

ATTACHMENT 1

Updates Included In
This Submittal

Volume 3A

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EP OP-11, Revision 3

EP OP-38, Revision 4

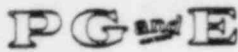
CURRENT
EMERGENCY PLAN
IMPLEMENTING PROCEDURES

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DEPARTMENT OF NUCLEAR PLANT OPERATIONS
DIABLO CANYON POWER PLANT UNIT NO(S) 1 AND 2

EMERGENCY OPERATING PROCEDURE
TITLE: LOSS OF COMPONENT COOLING WATER

IMPORTANT
TO
SAFETY

APPROVED: R. E. Thomsen
PLANT MANAGER

6-3-83
DATE

SCOPE

This procedure outlines the steps to be taken following component cooling water system leakage or loss of cooling to various vital components. Prompt corrective action is vital to prevent complete deterioration of the system. The primary action is to isolate the defective component or section and terminate the leakage.

- Section A Loss of a CCW Pump - pg. 1
- B CCW Inleakage - pg. 3
- C CCW Outleakage - pg. 5
- D Loss of CCW flow to the Letdown Heat Exchanger - pg. 7
- E Loss of CCW flow to the Reactor Coolant Pumps - pg. 9
- F Loss of CCW flow to the Seal Water Heat Exchanger - pg. 11
- Appendix A Clearing a Component Cooling Water Header Due To Header Failure - pg. 13
- Appendix Z Notification Instructions - pg. 20

This procedure and changes thereto require PSRC review.

A. LOSS OF A COMPONENT COOLING WATER PUMP

SYMPTOMS

- 1. Auto start of STBY CCW pump
- 2. Possible Annunciator Alarms
 - a. CCW Pumps (PK01-09)
 - 1) CCW Pp Auto Start
 - 2) CCW Pps OC Trip

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b. CCW VITAL HDR A/B (PK01-06)

- 1) CCW Hdr _____ Flo Lo
- 2) CCW Hdr _____ Press Lo

c. CCW Header C (PK01-08)

- 1) CCW Hdr-C Flo Lo

AUTOMATIC ACTIONS

- 1. Automatic start of STBY pump on low pressure in CCW headers A or B.

OBJECTIVES

- 1. Restore normal operation of CCW system.

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

- 1. Verify STBY CCW Pump AUTO START

- 1. Manual start STBY CCW Pump

SUBSEQUENT ACTIONS

- 1. If only one CCW pump can be started, verify CCW heat exchanger outlet temperature is less than 95°F.

- 1. Reduce system heat loads (as determined by the Shift Foreman) to maintain CCW system temperatures less than 95°F.

- 2. If No CCW pumps can be started,

- a. Trip the reactor.
- b. Trip the reactor coolant pumps.
- c. GO TO EP OP-5 Reactor Trip with no Safety Injection.



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EMERGENCY PROCEDURE
TITLE: ANTICIPATED TRANSIENT WITHOUT TRIP (ATWT)

APPROVED: OR C T Lomborg 6/10/83
PLANT MANAGER DATE

SCOPE

This procedure describes the steps to be taken in the event of an ATWT. An ATWT is a failure of the reactor protection system to trip the rods when a reactor trip setpoint has been exceeded. This procedure is "Important to Safety" and changes or revisions shall be approved by the PSRC.

SYMPTOMS

1. Reactor Trip setpoint exceeded without a reactor trip.
2. Possible REACTOR PROTECTION SIGNAL Annunciator (PK 04-11 or PK 04-12) without a REACTOR TRIP ACTUATED Annunciator (PK 04-14)
3. DRPI indicates failure of rods to insert.
4. NIS does not show a rapidly decreasing neutron count level.

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. <u>Manually Trip the Reactor.</u>
<u>If the Reactor Trips GO TO EP OP-5.</u> 2. <u>Manually Trip the Turbine</u> 3. <u>De-energize the M-G Sets by Opening Breakers for 13D and 13E.</u> | <ol style="list-style-type: none"> 1. IF <u>NOT</u>, GO TO Step 2. 2. Trip it locally at the turbine pedestal. 3. IF rods <u>DO NOT</u> insert, <ol style="list-style-type: none"> a. Manually SI b. Insert Rods c. Locally open the Reactor Trip Breakers d. GO TO EP OP-0 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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TITLE: ANTICIPATED TRANSIENT WITHOUT TRIP (ATWT)

