

EOP: AP-RCS.1	TITLE: REACTOR COOLANT LEAK	REV: 6 PAGE 1 of 9
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 2-7-90

Joseph A. Widay
PLANT SUPERINTENDENT

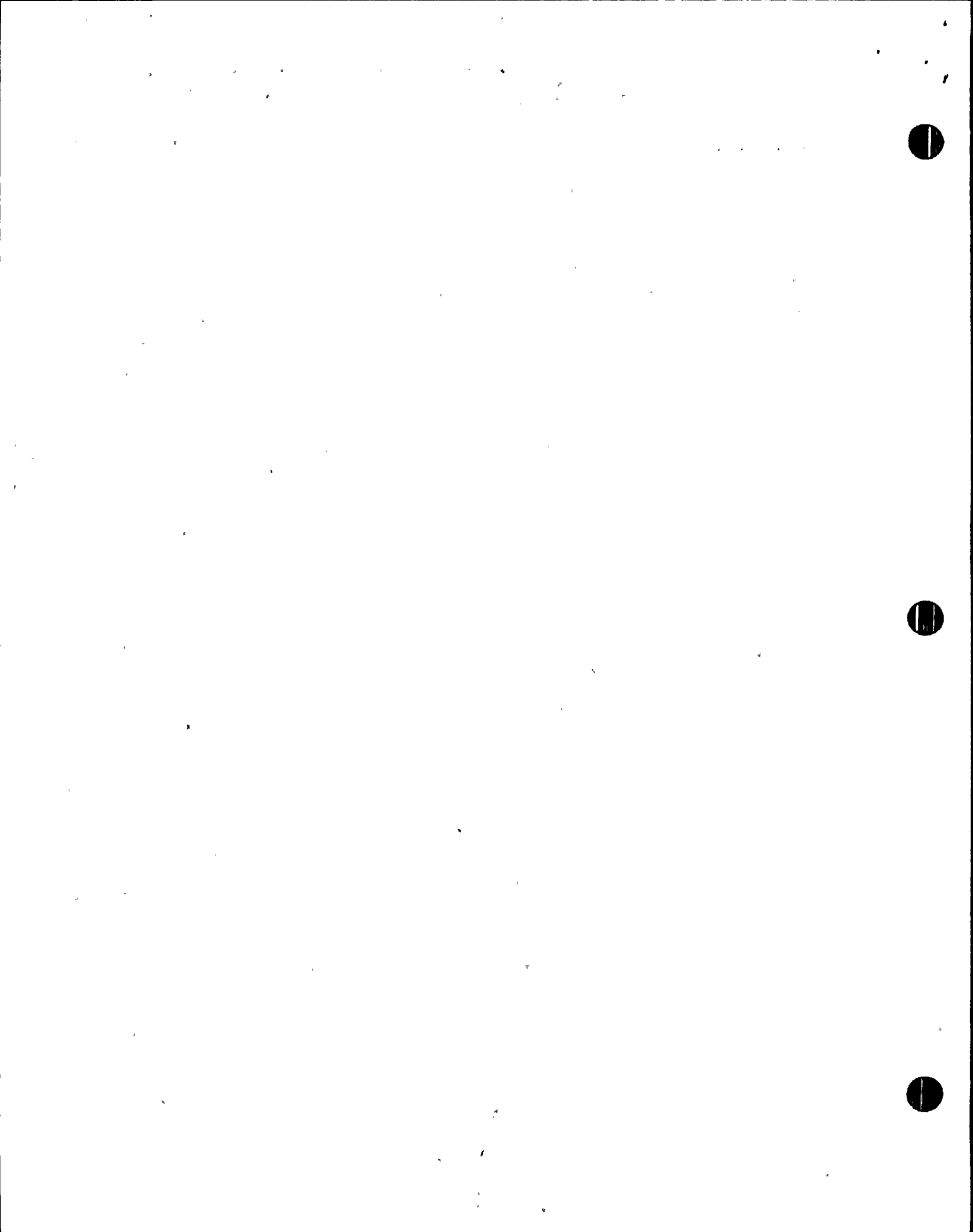
2-23-90
EFFECTIVE DATE

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REVIEWED BY: _____

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EOP:

AP-RCS.1

TITLE:

