

EOP: ATT-2.1	TITLE: ATTACHMENT MIN SW	REV: 3 PAGE 1 of 1
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Responsible Manager Residellman Date 3-24-97

IF only one SW pump is available for recovery, THEN the following actions should be performed to ensure adequate SW cooling to recovery equipment:

- 1) Ensure SW isolation as follows:
 - o Both TURB BLDG SW loops isolated
 - o MOV-4613/MOV-4670 CLOSED
 - o MOV-4614/MOV-4664 CLOSED
 - o Screenhouse SW loop isolated
 - o MOV-4609/MOV-4780 CLOSED
 - o Air conditioning SW loop isolated
 - o MOV-4663/MOV-4733 CLOSED

- 2) Isolate at least one AUX BLDG SW loop:
 - o MOV-4615 and MOV-4734 CLOSED
 - OR
 - o MOV-4616 and MOV-4735 CLOSED

- 3) Request the TSC to evaluate isolation of SW to inoperable CNMT loads (Refer to Attachment SW LOADS IN CNMT) or closing of Bus Tie 17 - 18 and start of a second SWP.

- 4) Ensure SW aligned to ONE AUX BLDG SW loop/CCW Hx.
 - o CCW Hx A, MOV-4616 and MOV-4735 OPEN
 - OR
 - o CCW Hx B, MOV-4615 and MOV-4734 OPEN

- IF NOT, THEN restore SW to one header only (Refer to Attachment AUX BLDG SW as necessary).

- 5) WHEN SW restored to selected AUX BLDG SW loop, THEN dispatch AO to AUX BLDG to perform the following:
 - o Fully open SW outlet valve for CCW Hx on operating AUX BLDG SW loop.
 - o CCW Hx A, V-4619 FULLY OPEN
 - OR
 - o CCW Hx B, V-4620 FULLY OPEN

 - o Isolate SW to the SFP Hxs (TSC should be notified that SFP cooling is being isolated).
 - o SFP Hx A, V-4622 CLOSED
 - o SFP Hx B, V-8689 CLOSED

- 6) Evaluate SW system to ensure that all non-essential loads are isolated.

PARAMETERS: DOC TYPES - PROPS PRFIG PRAP STATUS: EF QU 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
AP-CCW.1	LEAKAGE INTO THE COMPONENT COOLING LOOP	014	01/09/01	05/01/98	05/01/03	EF
AP-CCW.2	LOSS OF CCW DURING POWER OPERATION	014	05/18/00	08/17/99	08/17/04	EF
AP-CCW.3	LOSS OF CCW - PLANT SHUTDOWN	012	05/18/00	08/17/99	08/17/04	EF
AP-CR.1	CONTROL ROOM INACCESSIBILITY	017	05/11/01	01/11/00	01/11/05	EF
AP-CVCS.1	CVCS LEAK	012	05/01/98	05/01/98	05/01/03	EF
AP-CVCS.3	LOSS OF ALL CHARGING FLOW	002	02/11/00	02/26/99	02/26/04	EF
AP-CW.1	LOSS OF A CIRC WATER PUMP	010	07/16/98	05/01/98	05/01/03	EF
AP-ELEC.1	LOSS OF 12A AND/OR 12B BUSES	020	09/08/00	05/01/98	05/01/03	EF
AP-ELEC.2	SAFEGUARD BUSES LOW VOLTAGE OR SYSTEM LOW FREQUENCY	009	03/22/99	03/22/99	03/22/04	EF
AP-ELEC.3	LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350 F)	008	09/08/00	05/01/98	05/01/03	EF
AP-ELEC.14/16	LOSS OF SAFEGUARDS BUS 14/16	003	03/15/01	06/09/97	06/09/02	EF
AP-ELEC.17/18	LOSS OF SAFEGUARDS BUS 17/18	002	10/18/99	06/09/97	06/09/02	EF
AP-FW.1	PARTIAL OR COMPLETE LOSS OF MAIN FEEDWATER	012	02/11/00	02/27/98	02/27/03	EF
AP-IA.1	LOSS OF INSTRUMENT AIR	017	12/02/99	05/01/98	05/01/03	EF
AP-PRZR.1	ABNORMAL PRESSURIZER PRESSURE	012	03/26/01	12/02/99	12/02/04	EF
AP-RCC.1	CONTINUOUS CONTROL ROD WITHDRAWAL/INSERTION	007	05/22/01	05/14/98	05/14/03	EF
AP-RCC.2	RCC/RPI MALFUNCTION	008	11/16/98	02/06/97	02/06/02	EF
AP-RCC.3	DROPPED ROD RECOVERY	004	11/16/98	02/27/98	02/27/03	EF
AP-RCP.1	RCP SEAL MALFUNCTION	013	06/09/00	05/01/98	05/01/03	EF
AP-RCS.1	REACTOR COOLANT LEAK	015	09/08/00	05/01/98	05/01/03	EF
AP-RCS.2	LOSS OF REACTOR COOLANT FLOW	010	12/14/98	05/01/98	05/01/03	EF
AP-RCS.3	HIGH REACTOR COOLANT ACTIVITY	008	06/14/01	08/05/97	08/05/02	EF
AP-RCS.4	SHUTDOWN LOCA	011	12/02/99	05/01/98	05/01/03	EF
AP-RHR.1	LOSS OF RHR	015	02/08/01	05/01/98	05/01/03	EF