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

SUBSEQUENT ACTIONS

- | | |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1. <u>Locally Open the Reactor Trip Breakers.</u> | 1. Open Both MG Set Motor and/or Generator Breakers. |
| 2. <u>Verify Feedwater isolation at $T_{avg} < 554^{\circ}\text{F}$.</u> | 2. Manually isolate main feedwater at $T_{avg} < 554^{\circ}\text{F}$. |
| 3. <u>Check AFW Status</u>
a. AFW pumps running
b. AFW Flow indicated or S/G NR Levels at 33% | a. Manually start AFW pumps.
b. Manually control AFW LCV's. |
| 4. <u>When the Reactor Trip Breakers and/or Both MG Set Breakers are Open, Re-energize 13D and 13E.</u> | |
| 5. <u>GO TO EP OP-5, Subsequent Step No. 1.</u> | |

TITLE: ANTICIPATED TRANSIENT WITHOUT TRIP (ATWT)

APPENDIX Z

EMERGENCY PROCEDURE NOTIFICATION INSTRUCTIONS

When this emergency procedure has been activated and upon direction from the Shift Foreman proceed as follows:

1. Designate this event an Alert. Notify plant staff and response organizations required for this classification by Emergency Procedure G-2 "Establishment of On-Site Organization" and Emergency Procedure G-3 "Notification of Off-Site Organization" in accordance with Emergency Procedure G-1 "Accident Classification and Emergency Plan Activation."
2. Designate this event a Site Area Emergency if safety injection was initiated before rods were inserted into the core but no core damage is evident (no abnormal increase in RCS coolant activity and no abnormal increase in gross failed fuel indication). Notify plant staff and response organizations required by EP G-2 and EP G-3 in accordance with EP G-1.
3. Designate this event a General Emergency if one of the following conditions exist:
 - a. Core damage is evident by:
 - 1) Reactor coolant activity greater than 300 $\mu\text{Ci/cc}$ equivalent I-131, or
 - 2) Radiation levels indicate greater than 100% gap release (Refer to Appendix H of EP OP-1).
 - b. Complete loss of a safe shutdown system simultaneous with rods not inserted in the core.
 - c. Loss of CVCS capability to increase boric acid concentration in the RCS simultaneous with rods not inserted into the core.

Notify plant staff and response organizations required by EP ~~G-2~~ and EP G-3 in accordance with EP G-1.

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B. COMPONENT COOLING WATER SYSTEM INLEAKAGE

SYMPTOMS

1. Surge tank level indicators reading high
2. Possible Annunciator Alarms
 - a. CCW SURGE TANK (PK01-07)
 - 1) CCW Surge TK Lvl Hi
 - b. CCW HEADER C (PK01-08)
 - 1) RCP Thermal Barrier CCW Flo Hi
 - c. RCP ____ (PK 05-01, 02, 03; 04)
 - 1) RCP ____ Lower Brg Temp Hi
 - 2) RCP ____ No. 1 Seal Outlet Temp Hi
 - d. HIGH RADIATION (PK 11-21)
 - 1) Process Monitor Hi-Rad (RE-17A&B)

AUTOMATIC ACTIONS

1. Surge tank vent closes on high radiation level.
2. Reactor coolant pump thermal barrier return line isolation valve (FCV-357) closes on high flow.

OBJECTIVES

1. Prevent loss of primary water inventory into component cooling water system.
2. Isolate component cooling water system to prevent radiation releases.
3. Prevent damage to reactor coolant pumps.

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDIMMEDIATE ACTIONS

1. Verify CCW inleakage

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ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDIMMEDIATE ACTIONS CONTINUED

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> a. Process monitor 17A&B reads one decade or more greater than monitor set point. b. Possible increase in CCW Surge Tank level. <ul style="list-style-type: none"> 2. Verify Surge Tank isolation valve RCV-16 closed if Hi Rad condition is verified. 3. If RCP thermal barrier return line isolates check adequate seal injection flow and normal Radial Bearing temperatures. | <ul style="list-style-type: none"> 2. CLOSE RCV-16 MANUALLY (VB-1). 3. If proper RCP Seal Injection flows and Radial Bearing temperatures cannot be maintained commence a reactor shutdown <ul style="list-style-type: none"> a. If Hi Radial Bearing Alarm temperature reached <u>THEN</u> <ul style="list-style-type: none"> 1) Trip the Reactor 2) Trip the RCPs 3) GO TO EP OP-5, Reactor Trip with no Safety Injection. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

CAUTION: Establish RCP seal cooling with CAUTION, in order to prevent potential introduction of steam into the CCW system and thermal shock to the RCP (Max rate of bearing cool down is 1°F/min).