REACTOR COOLANT LEAK

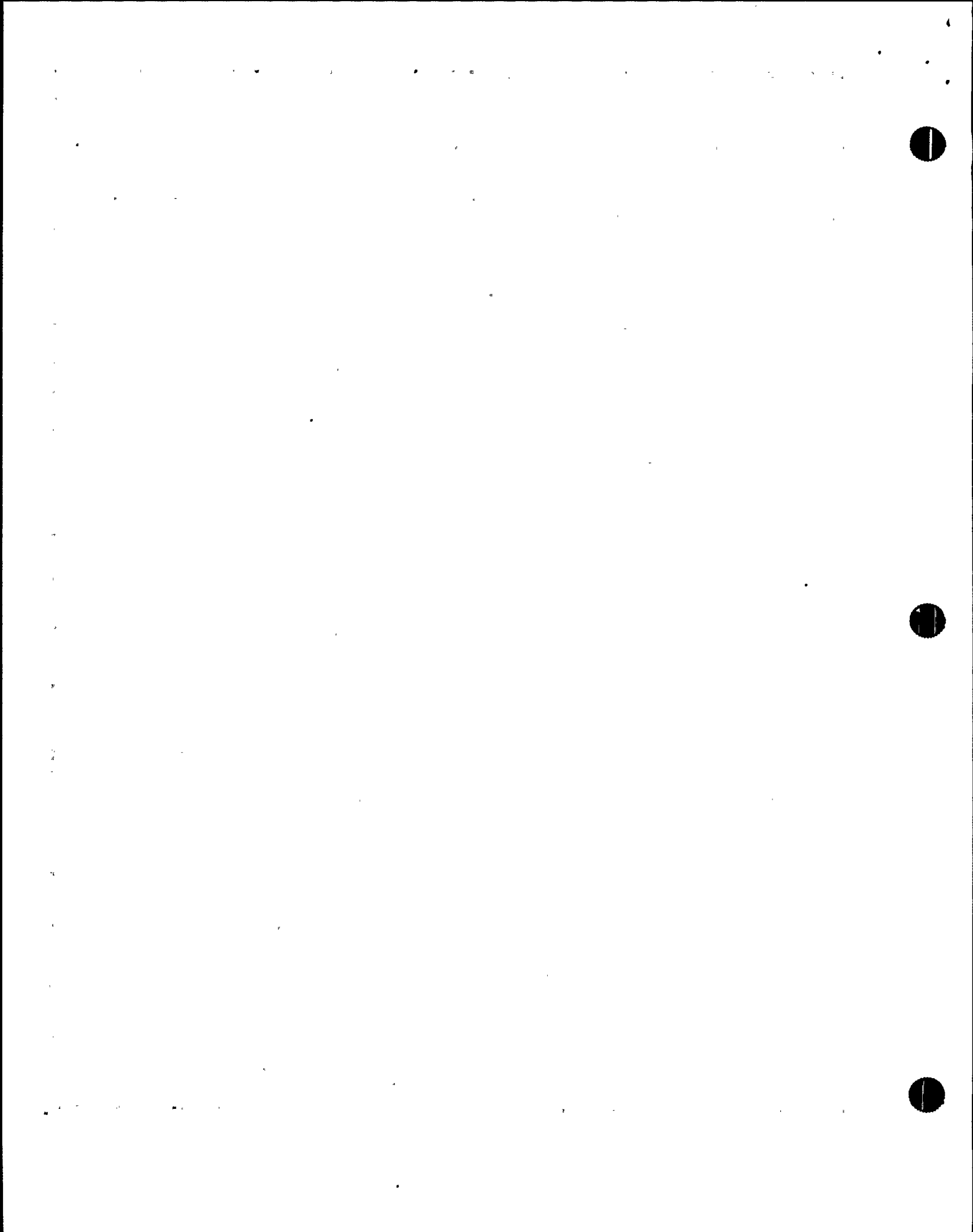
REV: 6

PAGE 2 of 9

- A. PURPOSE - This procedure provides the instructions necessary to mitigate the consequences of a reactor coolant leak.
- B. ENTRY CONDITIONS/SYMPTOMS
1. ENTRY CONDITIONS - This procedure is entered from:
 - a. S-12.2, Operator Action in the event of indication of significant increase in leakage.
 - b. AP-CVCS.1, when leak cannot be isolated.
 2. SYMPTOMS - The symptoms of REACTOR COOLANT LEAK are;
 - a. Annunciator F-14, Charging pump speed alarm, or
 - b. Annunciator A-2, VCT Level 14% 86, alarm or,
 - c. Annunciator E-16, RMS Process Monitor High Activity, alarm, or
 - d. Annunciator E-24, RMS Area Monitor High Activity, alarm, or
 - e. Annunciator F-4, Pressurizer Level Deviation -5 Normal +5, alarm, or,
 - f. Annunciator F-10, Pressurizer Lo Press 2185 psi, alarm, or
 - g. Annunciator F-11, Pressurizer Lo Level 13%, alarm, lit.