50-244 Superseded Per Rev 5 To EOPs dtd 9/14/01 # 44126 76178 23

REPORT NO. 01
REPORT: NPS0200
DOC TYPE: PRAP

GINNA NUCLEAR POWER PLANT
PROCEDURES INDEX
ABNORMAL PROCEDURE

06/14/01 PAGE: 2

PARAMETERS: DOC TYPES - PROPS PRFIG PRAP STATUS: EF QU 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
AP-RHR.2	LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS	009	10/13/00	03/31/00	03/31/05	EF
AP-SG.1	STEAM GENERATOR TUBE LEAK	000	09/08/00	09/08/00	09/08/05	EF
AP-SW.1	SERVICE WATER LEAK	015	10/18/99	06/03/98	06/03/03	EF
AP-TURB.1	TURBINE TRIP WITHOUT RX TRIP REQUIRED	010	02/12/99	10/10/97	10/10/02	EF
AP-TURB.2	TURBINE LOAD REJECTION	017	02/11/00	05/13/98	05/13/03	EF
AP-TURB.3	TURBINE VIBRATION	010	02/11/00	02/10/98	02/10/03	EF
AP-TURB.4	LOSS OF CONDENSER VACUUM	014	05/01/98	05/01/98	05/01/03	EF
AP-TURB.5	RAPID LOAD REDUCTION	005	06/09/00	06/09/00	06/09/05	EF
TOTAL FOR PRAP	32					

PARAMETERS: DOC TYPES - PRATT PRE PRES PROPS STATUS: EF QU 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ATT-1.0	ATTACHMENT AT POWER CCW ALIGNMENT	001	07/26/94	02/10/98	02/10/03	EF
ATT-1.1	ATTACHMENT NORMAL CCW FLOW	000	05/18/00	05/18/00	05/18/05	EF
ATT-2.1	ATTACHMENT MIN SW	005	02/01/01	02/10/98	02/10/03	EF
ATT-2.2	ATTACHMENT SW ISOLATION	006	03/25/99	08/11/98	08/11/03	EF
ATT-2.3	ATTACHMENT SW LOADS IN CNMT	003	01/25/95	12/31/99	12/31/04	EF
ATT-3.0	ATTACHMENT CI/CVI	005	01/25/99	01/06/99	01/06/04	EF
ATT-3.1	ATTACHMENT CNMT CLOSURE	003	01/25/99	01/25/99	01/25/04	EF
ATT-4.0	ATTACHMENT CNMT RECIRC FANS	003	07/26/94	05/13/98	05/13/03	EF
ATT-5.0	ATTACHMENT COND TO S/G	004	01/25/95	12/31/99	12/31/04	EF
ATT-5.1	ATTACHMENT SAFW	006	07/07/98	12/31/99	12/31/04	EF
ATT-5.2	ATTACHMENT FIRE WATER COOLING TO TDAFW PUMP	003	01/14/99	01/14/99	01/14/04	EF
ATT-6.0	ATTACHMENT COND VACUUM	003	12/18/96	02/10/98	02/10/03	EF
ATT-7.0	ATTACHMENT CR EVAC	005	02/11/00	02/10/98	02/10/03	EF
ATT-8.0	ATTACHMENT DC LOADS	006	03/22/99	01/14/99	01/14/04	EF
ATT-8.1	ATTACHMENT D/G STOP	004	11/03/95	02/10/98	02/10/03	EF
ATT-8.2	ATTACHMENT GEN DEGAS	006	08/17/99	08/17/99	08/17/04	EF
ATT-8.3	ATTACHMENT NONVITAL	003	07/26/94	02/10/98	02/10/03	EF
ATT-8.4	ATTACHMENT SI/UV	004	04/24/97	02/10/98	02/10/03	EF
ATT-9.0	ATTACHMENT LETDOWN	007	06/09/00	01/06/99	01/06/04	EF
ATT-9.1	ATTACHMENT EXCESS L/D	003	03/31/00	02/10/98	02/10/03	EF
ATT-10.0	ATTACHMENT FAULTED S/G	005	10/03/96	05/13/98	05/13/03	EF
ATT-11.0	ATTACHMENT IA CONCERNS	002	04/07/97	08/11/98	08/11/03	EF
ATT-11.1	ATTACHMENT IA SUPPLY	002	04/07/97	08/11/98	08/11/03	EF
ATT-11.2	ATTACHMENT DIESEL AIR COMPRESSOR	001	12/20/00	04/03/98	04/03/03	EF

