	c. Ensure CNMT spray pump discharge valves open for operating pump(s).
	o CNMT spray pump A:
	 MOV-860A MOV-860B
	o CNMT spray pump B:
	MOV-860CMOV-860D
	d. Verify NaOH flow (FI-930)
	<u>IF</u> NaOH flow <u>NOT</u> indicated. <u>THEN</u> place switches for NaOH tank outlet valves to OPEN.
	AOV-836AAOV-836B

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STEP ACTION/EXPECT	ED RESPONSE	RESPONSE NOT OBTAINED
10 Verify Both MDAE	W Pumps	Manually start both MDAFW pumps.
Kuming		<u>IF</u> less than 2 MDAFW pumps are running. <u>THEN</u> manually open TDAFW pump steam supply valves.
		 MOV-3505A MOV-3504A
11 Verify At Least - RUNNING	Two SW Pumps	Perform the following:
		a. Ensure one SW pump running on each energized screenhouse AC emergency bus:
		• Bus 17 • Bus 18
н Т. С.		b. <u>IF</u> offsite power <u>NOT</u> available, <u>THEN</u> ensure SW isolation.
		c. <u>IF NO</u> SW pumps running, <u>THEN</u> perform the following:
		 Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
		2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

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E-0 REACTOR TRIP OR SA	AFETY INJECTION
	PAGE 10 of
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *
RCP TRIP CRITERIA LISTED ON FOLDOUT PAGE	SHOULD BE MONITORED PERIODICALLY.
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
13 Check CCW System Status:	
a. Verify CCW pump – AT LEAST ONE RUNNING	a. <u>IF</u> offsite power available, <u>THEN</u> manually start one CCW pump.
b. Place switch for excess letdown AOV-310 to CLOSE	
c. Place switch for CCW from excess letdown, AOV-745 to CLOSE	
14 Verify SI And RHR Pump Flow:	
a. SI flow indicators – CHECK FOR FLOW	a. <u>IF</u> RCS pressure less than 1400 psig, <u>THEN</u> manually start pumps and align valves. <u>IF NOT</u> , <u>THEN</u> go to Step 15.
b. RHR flow indicator – CHECK FOR FLOW	b. <u>IF</u> RCS pressure less than 140 psig, <u>THEN</u> manually start pumps and align valves. <u>IF NOT</u> . <u>THEN</u> go to Step 15.
15 Verify AFW Valve Alignment:	Manually align valves as necessary.
a. AFW flow – INDICATED TO BOTH S/G(s)	
b. AFW flow from each MDAFW pump - LESS THAN 230 GPM	

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EOP: TITLE: E-0 REACTOR TRIP OR S	AFETY INJECTION PAGE 11 of
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<pre>*16 Monitor Heat Sink: a. Check S/G narrow range level - GREATER THAN 7% [25% adverse CNMT] in any S/G</pre>	a. Perform the following: 1) Verify total AFW flow – GREATER THAN 200 GPM
	<u>IF</u> total AFW is less than 200 gpm, <u>THEN</u> manually start pumps and align valves to establish greater than 200 gpm AFW flow. <u>IF</u> AFW flow greater than 200 gpm can <u>NOT</u> be established, <u>THEN</u> go to FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Step 1.
	2) Go to Step 17.
b. Check S/G narrow range level - BOTH S/G LESS THAN 50%	b. Secure AFW flow to any S/G with level above 50%.
c. Control feed flow to maintain S/G narrow range level between 7% [25% adverse CNMT] and 50%.	

		
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REACTOR TRIP OR SAFETY INJECTION

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17 Verify SI Pump And RHR Pump	
Emergency Alignment:	
a. RHR pump discharge to Rx vessel deluge – OPEN	a. Ensure at least one valve open.
• MOV-852A • MOV-852B	
b. Verify SI pump C - RUNNING	b. Manually start pump on availabl bus.
c. Verify SI pump A – RUNNING	c. Perform the following:
	1) Ensure SI pumps B and C running. <u>IF</u> either pump <u>NOT</u> running, <u>THEN</u> go to Step 17e
	 Ensure SI pump C aligned to discharge line A:
	o MOV-871A open
	o MOV-871B closed
	3) Go to Step 18.
d. Verify ST pump B - RUNNING	d Perform the following:
	 Ensure SI pumps A and C running. <u>IF</u> either pump <u>NOT</u> running, <u>THEN</u> go to Step 17e
	2) Ensure SI pump C aligned to discharge line B:
	o MOV-871B open
· · · ·	o MOV-871A closed
	3) Go to Step 18.
e. Verify SI pump C discharge valves - OPEN	e. Manually open valves as necessary.
• MOV-871A • MOV-871B	
	· ·

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REACTOR TRIP OR SAFETY INJECTION

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
• • • • • • • • • • • • • • • • • • •	* * * * * * * * * * * * * * * * * * *
IF OFFSITE POWER IS LOST AFTER SI RESET TO RESTART SAFEGUARDS EQUIPMENT. (REFE OFFSITE POWER)	. THEN MANUAL ACTION MAY BE REQUIRED R TO ATT-8.5, ATTACHMENT LOSS OF
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
18 Check CCW Flow to RCP Thermal Barriers:	<u>IF</u> CCW to a RCP is lost, <u>THEN</u> perform the following:
o Annunciator A-7, RCP 1A CCW RETURN HI TEMP OR LO FLOW -	a. Stop affected RCPs.
EXTINGUISHED	b. Reset SI.
o Annunciator A-15, RCP 1B CCW RETURN HI TEMP OR LO FLOW - FITINCUISHED	c. Verify adequate power available to run one charging pump (75 kw).
	d. Start one charging pump at minimum speed for seal injection.
	e. Adjust HCV-142 to establish either of the following:
	o Labyrinth seal D/P to each RCP greater than 15 inches of water.
	- OR -
	o RCP seal injection flow to each RCP greater than 6 gpm.
	f. <u>IF</u> large imbalance in seal injection flow exists, <u>THEN</u> consider local adjustment of V-300A and V-300B.
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REACTOR TRIP OR SAFETY INJECTION

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EP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
Check PRZR PORVs And Spray Valves:	a IP PP7P programs logg then
A. FORVE - CLOSED	2335 psig, <u>THEN</u> manually close PORVs.
	<u>IF</u> any valve can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve.
	 MOV-516 for PCV-430 MOV-515 for PCV-431C IE block value can NOT be
	closed, <u>THEN</u> go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.
b. Auxiliary spray valve (AOV-296) - CLOSED	b. Manually close auxiliary spray valve. <u>IF</u> valve can <u>NOT</u> be closed, <u>THEN</u> perform the following:
	 Decrease charging pump flow to minimum.
	2) Ensure charging valve to loop B cold leg open (AOV-294).
c. Check PRZR pressure – LESS THAN 2260 PSIG	c. Continue with Step 22. <u>WHEN</u> pressure less than 2260 psig, <u>THEN</u> do Step 21d.
d. Normal PRZR spray valves – CLOSED	d. Place controllers in MANUAL at 0% demand. IF valves can NOT be
 PCV-431A PCV-431B 	closed, <u>THEN</u> stop associated RCP(s).

EOP:

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E-0

TITLE:

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22 Monitor RCP Trip Criteria:	
a. RCP status – ANY RCP RUNNING	a. Go to Step 23.
b. SI pumps - AT LEAST TWO RUNNING	b. Go to Step 23.
c. RCS pressure minus maximum S/G pressure – LESS THAN 175 psig [400 psig adverse CNMT]	c. Go to Step 23.
d. Stop both RCPs	
23 VERIFY CREATS ACTUATION:	
a. At least one damper in each flowpath - CLOSED	a. Depress both CREATS actuation pushbuttons
 Normal Supply Air Normal Return Air Lavatory Exhaust Air 	 CONTROL ROOM MANUAL ISOLATION A CONTROL ROOM MANUAL ISOLATION B
b. CREATS fans - BOTH RUNNING	b. Start both CREATS fans
24 Check If S/G Secondary Side Is Intact:	<u>IF</u> any S/G pressure decreasing in an uncontrolled manner <u>OR</u> completely depressurized, <u>THEN</u> go
o Pressure in both S/Gs - STABLE OR INCREASING	to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.
o Pressure in both S/Gs – GREATER THAN 110 PSIG	
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25 Ch	eck If S/G Tubes Are Intact:	Go to E-3. STEAM GENERATOR TUBE
		RUPTURE, Step 1.
0	Air ejector radiation monitors (R-15 or R-15A) – NORMAL	
0	S/G blowdown radiation monitor (R-19) - NORMAL	
0	Steamline radiation monitors (R-31 and R-32) - NORMAL	
26 Ch	eck If RCS Is Intact:	Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.
а.	CNMT area radiation monitors – NORMAL	
	• R-2	
	• R-7	
	• R-29	
	• R-30	
b.	CNMT pressure – LESS THAN 0.5 PSIG	· ·
c.	CNMT sump B level - LESS THAN 8 INCHES	
đ.	CNMT sump A level	
	o Level - STABLE	
	o Annunciator C-19, CONTAINMENT SUMP A HI LEVEL - EXTINGUISHED	

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REACTOR TRIP OR SAFETY INJECTION

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EOP: TITLE:	REV: 38
E-0 REACTOR TRIP OR SA	FETY INJECTION PAGE 19 of 29
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>NOTE</u> : o Conditions should be evaluated f (Refer to EPIP-1.0, GINNA STATIO CLASSIFICATION).	or Site Contingency Reporting IN EVENT EVALUATION AND
o The Critical Safety Function Red APPENDIX 1.	Path Summary is available in
28 Initiate Monitoring of Critical Safety Function Status Trees	
*29 Monitor S/G Levels:	
a. Narrow range level - GREATER THAN 7%	a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 7% in at least one S/G.
b. Control feed flow to maintain narrow range level between 17% and 50%	b. <u>IF</u> narrow range level in any S/G continues to increase in an uncontrolled manner, <u>THEN</u> go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.
30 Check Secondary Radiation Levels - NORMAL	Go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.
o Steamline radiation monitor (R-31 and R-32)	
o Dispatch AO to locally check steamline radiation	
o Request RP sample S/Gs for activity	

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	EOP: TITLE: E-0 REACTOR TRIP OR SAFETY INJECTION	REV: 38 PAGE 20 of 29
	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED]
	CAUTION	* * * * * * *
	IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY BE TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, ATTACHMENT LO OFFSITE POWER)	REQUIRED SS OF
	* * * * * * * * * * * * * * * * * * * *	* * * * * * *
	31 Reset SI	
	32 Reset CI:	C
	a. Depress CI reset pushbutton	
	ISOLATION - EXTINGUISHED 1) Reset SI.	g:
J	2) Depress CI reset	pushbutton.
,		
J		

STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 33 Verify Adequate SW Flow: a. Manually start SW pumps as possupply permits (257 kw each). IF less than three pumps running, THEN ensure SW isolation. IF less than three pumps running, THEN ensure SW isolation. IF NO SW pumps running. THEN perform the following: 1) Pull stop any D/G that is J supplied by alternate cool: AND immediately depress associated VOLTAGE SHUTDOW pushbutton.	REV: 38
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 33 Verify Adequate SW Flow: a. Manually start SW pumps as por supply permits (257 kw each). IF less than three pumps running, THEN ensure SW isolation. IF NO SW pumps running, THEN perform the following: 1) Pull stop any D/G that is I supplied by alternate cool: AND immediately depress associated VOLTAGE SHUTDOW pushbutton.	PAGE 21 of
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 33 Verify Adequate SW Flow: a. Manually start SW pumps as por supply permits (257 kw each). a. At least three SW pumps - RUNNING a. Manually start SW pumps as por supply permits (257 kw each). IF less than three pumps running. THEN ensure SW isolation. IF NO SW pumps running. THEN perform the following: 1) Pull stop any D/G that is I supplied by alternate cool: AND immediately depress associated VOLTAGE SHUTDOW pushbutton.	
 33 Verify Adequate SW Flow: a. At least three SW pumps - RUNNING a. Manually start SW pumps as por supply permits (257 kw each). IF less than three pumps running, THEN ensure SW isolation. IF NO SW pumps running, THEN perform the following: 1) Pull stop any D/G that is I supplied by alternate cool: AND immediately depress associated VOLTAGE SHUTDOW pushbutton. 	CTED RESPONSE RESPONSE NOT OBTAINED
 a. At least three SW pumps - RUNNING a. Manually start SW pumps as posupply permits (257 kw each). IF less than three pumps running. THEN ensure SW isolation. IF NO SW pumps running. THEN perform the following: 1) Pull stop any D/G that is properly supplied by alternate cool: AND immediately depress associated VOLTAGE SHUTDOW pushbutton. 	e SW Flow:
<u>IF</u> less than three pumps running, <u>THEN</u> ensure SW isolation. <u>IF NO</u> SW pumps running, <u>THEN</u> perform the following: Pull stop any D/G that is provided by alternate cool: <u>AND</u> immediately depress associated VOLTAGE SHUTDOW pushbutton. 	SW pumps – RUNNING a. Manually start SW pumps as power supply permits (257 kw each).
IF NO SW pumps running, THEN perform the following: Pull stop any D/G that is supplied by alternate cool: <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton. 	<u>IF</u> less than three pumps running, <u>THEN</u> ensure SW isolation.
1) Pull stop any D/G that is supplied by alternate cool: <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.	<u>IF NO</u> SW pumps running, <u>THEN</u> perform the following:
	1) Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
2) Refer to ATT-2.4, ATTACHME NO SW PUMPS.	2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.
<u>IF</u> only one SW pump running, <u>THEN</u> refer to AP-SW.2, LOSS O SERVICE WATER.	<u>IF</u> only one SW pump running, <u>THEN</u> refer to AP-SW.2, LOSS OF SERVICE WATER.
b. Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)) establish normal ment (Refer to ACHMENT SD-1)

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REACTOR TRIP OR SAFETY INJECTION

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REACTOR TRIP OR SAFETY INJECTION

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EOP: TITLE:	REV: 38
E-0 REACTOR TRIP OR SA	AFETY INJECTION PAGE 25 of 29
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *
CAUTIO	<u>N</u>
RCS PRESSURE SHOULD BE MONITORED. IF RC UNCONTROLLED MANNER TO LESS THAN 250 PSI MANUALLY RESTARTED TO SUPPLY WATER TO TH	S PRESSURE DECREASES IN AN G. THEN THE RHR PUMPS MUST BE E RCS.
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
*37 Monitor If RHR Pumps Should Be Stopped:	
a. Check RCS pressure:	
1) Pressure - GREATER THAN 250 PSIG	1) Go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.
2) Pressure - STABLE OR INCREASING	2) Go to Step 38.
b. Stop both RHR pumps and place in AUTO	
38 Check Normal Power Available To Charging Pumps:	Verify adequate emergency D/G capacity to run charging pumps (75 kw each).
o Bus 14 normal feed breaker – CLOSED	<u>IF NOT, THEN</u> evaluate if CNMT RECIRC fans can be stopped (Refer
o Bus 16 normal feed breaker ~ CLOSED	to ATT-4.0, ATTACHMENT CNMT RECIRC FANS).

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REACTOR TRIP OR SAFETY INJECTION

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED		
39 Check If Charging Flow Has Been Established:			
a. Charging pumps - ANY RUNNING	a. Perform the following:		
	 <u>IF</u> CCW flow is lost to any RCP thermal barrier <u>OR</u> any RCP #1 seal outlet temperature offscale high. <u>THEN</u> dispatch AO to close seal injection needle valve(s) to affected RCP: 		
	 V-300A for RCP A V-300B for RCP B 		
	 Ensure HCV-142 open, demand at 0%. 		
b. Charging pump suction aligned to RWST:	b. Manually align valves.		
o LCV-112B - OPEN	<u>IF</u> LCV-112B can <u>NOT</u> be opened. <u>THEN</u> dispatch AO to locally open		
o LCV-112C - CLOSED	V-358, manual charging pump suction from RWST (charging pum room).		
	<u>IF</u> LCV-112C can <u>NOT</u> be closed, <u>THEN</u> perform the following:		
	 Direct AO to locally open V-358, manual charging pump suction from RWST (Charging Pump Room). 		
	2) Verify charging pump A <u>NOT</u> running and place in PULL STOP.		
	3) <u>WHEN</u> V-358 open. <u>THEN</u> direct AO to close V-268 to isolate charging pumps B and C from VCT (charging pump room).		
c. Start charging pumps as necessary and adjust charging flow to restore PRZR level			

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REACTOR TRIP OR SAFETY INJECTION

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40	Maintai Between 2235 PS	n PRZR Pres 1800 PSIG IG	sure And		· .	
,	o Reset	PRZR heaters				
	o Usen	ormal PRZR spi	ray			
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Shou	ld Be Stopped:	
a. Ve en	rify AC emergency busses ergized by offsite power:	a. Perform the following:
ο	Emergency D/G output breakers - OPEN	 Verify non-safeguards bus tie breakers closed:
o	AC emergency bus voltage - GREATER THAN 420 VOLTS	 Bus 13 to Bus 14 tie Bus 15 to Bus 16 tie
0	AC emergency bus normal feed breakers – CLOSED	2) Place the following pumps in PULL STOP:
		 EH pumps Turning gear oil pump HP seal oil backup pump
		3) Ensure condenser steam dump mode control in MANUAL.
		4) Restore power to MCCs:
		 A from Bus 13 B from Bus 15 E from Bus 15 F from Bus 15
		5) Start HP seal oil backup pump.
		6) Ensure D/G load within limits.
		7) Refer to ATT-8.4, ATTACHMENT SI/UV for other equipment lost with loss of offsite power.
		8) Try to restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).

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42 Return to Step 20		
	-END-	

EOP:

E-0 APPENDIX LIST

TITLE

- 1) RED PATH SUMMARY
- 2) FIGURE MIN SUBCOOLING (FIG-1.0)
- 3) ATTACHMENT CI/CVI (ATT-3.0)
- 4) ATTACHMENT SD-1 (ATT-17.0)
- 5) ATTACHMENT CNMT RECIRC FANS (ATT-4.0)
- 6) ATTACHMENT D/G STOP (ATT-8.1)
- 7) ATTACHMENT SI/UV (ATT-8.4)
- 8) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 9) ATTACHMENT LOSS OF OFFSITE POWER (ATT-8.5)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)

11) FOLDOUT
EOP: E-O TITLE:

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RED PATH SUMMARY

- a. SUBCRITICALITY Nuclear power greater than 5%
- b. CORE COOLING Core exit T/Cs greater than 1200°F -OR-Core exit T/Cs greater than 700°F AND RVLIS level (no RCPs) less than 52% [55% adverse CNMT]
- c. HEAT SINK Narrow range level in all S/Gs less than 7% [25% adverse CNMT] <u>AND</u> total feedwater flow less than 200 gpm
- d. INTEGRITY Cold leg temperatures decrease greater than 100°F in last 60 minutes <u>AND</u> RCS cold leg temperature less than 285°F
- e. CONTAINMENT CNMT pressure greater than 60 psig

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FOLDOUT PAGE

1. <u>RCP_TRIP_CRITERIA</u>

IF BOTH conditions listed below occur, THEN trip both RCPs:

- a. SI pumps AT LEAST TWO RUNNING
- b. RCS pressure minus maximum S/G pressure LESS THAN 175 PSIG [400 psig adverse CNMT]

2. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

3. AFW SUPPLY SWITCHOVER CRITERION

<u>IF</u> CST level decreases to less than 5 feet, <u>THEN</u> switch to alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

1503 Lake Road Ontario, New York 14519-9364 585.771.3000



December 15, 2005

U.S. Nuclear Regulatory Commission Document Control Desk Washington, D.C. 20555

Subject: Emergency Operating Procedures R.E. Ginna Nuclear Power Plant Docket No. 50-244

As requested, enclosed are Ginna Station Emergency Operating Procedures.

Very truly yours

Dave A. Holm

DAH/jdw

xc: U.S. Nuclear Regulatory Commission Region I
475 Allendale Road King of Prussia, PA 19406-1415

Ginna USNRC Senior Resident Inspector

Enclosure(s):

ATT Index	F-0 Rev 30	FR ₋ C 2 Rev 21
	L-0, KCV 39	TR-C.2, RCV 21
E Index	E-1, Rev 33	FR-S.1, Rev 18
ECA Index	ECA-0.0, Rev 30	FR-Z.1, Rev 10
ES Index	ECA-0.2, Rev 17	
FR Index	ES-1.3, Rev 39	
ATT-3.0, Rev 9	FR-C.1, Rev 23	

C							
NPSP0200 E66429		Ginna Nuclear Power Plant PROCEDURE INDE>			Thu	12/15/2005 8:1 Page	6:25 am ∋1 of 2
INPUT PARAMETER	S: TYPE: PRATT	STATUS VALUE(S): EF, QU		5 YEARS ON	LY:		
PRATT E	OP ATTACHMENTS						in the second se
PROCEDURE			REV	EFFECT	LAST	NEXT	ST
ATT-1.0	ATTACHMENT AT POWER CCW ALIGNMENT		003	02/12/2003	02/12/2003	02/12/2008	F
ATT-1.1	ATTACHMENT NORMAL CCW FLOW		000	05/18/2000	03/25/2005	03/25/2010	F
ATT-2.1	ATTACHMENT MIN SW		005	02/01/2001	02/03/2003	02/03/2008	F
ATT-2.2	ATTACHMENT SW ISOLATION		800	03/06/2002	03/27/2003	03/27/2008	F
ATT-2.3	ATTACHMENT SW LOADS IN CNMT		004	03/06/2002	04/06/2004	04/06/2009	F
ATT-2.4	ATTACHMENT NO SW PUMPS		002	05/30/2003	10/31/2001	10/31/2006	F
ATT-2.5	ATTACHMENT SPLIT SW HEADERS		000	06/26/2002	06/26/2002	06/26/2007	÷
ATT-3.0	ATTACHMENT CI/CVI		009	12/15/2005	02/17/2004	02/17/2009	F
ATT-3.1	ATTACHMENT CNMT CLOSURE		005	02/17/2004	02/17/2004	02/17/2009	F
ATT-4.0	ATTACHMENT CNMT RECIRC FANS	이 가지는 것이 같은 것이 생각되었다.	003	07/26/1994	03/27/2003	03/27/2008	F
ATT-5.0	ATTACHMENT COND TO S/G		006	10/10/2003	04/06/2004	04/06/2009	F
ATT-5.1	ATTACHMENT SAFW		008	05/30/2002	04/06/2004	04/06/2009	EF.
ATT-5.2	ATTACHMENT FIRE WATER COOLING TO TDAFW	PUMP	004	10/07/2004	8//20/51/2	01/28/2009	F
ATT-6.0	ATTACHMENT COND VACUUM		003	12/18/1996	02/03/2003	02/03/2008	F
ATT-7.0	ATTACHMENT CR EVAC		006	03/06/2002	02/03/2003	02/03/2008	F
ATT-8.0	ATTACHMENT DC LOADS		007	02/04/2004	02/04/2004	02/04/2009	F
ATT-8.1	ATTACHMENT D/G STOP		005	03/06/2002	02/03/2003	02/03/2008	F
ATT-8.2	ATTACHMENT GEN DEGAS		008	06/20/2002	05/28/2004	05/28/2009	Ð
ATT-8.3	ATTACHMENT NONVITAL		004	03/06/2002	02/03/2003	02/03/2008	F
ATT-8.4	ATTACHMENT SIUV		006	12/12/2005	02/03/2003	02/03/2008	F
ATT-8.5	ATTACHMENT LOSS OF OFFSITE POWER		001	08/26/2003	05/02/2002	05/02/2007	F
ATT-9.0	ATTACHMENT LETDOWN		009	01/07/2004	03/06/2002	03/06/2007	EF
ATT-9.1	ATTACHMENT EXCESS L/D		006	07/28/2004	10/31/2001	10/31/2006	F
ATT-10.0	ATTACHMENT FAULTED S/G	· · · · · · · · · · · · · · · · · · ·	006	03/06/2002	03/27/2003	03/27/2008	F
ATT-11.0	ATTACHMENT IA CONCERNS		004	09/01/2004	03/27/2003	03/27/2008	F
ATT-11.1	ATTACHMENT IA SUPPLY		003	03/06/2002	03/27/2003	03/27/2008	F
ATT-11.2	ATTACHMENT DIESEL AIR COMPRESSOR		004	11/18/2002	03/10/2003	03/10/2008	EF
ATT-12.0	ATTACHMENT N2 PORVS		005	02/12/2003	02/12/2003	02/12/2008	F
ATT-13.0	ATTACHMENT NC		003	02/12/2003	02/12/2003	02/12/2008	F
ATT-14.0	ATTACHMENT NORMAL RHR COOLING		003	03/06/2002	04/06/2004	04/06/2009	F

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NPSP0200 E66429			Ginna Nu PROC	clear Power Plant EDURE INDE>			Thu '	12/15/2005 8:16 Page):25 am 2 of 2
	TERS: TYPE:	PRATT	STATUS VAI	LUE(S): EF, QU		5 YEARS ON	LY:		
PRATT	ΕΟΡ ΑΤΤΑΟ	HMENTS							
PROCEDURE	PROCED		· · · · · · · · · · · · · · · · · · ·		REV	EFFECT	LAST REVIEW	NEXT	ST
ATT-14.1	ATTACH	MENT RHR COOL			008	04/10/2005	01/08/2002	01/08/2007	F
ATT-14.2	ATTACH	MENT RHR ISOL			003	02/12/2003	02/12/2003	02/12/2008	Ŧ
ATT-14.3	ATTACH	MENT RHR NPSH			003	03/06/2002	01/28/2004	01/28/2009	EF
ATT-14.5	ATTACH	IMENT RHR SYSTEM			003	03/20/2003	02/03/2003	02/03/2008	Ŧ
ATT-14.6	ATTACH	MENT RHR PRESS REDUC	TION		002	03/06/2002	01/28/2004	01/28/2009	EF
ATT-14.7	ATTACH	IMENT ADJUST RHR FLO	N		001	02/17/2005	02/17/2004	02/17/2009	F
ATT-15.0	ATTACH	IMENT RCP START			010	01/11/2005	01/11/2005	01/11/2010	Ŧ
ATT-15.1	ATTACH	MENT RCP DIAGNOSTICS	1		003	04/24/1997	02/03/2003	02/03/2008	EF
ATT-15.2	ATTACH	IMENT SEAL COOLING			005	03/06/2002	02/03/2003	02/03/2008	F
ATT-16.0	ATTACH	MENT RUPTURED S/G			013	01/11/2005	01/11/2005	01/11/2010	Æ
ATT-16.1	ATTACH	IMENT SGTL			003	09/01/2004	06/27/2005	06/27/2010	EF
ATT-16.2	ATTACH	IMENT RCS BORON FOR	SGTL		004	04/10/2005	06/27/2005	06/27/2010	æ
ATT-17.0	ATTACH	IMENT SD-1			020	04/10/2005	01/21/2005	01/21/2010	F
ATT-17.1	ATTACH	IMENT SD-2			007	09/01/2004	01/30/2001	01/30/2006	F
ATT-18.0	ATTACH	IMENT SFP - RWST			005	03/06/2002	02/03/2003	02/03/2008	FF
ATT-20.0	ATTACH	MENT VENT TIME			004	09/01/2004	02/03/2003	02/03/2008	EF
ATT-21.0	ATTACH	MENT RCS ISOLATION			002	03/06/2002	02/03/2003	02/03/2008	· FF
ATT-22.0	ATTACH	MENT RESTORING FEED	FLOW		004	11/17/2004	01/22/2002	01/22/2007	Ŧ
ATT-23.0	ATTACH	MENT TRANSFER 4160V	LOADS		000	02/26/1999	01/28/2004	01/28/2009	Æ
ATT-24.0	ATTACH	IMENT TRANSFER BATTE	RY TO TSC		002	09/28/2005	09/28/2005	09/28/2010	Æ
ATT-26.0	ATTACH	MENT RETURN TO NORM	AL OPERATIONS		001	12/12/2005	10/31/2001	10/31/2006	F
PRATT	TOTAL: 51								

C		C				
NPSP0200 E66429		Ginna Nuclear Power Plant PROCEDURE INDE			Thu 12/15/200)5 8:16:40 am Page 1 of 1
INPUT PARAMI	eters: Type: Pre	STATUS VALUE(S): EF, QU		5 YEARS ONLY :		
PRE	EMERGENCY PROCEDURE					
PROCEDURE	PROCEDURE TITLE		REV	EFFECT DATE	LAST NEX REVIEW REVI	GT EW ST
E-0	REACTOR TRIP OR SAFETY INJECTION	· · · · · · · · · · · · · · · · · · ·	039	12/15/2005 0	3/24/2003 03/24/	2008 EF
E-1	LOSS OF REACTOR OR SECONDARY COOLANT		033	12/15/2005 0	3/24/2003 03/24/	2008 🖅
E-2	FAULTED STEAM GENERATOR ISOLATION		012	11/17/2004 0	3/24/2003 03/24/	2008 EF
E-3	STEAM GENERATOR TUBE RUPTURE		038	11/17/2004 0	3/24/2003 03/24/	2008 EF
PRE	TOTAL: 4					