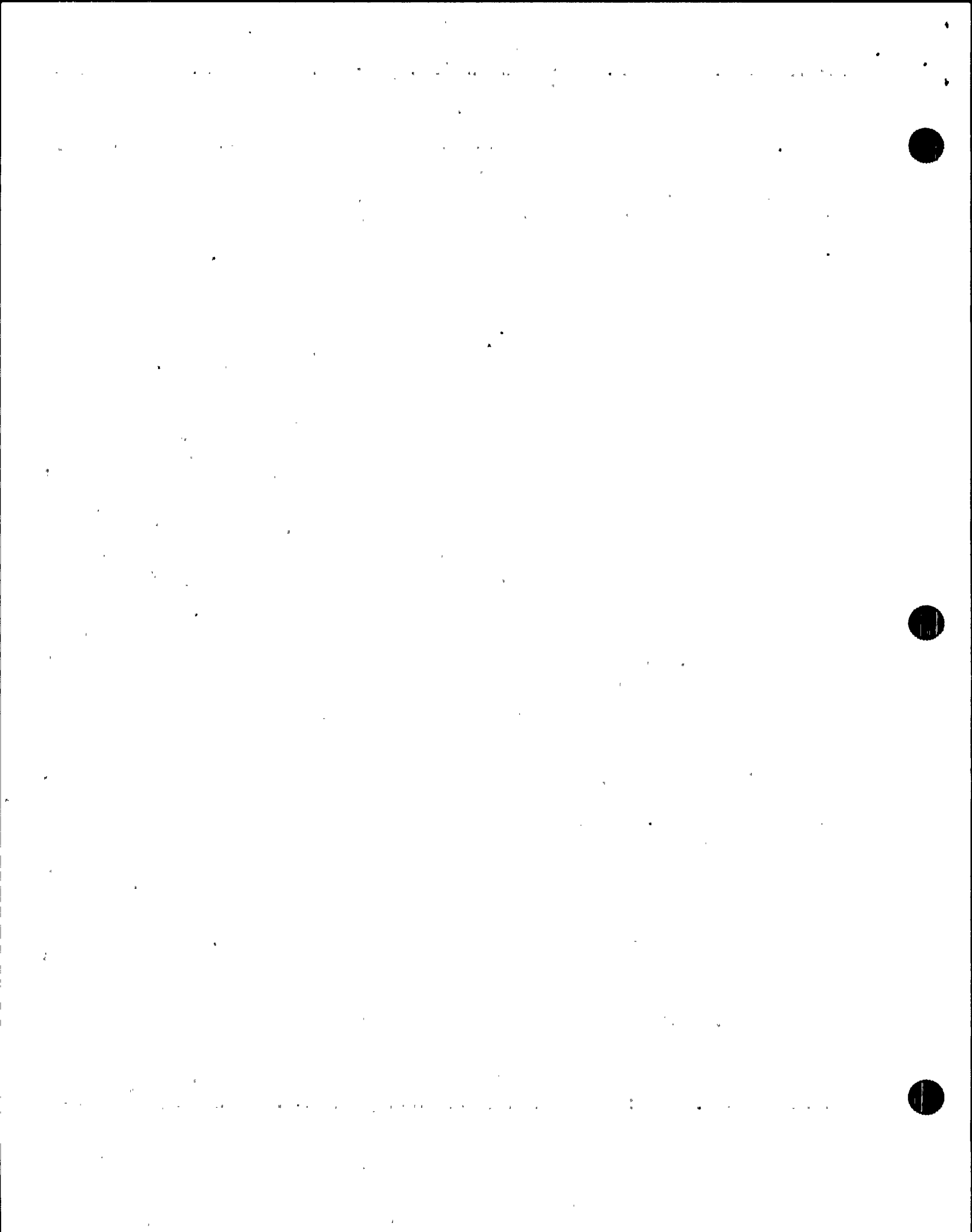


STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
<p>***** <u>CAUTION</u> IF, AT ANY TIME DURING THIS PROCEDURE, A REACTOR TRIP OR SI OCCURS, E-0, REACTOR TRIP OR SAFETY INJECTION, SHALL BE PERFORMED. *****</p>		
1	Check RCS Inventory:	Go to Step 4.
	a. PRZR level - DECREASING	
2	Establish Stable PRZR Level:	
	a. Start - ADDITIONAL CHARGING PUMPS AND INCREASE SPEED AS NECESSARY	
	b. Check PRZR level - STABLE OR INCREASING	b. Close LTDN loop B cold leg to RHx AOV-427.
3	Check PRZR Level - GREATER THAN 13% AND STABLE OR INCREASING	<u>IF</u> available charging pumps are running at maximum speed with letdown secured, <u>AND</u> PRZR level is decreasing, <u>THEN</u> trip the reactor and go to E-0, REACTOR TRIP or SAFETY INJECTION.



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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>NOTE:</p> <ul style="list-style-type: none"> o An investigation should be initiated within 4 hours of detecting a significant increase in leakage from the RCS (Refer to S-12.2, OPERATOR ACTION IN THE EVENT OF INDICATION OF SIGNIFICANT INCREASE IN LEAKAGE). o IF VCT level decreases to 5%, charging pump suction will swap to the RWST. This may require a load reduction. <p>4 Check VCT Level:</p>	
	<p>a. VCT level - GREATER THAN 5%</p>	<p>a. Verify charging pump suction swap to RWST:</p> <ul style="list-style-type: none"> 1) Emergency makeup RWST to charging pump LCV-112B - OPEN 2) VCT outlet vlv LCV-112C - CLOSED.
	<p>b. VCT level - STABLE OR INCREASING</p>	<p>b. Check RMW system:</p> <ul style="list-style-type: none"> 1) Operable in AUTO, <u>OR</u> 2) Perform VCT makeup manually, as required. 3) Go to Step 5.
	<p>c. Reactor makeup control - OPERATING IN AUTO</p>	<p>c. Place reactor makeup control in AUTO.</p>



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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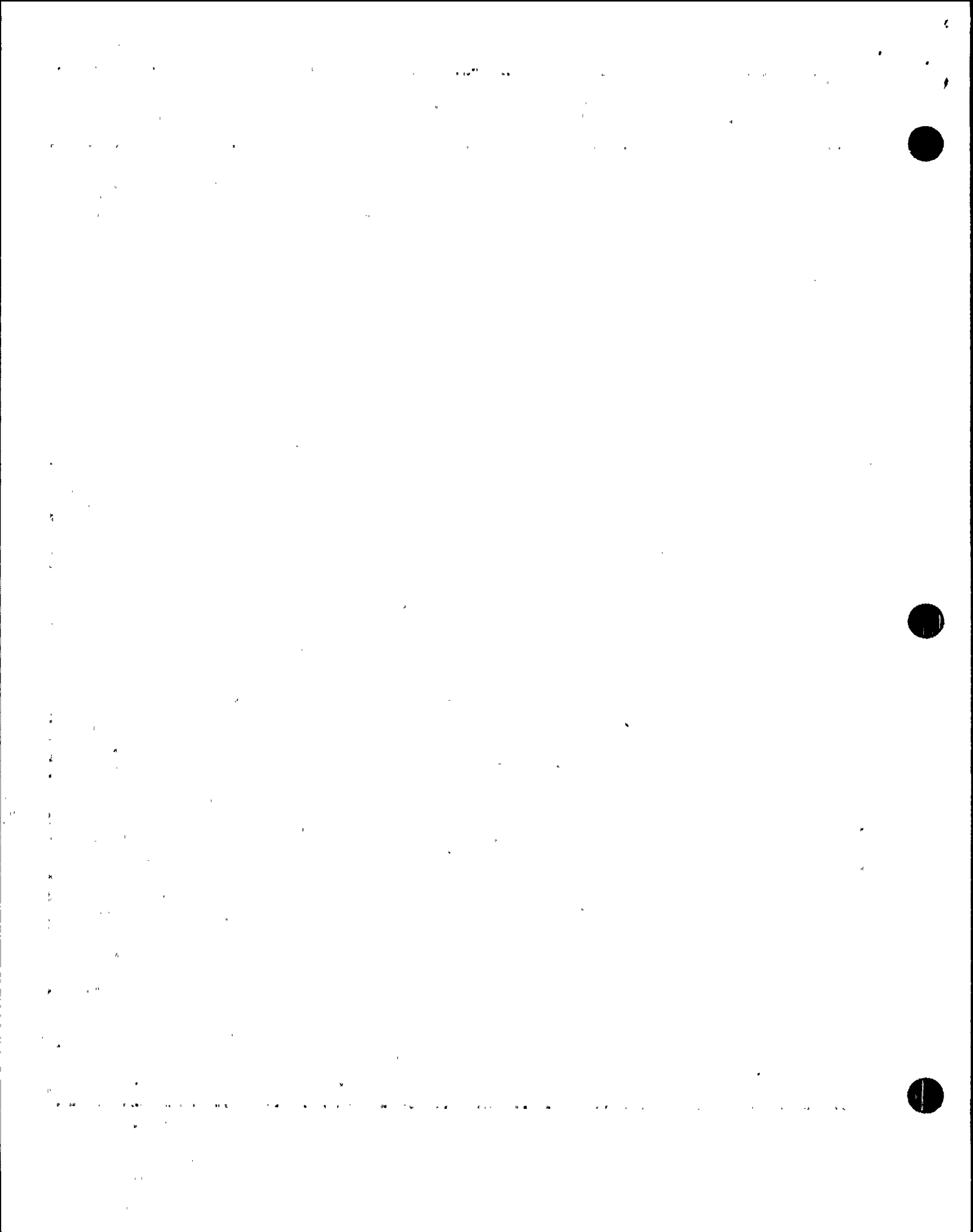
5 Check CVCS Conditions:

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| <p>a. Letdown indication:</p> <ul style="list-style-type: none"> o Letdown flow - APPROXIMATELY 40 GPM <p style="text-align: center;">-AND-</p> <ul style="list-style-type: none"> o Letdown pressure - APPROXIMATELY 250 PSIG <p>b. Charging line pressure - APPROXIMATELY 2400 PSIG</p> <p>c. RCP seal injection indications - SEAL INJECTION FLOW METERS GREATER THAN 5 GPM</p> | <p>a. <u>IF</u> letdown isolated, <u>THEN</u> continue with Step 5b. <u>IF NOT</u> isolated, <u>THEN</u> GO TO AP-CVCS.1, CVCS LEAK.</p> <p>b. Go to AP-CVCS.1, CVCS LEAK.</p> <p>c. Go to AP-CVCS.1, CVCS LEAK.</p> |
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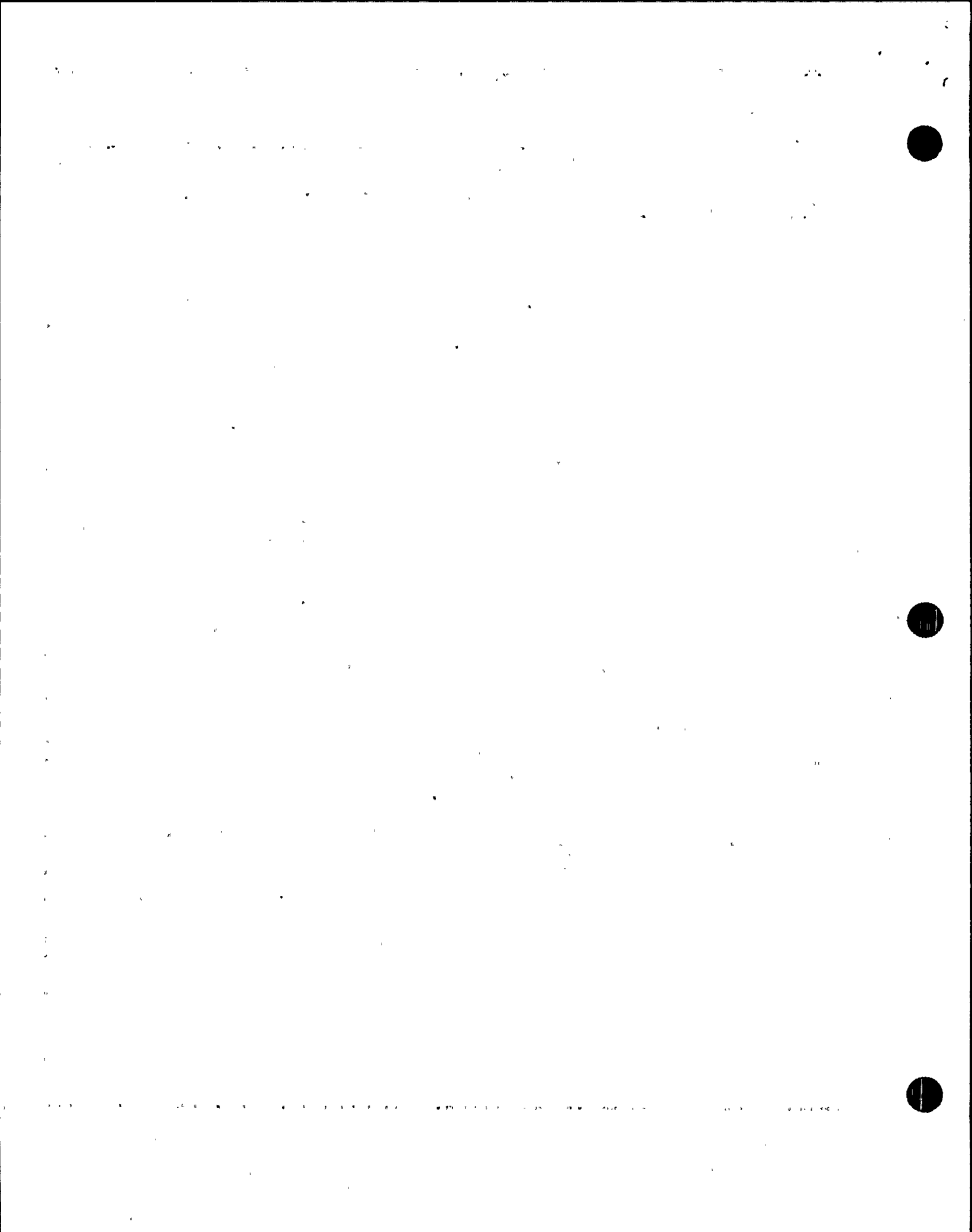
CAUTION

HEALTH PHYSICS TECHNICIAN SHOULD BE CONSULTED PRIOR TO ENTERING A HIGH AIRBORNE AREA.