PARAMETERS: DOC TYPES - PRATT PRE PRES PROPS STATUS: EF QU 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
ATT-12.0	ATTACHMENT N2 PORVS	003	03/24/97	02/10/98	02/10/03	EF
ATT-13.0	ATTACHMENT NC	002	07/26/94	02/10/98	02/10/03	EF
ATT-14.0	ATTACHMENT NORMAL RHR COOLING	002	04/07/97	09/23/99	09/23/04	EF
ATT-14.1	ATTACHMENT RHR COOL	004	05/01/98	05/01/98	05/01/03	EF
ATT-14.2	ATTACHMENT RHR ISOL	001	07/26/94	02/10/98	02/10/03	EF
ATT-14.3	ATTACHMENT RHR NPSH	002	08/01/97	01/06/99	01/06/04	EF
ATT-14.4	ATTACHMENT RHR SAMPLE	001	07/26/94	01/06/99	01/06/04	EF
ATT-14.5	ATTACHMENT RHR SYSTEM	002	07/26/94	02/10/98	02/10/03	EF
ATT-14.6	ATTACHMENT RHR PRESS REDUCTION	001	01/14/99	01/14/99	01/14/04	EF
ATT-15.0	ATTACHMENT RCP START	006	10/13/00	03/17/00	03/17/05	EF
ATT-15.1	ATTACHMENT RCP DIAGNOSTICS	003	04/24/97	02/10/98	02/10/03	EF
ATT-15.2	ATTACHMENT SEAL COOLING	003	05/22/97	02/10/98	02/10/03	EF
ATT-16.0	ATTACHMENT RUPTURED S/G	010	01/09/01	01/11/00	01/11/05	EF
ATT-16.1	ATTACHMENT SGTL	000	09/08/00	09/08/00	09/08/05	EF
ATT-16.2	ATTACHMENT RCS BORON FOR SGTL	001	10/13/00	09/08/00	09/08/05	EF
ATT-17.0	ATTACHMENT SD-1	011	01/09/01	02/29/00	02/28/05	EF
ATT-17.1	ATTACHMENT SD-2	005	09/26/96	01/30/01	01/30/06	EF
ATT-18.0	ATTACHMENT SFP - RWST	004	10/08/97	02/10/98	02/10/03	EF
ATT-20.0	ATTACHMENT VENT TIME	003	07/26/94	02/10/98	02/10/03	EF
ATT-21.0	ATTACHMENT RCS ISOLATION	001	07/26/94	02/10/98	02/10/03	EF
ATT-22.0	ATTACHMENT RESTORING FEED FLOW	001	02/12/99	03/24/97	03/24/02	EF
ATT-23.0	ATTACHMENT TRANSFER 4160V LOADS	000	02/26/99	02/26/99	02/26/04	EF
ATT-24.0	ATTACHMENT TRANSFER BATTERY TO TSC	000	09/08/00	09/08/00	09/08/05	EF

TOTAL FOR PRATT 47

EOP: AP-CCW.2	TITLE: LOSS OF CCW DURING POWER OPERATION	REV: 14 PAGE 1 of 9
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