						4	
NPSP0200 E66429		Ginna Nuclear Power Plant PROCEDURE INDE			Thu	12/15/2005 8:10 Page	5:53 ar ∋ 1 of <i>'</i>
INPUT PARAMETER	S: TYPE: PRECA	STATUS VALUE(S) ; EF, QU	· · ·	5 YEARS ONL	Y:		
PRECA E	EMERGENCY CONTINGENCY ACTIONS P	ROC			a na si a si		
PROCEDURE	PROCEDURE TITLE		REV	EFFECT	LAST REVIEW	NEXT REVIEW	ST
ECA-0.0	LOSS OF ALL AC POWER		030	12/15/2005	03/24/2003	03/24/2008	F
ECA-0.1	LOSS OF ALL AC POWER RECOVERY WITHO	NUT SI REQUIRED	024	11/17/2004	03/24/2003	03/24/2008	F
ECA-0.2	LOSS OF ALL AC POWER RECOVERY WITH S	SI REQUIRED	017	12/15/2005	03/24/2003	03/24/2008	F
ECA-1.1	LOSS OF EMERGENCY COOLANT RECIRCUL	ATION	023	11/17/2004	03/24/2003	03/24/2008	F
ECA-1.2	LOCA OUTSIDE CONTAINMENT		006	05/30/2003	03/24/2003	03/24/2008	F
ECA-1.3	RESPONSE TO SUMP B BLOCKAGE		000	08/03/2005	08/03/2005	08/03/2010	F
ECA-2.1	UNCONTROLLED DEPRESSURIZATION OF BO	OTH STEAM GENERATORS	028	11/17/2004	03/24/2003	03/24/2008	F
ECA-3.1	SGTR WITH LOSS OF REACTOR COOLANT S	UBCOOLED RECOVERY DESIRED	027	11/17/2004	03/24/2003	03/24/2008	F
ECA-3.2	SGTR WITH LOSS OF REACTOR COOLANT S	ATURATED RECOVERY DESIRED	028	11/17/2004	03/24/2003	03/24/2008	F
ECA-3.3	SGTR WITHOUT PRESSURIZER PRESSURE C	ONTROL	031	11/17/2004	03/24/2003	03/24/2008	E

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NPSP0200 E66429		Ginna Nuclear Power Plant PROCEDURE INDE			Thu	12/15/2005 8:1 Page	7:07 an e 1 of 1
INPUT PARAMET	ers: Type: Pres	STATUS VALUE(S): EF, QU		5 YEARS ON	LY:	-	
PRES	EMERGENCY SUB-PROCEDURE	anny annihier an aitean leann ann ann an Allan àir a' ann an tha ann an tha ann an tha ann an ann an ann an ann					
PROCEDURE	PROCEDURE TITLE		REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ES-0.0	REDIAGNOSIS		010	05/01/1998	03/24/2003	03/24/2008	F
ES-0.1	REACTOR TRIP RESPONSE		023	11/17/2004	03/24/2003	03/24/2008	. F
ES-0.2	NATURAL CIRCULATION COOLDOWN		013	05/30/2003	03/24/2003	03/24/2008	F
ES-0.3	NATURAL CIRCULATION COOLDOWN WITH S	ITEAM VOID IN VESSÉL	010	11/17/2004	03/24/2003	03/24/2008	· · F
ES-1.1	SI TERMINATION		027	11/17/2004	03/24/2003	03/24/2008	EF
ES-1.2	POST LOCA COOLDOWN AND DEPRESSURIZ	ÁTION	027	11/17/2004	03/24/2003	03/24/2008	F
ES-1.3	TRANSFER TO COLD LEG RECIRCULATION		039	12/15/2005	03/24/2003	03/24/2008	F
ES-3.1	POST-SGTR COOLDOWN USING BACKFILL		016	11/17/2004	03/24/2003	03/24/2008	F
ES-3.2	POST-SGTR COOLDOWN USING BLOWDOWN	•	017	11/17/2004	03/24/2003	03/24/2008	F
ES-3.3	POST-SGTR COOLDOWN USING STEAM DUM	P	017	11/17/2004	03/24/2003	03/24/2008	F

NPSP0200 E66429	Ginna Nuclear Power P PROCEDURE INDE	liant A		Thu 1	2/15/2005 8:17 Page	':34 am 1 of 1
INPUT PARAMETER	RS: TYPE: PRFR STATUS VALUE(S): EF, QU).	5 YEARS ON	LY:		
PRFR F	FUNCTIONAL RESTORATION GUIDELINE PROC					
PROCEDURE	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
FR-C.1	RESPONSE TO INADEQUATE CORE COOLING	023	12/15/2005	03/24/2003	03/24/2008	. F
FR-C.2	RESPONSE TO DEGRADED CORE COOLING	021	12/15/2005	03/24/2003	03/24/2008	F
FR-C.3	RESPONSE TO SATURATED CORE COOLING	010	08/03/2005	03/24/2003	03/24/2008	F
FR-H.1	RESPONSE TO LOSS OF SECONDARY HEAT SINK	033	08/03/2005	03/24/2003	03/24/2008	F
FR-H.2	RESPONSE TO STEAM GENERATOR OVERPRESSURE	006	10/10/2003	03/24/2003	03/24/2008	, F
FR-H.3	RESPONSE TO STEAM GENERATOR HIGH LEVEL	008	11/17/2004	03/24/2003	03/24/2008	F
FR-H.4	RESPONSE TO LOSS OF NORMAL STEAM RELEASE CAPABILITIES	005	05/30/2003	03/24/2003	03/24/2008	F
FR-H.5	RESPONSE TO STEAM GENERATOR LOW LEVEL	010	11/17/2004	03/24/2003	03/24/2008	F
FR-1.1	RESPONSE TO HIGH PRESSURIZER LEVEL	017	01/07/2004	03/24/2003	03/24/2008	F
FR-1.2	RESPONSE TO LOW PRESSURIZER LEVEL	012	11/17/2004	03/24/2003	03/24/2008	F
FR-1.3	RESPONSE TO VOIDS IN REACTOR VESSEL	020	11/17/2004	03/24/2003	03/24/2008	F
FR-P.1	RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION	029	11/17/2004	03/24/2003	03/24/2008	F
FR-P.2	RESPONSE TO ANTICIPATED PRESSURIZED THERMAL SHOCK CONDITION	009	11/17/2004	03/24/2003	03/24/2008	F
FR-S.1	RESPONSE TO REACTOR RESTART/ATWS	018	12/15/2005	03/24/2003	03/24/2008	æ
FR-S.2	RESPONSE TO LOSS OF CORE SHUTDOWN	009	05/30/2003	03/24/2003	03/24/2008	F
FR-Z.1	RESPONSE TO HIGH CONTAINMENT PRESSURE	010	12/15/2005	03/24/2003	03/24/2008	F
FR-Z.2	RESPONSE TO CONTAINMENT FLOODING	005	05/30/2003	03/24/2003	03/24/2008	F
FR-7.3	RESPONSE TO HIGH CONTAINMENT RADIATION LEVEL	005	05/30/2003	03/24/2003	03/24/2008	F

ATT-3.0	ATTACHMENT CI/CVI	REV: 9 PAGE 1 of 4
Responsible Man	ager Rudulung Date 12-1	5-2005
NOTE: Locked v	alve key may be required for local or	perations.
 For each of close, take column. 	the following AUTO ISOL VALVES that the action directed in the ALTERNATE	will not ISOLATION
AUTO ISOL VALVE	ALTERNATE ISOL	
AOV-200A (L/D)	Close the following valves: (MCE	3)
	 AOV-371 HCV-133 	
AOV-200B(L/D)	Close the following valves: (MCE	3)
	 AOV-371 HCV-133 	
AOV-202(L/D)	Close the following valves: (MCE	3)
	 AOV-371 HCV-133 	
AOV-5392 (IA)	Close the following valves: (IB	BASEMENT CLEAN SIDE
	 V-5397 V-5410 	
AOV-371 (L/D)	Close the following valves: (NRE	IX ROOM)
	• V-204A • V-820	
MOV-313 (RCP Seal	L) Close the following valves: (SW [r	RF ROOM each rods])
	 V-315A V-315C 	
AOV-9227(Fire Sy	(Normally closed, and does <u>NOT</u> r	eceive CI signal
	• Close V-9225 (IB BASEMENT	CLEAN SIDE)
AOV-508 (RMW)	Close the following valves: (M	ICB)
	 AOV-548 AOV-550A AOV-550B 	

E	0P: ATT-3.0	TINE:	A	TTACHMENT	CI/CVI	REV: 9 PAGE 2 of 4
					·	
	AUTO ISOI	L VALVE	ALT	ERNATE IS	OL	
	AOV-5738	(S/G B/D)	Close	V- 5701	(IB BASEMENT CLEAN	N SIDE)
	AOV-5737	(S/G B/D)	Close	V-5702	(IB BASEMENT CLEAN	N SIDE)
	AOV-5735	(S/G Samp)	Close	V-5733	(SAMPLE HOOD)	
	AOV-5736	(S/G Samp)	Close	V-5734	(SAMPLE HOOD)	
	SOV-921 (H	H2 Mon)	Close	V-928A	(INSIDE A H2 MON H PUMP AREA, key #3	PNL, AFW 38 required)
	SOV-922 (H	H2 Mon)	Close	V-928 B	(INSIDE A H2 MON H PUMP AREA, key #3	PNL, AFW 38 required)
	SOV-923 (H	H2 Mon)	Close	V-929A	(INSIDE B H2 MON H PUMP AREA, key #3	PNL, AFW 38 required)
	SOV-924 (H	12 Mon)	Close	V-929B	(INSIDE B H2 MON H PUMP AREA, key #3	PNL, AFW 38 required)
	AOV-539 (1	PRT gas)	Close	V-546	(BY SFP HX A)	
	AOV-1789	(RCDT to gas	anal) Close	V-1655	(BY SFP HX A)	
	AOV-1786	(RCDT/VH)	Close	AOV-1787	(MCB)	
	AOV-1787 ((RCDT/VH)	Close	AOV-1786	(MCB)	
	AOV-1721 ((RCDT Pumps)	Close	the foll	owing valves:	
		•	• 2 • 2 • 7	AOV-1003A AOV-1003B V-1722	(WASTE PANEL) (WASTE PANEL) (AB SUB-BASEMENT NORMALLY LOCKEI	CLOSED)
	AOV-1003A	A(RCDT Pump 1	A) Clo	ose AOV-1	721 (WASTE PANEL)	
	AOV-1003E	B(RCDT Pump H	3) Clo	ose AOV-1	721 (WASTE PANEL)	
	AOV-1597 ((CNMT rad)	Clo	ose V-159	6 (IB BASEMENT CI	LEAN SIDE)
	AOV-1598 ((CNMT rad)	Clo	ose AOV-1	599 (MCB)	
	AOV-1599 ((CNMT rad)	Clo	ose AOV-1	598 (MCB)	

EOP: TITLE: REV: 9 ATT-3.0 ATTACHMENT CI/CVI PAGE 3 of 4 AUTO ISOL VALVE ALTERNATE ISOL MOV-813 (CCW) Locally close MOV-813 (AB Int Level). IF MOV-813 can not be closed, THEN perform the following: 1) Direct AO with locked valve key to unlock and close breaker for MOV-817 (MCC D POS 10C) 2) Stop both RCPs Manually close MOV-817 (MCB). 3) IF MOV-817 will not close, THEN direct AO to locally close MOV-817 (AB INT LEVEL). Close V-815A (AB INT LEVEL) MOV-814 (CCW) AOV-1723 (CNMT sump) Perform the following: 1) Place BOTH CNMT Sump Pumps in PULL-STOP (MCB REAR) 2) Close AOV-1728 (WASTE PANEL) AOV-1728 (CNMT sump) Perform the following: 1) Place BOTH CNMT Sump Pumps in PULL-STOP (MCB REAR) Close AOV-1723 2) (WASTE PANEL) AOV-951 (PRZR STM samp) Close AOV-966A (MCB) AOV-953 (PRZR Liq samp) Close AOV-966B (MCB) AOV-955(Hot Leg samp) Close AOV-966C (MCB) AOV-959 (RHR samp) (fuses normally pulled) Close V-957 (PRIMARY SAMPLE ROOM, normally closed) AOV-966A(PRZR STM samp) Close V-956F (SAMPLE HOOD) AOV-966B(PRZR Liq samp) Close V-956E (SAMPLE HOOD) AOV-966C(Hot Leg samp) Close V-956D (SAMPLE HOOD) AOV-846 (Accum N2) Close the following valves: (BY SFP HX A) V-8629 V-944A

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ATT-3.0		ATTAC	CHMENT CI/C	.VI	PAGE 4 of 4
		<u> </u>			
<u>AUTO ISOI</u>	L VALVE		ALTERNAT	<u>'E ISOL</u>	
AOV-8418	(DI Water)	Close	V-5021 (IE	BASEMENT CLEAN	SIDE)
AOV-7971	(Mini-purge)	Close	AOV-7970	(MCB REAR)	
AOV-7970	(Mini-purge)	Close	AOV-7971	(MCB REAR)	
AOV-7445	(Mini-purge)	Close	AOV-7478	(MCB REAR)	
AOV-7478	(Mini-purge)	Close	AOV-7445	(MCB REAR)	
AOV-5879	(CNMT purge)	N/A	FLANGED		
AOV-5869	(CNMT purge)	N/A	FLANGED		
SOV-1B (H2 red (norma)	(10214S1) comb) lly de-energized	Close	≥ V-1080A	(SAMPLE HOOD, NORMALLY LOCKE	D CLOSED)
SOV-2B (1 (H2 re (normal	0214S) ecomb) ly de-energized	Close	e V-1080A	(SAMPLE HOOD, NORMALLY LOCK	ED CLOSED)
SOV-3B (1 (H2 rec (normal	.0211S1) comb) .ly de-energized	Close	e V-1076B	(SAMPLE HOOD, NORMALLY LOCKE	D CLOSED)
SOV-5B (1 (H2 rec (normal	0213S1) comb) ly de-energized	Close	è V−1084B	(SAMPLE HOOD, NORMALLY LOCKE	D CLOSED)
SOV-1A (1 (H2 rec (normal	.0215S1) comb) ly de-energized	Close	e V-1080A	(SAMPLE HOOD, NORMALLY LOCKE	D CLOSED)
SOV-2A (1 (H2 rec (normal	.0215S) comb) ly de-energized	Close	e V-1080A	(SAMPLE HOOD, NORMALLY LOCKE	D CLOSED)
SOV-3A (1 (H2 rec (normal	.0205S1) comb) ly de-energized	Close	e V-1076A	(IB BASEMENT CL NORMALLY LOCKE	EAN SIDE, D CLOSED)
SOV-5A (1 (H2 rec	0209S1) comb)	Close	• V-1084A	(IB BASEMENT C NORMALLY LOCKE	LEAN SIDE, D CLOSED)

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GINNA STATION CONTROLLED COPY NUMBER

Rel RÉSPONSIBLE MANAGER

12-15-2005 EFFECTIVE DATE

CATEGORY 1.0

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REVIEWED BY:_

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E-0	REACTOR TRIP OR SAFETY INJECTION	PAGE	2 of	29

A. PURPOSE - This procedure provides actions to verify proper response of the automatic protection systems following manual or automatic actuation of a reactor trip or safety injection and to assess plant conditions, and identify the appropriate recovery procedure.

B. ENTRY CONDITIONS/SYMPTOMS

- 1. The following are symptoms that require a reactor trip, if one has not occurred:
 - Any plant parameter reaches a reactor trip setpoint and logic as listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
 - o Operator discretion.
- 2. The following are symptoms of a reactor trip:
 - o Any First Out reactor trip annunciator lit.
 - o A rapid decrease in core neutron level as indicated by nuclear instrumentation.
 - o MRPI indicates all control and shutdown rods on bottom.
 - o Reactor trip breakers indicate open.
- 3. The following are symptoms that require a reactor trip and safety injection, if one has not occurred:
 - Any plant parameter reaches the Safety Injection setpoint and logic listed in procedure P-1, REACTOR CONTROL AND PROTECTION SYSTEM.
 - o Operator discretion.
- 4. The following are symptoms of a reactor trip and safety injection:
 - o Any SI annunciator lit.
 - o Safeguards sequencing started.

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STEP AC	TION/EXPECTED RESPONSE		RESPONSE NOT OBTAI	INED
	. <u>.</u> .			
4 Check i	f SI is Actuated:			
a. Any S	SI Annunciator - LIT		a. <u>IF</u> any of the fo conditions are m manually actuate	llowing et. <u>THEN</u> SI and CI:
			o PRZR pressure 1750 psig	less than
			-OR-	
			o Steamline pre 514 psig	ssure less than
			-OR-	
			o CNMT pressure 4 psig	greater than
			- OR -	
			o SI sequencing	started
			- OR -	
			o Operator dete required	rmines SI
			<u>IF</u> SI 1s <u>NOT</u> req to ES-0.1, REACT RESPONSE, Step 1	uired, <u>THEN</u> go OR TRIP
b. SI se STARI	quencing – BOTH TRAINS ED.		b. Manually actuate	SI and CI.
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7 Verify CNMT Spray Not Required:	Verify CNMT spray initiated.
o Annunciator A-27, CNMT SPRAY -	<u>IF</u> CNMT spray <u>NOT</u> initiated, <u>THEN</u> perform the following:
o CNMT pressure – LESS THAN 28 PSIG	a. Depress manual CNMT spray pushbuttons (2 of 2).
	b. Ensure CNMT spray pumps running. <u>IF</u> no CNMT spray pump available, <u>THEN</u> go to Step 8.
	c. Ensure CNMT spray pump discharge valves open for operating pump(s).
	o CNMT spray pump A:
	MOV-860AMOV-860B
	o CNMT spray pump B:
	MOV-860CMOV-860D
	d. Verify NaOH flow (FI-930)
	<u>IF</u> NaOH flow <u>NOT</u> indicated, <u>THEN</u> place switches for NaOH tank outlet valves to OPEN.
· · · · · · · · · · · · · · · · · · ·	 AOV-836A AOV-836B
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8 Check If Main Steamlines Should Be Isolated:	· · · · · · · · · · · · · · · · · · ·
a. Any MSIV – OPEN	a. Go to Step 9.
b. Check CNMT pressure – LESS THAN 18 PSIG	b. Ensure BOTH MSIVs closed and go to Step 9.
c. Check if ANY main steamlines should be isolated:	c. Go to Step 9.
o Low Tavg (545°F) AND high steam flow (0.4x10 ⁶ lb/hr) from either S/G	
- OR -	
o High-High steam flow (3.6x10 ⁶ lb/hr) from either S/G	
d. Verify MSIV closed on the affected S/G(s)	d. Manually close valves.
9 Verify MFW Isolation:	
a. MFW pumps - TRIPPED	a. Perform the following:.
	 Manually close MFW pump discharge valves and trip MFW pumps.
	2) Continue with Step 9c. <u>WHEN</u> both MFPs are tripped, <u>THEN</u> perform Step 9b.
b. Depress MANUAL pushbuttons for A and B S/G MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.	
c. S/G blowdown and sample valves - CLOSED	c. Place S/G blowdown and sample valve isolation switch to CLOSE.

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13 Check CCW System Status:	
a. Verify CCW pump - AT LEAST ONE RUNNING	a. <u>IF</u> offsite power available, <u>THEN</u> manually start one CCW pump.
b. Place switch for excess letdown AOV-310 to CLOSE	
c. Place switch for CCW from excess letdown, AOV-745 to CLOSE	
14 Verify SI And RHR Pump Flow:	
a. SI flow indicators – CHECK FOR FLOW	a. <u>IF</u> RCS pressure less than 1400 psig, <u>THEN</u> manually start pumps and align valves. <u>IF NOT</u> , <u>THEN</u> go to Step 15.
b. RHR flow indicator – CHECK FOR FLOW	b. <u>IF</u> RCS pressure less than 140 psig, <u>THEN</u> manually start pumps and align valves. <u>IF NOT</u> , <u>THEN</u> go to Step 15.
15 Verify AFW Valve Alignment:	Manually align valves as necessary.
a. AFW flow – INDICATED TO BOTH S/G(s)	
b. AFW flow from each MDAFW pump – LESS THAN 230 GPM	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
*16 Moni	tor Heat Sink:	
a. Ci Gi Ci	neck S/G narrow range level – REATER THAN 7% [25% adverse IMT] in any S/G	 a. Perform the following: Verify total AFW flow - GREATER THAN 200 GPM <u>IF</u> total AFW is less than 200 gpm, <u>THEN</u> manually start pumps and align valves to establish greater than 200 gpm AFW flow. <u>IF</u> AFW flow greater than 200 gpm can <u>NOT</u> be established, <u>THEN</u> go to FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Step 1. 2) Go to Step 17.
b. Ch BC	neck S/G narrow range level – OTH S/G LESS THAN 50%	b. Secure AFW flow to any S/G with level above 50%.
c. Co S/ 79	ontrol feed flow to maintain G narrow range level between [25% adverse CNMT] and 50%.	
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7 Verify SI Pump And RHR Pump Emergency Alignment:	
a. RHR pump discharge to Rx vessel deluge – OPEN	a. Ensure at least one valve open.
• MOV-852A • MOV-852B	
b. Verify SI pump C - RUNNING	b. Manually start pump on available bus.
c. Verify SI pump A – RUNNING	c. Perform the following:
	 Ensure SI pumps B and C running. <u>IF</u> either pump <u>NOT</u>, running, <u>THEN</u> go to Step 17e.
	 Ensure SI pump C aligned to discharge line A:
	o MOV-871A open
	o MOV-871B closed
	3) Go to Step 18.
d. Verify SI pump B – RUNNING	d. Perform the following:
	 Ensure SI pumps A and C running. <u>IF</u> either pump <u>NOT</u>, running, <u>THEN</u> go to Step 17e.
	 Ensure SI pump C aligned to discharge line B:
	o MOV-871B open
	o MOV-871A closed
	3) Go to Step 18.
e. Verify SI pump C discharge valves - OPEN	e. Manually open valves as necessary.
• MOV-871A • MOV-871B	

PAGE 13 of RESPONSE NOT OBTAINED
RESPONSE NOT OBTAINED
RESPONSE NOT OBTAINED
· · · · · · · · · · · · · · · · · · ·
HEN MANUAL ACTION MAY BE REQUIRED O ATT-8.5, ATTACHMENT LOSS OF
<u>IF</u> CCW to a RCP is lost, <u>THEN</u> perform the following:
a. Stop affected RCPs.
b. Reset SI.
c. Verify adequate power available to run one charging pump (75 kw).
d. Start one charging pump at minimum speed for seal injection.
e. Adjust HCV-142 to establish either of the following:
o Labyrinth seal D/P to each RCP greater than 15 inches of water.
-OR-
o RCP seal injection flow to each RCP greater than 6 gpm.
f. <u>IF</u> large imbalance in seal injection flow exists, <u>THEN</u> consider local adjustment of V-300A and V-300B.

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19 Check If TDAFW Pump Can Be Stopped:	
a. Both MDAFW pumps - RUNNING	a. Go to Step 20.
b. PULL STOP TDAFW pump steam supply valves	
 MOV-3504A MOV-3505A 	
20 Monitor RCS Tavg - STABLE AT OR TRENDING TO 547°F	<u>IF</u> temperature less than 547°F and decreasing, <u>THEN</u> perform the following:
	a. Stop dumping steam.
	b. Ensure reheater steam supply valves are closed.
	c. <u>IF</u> cooldown continues, <u>THEN</u> control total feed flow greater than 200 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.
	d. <u>WHEN</u> S/G level greater than 7% [25% adverse CNMT] in one S/G, <u>THEN</u> limit feed flow to that required to maintain level in at least one S/G.
	e. <u>IF</u> cooldown continues, <u>THEN</u> close both MSIVs.
	<u>IF</u> temperature greater than 547°F and increasing, <u>THEN</u> dump steam to stabilize and slowly decrease
	temperature to 54/°F.

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21 Check PRZR PORVs And Spray Valves:	
a. PORVs - CLOSED	a. <u>IF</u> PRZR pressure less than 2335 psig, <u>THEN</u> manually close PORVs.
	<u>IF</u> any valve can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve.
	 MOV-516 for PCV-430 MOV-515 for PCV-431C
	<u>IF</u> block valve can <u>NOT</u> be closed, <u>THEN</u> go to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, Step 1.
b. Auxiliary spray valve (AOV-296) - CLOSED	b. Manually close auxiliary spray valve. <u>IF</u> valve can <u>NOT</u> be closed, <u>THEN</u> perform the following:
	 Decrease charging pump flow to minimum.
	 Ensure charging valve to loop B cold leg open (AOV-294).
c. Check PRZR pressure – LESS THAN 2260 PSIG	c. Continue with Step 22. <u>WHEN</u> pressure less than 2260 psig. <u>THEN</u> do Step 21d.
d. Normal PRZR spray valves - CLOSED	d. Place controllers in MANUAL at
 PCV-431A PCV-431B 	closed, <u>THEN</u> stop associated RCP(s).

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22 Monitor RCP Trip Criteria:	
a. RCP status - ANY RCP RUNNING	a. Go to Step 23.
b. SI pumps - AT LEAST TWO RUNNING	b. Go to Step 23.
c. RCS pressure minus maximum S/G pressure – LESS THAN 175 psig [400 psig adverse CNMT]	c. Go to Step 23.
d. Stop both RCPs	
23 Verify CREATS Actuation:	
a. At least one damper in each flowpath - CLOSED	a. Depress both CREATS actuation pushbuttons
 Normal Supply Air Normal Return Air Lavatory Exhaust Air 	 CONTROL ROOM MANUAL ISOLATION A CONTROL ROOM MANUAL ISOLATION B
b. CREATS fans – BOTH RUNNING	b. Start both CREATS fans
24 Check If S/G Secondary Side Is Intact:	<u>IF</u> any S/G pressure decreasing in an uncontrolled manner <u>OR</u>
o Pressure in both S/Gs – STABLE OR INCREASING	to E-2, FAULTED STEAM GENERATOR ISOLATION, Step 1.
o Pressure in both S/Gs – GREATER THAN 110 PSIG	

Ē	OP:	TITLE:		REV: 39
	E-0	REACTOR TRIP OR S	SAFETY INJECTION	PAGE 17 of 29
-		CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]
				.
	25 Check	If S/G Tubes Are Intact:	Go to E-3, STEAM GENERA RUPTURE, Step 1.	TOR TUBE
	o Air (R-1	ejector radiation monitors 5 or R-15A) – NORMAL	-	
	o S/G (R-1	blowdown radiation monitor 9) - NORMAL		
	o Stea (R-3	mline radiation monitors 1 and R-32) - NORMAL		·
	26 Check	If RCS Is Intact:	Go to E-1, LOSS OF REAC SECONDARY COOLANT, Step	TOR OR
	a. CNMT NORM	area radiation monitors – AL		
	• R- • R-	2 7		
	• R-	30		
	Ь. СNMT 0.5	pressure – LESS THAN PSIG		
	c. CNMT 8 IN	sump B level – LESS THAN CHES		
	d. CNMT	sump A level		
	o L	evel - STABLE		
	o Ai Si	nnunciator C-19, CONTAINMENT JMP A HI LEVEL – EXTINGUISHED		
		· · · · · · · · · · · · · · · · · · ·		

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TITLE:

REACTOR TRIP OR SAFETY INJECTION

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27 Check If SI Should Be Terminated:	
a. RCS pressure: o Pressure – GREATER THAN 1625 PSIG	a. Do <u>NOT</u> stop SI pumps. Go to Step 28.
 o Pressure - STABLE OR INCREASING b. RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIG-1.0, FIGURE MIN SUBCOOLING 	b. Do <u>NOT</u> stop SI pumps. Go to Step 28.
c. Secondary heat sink: o Total feed flow to S/Gs - GREATER THAN 200 GPM -OR-	c. <u>IF</u> neither condition met, <u>THEN</u> do <u>NOT</u> stop SI pumps. Go to Step 28.
o Narrow range level in at least one S/G - GREATER THAN 7%	
d. PRZR level - GREATER THAN 10%	d. Do <u>NOT</u> stop SI pumps. Perform the following:
	1) <u>IF</u> normal PRZR spray available, <u>THEN</u> try to stabilize RCS pressure with PRZR spray.
	2) Go to Step 28.
e. Go to ES-1.1, SI TERMINATION, Step 1.	