SUBSEQUENT ACTIONS

- 1. Request a sample of the CCW system from the Chemical and Radiation Protection Department.

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SUBSEQUENT ACTIONS CONTINUED

2. Investigate to determine and isolate the source of leakage. Possible Sources:
 - a. Letdown Hx
 - b. Thermal Barrier Hx
 - c. Excess Letdown Hx
 - d. RHR Hx
 - e. Surge TK m/u valve failure (LCV-69 and/or LCV-70)
 - f. NSSS Sample Coolers
 - g. GFPD Sample Cooler
3. Notify the Chemical and Radiation Protection Department prior to reopening RCV-16.

C. COMPONENT COOLING WATER OUTLEAKAGE

SYMPTOMS

1. CCW Surge Tank level indication decreasing
2. Possible Annunciator Alarms
 - a. CCW VITAL HDR A/B (PK01-06)
 - 1) CCW Hdr _____ Press Lo
 - b. CCW SURGE TANK (PK01-07)
 - 1) CCW Surge Tk Lvl Lo
 - 2) CCW Surge TK Make-up Vlv open

AUTOMATIC ACTIONS

1. Automatic start of standby pump on low pressure in headers A or B.
2. Surge tank makeup valves (LCV-69 and/or 70) open.

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OBJECTIVES

1. Restore normal operation of component cooling water system.
2. Prevent damage to vital equipment.

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTION

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. Verify Surge Tank Makeup valves, LCV-69 and/or LCV-70 OPEN.2. Verify STBY CCW pump AUTO STARTED on Loss CCW Hdr Pressure (Setpoint 46 psig Hdr A, 45 psig Hdr B).3. If Lined up to CCW System START Makeup Water Transfer Pump. | <ol style="list-style-type: none">1. OPEN CCW-62 and CCW-65 as necessary.2. Manually START the STBY CCW pump if necessary.3. Line up & START Makeup Water Transfer Pump to the CCW System. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

SUBSEQUENT ACTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. Verify makeup by observing increasing CCW Surge Tank level on LI-139 and LI-140.2. If the CCW pumps begin to cavitate (pump amps erratic), TRIP the CCW pumps.<ol style="list-style-type: none">a. TRIP the Reactor.b. TRIP the RCPs.c. GO TO EP OP-5, Reactor Trip with no Safety Injection. | <ol style="list-style-type: none">1. If there is <u>NO</u> Surge Tank level indication on LI-139 and LI-140.<ol style="list-style-type: none">a. TRIP the Reactorb. TRIP the RCPsc. TRIP the CCW pumpsd. GO TO EP OP-5 Reactor Trip with no Safety Injection. |
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ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

SUBSEQUENT ACTION CONTINUED

3. Determine the Source of the Outleakage and isolate. Refer to Appendix 1 of this procedure if a CCW header must be isolated due to a gross leak that is otherwise unisolable.
 4. If previously shutdown, restart the CCW pumps as soon as conditions permit.
 5. Shutdown the turbine building sump pumps as necessary.
 6. Refer to Emergency Procedure R-5 to combat any uncontrolled CCW coolant leakage.
 7. Notify the Chem & Rad Protection Department for assistance.
- D. LOSS OF CCW FLOW TO THE LETDOWN HEAT EXCHANGER

SYMPTOMS

1. Letdown temperature indicator reads higher than normal.
2. Possible Annunciator Alarms
 - a. LETDOWN PRESS/FLO TEMP (PK04-21)
 - 1) Letdn Hx Outlet Temp Hi
 - 2) Letdn Outlet Temp Hi Divert

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AUTOMATIC ACTIONS

1. The letdown divert valve (TCV-149) bypass the letdown flow around the demineralizers to the volume control tank.

OBJECTIVES

1. To Isolate Letdown path to Letdown Hx if CCW cannot be restored.
2. Maintain letdown and charging via alternate path until cooling is restored to letdown heat exchanger.

ACTIONS/EXPECTED RESPONSERESPONSE NOT OBTAINEDIMMEDIATE ACTION

- | | |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Verify proper operation of TCV-130 (CCW return from LTDN HX). | <ol style="list-style-type: none"> 1. Adjust TCV-130 manually to establish adequate CCW flow. |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|

SUBSEQUENT ACTION

1. IF CCW flow to LTDN HX CANNOT be restored THEN:
 - a. Isolate LTDN - CLOSE CVCS 8149 A, B, and C.
 - b. Take manual control of charging flow.