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|--|---|
| <p>6 Check CNMT AND AUX BLDG Radiation Monitors - NORMAL (Normal reading found on Radiation Monitoring Charts)</p> | <p><u>IF</u> RCS leakage is to CNMT atmosphere and can <u>NOT</u> be isolated remotely, <u>THEN</u>, go to Step 13. If leakage is indicated in Aux Bldg, <u>THEN</u>, direct A0 to investigate <u>AND</u> go to Step 7.</p> |
| <p>7 Check CCW Surge Tank Level - APPROXIMATELY 50% AND NOT INCREASING</p> | <p>Go to AP-CCW.1, LEAKAGE INTO THE COMPONENT COOLING LOOP.</p> |



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8 Check PRT Conditions:	<ul style="list-style-type: none">o PRT level - STABLEo PRT pressure - APPROXIMATELY 1.5 PSIG AND STABLEo PRZR relief tk liquid temp - AT CNMT AMBIENT TEMPERATURE AND STABLEo PRZR valve leakoff temperatures - NORMAL (Normal readings found on Pressurizer Valve Leak-Off Temperature Record Log	Go to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

STEAM GENERATOR TUBE LEAKAGE IN ONE S/G SHALL NOT EXCEED 0.1 GPM WHEN AVERAGED OVER 24 HOURS.

9 Check S/Gs For Leakage:

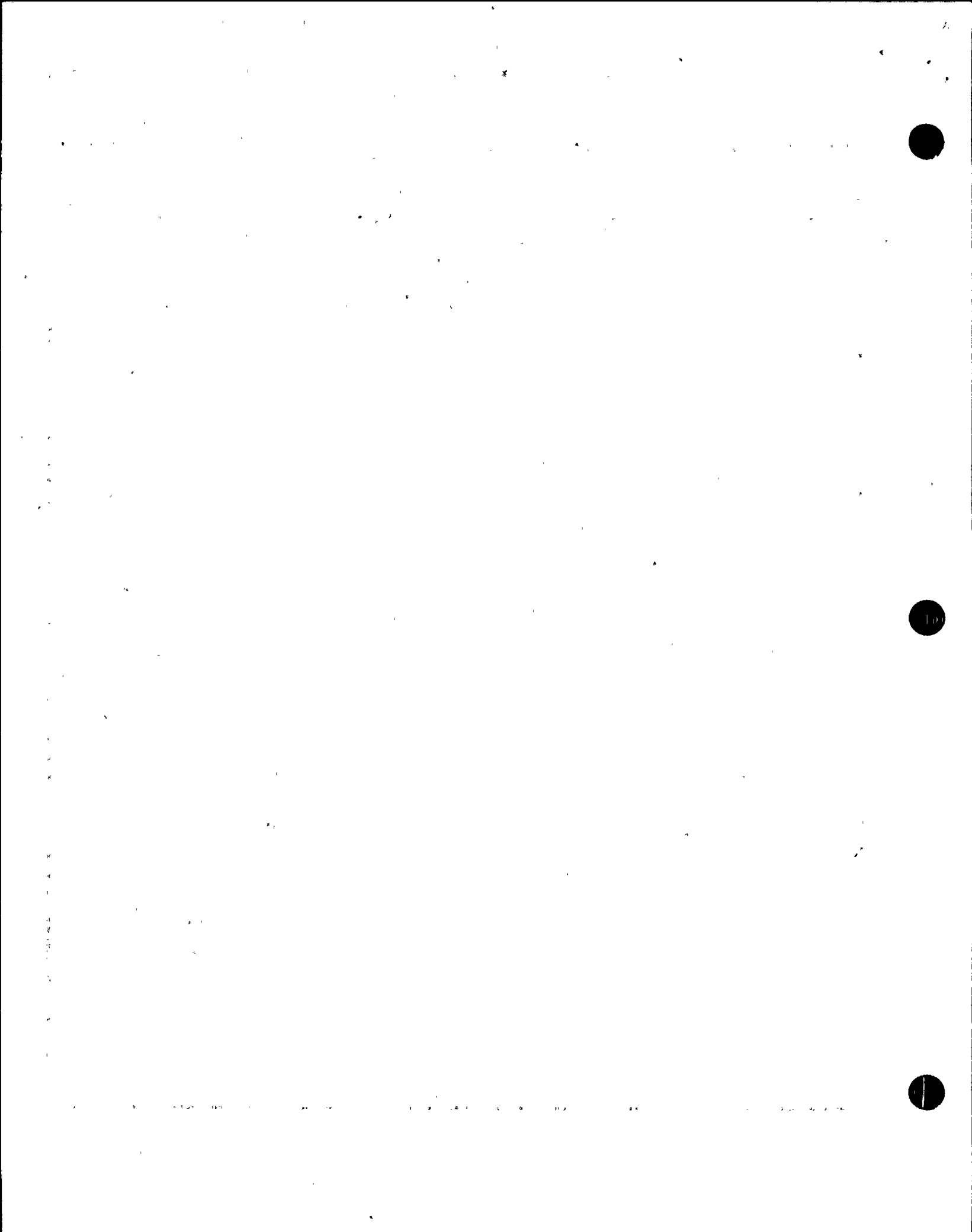
- o Air ejector radiation monitors (R-15, R-15A) - NORMAL (Normal readings found on Radiation Monitoring Charts)
- o S/G blowdown radiation monitor (R-19) - NORMAL (Normal readings found on Radiation Monitoring Charts)
- o Steamline radiation monitors (R-31, R-32) - NORMAL (Normal readings found on Radiation Monitoring Charts)
- o S/G sample activity - NORMAL (Check with HP Department for normal)

IF S/G tube leak indicated, THEN refer to 0-6.10, PLANT OPERATION WITH A S/G TUBE LEAK INDICATION.