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E	DP:	TITLE:					REV:	39		
	王-0	REACTOR	TRIP	OK	SAFETI	INJECTION	PAGE	19	of	29
		<u>.</u>								
				Ì						
Γ	STEP A	CTION/EXPECTED RESI	PONSE			ESPONSE NOT OBTAINI	SD			
	<u>NOTE</u> : 0 C (C	onditions should b Refer to EPIP-1.0, CLASSIFICATION).	e eval GINNA	uated STAT	for Si 10N EVH	te Contingency Rep INT EVALUATION AND	orting			
	0 T A	he Critical Safety PPENDIX 1.	Funct	ion R	ed Path.	n Summary is availa	ble in			
	28 Initia Critic Status	te Monitoring o: al Safety Funct: Trees	f ion							
	*29 Monito	r S/G Levels:								
	a. Narr THAN	ow range level - G 7%	REATER		а.	Maintain total fee than 200 gpm until level greater than least one S/G.	d flow g narrow 7% in a	reate range t	er e	
	b. Cont narr and	rol feed flow to ma ow range level bety 50%	aintai ween 1	n 7%	Ъ.	<u>IF</u> narrow range le continues to incre uncontrolled manne E-3, STEAM GENERAT RUPTURE, Step 1.	vel in a ase in a r, <u>THEN</u> OR TUBE	ny Sa n go to	'G >	
	30 Check : Levels	Secondary Radia - NORMAL	tion		Go RUI	to E-3, STEAM GENE TURE, Step 1.	RATOR TU	BE		
	o Stea (R-3	mline radiation mon 1 and R-32)	nitor							
	o Disp stea	atch AO to locally mline radiation	check							-
	o Requ acti	est RP sample S/Gs vity	for							

[[EOP: TITLE:	BEV· 39	-
	E-0 REACTOR TRIP OR S.	AFETY INJECTION PAGE 20 c)f
		·	-
ſ	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *	r 1 14
	IF OFFSITE POWER IS LOST AFTER SI RESET. TO RESTART SAFEGUARDS EQUIPMENT. (REFER OFFSITE POWER)	THEN MANUAL ACTION MAY BE REQUIRED TO ATT-8.5, ATTACHMENT LOSS OF	
	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * *	r *
	31 Reset SI		
	32 Reset CI:		
	a. Depress CI reset pushbutton		
	b. Verify annunciator A-26, CNMT	b. Perform the following:	
	TROTATION & RVIINGOIRHED	1) Reset SI.	
		2) Depress CI reset pushbutton.	
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	EOP: TILE: E-0 REACTOR TRIP OR SAFETY INJECTION PAGE 21			
	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED		
	33 Verify Adequate SW Flow:			
	a. At least three SW pumps - RUNNING	a. Manually start SW pumps as power supply permits (257 kw each).		
		<u>IF</u> less than three pumps running, <u>THEN</u> ensure SW isolation.		
		<u>IF NO</u> SW pumps running, <u>THEN</u> perform the following:		
		 Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton. 		
j		2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.		
		<u>IF</u> only one SW pump running, <u>THEN</u> refer to AP-SW.2, LOSS OF SERVICE WATER.		
	b. Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)			
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EOP:	

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REACTOR TRIP OR SAFETY INJECTION

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E-0	REACTOR TRIP OR	SAFETY INJECTION	PAGE 25 of 29
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STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
· * * * * * *		* * * * * * * * * * * * * * *	* * * * * * *
	CAUI	<u>'ION</u>	
RCS PRESSU UNCONTROLL MANUALLY R	RE SHOULD BE MONITORED. IF ED MANNER TO LESS THAN 250 F ESTARTED TO SUPPLY WATER TO	RCS PRESSURE DECREASES IN AN SIG, THEN THE RHR PUMPS MUST THE RCS.	BE
* * * * * *	* * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * *	* * * * * * *
*37 Monito Be Sto	r If RHR Pumps Should pped:		
a. Chec	k RCS pressure:		
1) P 2	ressure – GREATER THAN 50 PSIG	1) Go to E-1, LOSS OF SECONDARY COOLANT,	REACTOR OR Step 1.
2) P I	ressure – STABLE OR NCREASING	2) Go to Step 38.	
b. Stop AUTO	both RHR pumps and place in	l .	
38 Check To Cha	Normal Power Available rging Pumps:	Verify adequate emergenc capacity to run charging (75 kw each).	y D/G , pumps
o Bus CLOS	14 normal feed breaker – ED	<u>IF NOT, THEN</u> evaluate if	CNMT
o Bus CLOS	16 normal feed breaker – ED	RECIRC fans can be stopp to ATT-4.0, ATTACHMENT C FANS).	ed (Refer NMT RECIRC

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	REV: 39
E-0 REACTOR TRIP OR SA	PAGE 26 of 2
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
39 Check If Charging Flow Has Been Established:	
a. Charging pumps - ANY RUNNING	a. Perform the following:
	 <u>IF</u> CCW flow is lost to any RCP thermal barrier <u>OR</u> any RCP #1 seal outlet temperature offscale high, <u>THEN</u> dispatch A0 to close seal injection needle valve(s) to affected RCP:
	 V-300A for RCP A V-300B for RCP B
	 Ensure HCV-142 open, demand at 0%.
b. Charging pump suction aligned to	b. Manually align valves.
o LCV-112B - OPEN	<u>IF</u> LCV-112B can <u>NOT</u> be opened, <u>THEN</u> dispatch AO to locally open V-358 manual charging nump
o LCV-112C - CLOSED	suction from RWST (charging pump room).
	<u>IF</u> LCV-112C can <u>NOT</u> be closed, <u>THEN</u> perform the following:
	 Direct AO to locally open V-358, manual charging pump suction from RWST (Charging Pump Room).
	2) Verify charging pump A <u>NOT</u> running and place in PULL STOP.
	3) <u>WHEN</u> V-358 open, <u>THEN</u> direct AO to close V-268 to isolate charging pumps B and C from VCT (charging pump room).
c. Start charging pumps as necessary and adjust charging flow to restore PRZR level	
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STE	_ ,					-			
	▫┝─┥	ACTION	EXPECTED RESPONSE		RESPONS	E NOT OBTA	INED	 	-
				· .	L				
40	Main Betwo 2235	tain PF een 180 PSIG	RZR Pressure 00 PSIG And						
	o Re	set PRZI	R heaters	1. ar - 1					
	o Us	e norma	1 PRZR spray						
			····						
			·						
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REACTOR TRIP OR SAFETY INJECTION

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٠ EOP: TITLE: REV: 39 E-0 REACTOR TRIP OR SAFETY INJECTION PAGE 29 of 29 STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 42 Return to Step 20 -END-

EOP:

E-0 APPENDIX LIST

TITLE

- 1) RED PATH SUMMARY
- 2) FIGURE MIN SUBCOOLING (FIG-1.0)
- 3) ATTACHMENT CI/CVI (ATT-3.0)
- 4) ATTACHMENT SD-1 (ATT-17.0)
- 5) ATTACHMENT CNMT RECIRC FANS (ATT-4.0)
- 6) ATTACHMENT D/G STOP (ATT-8.1)
- 7) ATTACHMENT SI/UV (ATT-8.4)
- 8) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 9) ATTACHMENT LOSS OF OFFSITE POWER (ATT-8.5)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)

11) FOLDOUT

EOP:

RED PATH SUMMARY

- a. SUBCRITICALITY Nuclear power greater than 5%
- b. CORE COOLING Core exit T/Cs greater than 1200°F -OR-Core exit T/Cs greater than 700°F AND RVLIS level (no RCPs) less than 52% [55% adverse CNMT]
- c. HEAT SINK Narrow range level in all S/Gs less than 7%
 [25% adverse CNMT] AND total feedwater flow
 less than 200 gpm
- d. INTEGRITY Cold leg temperatures decrease greater than 100°F in last 60 minutes <u>AND</u> RCS cold leg temperature less than 285°F
- e. CONTAINMENT CNMT pressure greater than 60 psig

E	 0

FOLDOUT PAGE

1. <u>RCP TRIP CRITERIA</u>

TITLE:

IF BOTH conditions listed below occur, THEN trip both RCPs:

- a. SI pumps AT LEAST TWO RUNNING
- b. RCS pressure minus maximum S/G pressure LESS THAN 175 PSIG [400 psig adverse CNMT]

2. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

3. AFW SUPPLY SWITCHOVER CRITERION

<u>IF</u> CST level decreases to less than 5 feet, <u>THEN</u> switch to alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

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GINNA STATION CONTROLLED COPY NUMBER 23

MANAGER RESPONSIB

12-15-2005 EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:_____

EOP:		TITLE:	REV: 33
E-:	1	LOSS OF REACTOR OR SECONDARY COOLANT	PAGE 2 of 23
			· · ·
Α.	PURP a lo	OSE - This procedure provides actions to recovers of reactor or secondary coolant.	er from
в.	ENTR	Y CONDITIONS/SYMPTOMS	
	1. 1	ENTRY CONDITIONS - This procedure is entered f	rom:
	 	E-0, REACTOR TRIP OR SAFETY INJECTION, and RESPONSE TO LOSS OF SECONDARY HEAT SINK, will PORV is stuck open and its block valve can closed.	FR-H.1, nen a PRZR not be
]	D. E-0, REACTOR TRIP OR SAFETY INJECTION, with the following symptoms: high containment high containment pressure, or high contain recirculation sump level.	n any of radiation, ment
	(C. E-0, REACTOR TRIP OR SAFETY INJECTION, ECA- UNCONTROLLED DEPRESSURIZATION OF BOTH STEAM and FR-H.1, RESPONSE TO LOSS OF SECONDARY M when RCS pressure is less than the shutoff of the RHR pumps or is decreasing.	-2.1, 4 GENERATORS, HEAT SINK, head pressur
	(d. ES-1.1, SI TERMINATION, and FR-I.2, RESPON PRESSURIZER LEVEL, if SI has to be reinitia	SE TO LOW ated.
	e	e. E-2, FAULTED STEAM GENERATOR ISOLATION, af identification and isolation of a faulted S	ter 5/G.
	1	E. ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH after normal injection mode conditions are	H SI REQUIRED established.
	Ģ	J. ECA-1.2, LOCA OUTSIDE CONTAINMENT, when a l containment is isolated.	LOCA outside
		FR-C.1, RESPONSE TO INADEQUATE CORE COOLING RESPONSE TO DEGRADED CORE COOLING, after contained been reestablished.	G, and FR-C.2 pre cooling
		FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT secondary heat sink has been reestablished PORVs are closed.	SINK, after and all PRZR

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E-1

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	· · · · · · · · · · · · · · · · · · ·	
<u>NOTE</u> :	o FOLDOUT page should be open AND mo	onitored periodically.
	o Critical Safety Function Status Tr to Appendix 1 for Red Path Summary	rees should be monitored. (Refer y.)
	o Conditions should be evaluated for (Refer to EPIP-1.0, GINNA STATION CLASSIFICATION).	r Site Contingency Reporting EVENT EVALUATION AND
	o Adverse CNMT values should be used greater than 4 psig or CNMT radiat	l whenever CNMT pressure is tion is greater than 10 ⁺⁰⁵ R/hr.
1 Mo	onitor RCP Trip Criteria:	
٤.	. RCP status - ANY RCP RUNNING	a. Go to Step 2.
b.	. SI pumps - AT LEAST TWO RUNNING	b. Go to Step 2.
c.	. RCS pressure minus maximum S/G pressure – LESS THAN 175 psig [400 psig adverse CNMT]	c. Go to Step 2.
đ.	Stop both RCPs	
* 2 Ch Th	neck If RHR Should Be	
а.	Check RWST level - LESS THAN 70%	a. Continue with Step 3. <u>WHEN</u> RWST level less than 70%, <u>THEN</u> perform step 2b.
b.	Direct an AO to perform ATT-14.7, ATTACHMENT ADJUST RHR FLOW to locally adjust HCV-624 and HCV-625.	b. Manually adjust RHR Hx outlet valves equally to reduce flow to less than 1500 gpm per operating pump
		• RHR Hx A, HCV-625 • RHR Hx B, HCV-624

EOP:	
	E-1

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LOSS OF REACTOR OR SECONDARY COOLANT

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3 Chec Is o P	ck If S/G Secondary Side Intact: Pressure in both S/Gs – STABLE OR INCREASING	<u>IF</u> any S/G pressure decreasing in an uncontrolled manner <u>OR</u> completely depressurized, <u>THEN</u> verify faulted S/G isolated unless needed for RCS cooldown:
o P I	Pressure in both S/Gs – GREATER THAN 110 PSIG	 Steamlines Feedlines IF NOT THEN so to E-2 FAULTED
<u>NOTE</u> : T	DAFW pump flow control AOVs may dr	STEAM GENERATOR ISOLATION, Step 1.
* 4 Moni	itor Intact S/G Levels:	
a. N T	arrow range level - GREATER HAN 7% [25% adverse CNMT]	a. Maintain total feed flow greate than 200 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.
b. C n [ontrol feed flow to maintain arrow range level between 17% 25% adverse CNMT] and 50%	b. <u>IF</u> narrow range level in any S/ continues to increase in an uncontrolled manner, <u>THEN</u> go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.
* 5 Moni Radi	tor If Secondary ation Levels Are Normal	<u>IF</u> steamline radiation monitors <u>NO</u> available, <u>THEN</u> dispatch AO to locally check steamline radiation.
0 S	teamline radiation monitor R-31 and R-32)	<u>IF</u> abnormal radiation levels detected in any S/G, <u>THEN</u> go to
o R a	equest RP sample S/Gs for ctivity	E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.

EOP: TITLE:	REV: 33
E-1 LOSS OF REACTOR OR SE	CONDARY COOLANT PAGE 5 of 23
<u>ante tra de stanta de se</u>	
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
CAUTION	<u>I</u>
IF ANY PRZR PORV OPENS BECAUSE OF HIGH PF AFTER PRESSURE DECREASES TO LESS THAN 233	ZR PRESSURE, IT SHOULD BE CLOSED 5 PSIG (REFER TO STEP 6B).
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
* 6 Monitor PRZR PORV Status:	
a. Power to PORV block valves - AVAILABLE	a. Restore power to block valves unless block valve was closed to isolate an open PORV:
	 MOV-515, MCC D position 6C MOV-516, MCC C position 6C
b. PORVs - CLOSED	b. <u>IF</u> PRZR pressure less than 2335 psig, <u>THEN</u> manually close PORVs.
	<u>IF</u> any PORV can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve. <u>IF</u> block valve can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally check breaker.
	 MOV-515, MCC D position 6C MOV-516, MCC C position 6C
c. Block valves – AT LEAST ONE OPEN	c. Open one block valve unless it was closed to isolate an open PORV.

EOP: TITLE:	REV: 33
E-1 LOSS OF REACTOR OR	SECONDARY COOLANT PAGE 6 of
SIEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *
CAUTI	<u>ION</u> -
IF OFFSITE POWER IS LOST AFTER SI RESET TO RESTART SAFEGUARDS EQUIPMENT. (REFE OFFSITE POWER)	F, THEN MANUAL ACTION MAY BE REQUIRED SR TO ATT-8.5, ATTACHMENT LOSS OF
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
7 Reset SI	
8 Posot CT.	
o Reset CI:	
a. Depress CI reset pushbutton	
b. Verify annunciator A-26, CNMT ISOLATION - EXTINGUISHED	b. Perform the following:
	1) Reset SI.
	2) Depress CI reset pushbutton.
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EOP: TITLE:	REV: 33
E-I LOSS OF REACTOR OR SECONDARY	PAGE 7 of 23
STEP ACTION/EXPECTED RESPONSE RESPONSE	SE NOT OBTAINED
9 Verify Adequate SW Flow:	
a. Check at least two SW pumps - a. Manua RUNNING suppl	ally start SW pumps as power y permits (257 kw each).
<u>IF</u> le runni follo	ess than two SW pumps .ng, <u>THEN</u> perform the owing:
1) Er	nsure SW isolation.
2) <u>IH</u> pe	<u>NO</u> SW pumps running, <u>THEN</u> erform the following:
a)	Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
b)	Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.
3) <u>II</u> <u>TH</u> OF	only one SW pump running, <u>IEN</u> refer to AP-SW.2, LOSS SERVICE WATER.
b. Dispatch AO to establish normal shutdown alignment (Refer to ATT-17.0, ATTACHMENT SD-1)	
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•	EOP: TITLE:		REV: 33
•	E-1 LOSS OF REACTOR OR SE	PAGE 8 of 23	
	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]
	10 Establish IA to CNMT:		
	a. Verify non-safeguards busses energized from offsite power	a. Perform the followin	g:
	o Bus 13 normal feed – CLOSED	1) Close non-salegua breakers:	rds dus tie
	- OR -	• Bus 13 to Bus 1 • Bus 15 to Bus 1	4 tie 6 tie
	o Bus 15 normal feed – CLOSED	2) Verify adequate e capacity to run a compressors (75 k	mergency D/G ir w each).
		<u>IF NOT, THEN</u> perf following:	orm the
J		o Start diesel a compressor (re ATT-11.2, ATTA DIESEL AIR COM	ir fer to CHMENT PRESSOR
-		- OR -	
		o Evaluate if CN fans should be (Refer to ATT- ATTACHMENT CNM FANS).	MT RECIRC stopped 4.0, T RECIRC
		3) <u>WHEN</u> bus 15 resto reset control roo	red, <u>THEN</u> m lighting.
	b. Check SW pumps - AT LEAST TWO PUMPS RUNNING	b. Perform the followin	g:
-		 Restore IA using compressor <u>OR</u> die compressor (refer ATT-11.2, ATTACHM AIR COMPRESSOR) 	service air sel air to ENT DIESEL
		2) Go to step 10d.	
\cup	This Step continued on the next page.		

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ST	EP -	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	(S [.]	tep 10 continued from previous page	ge)
	c.	Verify turbine building SW isolation valves - OPEN	c. Perform the following:
·		• MOV-4613 and MOV-4670	1) Manually align valves.
	·	MUV-4014 and MUV-4004	2) Dispatch AU to locally reset compressors as necessary.
	d. '	Verify adequate air compressors - RINNTNG	d. Manually start electric air
		NUMPERS	permits (75 kw each). IF
			electric air compressors can <u>NUI</u> be started, <u>THEN</u> start diesel
			air compressor (refer to
			COMPRESSOR).
	e. (Check IA supply:	e. Perform the following:
	(o Pressure – GREATER THAN 60 PSIG	 Continue attempts to restore IA (Refer to AP-IA.1, LOSS OF INSTRUMENT AIR).
	(O Pressure - STABLE OR	
		INCKEASING	IA restored, <u>THEN</u> do Steps 10f and g.
	f. I	Reset both trains of XY relays for IA to CNMT AOV-5392	
	g. 1	Verify IA to CNMT AOV-5392 - OPEN	
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EOP:	

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LOSS OF REACTOR OR SECONDARY COOLANT

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 11 Check Normal Powe To Charging Pumps o Bus 14 normal fee CLOSED o Bus 16 normal fee CLOSED 	r Available : d breaker - d breaker -	Verify adequate emergency D/G capacity to run charging pumps (75 kw each). <u>IF NOT, THEN</u> evaluate if CNMT RECIRC fans can be stopped (Refer to ATT-4.0, ATTACHMENT CNMT RECIRC FANS).

E	P: TITLE:	
	E-1 LOSS OF REACTOR OR SE	CONDARY COOLANT
L		PAGE 11 of 23
	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	12 Check If Charging Flow Has Been Established:	
	a. Charging pumps - ANY RUNNING	a. Perform the following:
		 <u>IF</u> CCW flow is lost to any RCP thermal barrier <u>OR</u> any RCP #1 seal outlet temperature offscale high, <u>THEN</u> dispatch A0 to close seal injection needle valve(s) to affected RCP:
		 V-300A for RCP A V-300B for RCP B
		2) Ensure HCV-142 open, demand at 0%.
	b. Charging pump suction aligned to RWST:	b. Manually align valves as necessary.
	o LCV-112B - OPEN	<u>IF</u> LCV–112B can <u>NOT</u> be opened, THEN dispatch AO to locally open
	o LCV-112C - CLOSED	V-358, manual charging pump suction from RWST (charging pump room).
		<u>IF</u> LCV-112C can <u>NOT</u> be closed, <u>THEN</u> perform the following:
		 Direct AO to locally open V-358, manual charging pump suction from RWST (charging pump room).
		2) Verify charging pump A <u>NOT</u> running and place in PULL STOP.
		3) <u>WHEN</u> V-358 open. <u>THEN</u> direct AO to close V-268 to isolate charging pumps B and C from VCT (charging pump room).
	c. Start charging pumps as necessary and adjust charging flow to restore PRZR level	

EOP: TITLE:	
E-1 LOSS OF REACTOR OR S	ECONDARY COOLANT
	PAGE 12 of
	• •
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13 Check If SI Should Be Terminated:	
a. RCS pressure:	a. Do <u>NOT</u> stop SI pumps. Go to Step 14.
o Pressure – GREATER THAN 1625 psig [1825 psig adverse CNMT]	
o Pressure - STABLE OR INCREASING	
b. RCS subcooling based on core exit T/Cs - GREATER THAN 0°F USING FIG-1.0, FIGURE MIN SUBCOOLING	b. Do <u>NOT</u> stop SI pumps. Go to Step 14.
c. Secondary heat sink:	c. <u>IF</u> neither condition satisfied, THEN do NOT stop SI numps Go
o Total feed flow to intact S/Gs - GREATER THAN 200 GPM	to Step 14.
-OR-	
o Narrow range level in at least one intact S/G - GREATER THAN 7% [25% adverse CNMT]	
d. PRZR level - GREATER THAN 10% [30% adverse CNMT]	d. Do <u>NOT</u> stop SI pumps. Perform the following:
	1) <u>IF</u> normal PRZR spray available, <u>THEN</u> try to stabilize RCS pressure with PRZR spray.
	2) Go to Step 14.
e. Go to ES-1.1, SI TERMINATION, Step 1.	

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EOP:	
	E-1

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LOSS OF REACTOR OR SECONDARY COOLANT

PAGE 13 of 23

a. CN	NMT spray pumps - ANY RUN	NING a. Go to	Step 15.	
b. De pu	etermine number of CNMT s imps required from table:	pray		
	CNMT PRESSURE	CNMT RECIRC FANS RUNNING	CNMT SPRAY PUMPS REQUIRED	
	GREATER THAN 60 PSIG	• •	2	
	BETWEEN 28 PSIG AND 60 PSIG AND INCREASING		2	
	BETWEEN	0 OR 1	2	
·	AND DECREASING	2, 3, OR 4	1	·····
	LESS THAN 28 PSIG	-	1	

This Step continued on the next page.

E-1 LOSS OF REACTOR OR SE	CONDARY COOLANT
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
(Step 14 continued from previous page	•)
c. CNMT spray pumps running - EQUAL TO NUMBER REQUIRED	c. Start or stop CNMT spray pumps as necessary to meet table requirements.
	<u>IF</u> CNMT spray pump is to be stopped, <u>THEN</u> perform the following:
	 Place CNMT spray pump in PULL STOP.
	2) <u>IF</u> CNMT pressure less than 28 psig, <u>THEN</u> perform the following:
	a) Place NaOH Tank outlet valve switches to OPEN
	AOV-836AAOV-836B
	b) Reset CNMT spray
	c) Close discharge valves for idle CNMT spray pump.
	o Pump A
	MOV-860AMOV-860B
	- OR -
	o Pump B
	MOV-860CMOV-860D
d. Verify CNMT pressure – STABLE OR DECREASING	d. <u>IF</u> all available CNMT spray pumps are running, <u>THEN</u> go to Step 15.
	IF NOT, THEN return to Step 14b.

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	REV: 33
	PAGE 15 of 23
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
<u>CAUTION</u>	<u>1</u>
RCS PRESSURE SHOULD BE MONITORED. IF RCS UNCONTROLLED MANNER TO LESS THAN 250 PSIC RHR PUMPS MUST BE MANUALLY RESTARTED TO S	S PRESSURE DECREASES IN AN G [465 PSIG ADVERSE CNMT], THEN THE SUPPLY WATER TO THE RCS.
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
*15 Monitor If RHR Pumps Should Be Stopped:	
a. RHR pumps – ANY RUNNING IN INJECTION MODE	a. Go to Step 16.
b. Check RCS pressure:	
1) Pressure – GREATER THAN 250 psig [465 psig adverse CNMT]	1) Go to Step 17.
2) RCS pressure - STABLE OR INCREASING	2) Go to Step 16.
c. Stop RHR pumps and place in AUTO	
16 Check RCS And S/G Pressures	
a. Check pressures in both S/Gs – STABLE OR INCREASING	a. Return to Step 1.
b. Check pressures in both S/Gs - GREATER THAN 110 PSIG	b. Monitor RCS pressure. <u>IF</u> RCS pressure does <u>NOT</u> increase after faulted S/G dryout, <u>THEN</u> go to

c. Check RCS pressure - STABLE OR c. Return to Step 1. DECREASING

Step 17.

EOP:	

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TITLE:

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TITLE:



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E-1 LOSS OF REACTOR OR S	ECONDARY COOLANT PAGE 18 of
	· · · · · · · · · · · · · · · · · · ·
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19 Evaluate Plant Status:	
a Check auviliary huilding	a Notify RP and refer to
radiation - NORMAL	appropriate AR-RMS procedure.
• Plant vent iodine (R-10B)	IF the cause is a loss of RCS
 Plant vent particulate (R-13) Plant vent gas (R-14) 	inventory outside CNMT, <u>THEN</u> go to ECA-1.2, LOCA OUTSIDE CONTAINMENT Step 1
• CCW liquid monitor (R-17)	CONTRIMENT, Step 1.
 LTDN line monitor (R-9) CHG pump room (R-4) 	
b. Direct RP to obtain following samples:	
• RCS boron	
RCS activity CNMT bydrogen	
• CNMT sump boron	
• CNMT Sump pH	
c. Verify adequate Rx head cooling:	
1) Verify at least one control rod shroud fan – RUNNING	 Manually start one fan as power supply permits (45 kw)
2) Verify one Rx compartment	2) Perform the following:
cooling fan – RUNNING	o Dispatch AO to reset UV relays at MCC C and MCC D.
	A Menuelly start one fan as
	power supply permits (23 kw)

E-1	LOSS OF	REACTOR	OR SECO	NDARY COC	LANT	PAGE 19	of
STEP	CTION/EXPECTED	RESPONSE	{	RESPONSE N	IOT OBTAINED]	
20 Check Depres	If RCS Coold surization I	own And s Require	d:				
a. RCS 250	pressure – GRE psig [465 psig	ATER THAN adverse CN	e MT]	. <u>IF</u> RHR p 475 gpm.	ump flow gre <u>THEN</u> go to	eater than Step 21.	
b. Go t AND	CO ES-1.2, POST DEPRESSURIZATI	LOCA COOLD ON, Step 1	NWC				

P: E-1	TITLE:	OD OD CECO		REV: 33
E-T			NDARY COOLANI	PAGE 20
STEP	ACTION/EXPECTED RESPON	SE	RESPONSE NOT OBTAINE	D
<u>NOTE</u> : IF be	D/Gs supplying emergen shed as necessary to a	cy AC busses 11ow start of	. THEN non-essential f additional SW pumps	loads may
21 Estab	lish Adequate SW Fl	.ow:		
a. Vei RUN	rify at least two SW pu NNING	mps - 8	a. Start additional S power supply permi each). <u>IF</u> only 1 operable. <u>THEN</u> per following:	W pumps as ts (257 kw SW pump form the
			1) Ensure ATT-2.1, MIN SW is in pr	ATTACHMENT
			2) Go to Step 22.	
			<u>IF</u> no SW pumps are <u>THEN</u> perform the f	available, ollowing:
	·		 Pull stop any D supplied by alt cooling, <u>AND</u> im depress associa SHUTDOWN pushbu 	/G that is <u>N</u> ernate mediately ted VOLTAGE tton.
			2) Refer to ATT-2. NO SW PUMPS.	4, ATTACHMEN
•			3) Go to ECA-1.1, EMERGENCY COOLA RECIRCULATION.	LOSS OF NT
b. Ver val	rify AUX BLDG SW isolat lves – OPEN	ion 1	o. Manually align val	Ves.
• • • • • • • • • • • • • • • • • • •	10V-4615 end MOV-4734 10V-4616 end MOV-4735			
		· · · · · ·		
This S	Step continued on the n	ext page.		