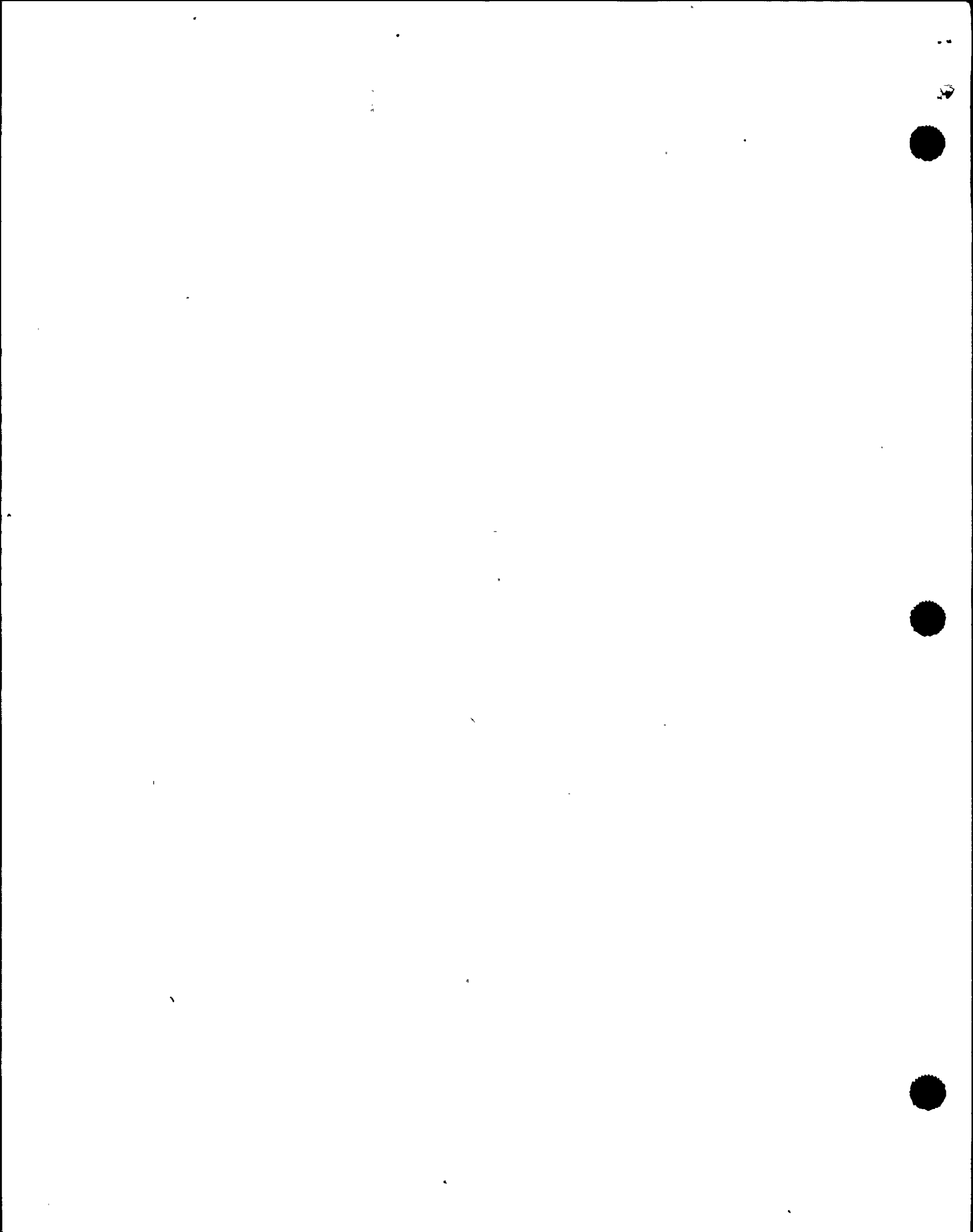
CONTROLLED COPY NUMBER 23

[Signature]
RESPONSIBLE MANAGER

5-18-2000
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____



EOP: AP-CCW.2	TITLE: LOSS OF CCW DURING POWER OPERATION	REV: 14 PAGE 2 of 9
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A. PURPOSE - This procedure provides the steps necessary to respond to a loss of CCW while the plant is at power.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure may be entered from:

a. AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING SYSTEM, when CCW surge tank level decrease indicated at power..

2. SYMPTOMS - The symptoms of LOSS OF CCW DURING POWER OPERATION are;

a. Annunciator A-13, CCW SURGE TANK LO LEVEL 41.2%, lit, or

b. Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI, lit, or

c. Annunciator A-17, MOTOR OFF RCP CCWP, lit, or

d. Annunciator A-9, RHR PUMP COOLING WATER OUTLET LO FLOW 15 GPM, lit or

e. Annunciator A-6, CONT SPRAY PUMP COOLING WATER OUT LOW FLOW 15 GPM, lit or

f. Annunciator A-14, SAFETY INJ PUMPS COOLING WATER OUT LO FLOW 25 GPM, lit or

g. Annunciator A-7 (A-15), RCP A (B) CCW RETURN HI TEMP OR LO FLOW 165 GPM 125° F, lit or

h. Annunciator A-24 (A-32), RCP A (B) OIL LEVEL + 1.25, lit or,

i. Annunciator A-12, NON-REGEN HX LETDOWN OUT HI TEMP 145° F lit or,

j. Annunciator A-18, VCT HI TEMP 145°.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

- o IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS 200°F, THEN TRIP THE AFFECTED RCP.
- o IF CCW IS LOST, THEN SEAL INJECTION SHOULD BE MAINTAINED TO THE RCP(S) UNTIL RCS TEMPERATURE IS LESS THAN 150°F, OR UNTIL CCW IS RESTORED.