10 Check Accumulator Levels:

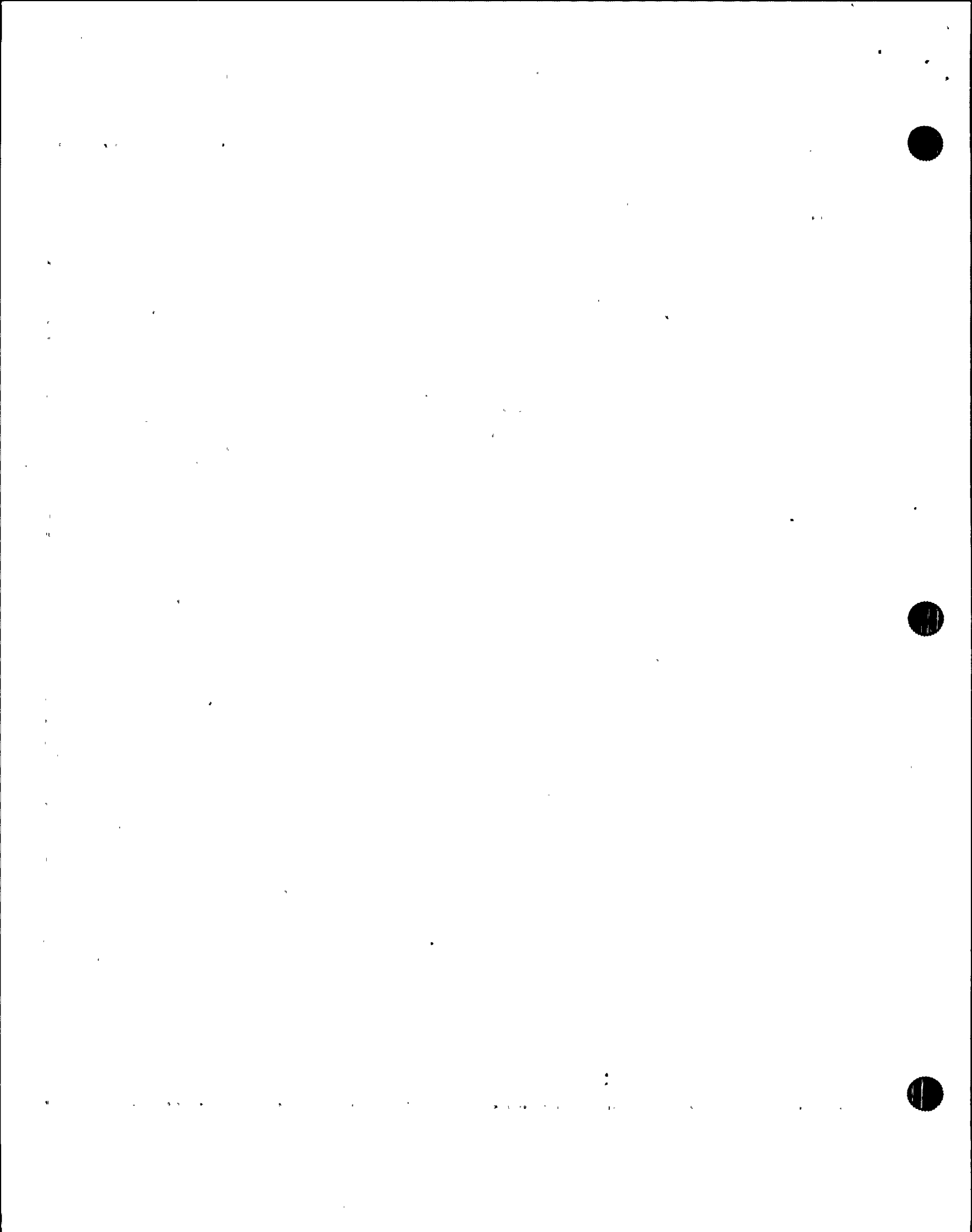
- o Accumulator levels - STABLE

To calculate in leakage to accumulators, refer to S-16.11, MONITORING INLEAKAGE TO SI ACCUMULATORS.



EOP: AP-RCS.1	TITLE: REACTOR COOLANT LEAK	REV: 6 PAGE 8 of 9
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11	Check RCDT Level: a. RCDT leak rate - NOT INCREASING	a. Check sources of inleakage to RCDT: 1) <u>IF</u> RV flange leakoff temperature has increased, <u>THEN</u> close Rx vess flange seal leakoff vlv AOV-521. 2) Verify proper operation of RCP seals. <u>IF</u> RCP seal malfunction, <u>THEN</u> go to AP-RCP.1, RCP SEAL MALFUNCTION. 3) Verify excess letdown isolated. 4) <u>IF</u> source of leakage is <u>NOT</u> 1, 2 or 3 above, <u>THEN</u> suspect loop drains.
12	Check Valve Leakoff Temperatures - NORMAL (Normal readings found on Pressurizer Valve Leak-Off Temperature Record Log)	<u>IF</u> any valve leakoff temperature are abnormally high, <u>THEN</u> , perform further investigation of that leakage path.
13	Check CNMT Radiation Monitors - NORMAL (Normal readings found on Radiation Monitoring Charts)	<u>IF</u> leakage is indicated in CNMT, <u>THEN</u> : a. Have HP sample for CNMT entry. b. Investigate CNMT for leakage.



STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14	Verify Tech Spec Leakage Limits - SATISFIED PER TECH SPEC SECTION 3.1.5	Perform actions as directed by Tech Specs.
15	Establish - MONITORING OF RCS LEAK RATE AND EVALUATE PLANT CONDITIONS FOR LONG TERM ACTIONS	
16	Check Conditions For Offsite Reporting: <ul style="list-style-type: none"> o Refer to - SC-100, GINNA STATION EVENT EVALUATION AND CLASSIFICATION o Refer to - 0-9.3, NRC IMMEDIATE NOTIFICATION 	

-END-



EOP: AP-TURB.2	TITLE: AUTOMATIC TURBINE RUNBACK	REV: 9 PAGE 1 of 12
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ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