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TITLE:

LOSS OF REACTOR OR SECONDARY COOLANT

STEP	ACTION/EXPECTE	D RESPONSE	RESPONSE NOT OBTAINED
I	(Step 21 continued	from previou	s page)
C.	. Determine require CCW HXs per table	≥d SW flow to ≥:	
	SW DISCHARGE ALIGNMENT	CCW HXs AVAILABLE	REQUIRED SW FLOW
	Normal	2	Total of 5000 - 6000 gpm equally divided to both HXs
	Normal	1	5000 - 6000 gpm to in-service HX
	Alternate	2	30 - 33 inches d/p across each HX
	Alternate	1	95 – 100 inches d/p across in-service HX
d.	Direct AO to adju required value	ist SW flow t	o d. <u>IF</u> the required SW flow can <u>NOT</u> be obtained, <u>THEN</u> perform the following:
	 <u>IF</u> on normal 2 V-4619, CCW V-4620, CCW 	W discharge: HX A HX B	 Isolate SW to screenhouse and air conditioning headers.
	-0R-		 MOV-4609/MOV-4780 - AT LEAST ONE CLOSED MOV-4663/MOV-4733 - AT
*	o <u>IF</u> on alternat	e SW dischar:	ge: LEAST ONE CLOSED
	 V-4619C, CCW V-4620B, CCW 	IHXA IHXB	 Direct AO to locally adjust SW flow to required value.
			3) Direct AO to locally isolate SW return from SFP Hxs:
			• SFP Hx A (V-4622) (for
			alternate SW discharge use V-4622A) • SFP Hx B (V-8689)

•		
•	E = 1 LOSS OF REACTOR OR SECONDARY COOLANT	REV: 33
		PAGE 22 of 23
-	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINE	D
	22 Establish CCW flow to RHR Hxs:	
	a. Check both CCW pumps - RUNNING a. Perform the follow	ing:
	1) Start CCW pumps supply permits	as power (122 kw each)
	2) <u>IF</u> both CCW pum running, <u>THEN</u> g	ps are o to step 22b.
	3) <u>IF</u> only one CCW running, <u>THEN</u> p following:	pump is erform the
	a) Direct AO to to boric aci	isolate CCW 1 evaporator
r.	o Close V-7	50A
\cup	b) Manually oper only one oper	n CCW MOV to rable RHR Loop
	o Open MOV-	738A
	-OR	-
	o Open MOV-	738B
	c) Go to step 2	3.
	b. Manually open CCW valves to RHR b. Dispatch AO to loca Hxs valves.	ally open
	 MOV-738A MOV-738B 	
, , , , , , , , , , , , , , , , , , ,		
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E-1	LOSS OF REACTOR OR	SECONDARY COOLANT	REV:	33	
	l		PAGE	23	of
	· · · · · · · · · · · · · · · · · · ·		_		
STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]		
	· · ·				
23 Check Recirc	If Transfer To Cold Leg ulation Is Required:				
a. RWSI	level - LESS THAN 28%	a. Return to Step 18.			
b. Go t LEG	o ES-1.3, TRANSFER TO COLD RECIRCULATION, Step 1				
		-END-			
		· · ·			
			•		
	J				

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TITLE:

E-1 APPENDIX LIST

TITLE

- 1) RED PATH SUMMARY
- 2) FIGURE MIN SUBCOOLING (FIG-1.0)
- 3) ATTACHMENT CNMT RECIRC FANS (ATT-4.0)
- 4) ATTACHMENT D/G STOP (ATT-8.1)
- 5) ATTACHMENT SD-1 (ATT-17.0)
- 6) ATTACHMENT SI/UV (ATT-8.4)
- 7) ATTACHMENT MIN SW (ATT-2.1)
- 8) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 9) ATTACHMENT LOSS OF OFFSITE POWER (ATT-8.5)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)
- 11) ATTACHMENT RHR SYSTEM (ATT-14.5)
- 12) ATTACHMENT ADJUST RHR FLOW (ATT-14.7)
- 13) FOLDOUT

EOP:			TITLE:
	E-	1	

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LOSS OF REACTOR OR SECONDARY COOLANT

PAGE 1 of 1

RED PATH SUMMARY

- a. SUBCRITICALITY Nuclear power greater than 5%
- b. CORE COOLING Core exit T/Cs greater than 1200°F

-OR-Core exit T/Cs greater than 700°F <u>AND</u> RVLIS level (no RCPs) less than 52% [55% adverse CNMT]

- c. HEAT SINK Narrow range level in all S/Gs less than 7% [25% adverse CNMT] <u>AND</u> total feedwater flow less than 200 gpm
- d. INTEGRITY Cold leg temperatures decrease greater than 100°F in last 60 minutes <u>AND</u> RCS cold leg temperature less than 285°F
- e. CONTAINMENT CNMT pressure greater than 60 psig

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PAGE 1 of 2

FOLDOUT PAGE

1. <u>RCP TRIP CRITERIA</u>

TITLE:

<u>IF BOTH</u> conditions listed below occur, <u>THEN</u> trip both RCPs:

- a. SI pumps AT LEAST TWO RUNNING
- b. RCS pressure minus maximum S/G pressure LESS THAN 175 PSIG [400 psig adverse CNMT]

2. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

3. SI REINITIATION CRITERIA

IF EITHER condition listed below occurs, THEN manually start SI pumps as necessary:

- RCS subcooling based on core exit T/Cs LESS THAN O F USING FIGURE MIN SUBCOOLING
 OR -
- o PRZR level CHARGING CAN NOT CONTROL LEVEL GREATER THAN 10% [30% adverse CNM

4. SI TERMINATION CRITERIA

IF ALL conditions listed below occur, THEN go to ES-1.1, SI TERMINATION, Step 1:

- a. RCS subcooling based on core exit T/Cs GREATER THAN O F USING FIGURE MIN SUBCOOLING
- b. Total feed flow to intact S/Gs GREATER THAN 200 GPM

Narrow range level in at least one intact S/G - GREATER THAN 7% [25% adverse CNMT]

- c. RCS pressure:
 - o GREATER THAN 1625 PSIG [1825 psig adverse CNMT]
 - o STABLE OR INCREASING

d. PRZR level - GREATER THAN 10% [30% adverse CNMT]

5. SECONDARY INTEGRITY CRITERIA

<u>IF</u> any S/G pressure is decreasing in an uncontrolled manner or is completely depressurized<u>AND</u> has not been isolated, <u>THEN</u> go to E-2, FAULTED S/G ISOLATION, Step 1.

6. E-3 TRANSITION CRITERIA

IF any S/G level increased in an uncontrolled manner or any S/G has abnormal radiation, THEN manually start SI pumps as necessary AND go to E-3, STEAM GENERATOR TUBE RUPTURE, Step 1.

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LOSS OF REACTOR OR SECONDARY COOLANT

PAGE 2 of 2

7. COLD LEG RECIRCULATION SWITCHOVER CRITERION

IF RWST level decreases to less than 28%, THEN go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.

8. AFW SUPPLY SWITCHOVER CRITERION

TITLE:

IF CST level decreases to less than 5 feet, THEN switch to alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).
ŵ TITLE: EOP: **REV: 30** ECA-0.0 LOSS OF ALL AC POWER PAGE 1 of 25 GINNA STATION 23 CONTROLLED COPY NUMBER fle RESPONSIBLE MANAGER 12-15-2005 EFFECTIVE DATE CATEGORY 1.0 REVIEWED BY:_

_										
	EOP:	TITLE:					REV:	30		
	ECA-0.0		LOSS	OF ALL	AC	POWER	PAGE	2	of	25

- A. PURPOSE This procedure provides actions to respond to a loss of all AC power.
- B. ENTRY CONDITIONS/SYMPTOMS
 - 1. ENTRY CONDITIONS This procedure may be entered directly or from:
 - a. E-0, REACTOR TRIP OR SAFETY INJECTION, on the indication that both Bus 14 and Bus 16 are deenergized.
 - 2. SYMPTOMS Which indicate a loss of all AC power are:
 - a. Neither 480 volt AC emergency bus 14 nor 16 available.

EOP: ECA-	0.0	LOSS OF ALI	L AC POWER	REV: 30 PAGE 3 of 25
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STEP		CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]
		CAUTIO	<u>N</u>	
DUE WHEN	TO POT I ENTER	ENTIALLY EXTREME ENVIRONMENTAL ING THE INTERMEDIATE BLDG FOR 1	CONDITIONS, CAUTION SHOUI LOCAL ACTIONS.	D BE USED
* * * NOTE	• • • •	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * *	* * * * * * * *
	с с в . т	hould not be implemented.	L1. lithing and community	
	đ	evices.	ble lighting and communica	
	rify	Reactor Trip:	Manually trip reactor.	
c	At 1 trip	east one train of reactor breakers – OPEN	<u>IF</u> reactor trip breaker <u>THEN</u> perform the follow	rs <u>NOT</u> open, ring:
, c	Neut	ron flux - DECREASING	a. Open Bus 13 and Bus feed breakers.	15 normal
	SHUT	DOWN RODS ON BOTTOM	b. Verify rod drive MG	sets tripped.
			c. Close Bus 13 and Bus feed breakers.	S IS NORMAL
			d. Reset lighting break	kers.
	erify LOSED	Turbine Stop Valves -	Manually trip turbine.	' he
			verified, <u>THEN</u> close bo	oth MSIVs.
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	EOP:	TITLE:		REV: 30
	ECA-0.0	LOSS OF 1	ALL AC POWER	PAGE 4 of 25
Ŵ		CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	ļ
	<u>NOTE</u> : FOLI	DOUT page should be open and	monitored periodically.	J
-	* 3 Adjust Tavg A	S/G ARVs To Control t Approximately 547°F		
	4 Stop E	oth RCPs		
	<u>NOTE</u> : Adve than	erse CNMT values should be us n 4 psig or CNMT radiation is	ed whenever CNMT pressure is greater than 10 ⁺⁰⁵ R/hr.	greater
	5 Check	If RCS Is Isolated:		
	a. PRZI	R PORVs - CLOSED	a. <u>IF</u> PRZR pressure les 2335 psig, <u>THEN</u> manu PORVs.	s than ally close
)	b. Veri clos	fy RCS isolation valves		
	1) I £	Place letdown orifice valve switches to CLOSE		
		AOV-200A AOV-200B AOV-202		
	2) I E	Place letdown isolation valve witches to CLOSE		
	•	AOV-371 AOV-427		
	3) I 1 0	Place excess letdown solation valve switch to LOSE (AOV-310)		

ECA-0.0 LOSS OF A	LL AC POWER
	PAGE 5 of
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6 Verify Adequate TDAFW Flow:	
a. Verify TDAFW pump – RUNNING	a. Perform the following:
	 Verify governor valve, V-3652, latched.
	<u>IF</u> governor valve tripped, <u>THEN</u> dispatch AO to locally reset valve.
	2) Manually or locally open at least one TDAFW pump steam supply valve.
	MOV-3505AMOV-3504A
b. Verify TDAFW pump flow – GREATER THAN 200 GPM	b. Verify proper TDAFW valve alignment:
	1) TDAFW pump discharge valve (MOV-3996) open.
	2) Intact S/G TDAFW pump flow control valves open.
	<u>IF NOT, THEN</u> manually align valves as necessary.

ም:	TINE:			REV: 30
ECA-0.0	LOSS	OF ALL AC	POWER	PAGE 6 of 25
		· · · ·		
STEP A	CTION/EXPECTED RESPONSE	ا ۲	RESPONSE NOT OBTAINED]
<u>OTE</u> : 0 ((0	onditions should be eval Refer to EPIP-1.0, GINNA LASSIFICATION). O should increase survei	uated for S STATION EV .llance of T	DAFW pump until AC po	rting ower is
7 Try To Train	Restore Power to An Of AC Emergency Buss	у es:		
a. Veri unit	fy emergency D/G aligned operation	for a.	Manually align swite of MCB.	ches on rear
o M	ode switch in UNIT			
o V A	oltage control selector UTO	in		
b. Chec RUNN	k emergency D/Gs – BOTH ING	D/G b.	<u>WHEN</u> non-running D/(for starting, <u>THEN</u>] following:	G available perform the
			1) Depress D/G FIEL pushbutton	D RESET
			2) Depress D/G RESE	I pushbutton
			3) Start D/G	
			4) <u>IF</u> D/G starts. <u>T</u> Step 7c.	<u>HEN</u> go to
		. *	5) <u>IF</u> D/G will <u>NOT</u> dispatch AO to lo emergency D/Gs.	start, <u>THEN</u> ocally start
			<u>IF</u> no emergency b available, <u>THEN</u> p following:	D/G perform the
			a) Direct AO to restore emerg (Refer to ER-1 RESTORING D/G	attempt to ency D/G D/G.1.)
			b) Go to Step 8.	

ECA-0.0 LOSS OF ALL AC POWER	REV: 30
	PAGE 7 of 25
STEP ACTION/RXPECTED RESPONSE RESPONSE	NOT OBTAINED
(Step 7 continued from previous page)	
c. Check D/G voltage and frequency	
1) Voltage - APPROXIMATELY 480v 1) Adjus resto appro	t voltage control to re voltage to ximately 480v
2) Frequency - APPROXIMATELY 60 2) Adjus Hz frequ Hz	t governor to restore ency to approximately 60
d. Verify adequate D/G cooling d. Manually start SW	energize busses and Pumps.
o Bus 17 and/or Bus 18 – ENERGIZED <u>IF</u> adequ supplied	ate cooling can <u>NOT</u> be to a running D/G, THEN
o One SW Pump running for each perform running D/G	the following:
1) Pull immed assoc pushb	stop the D/G <u>AND</u> iately depress iated VOLTAGE SHUTDOWN outton.
2) Align (Refe COOLI	alternate cooling r to ER-D/G.2, ALTERNATE NG FOR EMERGENCY D/Gs).
e. Verify at least one train of AC e. Manually emergency busses ~ ENERGIZED busses.	energize AC emergency
Bus 14 and Bus 18 IF Bus 1 Bus 16 and Bus 17 deenergi	4 <u>AND</u> Bus 16 are zed, <u>THEN</u> go to Step 8.
f. Return to procedure and step in effect	

<pre>Imp: ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 INCE ECA-0.0 PAGE 8 of 25 PAGE 8 of 25 ECA-0.0 PAGE 8 of 25 PAGE 8 of 25 ECA-0.0 PAGE 8 of 25 PAGE 8</pre>					
ECA-0.0 LOSS OF ALL AC POWER PAGE 8 of 25 STEP ACTION/EXPECTED RESPONSE RESPONSE RESPONSE NOT OBTAINED CAUTION • WHEN POWER IS RESTORED TO BUS 14 AND/OR BUS 15, RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27. • IF AN SI SIGNAL EXISTS OF IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS. • EXEMPLANT ALL GRING Equipment Allignment: • Pull stop AC emergency bus loads • RHE pumps • COMPT RECIRC fans • COMPT RECIRC fans • COMPT apray pumps • CATT-8.3, ATTACHMENT MONVITAL) • Place non-running SW pump switches to STOP, then return to AUTO • Place switch for MOV-313, RCP seal return isolation valve, to CLOSE • MOMENTARY place to CLOSE RCP CCW return valves • MOV-759B		EOP:	TITLE:		REV: 30
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED CAUTION STEP ACTION/EXPECTED RESPONSE CAUTION CAUTION OF BUS 14 AND/OR BUS 16, RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27. IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PHOCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN ACT BUS. ACTION TO SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN ACT BURGED BUDGED RULE OF AC Genergency bus loads RESPONSE COM PUMPS COM PUMPS COM PUMPS COM PUMPS EVALUE NON-TIAL ISAGE (Refer to ATT-6.3, ATTACHMENT NONVITAL) Place mon		ECA-0.0	LOSS	OF ALL AC POWER	PACE 8 of 25
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED CAUTION CAUTION OBTIME ACTION/EXPECTED RESPONSE CAUTION CAUTION CAUTION OBTIME STARTING WITH STEP 27. IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS. 8 Establish The Following Equipment Alignment: a. Pull stop AC emergency bus loads • REPUMPS OMMT RECIRC fans OMMT RECIRC fans OMMT RECIRC fans COM PUMPS • COM PUMPS • COM PUMPS • MOAFW pUMPS • MOAFW pUMPS • MOAFW pUMP • MOAFW pUMPS • MOAFW pUMP • MOAFW PUMPS • MOAFW P			<u> </u>		
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED CAUTION CAUTION OUNTINUE STARTING WITH STEP 27. IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS. 8 Establish The Following Equipment Alignment: a. Pull stop AC emergency bus loads • RER pumps OWNT RECIRC fans OWNT PUMPS D. Supurps OWNT ATTAGEMENT NONVITAL) Place non-running SW pump switches to STOP. then return to AUTO AUTON AUTO Place witch for MOV-313, RCP seal return isolation valve, to CLOSE COW return valves MORENTIN Jace to CLOSE RCP CCW return valves MOV-759A	-			·	
 CAUTION WHEN POWER IS RESTORED TO BUS 14 AND/OR BUS 16, RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27. IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS. Establish The Following Equipment Alignment: Pull stop AC emergency bus loads RHE pumps ONMT RECIRC fans CONT RECIRC fans CONT RECIRC fans CONT pumps Charging pumps Charging pumps Charging pumps Busduate non-vital loads (Refer to ATT = 0.3 ATTACHMENT NONVITAL) Place non-running SW pump ewitches to STOP, then return to AUTO Place switch for MOV-313, RCP seel return isolation valve, to CLOSE Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 			CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
 CAUTION WHEN POWER IS RESTORED TO BUS 14 AND/OR BUS 16, RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27. IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF RQUIPMENT ON AN AC EMERGENCY BUS. Establish The Following Equipment Alignment: Pull stop AC emergency bus loads RER pumps OMMT RECIRC fans OMMT RECIRC fans COMP upmps Charging pumps Charging pumps MAEN pumps Busulate non-vital loads (Refer to AUTO NONVITAL) Place non-running SW pump switches to STOP, then return to AUTO Place switch for MOV-313, RCP seal return isolation value, to CLOSE Momentarily place to CLOSE RCP CGW return values MOV-759A MOV-759B 					
 WHEN FOWER IS RESTORED TO BUS 14 AND/OR BUS 16. RECOVERY ACTIONS SHOULD CONTINUE STARTING WITH STEP 27. IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS FROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS. BEStablish The Following Equipment Alignment: Pull stop AC emergency bus loads RHR pumps CONT RECIRC fans CONT PERFORMENT CONT PERFORMENT NDAFW pumps MDAFW pumps b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) c. Place non-running SW pump switches to STOP, then return to AUTO d. Place switch for MOV-313, RCP seal return isolation valve. to GLOSE MOW-759B 				CAUTION	* * * * * * *
 IF AN SI SIGNAL EXISTS OR IF AN SI SIGNAL IS ACTUATED DURING THIS PROCEDURE, IT SHOULD BE RESET TO PERMIT MANUAL LOADING OF EQUIPMENT ON AN AC EMERGENCY BUS. SESTADLISH THE FOLLOWING Equipment Alignment: a. Pull stop AC emergency bus loads RHR pumps CMMT spray pumps SI pumps CMMT spray pumps Charging pumps Charging pumps B. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) Place non-running SW pump switches to STOP, then return to AUTO Place switch for MOV-313, RCP seed return isolation valve, to CLOSE MOV-759A MOV-759B 		o WHEN PO CONTINU	WER IS RESTORED TO BUS E STARTING WITH STEP 27	14 AND/OR BUS 16, RECOVERY ACTION	S SHOULD
 8 Establish The Following Equipment Alignment: a. Pull stop AC emergency bus loads RHR pumps CNMT RECIRC fans CNMT spray pumps SI pumps CK pumps Charging pumps MDAFW pumps b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) c. Place non-running SW pump switches to STOP, then return to ATTO d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 		O IF AN S PROCEDU AC EMER	I SIGNAL EXISTS OR IF AN RE, IT SHOULD BE RESET 7 GENCY BUS.	N SI SIGNAL IS ACTUATED DURING TH TO PERMIT MANUAL LOADING OF EQUIP	IS MENT ON AN
 8 Establish The Following Equipment Alignment: a. Pull stop AC emergency bus loads RHR pumps CONT Spray pumps SI pumps CCW pumps Charging pumps MDAFW pumps b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) c. Place non-running SW pump switches to STOP, then return to AUTO d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 		* * * * * *	* * * * * * * * * * * *	* * * * * * * * * * * * * * * * * *	* * * * * * *
 a. Pull stop AC emergency bus loads RHR pumps CINMT RECIRC fans CINMT spray pumps SI pumps CGW pumps Charging pumps MDAFW pumps b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) c. Place non-running SW pump switches to STOP, then return to AUTO d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE e. Momentarily place to CLOSE RCP CGW return valves MOV-759A MOV-759B 		8 Establ Equipm	ish The Following ent Alignment:		
 RHR pumps CNMT RECIRC fans CNMT spray pumps SI pumps Charging pumps MDAFW pumps b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) c. Place non-running SW pump switches to STOP, then return to AUTO d. Place switch for MOV-313, RCP seal return isolation valve, to GLOSE e. Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 		a. Pull	stop AC emergency bus 1	loads	
 SI pumps CCW pumps Charging pumps MDAFW pumps MDAFW pumps Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) Place non-running SW pump switches to STOP, then return to AUTO Place switch for MOV-313, RCP seal return isolation valve, to CLOSE Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 		• RH • CN • CN	R pumps MT RECIRC fans MT spray pumps		
 Charging pumps MDAFW pumps b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) c. Place non-running SW pump switches to STOP, then return to AUTO d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE e. Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 	/	• SI • CC	pumps W pumps		
 b. Evaluate non-vital loads (Refer to ATT-8.3, ATTACHMENT NONVITAL) c. Place non-running SW pump switches to STOP, then return to AUTO d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE e. Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 		• Ch • MD	arging pumps AFW pumps		
 c. Place non-running SW pump switches to STOP, then return to AUTO d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE e. Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 		b. Eval to A	uate non-vital loads (Re TT-8.3, ATTACHMENT NONV)	efer ITAL)	
 d. Place switch for MOV-313, RCP seal return isolation valve, to CLOSE e. Momentarily place to CLOSE RCP CCW return valves MOV-759A MOV-759B 		c. Plac swit to A	e non-running SW pump ches to STOP, then retu UTO	ırn	
e. Momentarily place to CLOSE RCP CCW return valves • MOV-759A • MOV-759B		d. Plac seal CLOS	e switch for MOV-313, RC return isolation valve, E	CP , to	
• MOV-759A • MOV-759B		e. Mome CCW	ntarily place to CLOSE F return valves	RCP	
		• MO • MO	V-759A V-759B		

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	STEP ACTION/EXPECTED RESPONSE RESPONSE RESPONSE NOT OBTAINED <u>NOTE</u> : Temporary power may be provided to Bus 16 by performing proce ER-ELEC.4 and to Bus 13 by performing procedure ER-ELEC.5 at Shift Supervisor's discretion.	dure the
	 9 Try To Restore Offsite Power: a. Consult RG&E Energy Control Center to determine if either normal offsite power supply - AVAILABLE a. <u>IF</u> normal offsite pow <u>NOT</u> readily available perform the following 1) Restore IA system 	ver supply . <u>THEN</u> .: using the
	o 12B transformer via breaker Diesel Air Compres 76702 to ATT-11.2, ATTAC DIESEL AIR COMPRES -OR-	sor (Refer HMENT SOR).
j	2) Evaluate Main tran o 12A transformer via breaker backfeed for long 75112 concerns (Refer to EMERGENCY OFFSITE VIA MAIN & UNIT TR	sformer term ER-ELEC.3, BACKFEED ANSFORMER).
	3) Go to Step 10.	
	c. Restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER)	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAI	INED
	l]
10 In In Co Eo	nitiate Local Actions To solate RCS And To Provide ooling To Vital Areas And quipment		
_			
	Control System rack doors in the Control Room.		
Ь	. Direct Security personnel to open the following vital area doors to increase cooling:		
·			
	 Control Room Door S51 Intermediate Bldg Door S37 (AFW pump area) 		
	 Intermediate Bldg Door F36 (Automatic fire door, Rod 		
	Drive MG set area) • Intermediate Bldg Door S44		
	(Steam Header area)		
c	. Dispatch AO To Locally Isolate RCP Seals and BASTs (Refer to ATT-21.0, ATTACHMENT RCS		
	ISOLATION)		
đ	. Dispatch AO to align backup cooling water to TDAFW Pump		
	(Refer to ATT-5.2, ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP)		

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
<pre>11 Isolate Makeup And Reject From Hotwell To CST By Placing Hotwell Level Controller (LC-107) In Manual AT 50%</pre>	<u>IF</u> valves can <u>NOT</u> be manually closed, <u>THEN</u> dispatch AO to local isolate makeup and reject lines. • Makeup isolation V-4058 • Reject isolation V-4055	ly
12 Isolate S/G: a. Manually close both MSIVs	<u>IF</u> valves can <u>NOT</u> be manually closed, <u>THEN</u> dispatch AO to local isolate the affected flow path.	ly
b. Depress MANUAL pushbuttons <u>AND</u> manually close MFW flow control valves		
 MFW regulating valves MFW bypass valves 		
c. Place MCB master switch for S/G blowdown and sample valves to CLOSE		

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	STEP 4	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	·]
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		CAUTION	N GUOLUD DENATH IGOLATER	
	A FAULTED SUPPLY TO	THE TDAFW PUMP MUST BE MAINTAIN	NED FROM AT LEAST ONE S/G	. STEAM
	* * * * *	* * * * * * * * * * * * * * * *	* * * * * * * * * * * * *	* * * * * * * *
	13 Check Is Int	If S/G Secondary Side	Perform the following:	
	o Pre OR	ssure in both S/Gs – STABLE INCREASING	a. <u>IF</u> any S/G pressure in an uncontrolled completely depressu	decreasing manner <u>OR</u> rized, <u>THEN</u> unless
	o Prea THAN	ssure in both S/Gs – GREATER N 110 PSIG	needed for RCS cool	down:
			 Close faulted S/ discharge valve. 	G MDAFW pump
			 S/G A, MOV-400 S/G B, MOV-400 	7 8
)			2) Close faulted S/ control valve.	G TDAFW flow
			 S/G A, AOV-429 S/G B, AOV-429 	7 8
			3) Verify faulted S controller in MA output at 0%.	/G ARV NUAL with
			 S/G A, AOV-341 S/G B, AOV-341 	1 0
			4) Pull stop faulte pump steam suppl	d S/G TDAFW y valve.
			• S/G A, MOV-350 • S/G B, MOV-350	5A 4A
			<u>IF</u> valve(s) can <u>NOT</u> manually, <u>THEN</u> disp locally close valve isolate flow.	be closed atch AO to (s) to
			b. Dispatch AO to comp S/G isolation (Refe ATT-10.0, ATTACHMEN S/G).	lete faulted r to T FAULTED