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NOTE: If leakage from the CCW system is indicated, then refer to ER-SC.5, HAZARDOUS AND MIXED WASTE MANAGEMENT AND CONTROL, for guidance.

- | | |
|---|---|
| <p>1 Check CCW Pump Status:</p> <ul style="list-style-type: none"> o Both CCW pump breaker white disagreement lights - EXTINGUISHED o Annunciator A-17, MOTOR OFF RCP CCWP - EXTINGUISHED | <p>Perform the following:</p> <ul style="list-style-type: none"> a. Ensure standby CCW pump running. b. <u>IF</u> annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI, lit. <u>THEN</u> check closed CCW to RHR HXs (MOV-738A and MOV-738B). |
|---|---|

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE: CCW surge tank level should be verified locally in the AUX BLDG, if possible.

2 Verify CCW Surge Tank Level - APPROXIMATELY 50% AND STABLE

Perform the following:

- a. Open RMW to CCW surge tank, MOV-823.
- b. Start RMW pump(s).
- c. IF surge tank level stable or increasing, THEN go to Step 3.

IF CCW surge tank level can NOT be maintained greater than 10%, THEN perform the following:

- 1) Trip the reactor.
- 2) Trip the RCPs.
- 3) Place both CCW pumps in pull stop.
- 4) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

3 Check CCW To Both RCPs:

- o Annunciator A-7 (A-15), RCP 1A (1B) CCW return Hi temp or low flow 165 gpm 125°F alarm - EXTINGUISHED
- o RCP motor bearings temperature (PPCS address GD-RCPS OR RCP temperature monitor RK-30A recorder) - ≤ 200°F

IF CCW lost to RCP(s), THEN perform the following:

- a. Trip the Rx.
- b. Trip affected RCP(s).
- c. Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

CLOSELY MONITOR PRZR LEVEL AND RCS PRESSURE WHILE LETDOWN IS ISOLATED.

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4 Check If Letdown Should Be Isolated:

a. Check annunciator A-12,
Non-Regen Hx Letdown Out Hi Temp
145° - EXTINGUISHED

b. Check excess letdown temperature
- LESS THAN 195° F

a. Isolate Normal Letdown:

- 1) Close loop B cold leg to REGEN Hx, AOV-427.
- 2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202).
- 3) Place letdown pressure controller, PCV-135, in MANUAL and close valve (demand at 100%)
- 4) Control charging pump speed as necessary to maintain RCP labyrinth seal D/P less than 80 inches.
- 5) Close charging flow control valve, HCV-142.
- 6) Establish excess letdown, if desired (Refer to Attachment EXCESS L/D).

b. Isolate Excess Letdown:

- 1) Close excess letdown flow control valve, HCV-123.
- 2) Close EXCESS LTDN LOOP A COLD TO Hx, AOV-310.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Check CCW Valve Alignment - NORMAL a. Check MCB CCW valves (Refer to Attachment AT POWER CCW ALIGNMENT) b. Direct AO to check local flow indications per Attachment NORMAL CCW FLOW	Align CCW valves as necessary.
<p><u>NOTE:</u></p> <ul style="list-style-type: none"> o <u>IF</u> Seal Water Hx will be bypassed, <u>THEN</u> an increase in VCT temperature is expected. o <u>IF</u> Seal Water Hx will be isolated, <u>THEN</u> seal return will be to the PRT through RV-314. 		
6	Check Seal Water Hx For Tube Leak: o Locally check Seal Water Hx CCW outlet flow - NORMAL (FI-605) o Locally check Seal Water Hx CCW outlet temperature - NORMAL (TI-604) o VCT level - NO UNEXPLAINED INCREASE	<p><u>IF</u> a tube leak is indicated, <u>THEN</u> bypass and isolate Seal Water Hx and, if desired, isolate Seal Return.</p> <p>a. To bypass and isolate Hx perform the following:</p> <ol style="list-style-type: none"> 1) Open seal bypass V-394 2) Close seal inlet V-265 3) Close seal outlet V-321 4) Close CCW inlet V-763 5) Close CCW outlet V-767 <p>b. <u>IF</u> desired to isolate seal return line, <u>THEN</u> close MOV-313.</p> <p>c. Notify RP to sample RCS for chromates.</p>