TECHNICAL REVIEW

PORC REVIEW DATE 5/1/91

Joseph A. Widay
PLANT SUPERINTENDENT

5/3/91
EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY: _____

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EOP: AP-TURB.2	TITLE: AUTOMATIC TURBINE RUNBACK	REV: 9 PAGE 2 of 12
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- A. PURPOSE - This procedure provides the steps necessary to control the plant during an automatic turbine runback or unexplained load rejection.
- B. ENTRY CONDITIONS/SYMPTOMS
1. SYMPTOMS - The symptoms of AUTOMATIC TURBINE RUNBACK are;
 - a. Annunciator E-28, POWER RANGE ROD DROP STOP -5%/5 sec, lit or
 - b. Annunciator C-14, ROD BOTTOM ROD STOP, lit or
 - c. MRPI Indicates control rod(s) on bottom
 - d. Annunciator F-30, OPΔT TURBINE RUNBACK, lit or
 - e. Annunciator F-31, OTΔT TURBINE RUNBACK, lit or
 - f. Unexplained turbine load rejection.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

IF, AT ANY TIME DURING THIS PROCEDURE, A REACTOR TRIP OCCURS, E-O, REACTOR TRIP OR SAFETY INJECTION, SHALL BE PERFORMED.

NOTE: o Step 1 is an IMMEDIATE ACTION step.

o Any runback signal will block auto out motion of rod control system.

- | | | |
|---|--|---|
| 1 | <p>Check Rod Control:</p> <ul style="list-style-type: none"> o Rod control bank selector switch in AUTO o Control rods stepping in as required | <p>Place rod control bank selector switch in manual and drive rods in as necessary to control Tavg.</p> |
|---|--|---|



STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

2 Check Control Rod Status:

- o Annunciator E-28, POWER RANGE
ROD DROP ROD STOP 5%/5 SECONDS -
EXTINGUISHED
- o Annunciator C-14, ROD BOTTOM ROD
STOP - EXTINGUISHED

Go to Step 12.

3 Verify Annunciator F-15, RCS
TAVG DEV, - EXTINGUISHED

Place steam dump mode selector
switch to MANUAL.

4 Verify the following:

- a. Any ΔT runback signal - PRESENT
- b. ΔT runback occurring as required

a. Go to Step 5.

- b. Perform the following:
 - 1) Place EH in MANUAL.
 - 2) Reduce turbine load as
necessary.

5 Verify Tav_g - TRENDING TO TREF

Manually operate control rods as
necessary to control Tav_g.

IF steam dump required and NOT
operating, THEN perform the
following:

- a. Place steam dump mode selector
to MANUAL.
- b. Place steam dump pressure
controller, HCV-484, to MANUAL.
- c. Open steam dump valves as
necessary to control Tav_g.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

6 Verify All ΔI Indications
Approximately Equal

Check NIS PR upper and lower
detector currents to determine if
any detector has failed.

IF NIS PR upper or lower detector
has failed, THEN perform the
following:

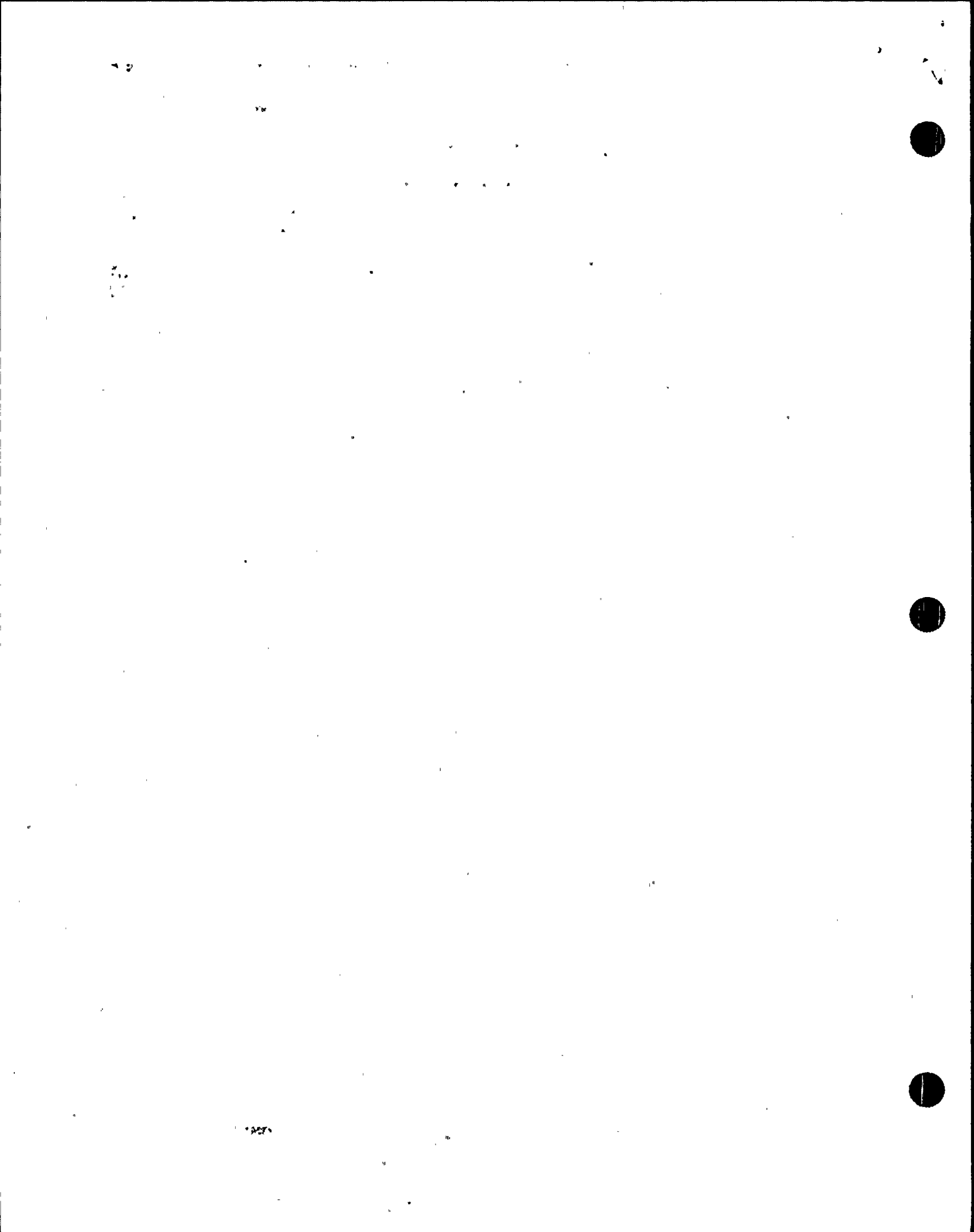
- a. Allow runback to reduce reactor
power to 75%.
- b. Place EH in manual to terminate
runback.
- c. Defeat failed PR channel.
(Refer to ER-NIS.3, PR
MALFUNCTION.)