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14 Check If S/G Tubes Are Intact: o Dispatch RP tech or A0 to locally check steamline radiation - NORMAL	Try to identify ruptured S/G. Continue with Step 15. <u>WHEN</u> ruptured S/G identified, <u>THEN</u> perform the following:
	needed for RCS cooldown:
	 Close ruptured S/G MDAFW pump discharge valve.
	 S/G A, MOV-4007 S/G B, MOV-4008
	 Pull stop ruptured S/G MDAFW pump.
	 3) Close ruptured S/G TDAFW flow control value.
	• S/G A, A0V-4297
	 4) Adjust ruptured S/G ARV controller to 1050 psig in AUTO. <u>WHEN</u> S/G pressure less than 1050 psig, <u>THEN</u> ensure ruptured S/G ARV closed.
	 S/G A, AOV-3411 S/G B, AOV-3410
	5) Pull stop ruptured S/G TDAFW pump steam supply valve.
	 S/G A, MOV-3505A S/G B, MOV-3504A
	<u>IF</u> valve(s) can <u>NOT</u> be closed manually, <u>THEN</u> dispatch AO to locally close valve(s) to isolate flow.
	b. Dispatch AO to complete ruptured S/G isolation (Refer to ATT-16.0, ATTACHMENT RUPTURED S/G).
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	STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]7			
	* * * * * *	* * * * * * * * * * * *	*****	* * * * * * * *			
		CA	AUTION				
•	IF CST LEVEL DECREASES TO LESS THAN 5 FEET, THEN ALTERNATE WATER SOURCES FOR AFW PUMPS, USING FIRE OR CITY WATER, WILL BE NECESSARY (REFER TO ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).						
	* * * * * *	* * * * * * * * * * * *	* * * * * * * * * * * * * * *	* * * * * * *			
	<u>NOTE</u> : TDAF	W pump AOV flow control AC	Ws may drift open on loss of 1	IA.			
	*15 Monito	r Intact S/G Levels:					
	a. Narr THAN	ow range level - GREATER 7% [25% adverse CNMT]	a. Maintain maximum AFW flow until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.				
	b. Cont TDAF	rol AFW flow by throttling W flow control valves	b. Control AFW flow by TDAFP discharge MOV	throttling -3996.			
	• S/ • S/	G A, AOV-4297 G B, AOV-4298	<u>IF</u> MOV-3996 can <u>NOT</u> controlled, <u>THEN</u> dia locally control AFW throttling TDAFW flo valves.	<u>IF</u> MOV-3996 can <u>NOT</u> be controlled, <u>THEN</u> dispatch AO to locally control AFW flow by throttling TDAFW flow control valves.			
			 S/G A, AOV-4297 S/G B, AOV-4298 				
			<u>IF</u> valves can <u>NOT</u> be <u>THEN</u> control AFW flo starting and stoppin	e throttled. ow by ng TDAFW pump.			
	c. Cont narr [25%	rol AFW flow to maintain ow range level between 17% adverse CNMT] and 50%	c. <u>IF</u> narrow range leve intact S/G continues in an uncontrolled r return to Step 14.	el in any s to increase manner, <u>THEN</u>			
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	EOP: ECA-0.0	TITLE: LOSS OF AL	LL AC POWER	REV: 3	30 15 of	25
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	STEP AC	TION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED		<u></u>	
	<u>NOTE</u> : IF th degaa becom	ne loss of power is expected t ssing of main generator should ne available (Refer to ATT-8.2	to continue beyond 4 hours, d commence as soon as person 2. ATTACHMENT GEN DEGAS).	THEN mel		
÷	16 Check I	C Bus Loads:				
	a. Place pump times	e control switches for MFW AC oil pumps to OFF (allows r to stop DC oil pumps)				
	b. Stop loads	all large non-essential DC 3				
	1) Ev AJ	valuate DC loads (Refer to TT-8.0, ATTACHMENT DC LOADS).				
	2) WH pe	HEN turbine is stopped, THEN erform the following:				
)	a)	Locally close Turbine backup seal oil reg outlet valve V-5475J.				
	Ъ)	Stop Turbine DC lube oil pump (within 1 hour).				
	c. Check THAN	C DC bus voltage - GREATER 105 VOLTS DC	c. <u>IF</u> either DC bus less 105 volts DC, <u>THEN</u> re ER-ELEC.2, RECOVERY J	s than efer to FROM LOS	S OF	
	• Bus • Bus	s A s B	A or B DC BUS.			
	d Diroc	t electricians to locally				

d. Direct electricians to locally monitor DC power supply

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	1055 UF .		PAGE 16 of 25
	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINE	SD
17 Verify Detecto	Source Range or(s) - ENERGIZED	Dispatch personnel wi key to turn off 125 V gwitcheg in REACTOR P	th relay rack DC power POTECTION
• N-31 • N-32		racks RLTR-1 and RLTR deenergize source ran	-2 to ge block
* * * * * *	* * * * * * * * * * * * * * *	1 * * * * * * * * * * * * * * *	* * * * * * * *
LITTENT SALTES			
WHEN POWER CONTINUE S	IS RESTORED TO BUS 14 AND/C TARTING WITH STEP 27.	JK BUS 16, RECOVERY ACTIONS	2HOATD
* * * * * *	* * * * * * * * * * * * * *	* * * * * * * * * * * * *	* * * * * * * *
18 Check (THAN 5	CST Level - GREATER FEET	Initiate makeup to CS or city water as a so to ER-AFW.1, ALTERNAT TO AFW PUMPS).	Ts using fire urce. (Refer E WATER SUPPLY
		<u></u>	

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ر ا	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED	
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. ·	• S/G PRESSURES SHOULD BE MAINTAINED GREATER THAN 200 PSIG TO PRE	VENT
	 INJECTION OF SI ACCUM NITROGEN INTO THE RCS. S/G NARROW RANGE LEVEL SHOULD BE MAINTAINED GREATER THAN 7% [25] 	% ADVERSE
	CNMT] IN AT LEAST ONE INTACT S/G. IF LEVEL CANNOT BE MAINTAINE DEPRESSURIZATION SHOULD BE STOPPED UNTIL LEVEL IS RESTORED IN A S/G.	D, S/G T LEAST ONE
	* * * * * * * * * * * * * * * * * * * *	* * * * * * *
	<u>NOTE</u> : o The S/Gs should be depressurized at maximum rate to minim inventory loss.	ize RCS
	 PRZR level may be lost and reactor vessel upper head void occur due to depressurization of S/Gs. Depressurization not be stopped to prevent these occurrences. 	ing may should
	 S/G ARV nitrogen pressure should be monitored and nitrogen bottles changed as necessary. 	n supply
	19 Initiate Depressurization Of Intact S/Gs To 300 PSIG:	
	 a. Check S/G narrow range levels - GREATER THAN 17% [25% adverse CNMT] IN AT LEAST ONE S/G a. Perform the followin until narrow rang greater than 17% CNMT] in at least 	g: AFW flow e level [25% adverse one S/G.
	2) Continue with Sternarrow range leve than 17% [25% adv in at least one S Steps 19b and 20.	p 20. <u>WHEN</u> l greater erse CNMT] /G, <u>THEN</u> do
	 b. Manually dump steam from intact b. Locally dump steam f call of the steam	rom intact using S/G

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		<u></u>	
STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAIL	NED
<u>NOTE</u> : Depr rese	essurization of S/Gs will res t to permit manual loading of	sult in a SI actuation. E equipment on emergency	SI should be busses.
21 Check	SI Signal Status:		
a. Any	SI annunciator – LIT	a. Go to Step 25. <u>b</u> actuated, <u>THEN</u> do 23 and 24.	<u>NHEN</u> SI 5 Steps 21b, 22,
b. Rese	t SI		
22 Verify	CI And CVI:		
a. CI a	nd CVI annunciators – LIT	a. Depress manual CJ	pushbutton.
• An IS • An	nunciator A-26, CNMT OLATION nunciator A-25, CONTAINMENT NTILATION ISOLATION		
b. Veri ligh	fy CI and CVI valve status ts – BRIGHT	b. Manually close at CVI valves.	ffected CI and
		<u>IF</u> valves can <u>NO</u> closed by MCB ind close alternate f (Refer to ATT-3.0 CI/CVI).	<u>c</u> be verified dication, <u>THEN</u> lsolation valves), ATTACHMENT
c. CNMT outl BRIG	RECIRC fan coolers SW et valve status lights - HT	c. Dispatch AO to lo valves.	ocally fail open
• A0 • A0	V-4561 V-4562		
d. Veri CNMT	fy RHR Pump Suction from Sump B valves – CLOSED	d. <u>IF</u> sump recircula progress, <u>THEN</u> ma valves.	ntion <u>NOT</u> in nnually close
• MO • MO	V-850A V-850B	<u>IF</u> valves can <u>NOT</u>	be verified

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	STEP A	CTION/EXPECTED RESPONSE	RESPON	NSE NOT OBTAINED]η
	23 Check Should	If S/G Depressurization Be Stopped:			
	a. Chec - GF	k RCS cold leg temperatures EATER THAN 315°F	a. Perf	orm the followin	g:
			1) C d	Control S/G ARVs epressurization.	to stop S/G
			2) G	o to Step 24.	
	b. Chec 300	k S/G pressures – LESS THAN PSIG	b. Cont pres 300	inue with Step 2 sure decreases t psig, <u>THEN</u> do St	4. <u>WHEN</u> S/G o less than ep 23c and d.
	c. Chec	k IA supply:	c. Cont	rol S/G ARVs in	manual to
	o H	ressure – GREATER THAN 0 PSIG	300	psig	
	o I J	ressure - STABLE OR NCREASING	<u>IF</u> m avai S/G pres	anual control is lable, <u>THEN</u> loca ARVs to maintain sures at 300 psi	N <u>OT</u> 11y control S/G g.
	d. Cont pres	rol S/G ARVs to maintain S/G sures at 300 psig IN AUTO	d. Cont main 300	rol S/G ARVs in tain S/G pressur psig	manual to res at
			<u>IF</u> m avai S/G pres	anual control is lable, <u>THEN</u> loca ARVs to maintain sures at 300 psi	NOT 11y control S/G g.
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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24 Check CNMT Pressure - HAS REMAINED LESS THAN 28 PSIG	<u>IF</u> CNMT pressure is less than 28 psi,THEN perform the following:
o Annunciator A-27, CNMT SPRAY - EXTINGUISHED	a. Reset CNMT spray.
o CNMT pressure indicators – LESS THAN 28 PSIG	b. Place CNMT spray pump discharge valve switches to CLOSE to deenergize open contactor.
	<u>IF NOT, THEN</u> continue with step 25. <u>WHEN</u> CNMT pressure less than 28 psig, <u>THEN</u> reset CNMT spray and place CNMT spray pump discharge valve switches to CLOSE.
25 Check Core Exit T/Cs - LESS THAN 1200°F	<u>IF</u> core exit temperatures greater than 1200°F and increasing, <u>THEN</u> go to SACRG-1, SEVERE ACCIDENT CONTROI ROOM GUIDELINE INITIAL RESPONSE, step 1.
26 Check If AC Emergency Power Is Restored - BUSSES 14 AND/OR 16 ENERGIZED	Continue to control RCS conditions and monitor plant status:
	 o AC power restoration
	o ARV nitrogen pressure
	o Diesel air compressor to IA system
	o RCP seal isolation
	o DC power supply
	b. Return to Step 13.

ECA-0.0	LOSS OF	ALL AC POWER	PAGE	22 c
STEP ACI	TION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]	
27 Manuall	y Control S/G ARVs To	Locally control S/G AR	Vs.	
Stabili	ze S/G Pressures			
· · · · ·				

ECA-0.0 LOSS OF A	LL AC POWER
	PAGE 23
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
NOTE: SW isolation may occur when power	is restored to AC emergency busses.
28 Verify SW System Operation:	
a. Check Bus 17 and Bus 18 – AT LEAST ONE ENERGIZED	a. Perform the following:
	 Pull stop any D/G that is <u>NG</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
	2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.
	3) Go to Step 29.
b. Verify two SW pumps - RUNNING	b. <u>IF</u> normal power available, <u>THEN</u> establish two SW pumps running.
	<u>IF</u> normal power <u>NOT</u> available, <u>THEN</u> establish one SW pump running for each operating D/G.
	<u>IF NO</u> SW pumps running, <u>THEN</u> perform the following:
	 Pull stop any D/G that is <u>NC</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
	2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.
	<u>IF</u> only one SW pump running, <u>THEN</u> perform the following:
	1) Manually perform SW isolatio
	2) Refer to AP-SW.2, LOSS OF SERVICE WATER.

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	EOP: TITLE: ECA-0.0 LOSS OF ALL AC POWER	REV: 30	f 25
1		PAGE 24 C	51 25
	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED		
	CAUTION	* * * * * *	• *
	THE LOADS PLACED ON THE ENERGIZED AC EMERGENCY BUS SHOULD NOT EXCEP CAPACITY OF THE POWER SOURCE.	ED THE	
	* * * * * * * * * * * * * * * * * * * *	* * * * * *	* *
	29 Verify Following EquipmentManually load equipmentLoaded On Available ACsupply permits.Emergency Busses:Supply permits.	as power	
	 o 480 volt MCCs - ENERGIZED MCC C from Bus 14 		
	• MCC D from Bus 16		
I	o verily instrument busses - ENERGIZED		
	 Bus A from MCC C (A battery) Bus B from MCC C Bus C from MCC D (B battery) 		
	o Dispatch personnel to verify proper operation of battery chargers		
		-	

EOP: TITLE:	REV: 30
ECA-0.0 LOSS OF AL.	L AC POWER PAGE 25 of
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
30 Select Recovery Procedure:	
a. Check RCS subcooling based on core exit T/Cs – GREATER THAN O°F USING FIG-1.0, FIGURE MIN SUBCOOLING	a. Go to ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.
b. Check PRZR level – GREATER THAN 10% [30% adverse CNMT]	b. Go to ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.
c. Check SI and RHR Pumps – NONE RUNNING	c. Go to ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED, Step 1.
d. Go to ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, Step 1	
- E	ND -
	·

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ECA-0.0

EOP:

PAGE 1 of 1

ECA-0.0 APPENDIX LIST

TITLE

- 1) FIGURE MIN SUBCOOLING (FIG-1.0)
- 2) ATTACHMENT DC LOADS (ATT-8.0)
- 3) ATTACHMENT FAULTED S/G (ATT-10.0)
- 4) ATTACHMENT RUPTURED S/G (ATT-16.0)
- 5) ATTACHMENT CI/CVI (ATT-3.0)
- 6) ATTACHMENT NONVITAL (ATT-8.3)
- 7) ATTACHMENT GEN DEGAS (ATT-8.2)
- 8) ATTACHMENT RCS ISOLATION (ATT-21.0)
- 9) ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP (ATT-5.2)
- 10) ATTACHMENT DIESEL AIR COMPRESSOR (ATT-11.2)
- 11) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 12) FOLDOUT

EOP:

LOSS OF ALL AC POWER

PAGE 1 of 1

FOLDOUT PAGE

1. LOSS OF SW CRITERIA

TITLE:

IF no SW pumps are available, THEN perform the following:

a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.

b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

EOP:	
ECA-0	. 2

TITLE:

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PAGE 1 of 9

GINNA STATION CONTROLLED COPY NUMBER _______

RESPONSIBLE MANAGER

12-15-2005 EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:_____

EOP:	TITLE:					····				D D D D D D D D D D D D D D D D D D D	4 77	
FCA-0 2		LOSS	OF	ALL	AC	POWER	RECOVERY	WITH	SI	REV:	т/	
	1					REQU	JIRED	-		PAGE	2 o:	f 9

- A. PURPOSE This procedure provides actions to use engineered safeguards systems to recover plant conditions following restoration of AC emergency power.
- B. ENTRY CONDITIONS/SYMPTOMS

a a

- 1. ENTRY CONDITIONS This procedure is entered from:
 - a. ECA-0.0, LOSS OF ALL AC POWER, when AC emergency power is restored and SI is required.
 - b. ECA-0.1, LOSS OF ALL AC POWER RECOVERY WITHOUT SI REQUIRED, if SI is required.

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EOP: TITLE:	REV: 17
ECA-0.2 LOSS OF ALL AC POWER REQ	UIRED PAGE 3 of 9
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>NOTE</u> : o CSFSTs should be monitored for should not be implemented prior	information only. IR procedures to completion of Step 10.
o Adverse CNMT values should be u greater than 4 psig or CNMT rad	sed whenever CNMT pressure is iation is greater than 10 ⁺⁰⁵ R/hr.
o FOLDOUT page should be open and	monitored periodically.
1 Reset ST	
2 Check RCP CCW Isolation Status:	
a. CCW pumps - BOTH PUMPS OFF	a. Go to Step 3.
b. RCP CCW return valves - CLOSED	b. Manually close valves as necessary:
• MOV-759A • MOV-759B	o RCP CCW thermal harrier
	outlet valves
	• AOV-754A
	• AOV-754B
	-OR-
	o RCP CCW supply valves
	• MOV-749A
	• MOV-749B
	•
	·

EOP: ECA-0.2 ECA-0.2	RECOVERY WITH SI IRED PAGE 4 of 9
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3 Check RWST Level - GREATER THAN 28%	Go to ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 1.
<u>NOTE</u> : SI actuation to establish safeguards recommended.	s valve alignment is not
4 Manually Align SI And RHR Pumps To Establish SI Injection:	·.
a. SI pump suction valves from RWST - OPEN	a. Ensure at least one SI pump suction valve from RWST open.
• MOV-825A • MOV-825B	• MOV-825A • MOV-825B
b. Verify SI pump C discharge valves – OPEN	b. Manually open valves as necessary.
• MOV-871A • MOV-871B	
c. RHR pump discharge to Rx vessel deluge - OPEN	c. Ensure at least one deluge valve open.
• MOV-852A • MOV-852B	• MOV-852A • MOV-852B

EOP: TITLE: ECA-0 2 LOSS OF ALL AC POWER	RECOVERY WITH SI REV: 17
REQ	PAGE 5 of 9
	· · · · · · · · · · · · · · · · · · ·
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
CAUTIC	<u>DN</u>
THE LOADS PLACED ON THE ENERGIZED AC EMP CAPACITY OF THE POWER SOURCE.	ERGENCY BUS SHOULD NOT EXCEED THE
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
5 Manually Load Following Safeguards Equipment On AC Emergency Bus:	
a. Start all SI pumps	a. Perform the following:
	1) Start available SI pumps.
	2) <u>IF</u> SI pump A or B <u>NOT</u> available, <u>THEN</u> verify SI pump C aligned as follows:
	o <u>IF</u> SI pump A <u>NOT</u> available, <u>THEN</u> ensure MOV-871B closed.
· · ·	o <u>IF</u> SI pump B <u>NOT</u> available, <u>THEN</u> ensure MOV-871A closed.
b. Check RCS pressure:	b. Manually start both RHR pumps
o Pressure – GREATER THAN 250 psig [465 psig adverse CNMT]	and go to step 5d.
o Pressure - STABLE OR INCREASING	
c. Place RHR pump switches in AUTO	
d. Start all available CNMT RECIRC fans	

EOP:	TINE:	DETA	17	
	LOSS OF ALL AC POWER RECOVERY WITH SI	REV:	Τ/	
ECA-0.2	REQUIRED	PAGE	6 of	9
L		L		

* * * * * * * * * * * * *	<u>CAUTION</u>	* * * * * * * * * * * * * * * * * * * *
 O IF CST LEVEL DECREASES FOR AFW PUMPS WILL BE TO AFW PUMPS). 	TO LESS THAN 5 NECESSARY (REFER	FEET, THEN ALTERNATE WATER SOURCES TO ER-AFW.1, ALTERNATE WATER SUPPLY
 IF S/G NR LEVEL DECREA IS LESS THAN 200 GPM, EMERGENCY BUS TO SUPPL 	SES TO LESS THAN THEN THE MDAFW P Y WATER TO THE S	7% [25% ADVERSE CNMT] AND FEED FLOW UMPS SHOULD BE MANUALLY LOADED ON AC /G(S).
* * * * * * * * * * * * *	* * * * * * * *	
<u>NOTE</u> : o If MDAFW pump op maintained in PU	eration is not re LL-STOP to preve	equired, pump switches should be nt automatic start.
o TDAFW pump flow	control AOVs may	drift open on loss of IA.
		·
* 6 Monitor Intact S/G	Levels:	
a. Narrow range level THAN 7% [25% advers	- GREATER e CNMT]	a. Maintain total feed flow greater than 200 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one
		S/G.
		S/G. <u>IF</u> feed flow less than 200 gpm, <u>THEN</u> perform the following:
		 S/G. <u>IF</u> feed flow less than 200 gpm, <u>THEN</u> perform the following: 1) Verify MDAFW pump discharge valve to intact S/G(s) open.
	. · ·	 S/G. <u>IF</u> feed flow less than 200 gpm, <u>THEN</u> perform the following: 1) Verify MDAFW pump discharge valve to intact S/G(s) open. S/G A. MOV-4007 S/G B, MOV-4008
		 S/G. <u>IF</u> feed flow less than 200 gpm. <u>THEN</u> perform the following: 1) Verify MDAFW pump discharge valve to intact S/G(s) open. • S/G A. MOV-4007 • S/G B. MOV-4008 2) Manually start MDAFW pumps as necessary (223 kw).
b. Control feed flow to narrow range level [25% adverse CNMT]	o maintain between 17% and 50%	 S/G. <u>IF</u> feed flow less than 200 gpm. <u>THEN</u> perform the following: 1) Verify MDAFW pump discharge valve to intact S/G(s) open. • S/G A. MOV-4007 • S/G B. MOV-4008 2) Manually start MDAFW pumps as necessary (223 kw).

ECA-0.2	RECOVERY WITH SI UIRED PAGE 7 of 9
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7 Verify CI And CVI:	
 a. CI and CVI annunciators - LIT Annunciator A-26, CNMT ISOLATION Annunciator A-25, CONTAINMENT VENTILATION ISOLATION 	a. Depress manual CI pushbutton.
b. Verify CI and CVI valve status lights - BRIGHT	 b. Manually close affected CI and CVI valves. <u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> close alternate isolation valves (Refer to ATT-3.0, ATTACHMENT CI/CVI).
 c. CNMT RECIRC fan coolers SW outlet valve status lights - BRIGHT AOV-4561 AOV-4562 	c. Dispatch AO to locally fail open valves.

÷	EOP: TITLE: LOSS OF ALL AC POWER I	RECOVERY WITH SI REV: 17
	REQU:	IRED PAGE 8 of 9
\mathbf{U}	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	8 Verify CNMT Spray Not Required:	<u>IF</u> CNMT pressure is less than 28 psig, <u>THEN</u> perform the following:
	o Annunciator A-27, CNMT SPRAY - EXTINGUISHED	a. Reset CNMT spray.
	o CNMT pressure – LESS THAN 28 PSIG	b. Place CNMT spray pump discharge valve switches to CLOSE to deenergize open contactor.
		<u>IF NOT, THEN</u> perform the following:
		a. Depress manual CNMT spray pushbuttons (2 of 2).
*		b. Ensure CNMT spray pump discharge valves open.
		o CNMT spray pump A:
\smile		• MOV-860A • MOV-860B
		o CNMT spray pump B:
		• MOV-860C • MOV-860D
		c. Verify NaOH tank flow (FI-930).
		<u>IF</u> NaOH flow <u>NOT</u> indicated, <u>THEN</u> place switches for NaOH tank outlet valves to OPEN.
		 AOV-836A AOV-836B
		d. Start both CNMT spray pumps.
		e. Go to step 10.
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ECP: ECA-0.2 STEP A 9 Place 10 Check	TITLE: LOSS OF ALL AC POWE RE CTION/EXPECTED RESPONSE CNMT Spray Pumps In AUTC RCP Seal Injection	R RECOVERY WITH SI QUIRED RESPONSE NOT OBTAINE Locally close valves h	REV: 17 PAGE 9 of 9
• V-300 • V-300 • V-300 <u>NOTE</u> : FR p 11 Go to SECOND	Valves - CLOSED A B rocedures may now be implement E-1, LOSS OF REACTOR OR ARY COOLANT, Step 1	nted as necessary.	
		- END -	
		· · · ·	
			· .
EOP:			
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ECA-0.	2		

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LOSS OF ALL AC POWER RECOVERY WITH SI REQUIRED

REV: 17

PAGE 1 of 1

ECA-0.2 APPENDIX LIST

TITLE

1) ATTACHMENT CI/CVI (ATT-3.0)

2) ATTACHMENT NO SW PUMPS (ATT-2.4)

3) FOLDOUT

TITLE:

EOP:

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ECA-0.2

PAGE 1 of 1

FOLDOUT PAGE

1. LOSS OF SW CRITERIA

TITLE:

IF no SW pumps are available, THEN perform the following:

a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.

b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

TITLE: EOP: REV: 39 ES-1.3 TRANSFER TO COLD LEG RECIRCULATION PAGE 1 of 23

GINNA STATION CONTROLLED COPY NUMBER <u>23</u>

RESPONSIBLE MANAGER

12-15--2003 EFFECTIVE DATE

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REVIEWED BY:_____

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EOP:	2		REV: 39
ES-1	. 3	TRANSFER TO COLD LEG RECIRCULATION	PAGE 2 of 23
Α.	PURPC for t Spray	SE - This procedure provides the necessary ins ransferring the Safety Injection system and Co system to recirculation modes of operation.	tructions
в.	ENTRY	CONDITIONS/SYMPTOMS	
	1. E	NTRY CONDITIONS - This procedure may be entered	d from:
	а	. E-1, LOSS OF REACTOR OR SECONDARY COOLANT,	or,
	b	. ECA-0.2, LOSS OF ALL AC POWER RECOVERY WITH REQUIRED, or,	ISI
	C	. ECA-2.1, UNCONTROLLED DEPRESSURIZATION OF E GENERATORS, or,	OTH STEAM
	d	. FR-C.1, RESPONSE TO INADEQUATE CORE COOLING	, or,
	e	. FR-C.2, RESPONSE TO DEGRADED CORE COOLING,	or,
	f	. FR-C.3, RESPONSE TO SATURATED CORE COOLING,	or,
	g	. FR-H.1, RESPONSE TO LOSS OF SECONDARY HEAT	SINK, or,
	h	. FR-Z.1, RESPONSE TO HIGH CONTAINMENT PRESSU RWST level.	RE, on low
	i	. Other procedures whenever RWST level reacher switchover setpoint (28%).	s the

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*		
	EOP: TITLE: ES-1.3 TRANSFER TO COLD LEG RECIRCULATION	REV: 39
		PAGE 3 of 23
J		
	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED	
	CAUTION	* * * * * * *
	 IF OFFSITE POWER IS LOST AFTER SI RESET, THEN MANUAL ACTION MAY REQUIRED TO RESTART SAFEGUARDS EQUIPMENT. (REFER TO ATT-8.5, A LOSS OF OFFSITE POWER) 	BE TTACHMENT
	• CONSULT WITH RADIATION PROTECTION BEFORE DISPATCHING PERSONNEL AUXILIARY BUILDING. SWITCHOVER TO RECIRCULATION MAY CAUSE HIGH LEVELS.	TO RADIATION
		* * * * * * *
	<u>NOTE</u> : o FOLDOUT page should be open and monitored periodically.	
	o Adverse CNMT values should be used whenever CNMT pressure greater than 4 psig or CNMT radiation is greater than 10 ⁺	15 05 R/hr.
,	* 1 Verify RWST level - GREATER THAN 15% IF sump recirculation <u>N</u> progress, <u>THEN</u> pull-sto taking suction from RWS one SI pump <u>AND</u> go to E OF EMERGENCY COOLANT RE Step 1.	<u>OT</u> in p all pumps T, <u>EXCEPT</u> CA-1.1, LOSS CIRCULATION,
	2 Verify CNMT Sump B Level - AT LEAST 113 INCHES LEAST 113 INCHES	han 28% <u>AND</u> ss than ECA-1.2, T. Step 1.
	<u>NOTE</u> : Steps 3 through 14 should be performed without delay. FR pr should not be implemented prior to completion of these steps	ocedures
	3 Reset SI	
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	ES-1.3

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TRANSFER TO COLD LEG RECIRCULATION

PAGE 4 of 23

STEP	ACTION/EXPECTED RESPO	ONSE	RESPONSE NOT OBTAINED
* * * *	* * * * * * * * * *	CAUTION	* * * * * * * * * * * * * * * * * * *
o THE INS	RHR HX OUTLET VALVES (TRUMENT AIR PRESSURE.	HCV-624 AND H	CV-625) WILL FAIL OPEN ON LOSS OF
O CON AUX LEV	SULT WITH RADIATION PRO ILLARY BUILDING. SWITC ELS.	TECTION BEFOR HOVER TO RECI	E DISPATCHING PERSONNEL TO RCULATION MAY CAUSE HIGH RADIATION
4 Thr	ottle RHR Flow:	• • • • • • • • • • • • • • • • • • •	Manually adjust RHR Hx outlet valves equally to reduce flow to
o	Direct an AO to perform ATT-14.7, ATTACHMENT AD FLOW, to locally adjust and HCV-625.	JUST RHR HCV-624	less than 1500 gpm per operating pump • RHR Hx A, HCV-625 • RHR Hx B, HCV-624

EOP: ES-1.3

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TRANSFER TO COLD LEG RECIRCULATION

PAGE 5 of 23

STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5 Check IF Unnecessary Pumps Can Be Stopped:	
a. Three SI pumps – RUNNING	a. Go to Step 5c.
b. Stop SI pump C and place both switches in PULL STOP	
c. Stop both RHR pumps and place in PULL STOP	
d. Both CNMT spray pumps – RUNNING	d. Pull stop any idle CNMT spray pump and go to Step 5f.
e. Pull stop one CNMT spray pump	1 · · ·
f. Check CNMT pressure – LESS THAN 28 PSIG.	f. Go to Step 6.
g. Place NaOH Tank outlet valve switches to OPEN.	
AOV-836AAOV-836B	
h. Reset CNMT spray	
i. Close discharge valves for idle CNMT spray pump(s)	
o Pump A	
• MOV-860A • MOV-860B	
o Pump B	1
MOV-860CMOV-860D	