NOTE: Perform steps 1), 2), and 3) SIMULTANEOUSLY.

- 1) Reduce charging flow rate.
 - 2) CLOSE HCV-142.
 - 3) Maintain 32 gpm Seal Water injection to the RCPs (8 gpm per pump).
- c. CLOSE CVCS 8107 and 8108.
 - d. Establish excess LETDN to the VCT.

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SUBSEQUENT ACTION CONTINUED

2. If the reciprocating charging pump is the pump in service, place its controller back in AUTO.

E. LOSS OF CCW FLOW TO REACTOR COOLING PUMPS

SYMPTOMS

1. Thermal barrier and lube oil cooler cooling water return high temperature indication.
2. Possible Annunciator Alarms
 - a. CCW HEADER C (PK01-08)
 - 1) RCP L.O. Ctr CCW Flo Lo.
 - 2) RCP Thermal Barrier CCW Flo Lo.
 - b. RCP No. ____ (PK05-01, 02, 03, 04)
 - 1) RCP ____ Temp P250
 - 2) RCP ____ Lower Brg Temp Hi

AUTOMATIC ACTIONS

1. None

OBJECTIVES

1. Prevent damage to reactor coolant pumps.

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

1. If CCW is lost to the lube oil coolers of ONE RCP.
 - a. Rapidly reduce power to 20% THEN TRIP the RCP
 - a. If RCP Hi Brg temperature alarms sound:
 - 1) TRIP the RCP

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ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

- b. Take Manual control of affected loop S/G level, if necessary to stabilize loop transient.
 - c. Refer to Technical Specification For limitations on power operation with an idle loop.
2. If CCW is lost to MORE THAN ONE RCP:
- a. TRIP the Reactor.
 - b. TRIP the affected RCPs.
 - c. GO TO EP OP-5, Reactor Trip with no Safety Injection.

2) If the Reactor Trips
GO TO EP-OP-5 Reactor
Trip with no Safety
Injection.

SUBSEQUENT ACTIONS

- 1. If component cooling to the pump lube oil coolers is lost, leave the pump shutdown until cooling has been restored.
- 2. If cooling is lost to the thermal barrier:
 - a. Check seal injection flow normal.
 - b. Check radial bearing temperature normal.
 - c. Continue to run the pump(s) but increase surveillance.

- a. Go to Section B, IMMEDIATE ACTIONS, step 3 (RESPONSE NOT OBTAINED)
- b. Go to Section B, IMMEDIATE ACTIONS, step 3 (RESPONSE NOT OBTAINED)

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3. If gross leakage from header C is suspected, go to Section C of this procedure.

F. LOSS OF CCW FLOW TO THE SEAL WATER HEAT EXCHANGER

SYMPTOMS

1. Slight increase in Seal Injection temperature.

AUTOMATIC ACTIONS

1. None

OBJECTIVES

1. Restore normal Seal Water Heat Exchanger outlet temperature.

ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

IMMEDIATE ACTIONS

1. None Required

SUBSEQUENT ACTIONS

1. Continue to operate. Reactor Coolant Pump temperatures will increase but not enough to damage equipment.
1. If RCP radial bearing temperature or No. 1 Seal Leakoff temperature exceeds the normal operating band limits (alarms at 170°F and 160°F respectively). Consider the following action:
 - a. Take manual control of TCV-130 & increase CCW flow to reduce VCT temperature.
 - b. If excess LTDN is in service:
 - 1) Divert excess LTDN to the RCDT.
 - 2) Verify AUTO makeup to the VCT.
 - 3) Makeup manually if necessary.

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ACTIONS/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

SUBSEQUENT ACTIONS CONTINUED

2. Attempt to restore component cooling water flow.

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APPENDIX ACLEARING A COMPONENT COOLING WATER HEADER DUE TO HEADER FAILURE

This procedure is intended to provide guidance for clearing a Component Cooling Water header due to a gross leak that is otherwise unisolable. The operators must determine which header the leak is on and follow the steps below to clear the respective header.