EOP: AP-CCW.2	TITLE: LOSS OF CCW DURING POWER OPERATION	REV: 14 PAGE 7 of 9
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<u>NOTE:</u>	<ul style="list-style-type: none"> o An evaluation must be made to determine if operation may continue while investigating a CCW leak in containment. o Operation may continue with the reactor support coolers isolated. If this occurs, notify higher supervision. 	
7 Check For CCW Leakage In CNMT:		
a. Check CNMT sump A level:	<ul style="list-style-type: none"> o Level - STABLE o Sump A pumps - OFF 	<p>a. <u>IF</u> abnormal increase in CNMT sump level, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Direct RP Tech to sample sump A for chromates. 2) Prepare to make CNMT entry to check for CCW leak.
b. RCP oil levels - STABLE		<p>b. <u>IF</u> any RCP oil level increasing uncontrollably, <u>THEN</u> perform the following:</p> <ol style="list-style-type: none"> 1) Trip Reactor. 2) Trip affected RCP(s). 3) Close CCW supply and return for affected RCP(s). <ul style="list-style-type: none"> • RCP A, MOV-749A and MOV-759A • RCP B, MOV-749B and MOV-759B 4) Go to E-0, REACTOR TRIP OR SAFETY INJECTION.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8	<p>Check for CCW Leakage In AUX BLDG:</p> <ul style="list-style-type: none"> o Start frequency of AUX BLDG sump pump(s) - NORMAL (Refer to RCS daily leakage log) o Waste holdup tank level - STABLE OR INCREASING AS EXPECTED 	<p>Dispatch A0 to investigate AUX BLDG for CCW leakage.</p>
9	<p>Verify CCW System Leak - IDENTIFIED AND ISOLATED</p>	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Direct RP Tech to sample CCW HX SW outlet for chromates. b. Return to Step 2.
10	<p>Verify CCW Surge Tank Level - APPROXIMATELY 50% AND STABLE</p>	<p>Perform the following:</p> <ul style="list-style-type: none"> a. Open RMW to CCW surge tank, MOV-823. b. Start RMW pump(s). c. Restore CCW surge tank level to 50%. d. Stop RMW pump and close MOV-823.
11	<p>Direct RP To Sample CCW System For Chromates</p>	



12 Evaluate Plant Conditions:

- | | |
|---|--|
| a. CCW system malfunction - IDENTIFIED AND CORRECTED | a. Return to Step 1. |
| b. CCW system status adequate for power operation (Refer to ITS Section 3.7.7). | b. <u>IF</u> shutdown required, <u>THEN</u> refer to 0-2.1, NORMAL SHUTDOWN TO HOT SHUTDOWN. |

NOTE: Refer to 0-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.

13 Notify Higher Supervision

14 Return To Procedure Or Guidance In Effect

-END-



EOP: AP-CCW.2	TITLE: LOSS OF CCW DURING POWER OPERATION	REV: 14 PAGE 1 of 1
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AP-CCW.2 APPENDIX LIST

TITLE

- | | | | |
|----|-----------------------------------|-----------|--|
| 1) | ATTACHMENT AT POWER CCW ALIGNMENT | (ATT-1.0) | |
| 2) | ATTACHMENT EXCESS L/D | (ATT-9.1) | |
| 3) | ATTACHMENT NORMAL CCW FLOW | (ATT-1.1) | |

EOP: AP-CCW.3	TITLE: LOSS OF CCW - PLANT SHUTDOWN	REV: 12 PAGE 1 of 11
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

- CONTROLLED COPY NUMBER 23

R. Sideman
RESPONSIBLE MANAGER

5-18-2000
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

EOP: AP-CCW.3	TITLE: LOSS OF CCW - PLANT SHUTDOWN	REV: 12 PAGE 2 of 11
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A. PURPOSE - This procedure provides the steps necessary to respond to a loss of CCW while the plant is shut down.

B. ENTRY CONDITIONS/SYMPTOMS

1. ENTRY CONDITIONS - This procedure may be entered from:

- a. AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING LOOP, or
- b. AP-ELEC.3, LOSS OF 12A AND/OR 12B TRANSFORMER (BELOW 350°F), or
- c. AP-RHR.1, LOSS OF RHR, or
- d. AP-RHR.2, LOSS OF RHR WHILE OPERATING AT REDUCED RCS INVENTORY CONDITIONS, when CCW malfunction indicated.

2. SYMPTOMS - The symptoms of LOSS OF CCW - PLANT SHUTDOWN are:

- a. Annunciator A-6, CONT SPRAY PUMP COOLING WATER OUT LO FLOW 15 GPM, lit, or
- b. Annunciator A-7, (A-15), RCP A (B) CCW RETURN HI TEMP OR LO FLOW 165 GPM 125°F, lit, or
- c. Annunciator A-9, RHR PUMP COOLING WATER OUTLET LO FLOW 15 GPM, lit, or
- d. Annunciator A-13, CCW SURGE TANK LO LEVEL 41.2%, lit, or
- e. Annunciator A-14, SAFETY INJ PUMPS COOLING WATER OUT LO FLOW 25 GPM, lit, or
- f. Annunciator A-17, MOTOR OFF RCP CCWP, lit, or
- g. Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSI, lit, or
- h. Annunciator A-24, (A-32), RCP A (B) OIL LEVEL +/- 1.25, lit, or
- i. Annunciator A-31, CCW SYSTEM LO FLOW 1800 GPM, lit or
- j. Annunciator A-12, NON-REGEN HX LETDOWN OUT HI TEMP 145°F lit, or
- k. Annunciator A-18, VCT Hi Temp 145°F.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