ESF: ESF: ESF: ESF: TRANSFER TO COLD LEG RECIRCULATION REV: 39 PAGE 6 of 23 STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED NOTE: IF D/Gs supplying emergency AC busses, THEN non-essential loads may be shed as necessary to allow start of additional SW pumps. 6 Establish Adequate SW Flow: a. Verify at least two SW pumps - RUNNING 8. Start additional SW pumps as power supply permits (257 kw each). IF only 1 SW pump operable, THEM perform the following: 1) Ensure SW aligned to one CCW Kx per ATT-2.1. ATTACHMENT MIN SW. 2) Go to Step 7. IF no SW pumps are available. THEN perform the following: 1) Full stop any D/G that is NOT supplied by alternate coling. AMD immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4. ATTACHMENT NO SW FUMPS. b. Verify AUX ELDG SW isolation valves - OPEN MOV-4615 and MOV-4734 • MOV-4616 and MOV-4735	·			
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED NOTE: IF D/Gs supplying emergency AC busses. THEN non-essential loads may be shed as necessary to allow start of additional SW pumps. 6 Establish Adequate SW Flow: a. Start additional SW pumps as power supply permits (257 kw each). If only 1 SW pump operable. THEN perform the following: 1) Ensure SW aligned to one CCW HX per ATT-2.1. ATTACHMENT MIN SW. 2) Go to Step 7. If no SW pumps as power supplied by alternate cooling. AMD immediately depress associated VOLTAGE SUUTDOWN publicton. 1) Pull stop any D/G that is NOT supplied by alternate cooling. AMD immediately depress associated VOLTAGE SUUTDOWN publicton. b. Verify AUX BLDG SW isolation valves - OPEN b. Menually align valves. • MOV-4615 and MOV-4734 b. Manually align valves.	EOP: TITLE: ES-1.3 TRANSFEI	R TO COLD LEG	RECIRCULATION	REV: 39
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED NOTE: IF D/Gs supplying emergency AC busses, THEN non-essential loads may be shed as necessary to allow start of additional SW pumps. 6 Establish Adequate SW Flow: a. Start additional SW pumps as power supply permits (257 kw each). If only 1 SW pump each, THEN perform the following: 1) Ensure SW aligned to one CCW Hx per ATT-2.1, ATTACHMENT MIN SW. a. Start additional SW pumps as power supply permits (257 kw each). If only 1 SW pump operable, THEN perform the following: 1) Ensure SW aligned to one CCW Hx per ATT-2.1, ATTACHMENT MIN SW. b. Bensure SW pumps are available. THEN perform the following: 1) Go to Step 7. If no SW pumps are available. THEN perform the following: 1) Pull stop any D/G that is NOT supplied by alternate cooling, AND immediately depress associated VOLTAGE SUUTONN pushbutton. b. Verify AUX BLDG SW isolation valves - OPEN b. Manually align valves. b. NOV-4615 and NOV-4734 b. Manually align valves.				PAGE 6 of 23
 NOTE: IF D/Gs supplying emergency AC busses. THEN non-essential loads may be shed as necessary to allow start of additional SW pumps. 6 Establish Adequate SW Flow: a. Verify at least two SW pumps - RUNNING a. Start additional SW pumps as power supply permits (257 kw each). IF only 1 SW pump operable. THEN perform the following: 1) Ensure SW aligned to one CCW Hx per ATT-2.1. ATTACHMENT MIN SW. 2) Go to Step 7. IF no SW pumps are available. THEN perform the following: 1) Pull stop any D/G that is NOT supplied by alternate cooling, AMD immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4. ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 	STEP ACTION/EXPECTED R	ESPONSE	RESPONSE NOT OBTAINED	
 be shed as necessary to allow start of additional SW pumps. 6 Establish Adequate SW Flow: a. Verify at least two SW pumps - RUNNING a. Start additional SW pumps as power supply permits (257 kw each). IE only 1 SW pump operable. THEN perform the following: b. Ensure SW aligned to one CCW Hx per ATT-2.1. ATTACHMENT MIN SW. c) Go to Step 7. IF no SW pumps are available. THEN perform the following: 1) Pull stop any D/G that is NOT supplied by alternate cooling. AND immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4. ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 	<u>NOTE</u> : <u>IF</u> D/Gs supplying em	mergency AC buss	es, <u>THEN</u> non-essential lo	ads may
 6 Establish Adequate SW Flow: a. Verify at least two SW pumps - RUNNING a. Start additional SW pumps as power supply permits (257 kw each). If only 1 SW pump operable, THEN perform the following: 1) Ensure SW aligned to one CCW Hx per ATT-2.1, ATTACHMENT MIN SW. 2) Go to Step 7. IF no SW pumps are available. THEN perform the following: 1) Full stop any D/G that is NOT supplied by alternate cooling. ADD immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 	be shed as necessary	r to allow start	of additional SW pumps.	
 a. Verify at least two SW pumps - RUNNING a. Start additional SW pumps as power supply permits (257 kw each). IF only 1 SW pump operable, THEN perform the following: 1) Ensure SW aligned to one CCW Hx per ATT-2.1. ATTAGEMENT MIN SW. 2) Go to Step 7. IF no SW pumps are available. THEN perform the following: 1) Pull stop any D/G that is NOT supplied by alternate cooling. AND immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4. ATTACHMENT NO SW PUMPS. b. Verify AUX ELDG SW isolation valves - OPEN MOV-4615 and MOV-4735 b. Manually align valves. 	6 Establish Adequate S	SW Flow:		
 1) Ensure SW aligned to one CCW Hx per ATT-2.1. ATTACHMENT MIN SW. 2) Go to Step 7. IF no SW pumps are available. THEM perform the following: 1) Full stop any D/G that is NOT supplied by alternate cooling. AND immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 	a. Verify at least two RUNNING	SW pumps –	a. Start additional SW power supply permits each). <u>IF</u> only 1 SW operable, <u>THEN</u> perf following:	pumps as (257 kw pump orm the
 2) Go to Step 7. IE no SW pumps are available. THEN perform the following: 1) Pull stop any D/G that is NOT supplied by alternate cooling. AND immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 			1) Ensure SW aligned Hx per ATT-2.1, A MIN SW.	to one CCW TTACHMENT
 IF no SW pumps are available. <u>THEN</u> perform the following: Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling. <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 			2) Go to Step 7.	
 1) Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton. 2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 	- -		<u>IF</u> no SW pumps are a <u>THEN</u> perform the fol	vailable, lowing:
 2) Refer to ATT-2.4, ATTACHMENT NO SW PUMPS. b. Verify AUX BLDG SW isolation valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 			 Pull stop any D/G supplied by alter cooling, <u>AND</u> imme depress associate SHUTDOWN pushbutt 	that is <u>NOT</u> nate diately d VOLTAGE on.
 b. Verify AUX BLDG SW isolation b. Manually align valves. valves - OPEN MOV-4615 and MOV-4734 MOV-4616 and MOV-4735 			2) Refer to ATT-2.4, NO SW PUMPS.	ATTACHMENT
• MOV-4615 and MOV-4734 • MOV-4616 and MOV-4735	b. Verify AUX BLDG SW i valves – OPEN	solation	b. Manually align valve	s.
	 MOV-4615 and MOV-4 MOV-4616 and MOV-4 	734 735		
This Step continued on the next page.	This Step continued on	the next page.		

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TRANSFER TO COLD LEG RECIRCULATION

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STEP

RESPONSE NOT OBTAINED

(Step 6 continued from previous page)

ACTION/EXPECTED RESPONSE

c. Determine required SW flow to CCW HXs per table:

SW DISCHARGE ALIGNMENT	CCW HXs AVAILABLE	REQUIRED SW FLOW
Normal	2	Total of 5000 - 6000 gpm equally divided to both HXs
Normal	1	5000 - 6000 gpm to in-service HX
Alternate	2	30 – 33 inches d/p across each HX
Alternate	1	95 – 100 inches d/p across in-service HX

d. Direct AO to adjust SW flow to required value

o <u>IF</u> on normal SW discharge:

- V-4619, CCW HX A
- V-4620, CCW HX B

-OR-

- o <u>IF</u> on alternate SW discharge:
 - V-4619C, CCW HX A
 - V-4620B, CCW HX B

- d. <u>IF</u> the required SW flow can <u>NOT</u> be obtained, <u>THEN</u> perform the following:
 - 1) Isolate SW to screenhouse and air conditioning headers.
 - MOV-4609/MOV-4780 AT LEAST ONE CLOSED
 - MOV-4663/MOV-4733 AT LEAST ONE CLOSED
 - Direct AO to locally adjust SW flow to required value.
 - 3) Direct AO to locally isolate SW return from SFP Hxs:
 - SFP Hx A (V-4622) (for alternate SW discharge use V-4622A)
 - SFP Hx B (V-8689)
 - Verify SW portions of ATT-17.0, ATTACHMENT SD-1 are complete.

EOP:

EOP: TITLE:	REV: 39
ES-1.3 TRANSFER TO COLD LI	EG RECIRCULATION PAGE 8 of 2
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
/ Establish CCW flow to RHR HXS:	a Porform the following.
a. check both cow pumps - Romaine	1) Start CCW pumps as power
	supply permits (122 kw each).
	2) <u>IF</u> both CCW pumps are running, <u>THEN</u> go to step 7b.
	3) <u>IF</u> only one CCW pump is running, <u>THEN</u> perform the following:
	a) Direct AO to isolate CCW to boric acid evaporator
•	o Close V-760A
	b) Manually open CCW MOV to only one operable RHR loop.
	o Open MOV-738A
	-OR-
	o Open MOV-738B
	c) Go to step 8.
b. Open CCW valves to RHR Hxs	b. Dispatch AO to locally open valves.
• MOV-738A • MOV-738B	

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8 Verify RHR System Alignment:	
a. Verify the following valves - CLOSED	a. Ensure at least one suction valve and one discharge valve
o RHR suction valves from loop A hot leg	
• MOV-700 • MOV-701	
o RHR discharge valves to loop B cold leg	
• MOV-720 • MOV-721	
b. Verify RHR pump suction crosstie valves – OPEN	b. Manually open valves. If valves can <u>NOT</u> be opened, <u>THEN</u> dispatch AO to locally open valves.
• MOV-704A • MOV-704B	
c. Verify the following valves - OPEN	c. Ensure at least one valve in each set open.
o RHR pump discharge to Rx vessel deluge valves	
• MOV-852A • MOV-852B	
o RHR suction from sump B (inside CNMT)	
• MOV-851A • MOV-851B	

- d. Verify RCDT pump suction values d. Manually close values. from sump B CLOSED
 - MOV-1813A
 - MOV-1813B

.0P:	TITLE:			REV: 39
ES-1.3	TRANSFER TO COL	D LEG RECI	IRCULATION	PAGE 10 of 2
STEP AC	TION/EXPECTED RESPONSE	RE	SPONSE NOT OBTAINED	
* * * * * *	* * * * * * * * * * *	* * * * * *	* * * * * * * * * *	, * * * * * * *
	<u>C</u> .	AUTION		
RHR FLOW I TO ENSURE (NDICATED ON FI-626 SHOULD OPTIMUM PUMP PERFORMANCE.	BE LIMITED	TO 1500 GPM PER OPE	RATING PUMP
* * * * * *	* * * * * * * * * * *	* * * * * *	* * * * * * * * * *	* * * * * * *
9 Initia Recircu	lation:			
a. Clos pump DC p	e RWST outlet valve to RH suction, MOV-856 (turn o ower key switch)	R a.l	Dispatch AO to local valve and continue w	ly close ith Step 9b.
b. Open from	both RHR suction valves sump B (outside CNMT)	b. <u>;</u>	<u>IF</u> only one valve wi <u>THEN</u> perform the fol	ll open. lowing:
o M	OV-850A - OPEN	:	1) Initiate only one	train of
o M(OV-850B - OPEN		ATT-14.3, ATTACHM for further guida	(Refer to ENT RHR NPSH nce).
		:	2) Go to step 9e.	
			<u>IF</u> neither valve wil refer to ATT-14.6, A RHR PRESS REDUCTION guidance.	l open, <u>THEN</u> TTACHMENT for further
c. Checl	MOV-738A AND MOV-738B -	c. 1	Perform the followin	g:
DOIN	OPEN		1) <u>IF</u> MOV-738A open, RHR Pump A and go	<u>THEN</u> start to step 9e.
		:	2) <u>IF</u> MOV-738B open, RHR Pump B and go	<u>THEN</u> start to step 9e.
d. Start	t both RHR pumps			
e. Verij	fy at least one RHR pump	- e.	IF no RHR pump can b	e started,

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TRANSFER TO COLD LEG RECIRCULATION

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EOP:	
E	5-1.3

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TRANSFER TO COLD LEG RECIRCULATION

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12 Stop All Pumps Supplied From RWST:	
a. Stop all SI pumps and place in PULL STOP	
b. Stop all charging pumps	
c. Stop operating CNMT spray pump and place in PULL STOP	
d. Check CNMT pressure – LESS THAN 28 PSIG	d. Go to Step 13.
e. Reset CNMT spray if necessary	
f. Close CNMT spray pump discharge valves	n na an ann an an ann an ann an ann an a
 MOV-860A MOV-860B MOV-860C MOV-860D 	
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	EOP: TITLE: ES-1.3 TRANSFER TO COLD LEG RECIRCULATION	REV: 39
		PAGE 13 of 23
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	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED	
	* * * * * * * * * * * * * * * * * * * *	* * * * * * *
	CAUTION	
	RHR FLOW MUST BE MAINTAINED LESS THAN 1500 GPM PER OPERATING RHR P DETERMINED BY THE TOTAL OF FI-931A, FI-931B AND FI-626 INDICATIONS	UMP AS
	* * * * * * * * * * * * * * * * * * * *	* * * * * * *
	13 Align SI And CNMT Spray For Sump Recirculation:	
	a. Verify SI pump suction valves from BASTs - CLOSED a. Ensure at least one each flowpath closed	valve in •
	 MOV-826A and MOV-826B MOV-826C and MOV-826D 	
	 b. Close RWST outlet valves to SI and CNMT spray pumps (turn on DC power key switches) b. Ensure at least one 	valve closed.
	• MOV-896A • MOV-896B	
	c. Close SI pump RECIRC valves c. Ensure at least one	valve closed.
	• MOV-898 • MOV-897	
	d. Verify SI pump suction valves d. Ensure at least one from RWST - OPEN	valve open.
	• MOV-825A • MOV-825B	
	e. Align operating RHR pump flow path(s) to SI and CNMT spray pump suction. e. Ensure at least one aligned from RHR pum and CS pump suction (Refer to ATT-14.5,	flowpath p(s) to SI header ATTACHMENT
	o <u>IF</u> RHR Pump A operating, <u>THEN</u> open MOV-857A and MOV-857C <u>IF</u> neither flow path aligned <u>TUEN</u> refer	can be
	o <u>IF</u> RHR Pump B operating, <u>ATTACHMENT RHR PRESS</u> <u>THEN</u> open MOV-857B for further guidance	REDUCTION .

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EOP:	TITLE:						Ŗ
ES-1.3		TRANSFER	то	COLD	LEG	RECIRCULATION	-

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
CAUTION	* * * * * * * * * * * * * * * * * * *
SI PUMPS SHOULD BE STOPPED IF RCS PRESSUE PRESSURE.	RE IS GREATER THAN THEIR SHUTOFF HEAD
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *
<u>NOTE</u> : Operation of SI pump C is preferred loops.	l since it delivers to both RCS
14 Verify Adequate RCS Makeup Flow:	
a. RCS pressure - LESS THAN 225 psig [425 psig adverge CNMT]	a. Perform the following:
222 herd [452 herd adverse own]	1) Check RCS conditions:
	o RCS subcooling based on core exit T/Cs greater than FIG-1.0, FIGURE MIN SUBCOOLING.
	o PRZR level greater than 10% [30% adverse CNMT].
	<u>IF</u> either condition <u>NOT</u> met, <u>THEN</u> start one SI pump.
	2) Go to Step 15.
b. RHR injection flow adequate:	b. Start one SI pump.
o Core exit T/Cs - LESS THAN REQUIREMENTS OF FIG-5.0, FIGURE RHR INJECTION	
o Check RVLIS level (no RCPS) – GREATER THAN 52% [55% adverse CNMT]	

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STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAI	NED
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * *
CAUTION	
IF A CNMT SPRAY PUMP IS STARTED. THEN CNMT PRESSURE SHOULD BE MONITORED. CNMT PRESSURE SHOULD NOT BE REDUCED TO LESS THAN 2	CLOSELY 2 PSIG.
	* * * * * * * * *
*15 Check If CNMT Spray Is Required:	
a. CNMT pressure – GREATER THAN a. Perform the foll 28 PSIG	owing:
1) <u>IF</u> CNMT spray	previously
greater than	55%, <u>THEN</u>
consult TSC to CNMT spray sh	o determine if ould be
restarted.	

2) Go to Step 16.

b. Manually open valve(s) for selected pump.

- CS pump A, MOV-860A or MOV-860B
- CS pump B, MOV-860C or MOV-860D
- c. <u>IF</u> the selected CNMT spray pump will not start, <u>THEN</u> align and start the other CNMT spray pump. <u>IF</u> neither pump will start, <u>THEN</u> continue with Step 16. <u>WHEN</u> a CNMT spray pump can be started, <u>THEN</u> do steps 15d, e and f.

d. Adjust RHR flow to maintain less than 1500 gpm per operating RHR pump as indicated by the total of FI-931A, FI-931B and FI-626 indications.

b. Verify CNMT spray pump discharge

c. Start selected CNMT spray pump

valves - OPEN

MOV-860A

MOV-860B
 MOV-860C
 MOV-860D

This Step continued on the next page.

step continued on the next

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ES-1.3 TRANSFER TO COLL) LEG RECIRCULATION
	PAGE 16 0
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
(Step 15 continued from previous	; page)
e. Verify NaOH flow (FI-930)	e. <u>IF</u> NaOH flow <u>NOT</u> indicated, <u>THE</u> place switches for NaOH tank outlet valves to OPEN.
	AOV-836AAOV-836B
f. <u>WHEN</u> CNMT pressure decreases t 22 psig, <u>THEN</u> perform the following:	ö
1) Reset CNMT spray	
2) Check NaOH flow (FI-930) - FLOW	NO 2) Place NaOH tank outlet valve switches to close
	AOV-836AAOV-836B
3) Stop CNMT spray pumps and place in PULL STOP	
4) Close CNMT spray pump discharge valves	
• MOV-860A	
 MOV-860B MOV-860C 	
• MOV-860D	
16 Verity Adequate Core Cooling	IF both RHR pumps running, <u>THEN</u> ensure two SI pumps running.
o Core exit T/Cs - STABLE OR DECREASING	IF only one RHR pump running, THEN nerform the following.
o RVLIS level (no RCPs) - STABLE OR INCREASING	a. Ensure one SI pump running.
o RVLIS level (no RCPs) – GREATE THAN 52% [55% adverse CNMT]	R b. <u>WHEN</u> CNMT spray pumps stopped, <u>THEN</u> start one additional SI pump.

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ES-1.3 TRANSFER TO COLD LE	EG RECIRCULATION PAGE 17
	DEGEONGE NOT OPERATIVE
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>NOTE</u> : TDAFW pump flow control AOVs may	drift open on loss of IA.
*17 Monitor Intact S/G Levels:	
a. Narrow range level – GREATER THAN 7% [25% adverse CNMT]	a. Maintain total feed flow greate than 200 gpm until narrow range level greater than 7% [25% adverse CNMT] in at least one S/G.
b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%	

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TRANSFER TO COLD LEG RECIRCULATION

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B Establish Normal Shutdown Alignment:	
a. Check condenser – AVAILABLE	a. Dispatch AO to perform ATT-17.1 ATTACHMENT SD-2.
b. Perform the following:	
o Open generator disconnects	
1G13A719X13A73	
o Place voltage regulator to OFF	• .
o Open turbine drain valves	
o Rotate reheater steam supply controller cam to close valves	
o Place reheater dump valve switches to HAND	
o Stop all but one condensate pump	
c. Verify adequate Rx head cooling:	
1) Verify at least one control rod shroud fan – RUNNING	1) Manually start one fan as power supply permits (45 kw)
2) Verify one Rx compartment	2) Perform the following:
COULING TAIL & KOMMING	o Dispatch AO to reset UV relays at MCC C and MCC I
	o Manually start one fan as power supply permits (23 kw)
d. Verify ATT-17.0, ATTACHMENT SD-1 - COMPLETE	

ES-1.3 TRANSFER TO COLD LEG	REV: 39
	PAGE 19 Of
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19 Check If Emergency D/Gs Should Be Stopped:	
a. Verify AC emergency busses energized by offsite power:	a. Try to restore offsite power (Refer to ER-ELEC.1, RESTORATION OF OFFSITE POWER).
o Emergency D/G output breakers - OPEN	
GREATER THAN 420 VOLTS o AC emergency bus normal feed	
breakers - CLOSED b. Stop any unloaded emergency D/G and place in standby (Refer to ATT-8.1, ATTACHMENT D/G STOP)	
	-

	REV: 39
ES-1.3 TRANSFER TO COLD LEG	G RECIRCULATION PAGE 20 of 23
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20 Check If SI ACCUMs Should Be Isolated:	
a. Both RCS hot leg temperatures - LESS THAN 400°F	a. Continue with Step 21. <u>WHEN</u> both RCS hot leg temperatures less than 400°F, <u>THEN</u> do Steps 20b through d.
b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves	
 MOV-841. MCC C position 12F MOV-865, MCC D position 12C 	
c. Close SI ACCUM discharge valves	c. Vent any unisolated ACCUMs:
 ACCUM A. MOV-841 ACCUM B. MOV-865 	 Open vent valves for unisolated SI ACCUMs.
1	 ACCUM A, AOV-834A ACCUM B, AOV-834B
	2) Open HCV-945.
	<u>IF</u> an accumulator can <u>NOT</u> be isolated or vented, <u>THEN</u> consult TSC to determine contingency actions.
d. Locally reopen breakers for MOV-841 and MOV-865	

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ES-1.3 TRANSFER TO COLD LEG	G RECIRCULATION
	ê 14. ⁴
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * *
<u>CAUTIO</u>	<u>N</u>
IF FUEL DAMAGE IS SUSPECTED, MAINTAIN S/ PRESSURE.	G PRESSURE SLIGHTLY GREATER THAN RCS
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * *
21 Check If Intact S/Gs Should Be Depressurized To RCS Pressure:	
a. RCS pressure - LESS THAN INTACT S/G PRESSURES	a. Go to Step 22.
b. Direct RP to sample S/Gs for activity	
c. Request TSC perform a dose projection on steaming S/Gs	
d. Dose projection for each S/G - ACCEPTABLE	d. Do <u>NOT</u> dump steam from a S/G with an unacceptable dose projection.
e. Dump steam to condenser from intact S/G(s) until S/G pressure less than RCS pressure	e. <u>IF</u> steam dump to condenser <u>NOT</u> available, <u>THEN</u> dump steam usin intact S/G ARVs until S/G pressure less than RCS pressure
22 Consult TSC to Determine If Rx Vessel Head Should Be Vented	
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ES-1.3	TRANSFER TO COLD LE	G RECIRCULATION	PAGE 22 of 23
<u> </u>			
STEP A	TION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]
<u>NOTE</u> : This samp	procedure should be continued le in Step 23.	1 while obtaining CNMT hydr	rogen
23 Check Concen	CNMT Hydrogen tration:		
a. Dire moni	ct RP to start CNMT hydrogen tors as necessary		
b. Hydr THAN	ogen concentration - LESS 0.5%	b. Consult TSC to deter hydrogen recombiners placed in service.	mine if should be
<u>NOTE</u> : The	ISC should be consulted before	e changing recirculation li	neups.
24 Check GREATE EVENT	Event Duration - R THAN 19 HOURS AFTER INITIATION	Consult TSC to evaluate plant status.	e long term
25 Secure	CNMT Spray		
a. Rese	t CNMT spray		
b. Plac swit	e NaOH Tank outlet valve ches in AUTO		
• A0 • A0	V-836A V-836B		
c. Plac STOP	e CNMT spray pumps in PULL		
d. Clos CNMT	e discharge valves for idle spray pumps		
o P	A qmu		
•	MOV-860A MOV-860B		
o P	1mp B		
•	MOV-860C MOV-860D		

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	ES-1.3 TRANSFER TO COLD LEG RECIRCULATION	PAGE 23 of 23
1		
/	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED	
		J
	26 Verify Two SI Pumps - RUNNING Manually start pumps.	
	27 Check Core Exit T/Cs - LESS Perform the following:	
	THAN REQUIREMENTS OF FIG-5.0, FIGURE RHR INJECTION a. Manually open both P and block valves.	RZR PORVs
	b. Verify core exit T/C to less than require FIG-5.0, FIGURE RHR <u>IF NOT</u> , <u>THEN</u> dump st intact S/Gs until co less than required.	s decreasing ments of INJECTION. eam from re exit T/Cs
	28 Consult TSC To Evaluate Long Term Plant Status	
,	- END -	
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EOP:

TRANSFER TO COLD LEG RECIRCULATION

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ES-1.3 APPENDIX LIST

<u>TITLE</u>

1) RED PATH SUMMARY

TITLE:

- 2) FIGURE RHR INJECTION (FIG-5.0)
- 3) FIGURE MIN SUBCOOLING (FIG-1.0)
- 4) FIGURE MIN RCS INJECTION (FIG-6.0)
- 5) ATTACHMENT D/G STOP (ATT-8.1)
- 6) ATTACHMENT SD-1 (ATT-17.0)
- 7) ATTACHMENT SD-2 (ATT-17.1)
- 8) ATTACHMENT RHR NPSH (ATT-14.3)
- 9) ATTACHMENT RHR SYSTEM (ATT-14.5)
- 10) ATTACHMENT MIN SW (ATT-2.1)
- 11) ATTACHMENT RHR PRESS REDUCTION (ATT-14.6)
- 12) ATTACHMENT LOSS OF OFFSITE POWER (ATT-8.5)
- 13) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 14) FOLDOUT

EOP:		TITLE:	REV: 39
ES-:	1.3	TRANSFER TO COLD LEG RECIRCULATION	PAGE 1 of 1
	-		
		<u>RED PATH SUMMARY</u>	
a.	SUBCI	RITICALITY - Nuclear power greater than 5%	
b.	CORE	COOLING - Core exit T/Cs greater than 1200°F -OR-	
		Core exit T/Cs greater than 700°F <u>Al</u> RVLIS level (no RCPs) less than 52% adverse CNMT]	<u>1D</u> [55%
c.	HEAT	SINK - Narrow range level in all S/Gs less that [25% adverse CNMT] <u>AND</u> total feedwater less than 200 gpm	an 7% flow
d.	INTE	GRITY - Cold leg temperatures decrease greater 100°F in last 60 minutes <u>AND</u> RCS cold temperature less than 285°F	than leg
e.	CONT	AINMENT - CNMT pressure greater than 60 psig	

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EOP:		TITLE:
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ES-1.3	3	

TRANSFER TO COLD LEG RECIRCULATION

PAGE 1 of 1

FOLDOUT PAGE

1. ECA-1.1 TRANSITION CRITERIA

<u>IF</u> emergency coolant recirculation is established and subsequently lost <u>AND</u> the cause is something <u>OTHER</u> <u>THAN</u> sump blockage, <u>THEN</u> go to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION, Step 1.

2. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pusbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.
- c. Go to ECA-1.1, LOSS OF EMERGENCY COOLANT RECIRCULATION.

3. AFW SUPPLY SWITCHOVER CRITERION

<u>IF</u> CST level decreases to less than 5 feet, <u>THEN</u> switch to alternate AFW water supply (Refer to ER-AFW.1, ALTERNATE WATER SUPPLY TO AFW PUMPS).

÷ TITLE: EOP: REV: 23 FR-C.1 RESPONSE TO INADEQUATE CORE COOLING PAGE 1 of 19

GINNA STATION CONTROLLED COPY NUMBER <u>23</u>

ONSIBLE MANAGER

12-2005 TIVE DATE EFFEC

CATEGORY 1.0

REVIEWED BY:_____

		
EOP:	TITLE:	REV: 23
FR-C.1	RESPONSE TO INADEQUATE CORE COOLING	
		PAGE 2 of 19

- A. PURPOSE This procedure provides actions to restore core cooling.
- B. ENTRY CONDITIONS/SYMPTOMS
 - 1. ENTRY CONDITIONS This procedure is entered from:
 - a. F-0.2, CORE COOLING Critical Safety Function Status Tree, on a RED condition.