1. Clearing Header "A"

- a. If the leak is determined to be between the pump discharge and the component cooling water heat exchanger 1-1 motor operated outlet valve (FCV-430), check or place in service 1-2 component cooling water heat exchanger, then:
 - 1) Close all three component cooling water pump discharge valves to header A.
 - 2) Close component cooling water heat exchanger 1-1 motor operated outlet valve FCV-430.
 - 3) Close the inlet valve to RE-17A (CCW 1-7).
 - 4) Shut down the Turbine Building sump pumps as necessary.
 - 5) Refer to Emergency Procedure R-5 and notify the Chemical and Radiation Protection Engineer.
- b. If the leak is determined to be downstream of component cooling water heat exchanger outlet valve FCV-430, check or place 1-2 heat exchanger in service, then:
 - 1) Close FCV-430.
 - 2) Close CCW heat exchanger 1-1 outlet header A-C crosstie valve CCW 1-23.
 - 3) Start 1-1 and 1-2 CCW pumps if available. Shutdown 1-3 CCW pump.
 - 4) Close header A-C suction crosstie valve CCW 1-5.
 - 5) Isolate Makeup water to the "A" half of the surge tank.

NOTE: The following is a list of equipment normally served by header "A". Take appropriate actions to swap to alternate equipment.

TITLE: LOSS OF COMPONENT COOLING WATER

APPENDIX A CONTINUED

CLEARING HEADING "A"

Equipment normally served by CCW "A" header.

EQUIPMENT	ACTION
1. CCW pump 1-2 and 1-3 Stuffing Box and Lube Oil Coolers	Open "B" header supply and return for CCW pump 1-2 (CCW 1-104 and CCW 1-108). Close "A" header supply and return for 1-2 CCW pump (CCW 1-105 and CCW 1-109). <u>NOTE:</u> No action required for 1-3 CCW pump since it was shut down.
2. Centrifugal Charging Pump 1-1 Lube Oil and Seal Coolers.	Start 1-2 or 1-3 charging pump if needed. Shut down 1-1 charging pump.
3. RHR Heat Exchanger 1-1 and RHR pump 1-1 Seal Water Cooler.	If in service, swap heat exchanger and pumps.
4. Safety Injection Pump 1-2 Lube oil and Seal Water Coolers	Start 1-1 Safety Injection Pump if needed. Shut down 1-2 Safety Injection Pump.
6. Post LOCA Sample Coolers	None

TITLE: LOSS OF COMPONENT COOLING WATER

c. Shutdown the turbine building sump pumps as necessary. Refer to Emergency Procedure R-5 and notify the Chemical and Radiation Protection Engineer.

2. Clearing Header "B"

- a. If the leak is determined to be between the pump discharge and the component cooling water heat exchanger 1-2 motor operated outlet valve FCV-431, check or place in service 1-1 component cooling water heat exchanger, then:
- 1) Close all three component cooling water pump discharge valves to header "B".
 - 2) Close component cooling water heat exchanger 1-2 motor operated outlet valve FCV-431.
 - 3) Close the inlet valve to RE-17B (CCW 1-9).
 - 4) Shut down the Turbine Building sump pumps as necessary.
 - 5) Refer to Emergency Procedure R-5 and notify the Chemical and Radiation Protection Engineer.
- b. If the leak is determined to be downstream of component cooling water heat exchanger outlet valve FCV-431, check or place 1-1 CCW heat exchanger in service, then:

- 1) Close FCV-431.
- 2) Close CCW heat exchanger 1-2 outlet header B-C crosstie valve (CCW 1-24).
- 3) Start 1-2 and 1-3 CCW pumps if available. Shut down 1-1 CCW pump.
- 4) Close header B-C suction crosstie valve (CCW 1-4).
- 5) Isolate makeup water to the "B" half of the surge tank.

NOTE: The following is a list of equipment normally served by header "B". Take appropriate actions to swap to alternate equipment.

TITLE: LOSS OF COMPONENT COOLING WATER

APPENDIX A CONTINUED

CLEARING HEADING "B"

Equipment normally served by CCW "B" header.

EQUIPMENT	ACTION
1. CCW Pump 1-1 Stuffing box and Lube Oil Coolers	None required since 1-1 CCW pump was shut down.
2. RHR heat exchanger 1-2 and RHR Pump 1-2 Seal Water Coolers	If in service, swap RHR heat exchanger and pump to 1-1, and shutdown 1-2 RHR pump.
3. Centrifugal Charging Pump 1-2 Lube Oil and Seal Coolers	Start 1-1 or 1-3 Charging Pump if needed. Shut down 1-2 Charging pump.
4. Safety Injection Pump 1-1 Lube Oil and Seal Coolers	Start 1-2 Safety Injection Pump if needed. Shut down 1-1 Safety Injection Pump.
5. Containment Fan Coolers 1-2 and 1-5.	Start 1-3 and 1-4 CFCU's. Shutdown-1-1, 1-2 and 1-5 CFCU's.