- o IF CCW FLOW TO A RCP IS INTERRUPTED FOR GREATER THAN 2 MINUTES OR IF EITHER RCP MOTOR BEARING TEMPERATURE EXCEEDS 200°F, THEN TRIP THE AFFECTED RCP.
- o IF CCW IS LOST, THEN SEAL INJECTION SHOULD BE MAINTAINED TO THE RCP(S) UNTIL RCS TEMPERATURE IS LESS THAN 150°F, OR UNTIL CCW IS RESTORED.

- NOTE:
- o If leakage from the CCW system is indicated, then refer to ER-SC.5, HAZARDOUS AND MIXED WASTE MANAGEMENT AND CONTROL, for guidance.
 - o If CCW is lost to operating CS, RHR, or SI pumps, they may be left running for brief periods while isolating a CCW leak.

1 Check CCW Pump Status:

IF a CCW pump has tripped, THEN perform the following:

- o Both CCW pump breaker white disagreement lights - EXTINGUISHED
 - a. Ensure the other CCW pump is running.
- o Annunciator A-17, MOTOR OFF, RCP CCWP - EXTINGUISHED
 - b. Attempt to reset and start the affected CCW pump if required for cooling.
 - c. IF no CCW pumps available, THEN go to Step 5.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION
 CLOSELY MONITOR PRZR LEVEL AND RCS PRESSURE WHILE LETDOWN IS ISOLATED.

2 Check If Letdown Should Be Isolated:

a. Check annunciator A-12, Non-Regen Hx Letdown Out Hi Temp 145° - EXTINGUISHED

b. Check excess letdown temperature - LESS THAN 195°F.

a. Isolate Normal Letdown:

- 1) Close loop B cold leg to REGEN Hx, AOV-427.
- 2) Close letdown orifice valves (AOV-200A, AOV-200B, and AOV-202).
- 3) Place letdown pressure controller, PCV-135, in MANUAL and close valve (demand at 100%):
- 4) Control charging pump speed as necessary to maintain RCP labyrinth seal D/P less than 80 inches.
- 5) Close charging flow control valve, HCV-142.
- 6) Establish excess letdown, if desired (Refer to Attachment EXCESS L/D).

b. Isolate Excess Letdown:

- 1) Close excess letdown flow control valve, HCV-123.
- 2) Close EXCESS LTND LOOP A COLD TO Hx, AOV-310.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3	Verify CCW Surge Tank Level Normal:	<u>IF</u> CCW surge tank level is decreasing, <u>THEN</u> perform the following:
	<ul style="list-style-type: none"> o Annunciator A-13, CCW SURGE TANK LO LEVEL 41.2% - EXTINGUISHED o Level - STABLE 	<ul style="list-style-type: none"> a. Open RMW to CCW surge tank, MOV-823. b. Start both RMW pumps. c. Dispatch AO to AUX BLDG to investigate for CCW leak
4	Verify Annunciator A-22, CCW PUMP DISCHARGE LO PRESS 60 PSIG - EXTINGUISHED	Dispatch AO to the AUX BLDG to perform the following:
		<ul style="list-style-type: none"> a. Throttle CCW to RHR Hxs as necessary to restore CCW pump discharge pressure. <ul style="list-style-type: none"> • MOV-738A • MOV-738B b. Investigate for CCW leaks.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

IF ANY RCP IS TRIPPED, THEN SHUTDOWN MARGIN REQUIREMENTS SHOULD BE VERIFIED (REFER TO O-3.1, BORON CONCENTRATION FOR THE XENON FREE ALL RODS IN MOST REACTIVE ROD STUCK OUT SHUTDOWN MARGIN).

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5 Check RCS Temperature -
STABLE OR DECREASING

IF S/G cooling available, THEN control S/G ARVs to stabilize RCS temperature. IF S/G ARVs do NOT provide adequate cooling, THEN perform the following:

- a. Stop all but one RCP.
- b. Initiate S/G blowdown from both S/Gs.
- c. Maintain both S/G levels stable by controlling AFW flow.

6 Verify CCW Surge Tank Level -
GREATER THAN 10%

Perform the following:

- a. Stop any running RCP.
- b. Pull stop both CCW pumps.
- c. Verify natural circulation (Refer to Attachment NC).