	EOP: TITLE: FR-C.1 RESPONSE TO INADEOUATE CORE	COOLING	REV: 23
			PAGE 3 of 19
i			
1	STEP ACTION/EXPECTED RESPONSE RESPONSE	SE NOT OBTAINED	
	<u>NOTE</u> : o Adverse CNMT values should be used wheneve greater than 4 psig or CNMT radiation is g	er CNMT pressure greater than 10 ⁺	is 05 _{R/hr} .
	o Foldout Page should be open and monitored	periodically.	
	* 1 Monitor RWST Level - GREATER Perform THAN 28%	the following:	
	a. Ensur cold Steps TRANS RECIP	e SI system ali leg recirculati s 1 through 14 o SFER TO COLD LEG RCULATION.	gned for on using f ES-1.3,
	b. <u>WHEN</u> for s to St	the SI system i sump recirculati cep 4.	s aligned on, <u>THEN</u> go
	2 Verify SI Pump Suction Aligned to RWST:		
	a. Verify SI pump suction valves a. Ensur from RWST - OPEN sucti	e at least one of the second	SI pump WST open.
	• MOV-825A • MOV • MOV-825B • MOV	7-825A 7-825B	

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FR-C.1

TITLE:

RESPONSE TO INADEQUATE CORE COOLING

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CAUTIO	<u>N</u>
RHR PUMPS SHOULD NOT BE RUN LONGER THAN EXCHANGERS.	1 HOUR WITHOUT CCW TO THE RHR HEAT
* * * * *, * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
3 Verify SI Pump And RHR Pump Emergency Alignment:	
a. RHR pump discharge to Rx vessel deluge - OPEN	a. Ensure at least one valve open.
• MOV-852A • MOV-852B	
b. Verify both RHR pumps - RUNNING	b. Manually start pumps
c. Verify SI pump C – RUNNING	c. Manually start pump on available bus.
d. Verify SI pump A - RUNNING	d. Perform the following:
	1) Ensure SI pumps B and C running.
	2) Ensure SI pump C aligned to discharge line A:
	o MOV-871B closed
	o MOV-871A open
	3) Go to Step 4.

This Step continued on the next page.

OP: TITLE:	REV: 23
FR-C.I RESPONSE TO INADEQUA	PAGE 5 0
· .	
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
(Step 3 continued from previous page))
e. Verify SI pump B – RUNNING	e. Perform the following:
	 Ensure SI pumps A and C running.
· ·	 Ensure SI pump C aligned to discharge line B:
	o MOV-871B open
	o MOV-871A closed
	3) Go to Step 4.
f. Verify both SI pump C discharge valves - OPEN	f. Manually open valves as necessary.
• MOV-871A • MOV-871B	
4 Verify SI Flow In Both Trains:	Perform the following:
o SI line loop A and B flow indicators - CHECK FOR FLOW	a. Manually start pumps and align valves as necessary.
o RHR loop flow indicator - CHECK	b. Establish maximum charging flow
FOR FLOW	c. Continue efforts to establish S or RHR flow.



	REV: 23
	PAGE 7 of 19
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8 Check RVLIS Indication:	
a. RCPs - BOTH SECURED	a. Return to procedure and step in effect
b. RVLIS level – GREATER THAN 52% [55% adverse CNMT]	b. <u>IF</u> RVLIS increasing, <u>THEN</u> return to Step 1. <u>IF NOT, THEN</u> go to Step 9.
c. Return to procedure and step in effect	
9 Check Core Exit T/Cs:	
a. Temperature – LESS THAN 700°F	a. <u>IF</u> decreasing, <u>THEN</u> return to Step 1. <u>IF NOT, THEN</u> go to Step 10.
b. Return to procedure and step in effect	
<u>CAUTI(</u>	* * * * * * * * * * * * * * * * * * *
IF OFFSITE POWER IS LOST AFTER SI RESET TO RESTART SAFEGUARDS EQUIPMENT. (REFE OFFSITE POWER)	, THEN MANUAL ACTION MAY BE REQUIRED R TO ATT-8.5, ATTACHMENT LOSS OF
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
10 Reset SI	

EO	P: FR-C.	1	TITLE:	RESPONSI	E TO	IN	ADEQUATE	CORE	COOLIN	íG
	STEP	A	CTION/	EXPECTED R	SPON	SE		RESPON	ISE NOT	OB

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SIEL	ACTION/EXPECTED) RESPONSE	RESPONSE NO	T OBTAINED
11 Re	set CI:			
а.	Depress CI reset	pushbutton	. •	
b.	Verify annunciato:	r A-26, CNMT	b. Perform t	he following:
	ISOLATION - EXTIN	JUISHED	1) Reset	SI.
			2) Depres	s CI reset pushbutto
<u>NOTE</u> :	This procedure she sample in Step 12	ould be continued.	while obtainin	g CNMT hydrogen
12 Ch Cc	eck CNMT Hydrogencentration:	ən		
a.	Direct RP to star monitors as neces:	t CNMT hydrogen sary		
Ъ.	Hydrogen concentra THAN 0.5%	ition - LESS	b. Consult T hydrogen placed in	SC to determine if recombiners should be service.
		·.		
	- - -			
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•	FOP: TITLE: FR-C.1 RESPONSE TO INADEQU	UATE CORE COOLING	REV: 23	
k j		<u></u>	PAGE 9 of 19	
	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]]	
	· · · · · · · · · · · · · · · · · · ·	* * * * * * * * * * * * * * * * * * *		
	 O IF CST LEVEL DECREASES TO LESS THAN FOR AFW PUMPS WILL BE NECESSARY (REF TO AFW PUMPS). 	5 FEET, THEN ALTERNATE WAT ER TO ER-AFW.1, ALTERNATE	ER SOURCES WATER SUPPLY	
	 A FAULTED OR RUPTURED S/G SHOULD NOT INTACT S/G IS AVAILABLE. 	BE USED IN SUBSEQUENT STE	PS UNLESS NO	
	* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * *	* * * * * * * *	
	<u>NOTE</u> : TDAFW pump flow control AOVs may	drift open on loss of IA.		
	*13 Monitor Intact S/G Levels:			
	a. Narrow range level – GREATER THAN 7% [25% adverse CNMT]	a. Maintain total feed than 200 gpm until level greater than adverse CNMT] in at	flow greater narrow range 7% [25% least one	
$\mathbf{\bigcirc}$		S/G.		
		<u>IF</u> total feed flow 200 gpm can <u>NOT</u> be <u>THEN</u> perform the fo	greater than established, llowing:	
·		1) Continue attempt establish a heat	s to sink in at	
		ER-AFW.1, ALTERN SUPPLY TO AFW PU	ATE WATER MPS).	
		2) Go to Step 23.		
	b. Control feed flow to maintain narrow range level between 17% [25% adverse CNMT] and 50%			
-				

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	EOP: TITLE:	REV: 23								
		PAGE 10 of 19								
1										
	STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED									
	* * * * * * * * * * * * * * * * * * *	* * * * * * *								
	IF ANY PRZR PORV OPENS BECAUSE OF HIGH PRZR PRESSURE, IT SHOULD BE CLOSED AFTER PRESSURE DECREASES TO LESS THAN 2335 PSIG (REFER TO STEP 14B).									
	* * * * * * * * * * * * * * * * * * * *	* * * * * * *								
	14 Check RCS Vent Paths:									
	a. Power to PRZR PORV block valves - AVAILABLE AVAILABLE a. Restore power to blo unless block valve w isolate an open PORV	ck valves as closed to :								
	 MOV-515, MCC D pos MOV-516, MCC C pos 	ition 6C ition 6C								
à	b. PORVs - CLOSED b. <u>IF</u> PRZR pressure les 2335 psig, <u>THEN</u> menu PORVs.	s than ally close								
•	<u>IF</u> any PORV can <u>NOT</u> <u>THEN</u> manually close valve.	be closed, its block								
	c. Block valves – AT LEAST ONE OPEN c. Open one block valve was closed to isolat PORV.	unless it e an open								
	d. Rx vessel head vent valves - d. Manually close valve CLOSED	g.								
	 SOV-590 SOV-591 SOV-592 SOV-593 									
1										

		RESPONSE NOT OBTAINED	
	L		
15 Esta Dump	blish Condenser Steam Manual Control		
a.V	erify condenser available:	a. Place intact S/G ARV con in MANUAL and go to Step	troller
0	Intact S/G MSIV - OPEN		
0	Annunciator G-15, STEAM DUMP ARMED – LIT		
b. P. s	lace steam dump mode selector witch in MANUAL		
c.P.	lace steam dump controller in		
M	ANUAL		
м. <u>10те</u> : Р	ANUAL artial uncovering of S/G tubes is	acceptable in the following a	teps.
м. <u>10те</u> : Р.	ANUAL artial uncovering of S/G tubes is	acceptable in the following a	steps.
M <u>NOTE</u> : P 16 Depr To 2	ANUAL artial uncovering of S/G tubes is essurize All Intact S/Gs 00 PSIG:	acceptable in the following a	steps.
M NOTE: P 16 Depr To 2 a. D m	ANUAL artial uncovering of S/G tubes is essurize All Intact S/Gs 00 PSIG: ump steam to condenser at aximum rate	acceptable in the following a a. Manually or locally dump at maximum rate using S/	steps. o steam 'G ARVs.
M NOTE: P. 16 Depr To 2 a. D m b. C 2	ANUAL artial uncovering of S/G tubes is ressurize All Intact S/Gs 00 PSIG: ump steam to condenser at aximum rate heck S/G pressure - LESS THAN 00 PSIG	acceptable in the following a a. Manually or locally dump at maximum rate using S/ b. <u>IF</u> S/G pressure decreasi return to Step 13.	steps. Steam G ARVs. .ng, <u>THE</u>
M NOTE: P L6 Depr To 2 a. D m b. C 2	ANUAL artial uncovering of S/G tubes is essurize All Intact S/Gs 00 PSIG: ump steam to condenser at aximum rate heck S/G pressure - LESS THAN 00 PSIG	acceptable in the following a a. Manually or locally dump at maximum rate using S/ b. <u>IF</u> S/G pressure decreasi return to Step 13. <u>IF NOT, THEN</u> go to Step	steps. Steam G ARVs. .ng, <u>THEP</u> 23.
M NOTE: P 16 Depr To 2 a. D m b. C 2 c. C B	ANUAL artial uncovering of S/G tubes is essurize All Intact S/Gs 00 PSIG: ump steam to condenser at aximum rate heck S/G pressure - LESS THAN 00 PSIG heck RCS hot leg temperatures - DTH LESS THAN 400°F	 acceptable in the following a a. Manually or locally dump at maximum rate using S/ b. <u>IF</u> S/G pressure decreasi return to Step 13. <u>IF NOT, THEN</u> go to Step c. <u>IF</u> RCS hot leg temperatu decreasing, <u>THEN</u> return Step 13. 	steps. Steam G ARVs. Ing, <u>THE</u> 23. Ires to
M NOTE: P 16 Depr To 2 a. D m b. C 2 c. C B	ANUAL artial uncovering of S/G tubes is ressurize All Intact S/Gs 200 PSIG: ump steam to condenser at aximum rate heck S/G pressure - LESS THAN 00 PSIG heck RCS hot leg temperatures - OTH LESS THAN 400°F	 acceptable in the following a a. Manually or locally dump at maximum rate using S/ b. <u>IF</u> S/G pressure decreasing return to Step 13. <u>IF NOT, THEN</u> go to Step c. <u>IF</u> RCS hot leg temperatur decreasing, <u>THEN</u> return Step 13. <u>IF NOT, THEN</u> go to Step 	steps. Steam G ARVs. Ing, <u>THER</u> 23. ares to 23.

OP :		

FR-C.1

TITLE:

RESPONSE TO INADEQUATE CORE COOLING

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EOP: TITLE: RESPONSE TO INADEQUATE CORE COOLING REV PAG PAG STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 18 Stop Both RCPs Response to Condenser At Manually or locally dump ste 19 Dump Steam to Condenser At Manually or locally dump ste All Intact S/GS To Atmospheric Pressure	: 23 E 13 of
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 18 Stop Both RCPs 19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure Manually or locally dump ste maximum rate using S/G ARVs.	E 13 of
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 18 Stop Both RCPs Response Not obtained 19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure Manually or locally dump ste maximum rate using S/G ARVs.	
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED 18 Stop Both RCPs 19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure Manually or locally dump ste maximum rate using S/G ARVs.	<u></u>
18 Stop Both RCPs 19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure	
 18 Stop Both RCPs 19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure 18 Stop Both RCPs Manually or locally dump ste maximum rate using S/G ARVs. 	
 18 Stop Both RCPs 19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure 18 Stop Both RCPs Manually or locally dump ste maximum rate using S/G ARVs. 	
19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure	
19 Dump Steam to Condenser At Maximum Rate To Depressurize All Intact S/Gs To Atmospheric Pressure	
Atmospheric Pressure	am at
Memospheric riessure	
20 Verify SI Flow: Perform the following:	
o SI line loop A and B flow a. Continue efforts to estab indicators - CHECK FOR FLOW or RHR flow.	lish SI
-OR- b. Try to establish charging	flow.
o RHR loop flow indicator – CHECK c. <u>IF</u> core exit T/Cs less th FOR FLOW 1200°F, <u>THEN</u> return to St	an ep 19.
<u>IF NOT, THEN</u> go to Step 2	.3.
21 Check Core Cooling:	
a. Core exit T/Cs - LESS THAN 1200°F a. Go to Step 23.	
b. RCS hot leg temperatures - BOTH b. Return to Step 19. LESS THAN 320°F	
c. RVLIS level (no RCPs) – GREATER c. Return to Step 19. THAN 77% [82% adverse CNMT]	

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- STI	3P -		TION/H	XPECTED	RESPONSE		RES	PONSE N	OT OBT	AINED			
L		L					L						
22	Go Pr	to A ocedu	pprop re	oriate :	Plant								
	а.	Check 28%	RWST	level -	GREATER	THAN	a. Go Ll	o to ES EG RECI	-1.3, I RCULATI	RANSFI	SR TO (tep 1.	OLD	
	b.	Go to	E-1,	LOSS OF	REACTOR	OR	:				-		
		SECON	DARY	JOULANT,	Step 18								
									.*				
		·	·										
				·									
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EOP: TITLE:	REV: 23
FR-C.I RESPONSE IO INAL	PAGE 16 of 19
	· · · · · · · · · · · · · · · · · · ·
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24 Dump Steam To Condenser At Maximum Rate To Depressurize	Manually or locally dump steam from all intact S/Gs using ARVs.
All Intact 5/65 10 Atmospheric Pressure:	<u>IF</u> ARVs not available on intact S/Gs, <u>THEN</u> :
	<pre>o Open TDAFW pump steam supply valve from intact S/G(s)</pre>
	 S/G A, MOV-3505A S/G B, MOV-3504A
	- OR -
	o Perform the following:
	a. Open intact S/G MISV bypass valves
	b. Open both priming air ejector steam inlet valves
	 V-3580 V-3581
	<u>IF</u> no intact S/G available, <u>THEN</u> use faulted or ruptured S/G.
25 Check Core Exit T/Cs - LESS THAN 1200°F	<u>IF</u> core exit temperatures decreasing, <u>THEN</u> return to step 23.
	<u>IF</u> core exit temperatures increasing, <u>THEN</u> go to SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE, step 1.

EOP:

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FR-C.1

TITLE:

RESPONSE TO INADEQUATE CORE COOLING

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 Check If SI ACCUMs Should Be Isolated: a. RHR loop flow indicator - AT LEAST INTERMITTENT FLOW b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary MOV-841 MCC C position 12F MOV-865 MCC D position 12C c. Reset SI. d. Close SI ACCUM discharge valves ACCUM A. MOV-841 ACCUM B. MOV-865 1) I 4) 0 5) 0 	o Step 28.
 Check If SI ACCUMs Should Be Isolated: a. RHR loop flow indicator - AT LEAST INTERMITTENT FLOW b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary MOV-841 MCC C position 12F MOV-865 MCC D position 12C c. Reset SI. d. Close SI ACCUM discharge valves ACCUM A. MOV-841 ACCUM B. MOV-865 1) 1 4) 0 5) 0 	o Step 28.
 Check If SI ACCUMS Should Be Isolated: a. RHR loop flow indicator - AT LEAST INTERMITTENT FLOW b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary MOV-841 MCC C position 12F MOV-865 MCC D position 12C c. Reset SI. d. Close SI ACCUM discharge valves ACCUM A, MOV-841 ACCUM B, MOV-865 1) I 4) (5) (o Step 28.
 a. RHR loop flow indicator - AT LEAST INTERMITTENT FLOW b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary MOV-841 MCC C position 12F MOV-865 MCC D position 12C c. Reset SI. d. Close SI ACCUM discharge valves ACCUM A. MOV-841 ACCUM B. MOV-865 1) I 4) (5) (o Step 28.
 A. KHK 1000 Flow Indicator - AI a. Go LEAST INTERMITTENT FLOW b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary MOV-841 MCC C position 12F MOV-865 MCC D position 12C c. Reset SI. d. Close SI ACCUM discharge valves d. Per: unit ACCUM A. MOV-841 ACCUM B. MOV-865 1) 1 3) 1 4) (5) (b Step 28.
 b. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary MOV-841 MCC C position 12F MOV-865 MCC D position 12C c. Reset SI. d. Close SI ACCUM discharge valves ACCUM A. MOV-841 ACCUM B. MOV-865 1) I 3) I 4) (5) (· · ·
 MOV-841 MCC C position 12F MOV-865 MCC D position 12C c. Reset SI. d. Close SI ACCUM discharge valves ACCUM A. MOV-841 ACCUM B. MOV-865 a) 1 a) 1 b) 2 c) 3 c) 4 c) 4 c) 4 	
<pre>c. Reset SI. d. Close SI ACCUM discharge valves</pre>	
 d. Close SI ACCUM discharge valves ACCUM A, MOV-841 ACCUM B, MOV-865 1) 1 2) 1 3) 1 4) 0 5) 0 	
• ACCUM A. MOV-841 • ACCUM B. MOV-865 2)] 3)] 4) (5) (orm the following to vent an plated accumulator:
• ACCUM B, MOV-865 1)] 2)] 3)] 4) (5) (
2)] 3)] 4) (5) (eset CI.
3)] 4) (5) (nsure adequate air ompressor(s) running.
4) (1 5) (stablish IA to CNMT.
5) (pen vent valves for nisolated SI ACCUMs.
5) (ACCUM A, AOV-834A ACCUM B, AOV-834B
TR	pen HCV-945.
14 150 TSC act:	
e. Locally reopen breakers for MOV-841 and MOV-865	n accumulator can <u>NOT</u> be ated or vented, <u>THEN</u> consult to determine contingency ons.
	n accumulator can <u>NOT</u> be ated or vented, <u>THEN</u> consult to determine contingency ons.
	n accumulator can <u>NOT</u> be ated or vented, <u>THEN</u> consult to determine contingency ons.

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	EOP:			REV: 23
	FR-C.1	RESPONSE TO INADEQ	UATE CORE COOLING	PAGE 18 of 1
J				
	STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED]
	27 Check Stoppe	If RCPs Should Be d:		
	a. Both LESS	1 RCS hot leg temperatures - 5 THAN 320°F	a. Go to Step 28.	
	b. Stop	all RCPs		·
	28 Verify	SI Flow:	Perform the following:	
	o SI 1 indi	ine loop A and B flow cators – CHECK FOR FLOW	a. Continue efforts to or RHR flow.	establish SI
		-OR-	b. Try to establish cha	rging flow.
	o RHR FOR	loop flow indicator – CHECK FLOW	c. Return to Step 23.	

29 Check Core Cooling:

a. RCS hot leg temperatures - LESS a. Return to Step 23. THAN 320°F

b. RCPs - BOTH SECURED

- c. RVLIS level GREATER THAN 77% [82% adverse CNMT]
- b. Stop all RCPs.
- c. Return to Step 23.

EOP:		
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TITLE:

RESPONSE TO INADEQUATE CORE COOLING

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EOP:

TITLE:

FR-C.1 APPENDIX LIST

TITLE

- 1) ATTACHMENT RCP START (ATT-15.0)
- 2) ATTACHMENT N2 PORVS (ATT-12.0)
- 3) ATTACHMENT LOSS OF OFFSITE POWER (ATT-8.5)

4) ATTACHMENT NO SW PUMPS (ATT-2.4)

5) FOLDOUT PAGE

EOP:	TITLE:						DEV.	23
FR-C.1		RESPONSE	TO	INADEOUATE	CORE	COOLING	TEV.	25
				~~~~			PAGE	1 of 1

#### FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-C series procedures.

#### 1. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

EOP: TITLE: REV: 21 FR-C.2 RESPONSE TO DEGRADED CORE COOLING PAGE 1 of 14

GINNA STATION

RESPONSIBLE MANAGER

12-1 EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:_____

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	EOP:	TITLE:							REV:	21	
	FR-C.2		RESPONSE	то	DEGRADED	CORE	COOLING		PAGE	2 of	14

- A. PURPOSE This procedure provides actions to restore adequate core cooling.
- B. ENTRY CONDITIONS/SYMPTOMS
  - 1. ENTRY CONDITIONS This procedure is entered from:
    - a. F-0.2, CORE COOLING Critical Safety Function Status Tree, on any ORANGE condition.

EOP:			
F	<b>R</b> -	·C.	2

TITLE:

RESPONSE TO DEGRADED CORE COOLING

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FR-C 2	HILL:	ED CORE COOLING	REV: 21
FR-C.2	RESPONSE TO DEGRAD	ED CORE COODING	PAGE 4 of 1
	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINE	)
3 Verify Emerge	SI Pump And RHR Pump Ency Alignment:		
a. RHR delu	pump discharge to Rx vessel 1ge - OPEN	a. Ensure at least one	e valve open.
• MC • MC	DV-852A DV-852B		
b. Veri	fy SI pump C - RUNNING	b. Manually start pump bus.	o on available
c. Veri	fy SI pump A - RUNNING	c. Perform the follow	.ng:
	_	1) Ensure SI pumps running.	B and C
		2) Ensure SI pump ( discharge line A	aligned to
		o MOV-871B clos	ed
		o MOV-871A oper	1
		3) Go to Step 4.	
d. Veri	fy SI pump B - RUNNING	d. Perform the follow	ing:
		<ol> <li>Ensure SI pumps running.</li> </ol>	A and C
		2) Ensure SI pump ( discharge line B	aligned to
		o MOV-871B oper	l
		o MOV-871A clos	ed
		3) Go to Step 4.	
e. Veri valv	fy both SI pump C discharge ves – OPEN	e. Manually open valve necessary.	25 AS
• MC • MC	DV-871A DV-871B		

EOP: TITLE:	REV: 21
FR-C.2 RESPONSE TO DEGRAD	ED CORE COOLING PAGE 5 of 1
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4 verify S1 Flow in Both Trains:	
a. SI line loop A and B flow indicators - CHECK FOR FLOW	a. Perform the following:
	<ol> <li>Manually start SI pumps and align valves as necessary.</li> </ol>
	2) Establish maximum charging flow.
b. RCS pressure - LESS THAN 250 psig [465 psig adverse CNMT]	b. Go to Step 5.
c. RHR loop flow indicator – CHECK FOR FLOW	c. Manually start RHR pumps and align valves.

FR-C.2 RESPONSE TO DEGRADE	D CORE COOLING
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
· · · · · · · · · · · · · · · · · · ·	
IF ANY PRZR PORV OPENS BECAUSE OF HIGH PR AFTER PRESSURE DECREASES TO LESS THAN 233	ZR PRESSURE, IT SHOULD BE CLOSED 5 PSIG (REFER TO STEP 5B).
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *
5 Check RCS Vent Paths:	
a. Power to PRZR PORV block valves - AVAILABLE	a. Restore power to block valves unless block valve was closed to isolate an open PORV:
	<ul> <li>MOV-515, MCC D position 6C</li> <li>MOV-516, MCC C position 6C</li> </ul>
b. PORVs - CLOSED	b. <u>IF</u> PRZR pressure less than 2335 psig, <u>THEN</u> manually close PORVs.
	<u>IF</u> any PORV can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve.
c. Block valves – AT LEAST ONE OPEN	c. Open one block valve unless it was closed to isolate an open PORV.
d. Rx vessel head vent valves – CLOSED	d. Manually close valves.
<ul> <li>SOV-590</li> <li>SOV-591</li> <li>SOV-592</li> <li>SOV-593</li> </ul>	

EOP:

FR-C.2

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	EOP:	TITLE:	NARED CODE COOLING	REV: 21
	FR-C.2	RESPONSE TO DEGR	ADED CORE COOLING	PAGE 8 of 14
		· ·	· · · · · · · · · · · · · · · · · · ·	
-	STEP A	CTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINE	D
				_
	10 Check Valves	SI ACCUM Discharge - OPEN	<u>IF</u> SI ACCUM discharge after ACCUM discharge Step 11. IF NOT. THEM	valves closed , <u>THEN</u> go to N perform the
	<ul> <li>MOV-8</li> <li>MOV-8</li> </ul>	41 65	following:	
			a. Dispatch AO with lo key to locally clos for SI ACCUM dische	ocked valve se breakers arge valves.
			<ul> <li>MOV-841, MCC C per</li> <li>MOV-865, MCC D per</li> </ul>	osition 12F osition 12C
			b. Open SI ACCUM disc	narge valves.
			<ul> <li>ACCUM A, MOV-841</li> <li>ACCUM B, MOV-865</li> </ul>	
	* * * * * *	* * * * * * * * * * * * *	* * * * * * * * * * * * * *	* * * * * * * *
		<u>CAU</u>	<u>TION</u>	
	• IF CST FOR AFW TO AFW	LEVEL DECREASES TO LESS THA PUMPS WILL BE NECESSARY (R PUMPS).	N 5 FEET, THEN ALTERNATE WA BFER TO ER-AFW.1, ALTERNATE	TER SOURCES WATER SUPPLY
	O A FAULT INTACT	ED OR RUPTURED S/G SHOULD N S/G IS AVAILABLE.	OT BE USED IN SUBSEQUENT ST	PS UNLESS NO
	* * * * * *	*,* * * * * * * * * * * *	* * * * * * * * * * * * *	* * * * * * * *
	<u>NOTE</u> : TDAF	W pump flow control AOVs ma	y drift open on loss of IA.	
	*11 Monito:	r Intact S/G Levels:		
	a. Narr THAN	ow range level - GREATER 7% [25% adverse CNMT]	a. Increase total feed restore narrow rang greater than 7% [2] CNMT] in at least o	l flow to ge level 3% adverse one S/G.
	b. Cont narr [25%	rol feed flow to maintain ow range level between 17% adverse CNMT] and 50%		
1				

RESPONSE TO DEGRADED CORE COOLING

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EOP: TITLE:	REV: 21
FR-C.2 RESPONSE TO DEGR	ADED CORE COOLING PAGE 10 of
1	· · · · · · · · · · · · · · · · · · ·
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>CAUT</u>	<u>rion</u>
THE FOLLOWING STEP WILL CAUSE SI ACCUM RED PATH CONDITION IN F-0.4, INTEGRITY COMPLETED BEFORE TRANSITION TO FR-P.1, THERMAL SHOCK.	MULATOR INJECTION WHICH MAY RESULT IN A X STATUS TREE. THIS PROCEDURE SHOULD BE RESPONSE TO IMMINENT PRESSURIZED
* * * * * * * * * * * * * * * * * * *	
13 Depressurize All Intact S/Gs To 200 PSIG:	
a. Maintain cooldown rate in RCS cold legs - LESS THAN 100°F/HR	
b. Dump steam to condenser	b. Manually or locally dump steam from intact S/Gs:
	o Use S/G ARVs.
	-OR-
	o Open TDAFW pump steam supply valve(s) for affected S/G(s):
	<ul> <li>S/G A, MOV-3505A</li> <li>S/G B, MOV-3504A</li> </ul>
	-OR-
	o Locally perform the following:
	o Open intact S/G MSIV bypass valve.
	o Open priming air ejector steam isolation valves.
	• V-3580 • V-3581
c. Check S/G pressures – LESS THAN 200 PSIG	c. Return to Step 11.
d. Check RCS hot leg temperatures - BOTH LESS THAN 400°F	d. Return to Step 11.
e. Stop S/G depressurization	· · · · · · · · · · · · · · · · · · ·

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EOP:	TITLE:	· · · · · · · · · · · · · · · · · · ·	REV:	21
FR-C.2		RESPONSE TO DEGRADED CORE COOLING		
				1 1

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * *	• • • • • • • • • • • • • • • • • • •	* * * * * * * * * * * * * * * * * * *
RHR PUM EXCHANG	IPS SHOULD NOT BE RUN LONGER THAN JERS.	1 HOUR WITHOUT CCW TO THE RHR HEAT
* * * *	* * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
14 Cheo	ck RHR Pumps - RUNNING	Manually start pumps as necessary.
·		• •
	· · · ·	

EOP: TITLE:	REV: 21
FR-C.2 RESPONSE TO DEGRADE	PAGE 12 of 14
	·
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15 Isolate Both SI ACCUMs	
a. Dispatch AO with locked valve key to locally close breakers for SI ACCUM discharge valves if necessary	
<ul> <li>MOV-841, MCC C position 12F</li> <li>MOV-865, MCC D position 12C</li> </ul>	
b. Reset SI	
c. Close SI ACCUM discharge valves	c. Perform the following to vent an unisolated accumulator:
• MOV-841 • MOV-865	1) Reset CI
	2) Ensure adequate air compressor(s) running
	3) Establish IA to CNMT
	4) Open vent valves for unisolated SI ACCUMs.
	<ul> <li>ACCUM A, AOV-834A</li> <li>ACCUM B, AOV-834B</li> </ul>

5) Open HCV-945.