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- c. Shutdown the turbine building sump pumps as necessary.
- d. Refer to Emergency Procedure R-5 and notify the Chemical and Radiation Protection Engineer.

3. Clearing Header "C"

NOTE: Clearing Header "C" results in a loss of component cooling water to all Reactor Coolant pumps.

- a. Prior to clearing header "C" reduce Unit Load.
- b. Upon clearing header "C":
 - 1. Trip the Reactor, then;
 - 2. Trip the Reactor Coolant pumps and refer to EP OP-5 Reactor Trip with no Safety Injection.
 - 3. To clear header "C", perform the following steps:
 - a. Close header "C" supply FCV-355.
 - b. Start 1-1 and 1-3 CCW pumps.
 - c. Shut down 1-2 CCW pump.
 - d. Close header A-C suction crosstie valve (CCW 1-5).
 - e. Close header B-C suction crosstie valve (CCW 1-4).
 - f. Close CCW-2, CCW pump 1-2 suction valve.
 - g. Open DC control power locally to CCW pump 1-2 to prevent an inadvertent AUTO start with CCW-2 closed.

NOTE: The following is a list of equipment normally served by header "C" Unit 1. Take appropriate actions to swap to alternate cooling water or equipment as necessary.

TITLE: LOSS OF COMPONENT COOLING WATER

APPENDIX A CONTINUED
CLEARING HEADING "C"

EQUIPMENT	ACTION
1. Reciprocating Charging Pump 1-3 Fluid Drive, Seal Plate, & Lube Oil Coolers	Start 1-2 or 1-3 Charging pump if needed. Shut down 1-3 Charging pump.
2. Letdown Heat Exchanger	Isolate normal letdown. Reduce charging flow. <u>Maintain Seal Injection.</u>
3. Seal Water Heat Exchanger	Monitor seal injection temperature
4. Excess Letdown Heat Exchanger	Unless it is in service, then isolate excess LTDN.
5. Spent Fuel Pit Heat Exchanger	Monitor spent fuel pool temperature
6. Steam Generator Blowdown Sample Coolers	NONE
7. Pressurizer Steam, Liquid and Hot Leg Sample Heat Exchangers	NONE
8. a. Waste Concentrator b. Boric Acid Evaporator c. Auxiliary Steam Drain Receiver vent condenser	If needed, swap supply and return valves over to Unit Two CCW Header "C".

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APPENDIX A CONTINUED
CLEARING HEADING "C"

EQUIPMENT	ACTION
9. a. Reactor Vessel Support Coolers b. Gross Failed Fuel Detector Heat Exchanger c. Central Sample Panel Coolers	NONE
10. Waste Gas Compressor 0-1 and 1-1 Seal Water Coolers.	Shut down 1-1 WGC and swap CCW supply and return valves to Unit Two CCW Header "C" for 0-1 WGC.

- 4. Shutdown the Turbine Building sump pumps as necessary.
- 5. Refer to Emergency Procedure R-5 and notify the Chemical and Radiation Protection Engineer.

TITLE: LOSS OF COMPONENT COOLING WATER

APPENDIX Z

NOTIFICATION INSTRUCTIONS

1. When this procedure has been activated and upon direction from the Shift Foremen, proceed as follows:
 - a. Notify the Plant Superintendent, Supervisor of Operations and Plant Manager or their designated alternates, as a minimum.
 - b. If any loss of component cooling water results in a reactor trip, designate this a Significant Event. As a minimum within one hour notify the NRC Bethesda Operations Center using the Red Phone in the Control Room. Gather sufficient information from all courses prior to calling so that the phone call is meaningful. Refer to Operating Procedure O-4 "Operating Order (One Hour Reporting Requirements to NRC)" for a suggested format for reporting.
 - c. If one vital loop of component cooling water is lost, designate this a Notification of Unusual Event. Notify plant staff and response organizations required for this classification by implementing Emergency Procedures G-2 "Establishment of the On-Site Emergency Organization" and G-3 "Notification of Off-Site Organizations" in accordance with Emergency Procedure G-1 "Accident Classification and Emergency Plan Activation."
 - d. If both vital loops of component cooling water are lost, in modes 5 or 6, designate this an Alert. Notify plant staff and response organizations required by EP G-2 and EP G-3 in accordance with EP G-1.
 - e. If both vital loops of component cooling water are lost, in modes 1, 2, 3 or 4, designate this a Site Area Emergency. Notify plant staff and response organizations required by Ep G-2 and EP G-3 in accordance with EP G-1.