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7	<p>Check CCW Cooling To RCPs:</p> <ul style="list-style-type: none"> a. RCPs - ANY RUNNING b. Check RCP indications: <ul style="list-style-type: none"> o Annunciator A-7 (A-15), RCP A (B) CCW RETURN HI TEMP OR LOW FLOW 165 GPM 125°F - EXTINGUISHED o Verify RCP motor bearing temperatures (PPCS GD - RCPS or RK-30A recorder) - LESS THAN 200°F 	<ul style="list-style-type: none"> a. Go to Step 8. b. <u>IF</u> CCW lost to RCP(s), <u>THEN</u> perform the following: <ul style="list-style-type: none"> 1) Stop the affected RCP(s). 2) <u>IF</u> no RCPs running, <u>THEN</u> verify natural circulation (Refer to Attachment NC).
8	<p>Check CCW System Leakage - ANY LEAKAGE INDICATED</p>	<p>Go to Step 13.</p>

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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- NOTE:
- o IF Seal Water Hx will be bypassed, THEN an increase in VCT temperature is expected.
 - o IF Seal Water Hx will be isolated, THEN seal return will be to the PRT through RV-314.

9 Check Seal Water Hx For Tube Leak:

- Locally check Seal Water Hx CCW outlet flow - NORMAL (FI-605)
- Locally check Seal Water Hx CCW outlet temperature - NORMAL (TI-604)
- VCT level - NO UNEXPLAINED INCREASE

IF a tube leak is indicated, THEN bypass and isolate Seal Water Hx and, if desired, isolate Seal Return.

- a. To bypass and isolate Hx perform the following:
 - 1) Open seal bypass V-394
 - 2) Close seal inlet V-265
 - 3) Close seal outlet V-321
 - 4) Close CCW inlet V-763
 - 5) Close CCW outlet V-767
- b. If desired to isolate seal return line close MOV-313.
- c. Notify RP to sample RCS for chromates.



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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

10 Check For CCW Leakage In CNMT:

a. Check CNMT sump A level:

- o Level - STABLE
- o Sump A pumps - OFF

b. RCP oil levels - STABLE

a. IF abnormal increase in CNMT sump level, THEN perform the following:

- 1) Direct RP Tech to sample sump A for chromates.
- 2) Prepare to make CNMT entry to check for CCW leak.

b. IF any RCP oil level increasing uncontrollably, THEN perform the following:

- 1) Stop affected RCP.
- 2) Close CCW supply and return for affected RCP(s).
 - RCP A, MOV-749A and MOV-759A
 - RCP B, MOV-749B and MOV-759B
- 3) IF no RCPs running, THEN verify natural circulation (Refer to Attachment NC).

11 Check for CCW Leakage In AUX BLDG:

- o Start frequency of AUX BLDG sump pump(s) - NORMAL (Refer to RCS daily leakage log)
- o Waste holdup tank level - STABLE OR INCREASING AS EXPECTED

Dispatch AO to investigate AUX BLDG for CCW leakage.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

12 Verify CCW System Leak - IDENTIFIED AND ISOLATED

Perform the following:

- a. Direct RP Tech to sample CCW HX SW outlet for chromates.
- b. Return to Step 2.

13 Check CCW Valve Alignment And Flow Rates - AS REQUIRED FOR PLANT CONDITIONS

Realign valves as necessary to restore CCW to individual components.

14 Evaluate Plant Conditions:

a. RHR normal cooling - IN SERVICE

a. Adjust S/G ARVs as necessary to stabilize RCS temperature and go to Step 15.

b. Check RCS Cooling:

b. IF CCW inadequate for RHR normal cooling, THEN go to AP-RHR.1, LOSS OF RHR OR AP-RHR.2, LOSS OF RHR WHILE OPERATING AT RCS REDUCED INVENTORY CONDITIONS.

o RCS temperature - STABLE OR DECREASING

o CCW system status - ADEQUATE FOR RHR NORMAL COOLING

NOTE: Refer to 0-9.3, NRC IMMEDIATE NOTIFICATION, for reporting requirements.

15 Notify Higher Supervision

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

16 Return To Procedure Or
Guidance In Effect

-END-

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AP-CCW.3 APPENDIX LIST

TITLE

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|----|----------------------------|------------|--|
| 1) | FIGURE MIN SUBCOOLING | (FIG-1.0) | |
| 2) | ATTACHMENT NC | (ATT-13.0) | |
| 3) | ATTACHMENT EXCESS L/D | (ATT-9.1) | |
| 4) | ATTACHMENT NORMAL CCW FLOW | (ATT-1.1) | |