<u>IF</u> an accumulator can <u>NOT</u> be isolated or vented, <u>THEN</u> consult TSC to determine contingency actions.

d. Locally reopen breakers for MOV-841 and MOV-865

EOP: TITLE:		DEV. 21
FR-C.2 RESPONSE TO DEGRA	DED CORE COOLING	REV: 21
		PAGE 13 of
	·	
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAIN	3D
* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * *	* * * * * * * *
CAUTI	<u>ON</u>	
SYMPTOMS FOR FR-C.1, RESPONSE TO INADEQ MONITORED DURING SUBSEQUENT STEPS.	UATE CORE COOLING, SHOULD	) BE CLOSELY
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * *	· · · · · · · · · · · · · · · · · · ·
		• .
16 Stop All RCPs		
17 Depressurize All Intact S/Gs To Atmospheric Pressure:		
a. Maintain cooldown rate in RCS cold legs - LESS THAN 100°F/HR		
b. Dump steam to condenser	b. Manually or locall from intact S/Gs:	y dump steam.
	1) Use S/G ARVs.	
	2) Open TDAFW pump valve(s) for af	steam supply ffected S/G(s):
	<ul> <li>S/G A, MOV-35</li> <li>S/G B, MOV-35</li> </ul>	05A 04A
	3) Locally perform	the following:
	o Open intact bypass valve	S/G MSIV
	o Open priming steam isolat	air ejector ion valves.
	• V-3580 • V-3581	

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FR-C.2

TITLE:

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#### FR-C.2 APPENDIX LIST

# TITLE

- 1) ATTACHMENT RCP START (ATT-15.0)
- 2) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 3) FOLDOUT

TITLE:

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FR-C.2	RESPONSE TO DEGRADED CORE COOLING	κĿν.	21	
		PAGE	1 of	1

#### FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-C series procedures.

## 1. LOSS OF SW CRITERIA

IF no SW pumps are available, THEN perform the following:

a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.

b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

EOP: TITLE: REV: 18 FR-S.1 RESPONSE TO REACTOR RESTART/ATWS PAGE 1 of 13 GINNA STATION CONTROLLED COPY NUMBER PONSIBLE MANAGER RE 12-1 -/S-2005 EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:_____

EOP:	TITLE:		
FR-S 1		RESPONSE TO REACTOR RESTART/ATWS	REV: 18
			PAGE 2 of 13

A. PURPOSE - This procedure provides actions to add negative reactivity to a core which is observed to be critical when expected to be shut down.

#### B. ENTRY CONDITIONS/SYMPTOMS

- 1. ENTRY CONDITIONS This procedure is entered from:
  - a. E-0, REACTOR TRIP OR SAFETY INJECTION, when reactor trip is not verified and manual trip is not effective.
  - b. F-0.1, SUBCRITICALITY, Critical Safety Function Status Tree on either a RED or ORANGE condition.

EOP: TITLE:	REV: 18
FR-S.1 RESPONSE TO REA	CTOR RESTART/ATWS PAGE 3 of 1
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>NOTE</u> : Adverse CNMT values should be us than 4 psig or CNMT radiation is	sed whenever CNMT pressure is greater s greater than 10 ⁺⁰⁵ R/hr.
1 Verify Reactor Trip:	Manually trip reactor.
o At least one train of reactor trip breakers - OPEN	<u>IF</u> reactor trip breakers <u>NOT</u> open, <u>THEN</u> manually insert control rods.
o Neutron flux - DECREASING	
o MRPI indicates - ALL CONTROL ANI SHUTDOWN RODS ON BOTTOM	
2 Verify Turbine Stop Valves - CLOSED	Manually trip turbine.
	<u>IF</u> turbine trip can <u>NOT</u> be verified, <u>THEN</u> close both MSIVs.
3 Check AFW Pumps Running:	
a. MDAFW pumps - RUNNING	a. Manually start MDAFW pumps.
b. TDAFW pump - RUNNING IF NECESSARY	b. Manually open steam supply valves.
	<ul> <li>MOV-3505A</li> <li>MOV-3504A</li> </ul>
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FR-S.	.1

TITLE:

RESPONSE TO REACTOR RESTART/ATWS

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STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *
ACTIONS TAKEN TO INITIATE RCS BORATION S STEPS 1 THROUGH 12 OF E-0, REACTOR TRIP	HALL NOT BE REVERSED WHEN PERFORMING OR SAFETY INJECTION.
* * * * * * * *,* * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
<u>NOTE</u> : o If offsite power is lost coinci lockout relays must be reset to	dent with SI, then MCC C and MCC D restore BA and RMW pumps.
o Foldout page should be open and	monitored periodically.
4 Initiate Emergency Boration Of RCS:	
a. Check SI status:	a. Perform the following:
o All SI annunciators - EXTINGUISHED	1) Complete steps 1 through 12 of E-O, REACTOR TRIP OR SAFETY INJECTION, while
o All SI pumps OFF IN AUTO	continuing with this procedure
	2) <u>IF</u> SI flow indicated, <u>THEN</u> go to Step 5. <u>IF NOT</u> , <u>THEN</u> go to Step 4b.
b. Verify at least one charging	b. Perform the following:
	1) Reset SI if necessary.
	2) Start one charging pump.
c. Align boration path:	c. Initiate normal boration at
1) Start two BA transfer pumps	acid flow control valve,
2) Open MOV-350	established, <u>THEN</u> refer to
3) Verify BA flow	CONTROL MALFUNCTION.
d. Verify charging flow path:	d. Manually align valves and verify
o Charging valve to loop B cold leg (AOV-294) - OPEN	LTOM.
o Charging flow control valve (HCV-142) - DEMAND AT 0%	
	· · ·

FR-S.1 RESPONSE TO REACT	OR RESTART/ATWS
	PAGE 5 01
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5 Check PRZR PORV Status:	
a. RCS pressure – LESS THAN 2335 PSIG	a. Verify PRZR PORVs and block valves open. <u>IF NOT</u> , <u>THEN</u> open PRZR PORVs and block valves as necessary until PRZR pressure less than 2335 psig.
b. Check PORVs - BOTH CLOSED	b. <u>IF</u> PRZR pressure less than 2335 psig, <u>THEN</u> manually close PORVs.
	<u>IF</u> any PORV can <u>NOT</u> be closed, <u>THEN</u> manually close its block valve. <u>IF</u> block valve can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally check breaker.
	<ul> <li>MOV-515, MCC D position 6C</li> <li>MOV-516, MCC C position 6C</li> </ul>
6 Verify CNMT Ventilation Isolation	
<ul> <li>a. CVI annunciator - LIT</li> <li>Annunciator A-25, CNMT VENTILATION ISOLATION</li> </ul>	a. Momentarily deenergize CNMT particulate monitor, R-11, to actuate CVI.
b. Verify CVI valve status lights - BRIGHT	b. Manually close affected CVI valves
	<u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> close alternate isolation valves (Refer to ATT-3.0, ATTACHMENT CL/CVL for alternate isolation
	valves).

EOP:	TITLE:			REV: 18
FK-5.1	RESPONS.	E IO REACIOR	RESTART/AIWS	PAGE 6
			· · · · · · · · · · · · · · · · · · ·	
- STEP - A	CTION/EXPECTED RES	PONSE	RESPONSE NOT OBTAINED	·]
7 Check Have O a. Reac	If The Followin ccurred: tor trip	g Trips	a. Dispatch AO to loca reactor:	lly trip
			o Trip MG set brea 13 and bus 15.	kers at bus
			-OR-	
		· .	o Open reactor tri locally.	p breakers

b. Dispatch AO to locally trip turbine using manual trip lever on west end of HP turbine.

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* 8 Check If Reactor Is Subcritical:

b. Turbine trip

a. Energize MCC A AND B

b. Check power range channels - b. Go to Step 9. LESS THAN 5%

c. Check Intermediate range channels c. Go to Step 9.

.

o Startup rate - NEGATIVE

- OR -

o Intermediate range channels -DECREASING

d. Go to Step 18.

EOP: TITLE:	REV: 18	
FR-S.1 RESPONSE TO REACT	TOR RESTART/ATWS	
	PAGE 7 of 1	
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
CAUTI	* * * * * * * * * * * * * * * * * * *	
TE CON IEVEL DECDEACES TO IESS THAN 5 E		
AFW PUMPS WILL BE NECESSARY (REFER TO EL PUMPS).	R-AFW.1, ALTERNATE WATER SUPPLY TO AFW	
* * * * * * * * * * * * * * * * * * * *		
* 9 Monitor S/G Level:		
a. Narrow range level in at least	a. Perform the following:	
one S/G - GREATER THAN 7% [25%	1) Vandfu tatal faad flaw	
adverse CMMI]	greater than 400 gpm.	
	IF NOT. THEN manually start	
	pumps and align valves as	
	necessary.	
х	<u>IF</u> AFW can <u>NOT</u> be	
	SAFW (Refer to ATT-5.1,	
	ATTACHMENT SAFW)	
· ·	2) Maintain total feed flow	
	greater than 400 gpm until narrow range level greater	
	than 7% [25% adverse CNMT] in at least one S/G.	
b. Control feed flow to maintain		
narrow range level between 17% [25% adverge CNMT] and 50%		
τώρ. Ιττη ε.		
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	ס סדפייז סיי / איינופ	REV: 18
FR-5.1 RESPONSE TO REACT	JK KESIAKI/AIWS	PAGE 8 of 13
	· · ·	
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	]
		J
IO VERITY DITUTION Paths - ISOLATED		
a. Place RMW mode switch to BORATE		
b. Stop RMW pumps	b. Perform the followin	lg:
	1) Close RMW to blen	der (A0V-111)
	2)  Direct AO to loss	11 v open RMW
	pump breaker	ily open kiw
	• RMW Pump A, MCC	C Pos 13B
	• RMW Pump B, MCC	D Pos 1B
11 Stabilize RCS Temperature:		
a. Control steam dump as necessary		
h Verify the following.	h IF RCS cooldown can	NOT be
	controlled, <u>THEN</u> clo	se both
o Core exit 17Cs - STABLE OR INCREASING	MSIVE and go to Step	) 12.
o Pressure in both S/Gs -		
STABLE OR INCREASING		
o Pressure in both S/Gs - GREATER THAN 110 PSIG		
c Go to Step 16		
	· · · ·	

FR-S.1       RESPONSE TO REACTOR RESTART/ATWS       REV: 18         PAGE 9 of         STEP       ACTION/EXPRCTED RESPONSE       RESPONSE NOT OBTAINED         12 Verify MFW Isolation:       a. Manually close MFW pump         a. MFW pumps - TRIPPED       a. Manually close MFW pump         b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and trip MFW pumps.         b. Depress WANUAL pushbutton for A and bypass valve controllers AND adjust to 0% demand.         13 Identify Faulted S/G:       Go to Step 16.         • Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER         • OR-         • Any S/G Pressure - LESS THAN 110 PSIG	P:				
ACTION/EXPECTED RESPONSE     RESPONSE NOT OBTAINED       12 Verify MFW Isolation:     a. Manually close MFW pump discharge valves and trip MFW pumps.       b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers AND adjust to 0% demand.     a. Manually close MFW pump discharge valves and trip MFW pumps.       13 Identify Faulted S/G:     Go to Step 16.       • Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER     -OR-       • Any S/G Pressure - LESS THAN 110 PSIG	FR-C 1	DECOUNCE T	<u>ለ ይይ</u> ጀርጥሳይ ነ	RESTART / ATWS	REV: 18
STEP       ACTION/EXPECTED RESPONSE       RESPONSE NOT OBTAINED         12 Verify MFW Isolation:       a. Manually close MFW pump discharge valves and trip MFW pumps.         b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers AND adjust to 0% demand.       a. Manually close MFW pump discharge valves and trip MFW pumps.         13 Identify Faulted S/G:       Go to Step 16.         • Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER       -OR-         • Any S/G Pressure - LESS THAN 110 PSIG       MAN UNCONTROLLED MANNER	10.1		0 10210101		PAGE 9 of
STEP       ACTION/EXPECTED RESPONSE       RESPONSE NOT OBTAINED         12 Verify MFW Isolation:       a. Manually close MFW pump discharge valves and trip MFW pumps.         a. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers AND adjust to 0% demand.       a. Manually close MFW pump discharge valves and trip MFW pumps.         13 Identify Faulted S/G:       Go to Step 16.         • Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER       -OR-         • Any S/G Pressure - LESS THAN 110 PSIG					
<ul> <li>12 Verify MFW Isolation:</li> <li>a. MFW pumps - TRIPPED</li> <li>b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers AND adjust to 0% demand.</li> <li>13 Identify Faulted S/G: Go to Step 16.</li> <li>a. Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER         -OR-</li> <li>a. Any S/G Pressure - LESS THAN 110 PSIG</li> </ul>	STEP	ACTION/EXPECTED RESPONS	Е	RESPONSE NOT OBTAINED	
<ul> <li>12 Verify MFW Isolation:</li> <li>a. MFW pumps - TRIPPED <ul> <li>b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.</li> </ul> </li> <li>13 Identify Faulted S/G: <ul> <li>Go to Step 16.</li> </ul> </li> <li>o Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER <ul> <li>OR-</li> </ul> </li> <li>o Any S/G Pressure - LESS THAN 110 PSI6</li> </ul>			l		1
<ul> <li>12 Verify MFW Isolation: <ul> <li>a. MFW pumps - TRIPPED</li> <li>b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.</li> </ul> </li> <li>13 Identify Faulted S/G: <ul> <li>Go to Step 16.</li> </ul> </li> <li>any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER <ul> <li>-OR-</li> </ul> </li> <li>Any S/G Pressure - LESS THAN 110 PSIG</li> </ul>					
<ul> <li>a. MFW pumps - TRIPPED</li> <li>a. Manually close MFW pump discharge valves and trip MFW pumps.</li> <li>b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.</li> <li>13 Identify Faulted S/G: Go to Step 16.</li> <li>a. Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER         -OR-</li> <li>Any S/G Pressure - LESS THAN 110 PSIG</li> </ul>	12 Verif	y MFW Isolation:			
<ul> <li>b. Depress MANUAL pushbutton for A and B S/G MFW regulating valve and bypass valve controllers <u>AND</u> adjust to 0% demand.</li> <li>13 Identify Faulted S/G: Go to Step 16.</li> <li>o Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER         -OR-         -OR-         Any S/G Pressure - LESS THAN 110 PSIG</li> </ul>	a. MFV	N pumps – TRIPPED	£	a. Manually close MFW p discharge valves and pumps.	ump tri <u>p</u> MFW
<pre>13 Identify Faulted S/G: Go to Step 16 Any S/G Pressure - DECREASING IN</pre>	b. Deg and and adj	press MANUAL pushbutton 1 B S/G MFW regulating v 1 bypass valve controlle just to 0% demand.	for A Valve ers <u>AND</u>		
<ul> <li>Any S/G Pressure - DECREASING IN AN UNCONTROLLED MANNER <ul> <li>-OR-</li> </ul> </li> <li>Any S/G Pressure - LESS THAN 110 PSIG</li> </ul>	13 Ident	ify Faulted S/G:	C	Go to Step 16.	
-OR- o Any S/G Pressure - LESS THAN 110 PSIG	o Any AN	y S/G Pressure - DECREAS UNCONTROLLED MANNER	SING IN		
• Any S/G Pressure - LESS THAN 110 PSIG		- 0R -			
	o Any 110	y S/G Pressure – LESS TH ) PSIG	IAN		
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RESPONSE TO REACTOR RESTART/ATWS

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STEI	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
* *	• • • • • • • • • • • • • • • • • • •	* * * * * * * * * * * * * * * * * * *
o	AT LEAST ONE S/G SHALL BE MAINTAINED	AVAILABLE FOR RCS COOLDOWN.
0	IF BOTH S/GS ARE FAULTED, AT LEAST 50 TO EACH S/G.	0 GPM FEED FLOW SHOULD BE MAINTAINED
* *	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
14	Isolate Feed Flow To Faulted 5/G:	Manually close valves.
	o Close faulted S/G MDAFW pump discharge valve	<u>IF</u> valves can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally isolate flowpaths as necessary.
	<ul> <li>S/G A, MOV-4007</li> <li>S/G B, MOV-4008</li> </ul>	
	o Pull stop faulted S/G MDAFW pump	
	o Close faulted S/G TDAFW flow control valve	
	• S/G A, AOV-4297 • S/G B, AOV-4298	
	o Verify faulted S/G MFW regulating valve and bypass valve – CLOSED	
	<ul> <li>S/G A, HCV-466 and HCV-480</li> <li>S/G B, HCV-476 and HCV-481</li> </ul>	
	o Verify MDAFW pump crosstie valves – BOTH CLOSED	
	<ul><li>MOV-4000A</li><li>MOV-4000B</li></ul>	
	o Close faulted S/G SAFW pump discharge valve	
	<ul> <li>S/G A, MOV-9701A</li> <li>S/G B, MOV-9701B</li> </ul>	

EOP:		REV: 18	
FR-S	.I RESPONSE TO REACTO	R RESTART/ATWS PAGE 11	of
STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
* * *	* * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *	* *
	CAUTION		
IF T	E TDAFW PUMP IS THE ONLY AVAILABLE S	OURCE OF FEED FLOW. THEN STEAM	
SUPP	LY TO THE TDAFW PUMP MUST BE MAINTAIN	ED FROM ONE S/G.	
* * *	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *	* *
	· · · · ·		
15 Is	solate Steam Flow From	Manually close valves.	
fč	fulted S/G:	IF valves can NOT be closed, THEN	
0	Verify faulted S/G ARV - CLOSED	dispatch AO to locally isolate	
	• S/G A, AOV-3411	riowpaths as necessary.	
	• S/G B, AOV-3410		
o	Close faulted S/G TDAFW pump		
	steam supply valve and place in		
	• S/G A, MOV-3505A		
	• S/G B, MOV-3504A		
o	Verify faulted S/G blowdown and		
	sample valves – CLOSED		
	• S/G A. AOV-5738 and AOV-5735		

Dispatch AO to complete faulted
 S/G isolation (Refer to

ATT-10.0, ATTACHMENT FAULTED S/G)

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	EOP: TITLE:	REV: 18
	TR 5.1 RESPONSE TO REACTOR	PAGE 12 of 13
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	STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	16 Check Core Exit T/Cs - LESS THAN 1200°F	<u>IF</u> core exit temperatures greater than 1200°F and increasing, <u>THEN</u> go to SACRG-1, SEVERE ACCIDENT CONTROL ROOM GUIDELINE INITIAL RESPONSE, step 1.
	<u>NOTE</u> : Adverse CNMT conditions or loss of f failure of NIS detectors.	corced air cooling may result in
	17 Verify Reactor Subcritical:	Perform the following:
	o Power range channels – LESS THAN 5%	a. Stabilize RCS temperature.
	o Intermediate range channels -	b. Continue to inject boric acid.
i	o Intermediate range channels startup rate - NEGATIVE	c. Perform actions of other FR procedures in effect which do <u>NOT</u> cooldown or otherwise add positive reactivity to the core.
	o Core exit T/Cs - STABLE	d. Direct RP to sample RCS and PRZR for boron concentration.
		e. Verify boron concentration greater than FIG-2.0, FIGURE SDM.
		<u>IF</u> adequate shutdown margin verified, <u>THEN</u> go to Step 18.
		<u>IF NOT, THEN</u> perform the following:
		a. Allow RCS to heat up.
		b. Perform actions of other FR procedures in effect which do <u>NOT</u> cooldown or otherwise add positive reactivity to the core.
		c. Return to Step 4.

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FK-S.1       RESPONSE TO REACTOR RESTART/ATWS       PAGE 13 of         STEP       ACTION/EXPECTED RESPONSE       RESPONSE NOT OBTAINED         GAUTION       CAUTION         BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS.         18 Return to Procedure And Step In Effect         -END-	EOP:	TITLE:			<b>REV:</b> 18
STEP ACTION/EXPECTED RESPONSE RESPONSE NOT OBTAINED CAUTION BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS. 10 Return to Procedure And Step In Effect -END-	FR-S.1	RESPONSE 1	TO REACTOR RE	START/ATWS	PAGE 13 of
STEP       ACTION/EXPECTED RESPONSE         CAUTION         CAUTION         BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS.         18 Return to Procedure And Step In Effect         -END-		<u></u>			<u> </u>
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LAULUN BORATION SHOULD CONTINUE TO OBTAIN ADEQUATE SHUTDOWN MARGIN DURING SUBSEQUENT ACTIONS. 18 Return to Procedure And Step In Effect -END-	* * * * * *	* * * * * * * * * * *	* * * * * * * *	* * * * * * * *	* * * * * * * *
<pre>18 Return to Procedure And Step In Effect -END-</pre>			CAUTION		
18 Return to Procedure And Step In Effect -END-	ACTIONS.	SHOULD CONTINUE TO OBT	AIN ADEQUATE SH	UTDOWN MARGIN DUR	ING SUBSEQUENT
18 Return to Procedure And Step In Effect -END-	* * * * * *	* * * * * * * * * * *	* * * * * * * *	* * * * * * * *	* * * * * * * *
18 Return to Procedure And Step In Effect -END-					
-BND-	18 Return In Eff	to Procedure And	Step		
			- END -		
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FR-S.1

EOP:

### FR-S.1 APPENDIX LIST

### TITLE

- 1) FIGURE SDM (FIG-2.0)
- 2) ATTACHMENT FAULTED S/G (ATT-10.0)
- 3) ATTACHMENT CI/CVI (ATT-3.0)
- 4) ATTACHMENT SAFW (ATT-5.1)
- 5) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 6) FOLDOUT

TITLE:

EOP:	
FR-	5.1

#### FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-S series procedures.

### 1. LOSS OF SW CRITERIA

TITLE:

IF no SW pumps are available, THEN perform the following:

a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.

b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.

٨ EOP: TITLE: REV: 10 FR-Z.1 RESPONSE TO HIGH CONTAINMENT PRESSURE PAGE 1 of 7 GINNA STATION 27 CONTROLLED COPY NUMBER _

RESPONSIBLE MANAGER

12 EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:_____

FR-Z.1 RESPONSE TO HIGH CONTAINMENT PRESSURE	RESPONSE TO HIGH CONTAINMENT PRESSURE
	PAGE 2 of 7
PAGE 2 of 7	

# B. ENTRY CONDITIONS/SYMPTOMS

- 1. ENTRY CONDITIONS This procedure is entered from:
  - a. F-0.5, CONTAINMENT Critical Safety Function Status Tree, on a RED or ORANGE condition.

EOP	:		
	FR-Z	. 1	

TITLE:

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RESPONSE TO HIGH CONTAINMENT PRESSURE

PAGE 3 of 7

<u>NOTE</u> : FOLDOUT Page should be open and monitored periodically.		
1 Verify All CI And CVI Valve Status Lights - BRIGHT	<u>IF</u> flow path <u>NOT</u> required, <u>THEN</u> manually close affected CI and CVI valves.	
	<u>IF</u> valves can <u>NOT</u> be verified closed by MCB indication, <u>THEN</u> close alternate isolation valves. (Refer to ATT-3.0, ATTACHMENT CI/CVI).	
and a start of the		

	REV: 10
FR-Z.I RESPONSE TO HIGH CONT	PAGE 4 of
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
CAUTION	<u>1</u>
<ul> <li>IF ECA-1.1, LOSS OF EMERGENCY COOLANT CNMT SPRAY SHOULD BE OPERATED AS DIREC BELOW.</li> </ul>	RECIRCULATION, IS IN EFFECT, THEN TED IN ECA-1.1, RATHER THAN STEP 2
<ul> <li>IF E-1, LOSS OF REACTOR OR SECONDARY C SPRAY SHOULD BE OPERATED AS DIRECTED I COOLANT, RATHER THAN STEP 2 BELOW.</li> </ul>	COLANT, IS IN EFFECT, THEN CNMT IN E-1, LOSS OF REACTOR OR SECONDARY
* * * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
2 Verify CNMT Spray Actuated:	
a. Verify RWST outlet to SI and CNMT spray pumps – OPEN	a. <u>IF</u> in RHR recirculation mode, <u>THEN</u> perform the following:
• MOV-896A • MOV-896B	<ol> <li>Operate SI pumps and one CNMT spray pump as directed in ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, Step 15.</li> </ol>
	2) Go to Step 3.
b. Verify CNMT spray pumps - RUNNING	b. Manually start pumps.
c. Verify NaOH flow (FI-930)	c. <u>IF</u> NaOH flow <u>NOT</u> indicated, <u>THEN</u> place switches for NaOH tank outlet valves to OPEN.
	<ul> <li>AOV-836A</li> <li>AOV-836B</li> </ul>
d. Verify CNMT spray pump discharge valves – OPEN	d. Ensure at least one in each set open.
<ul> <li>MOV-860A</li> <li>MOV-860B</li> <li>MOV-860C</li> <li>MOV-860D</li> </ul>	<ul> <li>MOV-860A or MOV-860B</li> <li>MOV-860C or MOV-860D</li> </ul>

PAGE 5 of T
PONSE NOT OBTAINED
PONSE NOT OBTAINED
anually start fans.
Ispatch personnel to relay room Ith relay rack key to locally Den dampers by pushing in trip Elay plungers.
AUX RELAY RACK RA-2 for fan A AUX RELAY RACK RA-3 for fan C
ally close valves.

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FR-7.1 RESPONSE TO HIGH CONT	REV: 10	
	PAGE 6 of 7	
STEP ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED	
	* * * * * * * * * * * * * * * * * * * *	
AT LEAST ONE S/G SHALL BE MAINTAINED AN	ATTABLE FOR PCS COOLDOWN	
TR DEADI ONE 576 SHALL DE MAINIAINED AN	ALLADLE FOR RUS COOLDOWN.	
<ul> <li>IF BOTH S/GS ARE FAULTED, THEN AT LEAST MAINTAINED TO EACH S/G.</li> </ul>	T 50 GPM FEED FLOW SHOULD BE	
* * * * * * * * * * * * * * * * * * * *		
5 Check If S/G Secondary Side	Isolate feed flow to faulted S/G:	
IS INLACL:	a. Ensure faulted S/G MDAFW pump	
o Pressure in both S/Gs – STABLE OR INCREASING	discharge valve closed.	
o Pressure in both S/Gs - GREATER	<ul> <li>S/G A, MOV-4007</li> <li>S/G B, MOV-4008</li> </ul>	
THAN 110 PSIG	b Ensure faulted S/G TDAFW flow	
	control valve closed.	
	• S/G A, AOV-4297	
	• S/G B, AUV-4298	
	c. Depress MANUAL pushbuttons for faulted S/G MFW regulating valve	
	and bypass valve <u>AND</u> ensure valves closed.	
	• S/G A. HCV-466 and HCV-480	
	• S/G B, HCV-476 and HCV-481	
	d. Ensure MFW pump discharge valves closed.	
	<u>IF</u> valves can <u>NOT</u> be closed, <u>THEN</u> dispatch AO to locally close valves as necessary to isolate flow.	

STEP ACTION	EXPECTED RESPONSE	RESPONSE NOT OBTAIN	
6 Return To I	Procedure And Step		
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FR-Z.1

PAGE 1 of 1

## FR-Z.1 APPENDIX LIST

## TITLE

- 1) ATTACHMENT CI/CVI (ATT-3.0)
- 2) ATTACHMENT NO SW PUMPS (ATT-2.4)
- 3) FOLDOUT

TITLE:

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EOP:

PAGE 1 of 1

### FOLDOUT PAGE

NOTE: This Foldout Page applies to all FR-Z series procedures.

### 1. LOSS OF SW CRITERIA

TITLE:

IF no SW pumps are available, THEN perform the following:

- a. Pull stop any D/G that is <u>NOT</u> supplied by alternate cooling, <u>AND</u> immediately depress associated VOLTAGE SHUTDOWN pushbutton.
- b. Refer to ATT-2.4, ATTACHMENT NO SW PUMPS.