7 Check Delta T Channel
Indications:

- o All 4 delta T channels indicate
approximately the same value
- o All 4 delta T channel setpoint
indications approximately equal
- o All 4 delta T channels
responding to the turbine
runbacks

Perform the following:

- a. Check for instrument failure:
 - o Any delta T channel
indicating significantly
different than the other 3.
 - o Any PRZR pressure or Tav_g
channel malfunction.
- b. IF 1 channel is failed, THEN
perform the following:
 - 1) Allow runback to reduce
reactor power to 75% or until
condition clears.
 - 2) WHEN power less than 75%,
THEN place EH in manual to
terminate runback if
necessary.
 - 3) Go to Step 9.



STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

8 Turbine Runback Signal -
CLEARED

WHEN turbine runback signal clears,
THEN go to Step 9.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

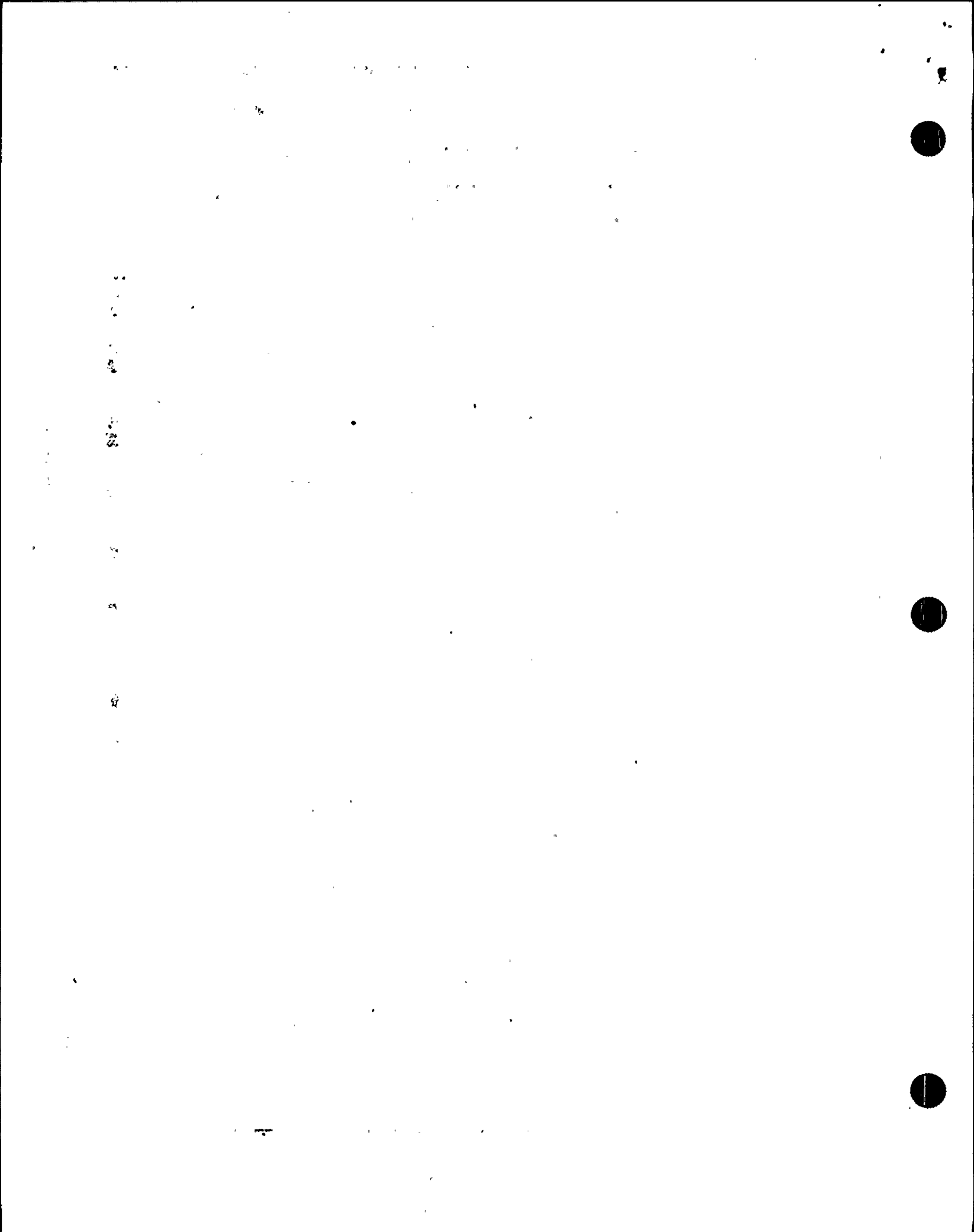
CAUTION

IF STEAM DUMP CONTINUES FOR A SIGNIFICANT LENGTH OF TIME, CONDENSATE TEMPERATURE AND CONDENSER BACK PRESSURE SHOULD BE MONITORED.

NOTE: Tav_g will indicate high or low for some instrument failures affecting steam dump control, rod control, and PRZR level control.

9 Establish Stable Plant Conditions:

- | | |
|--|--|
| a. Tav _g - TRENDING TO TREF | a. Insert control rods or, if necessary decrease turbine load to match Tav _g to Tref. |
| b. PRZR pressure - TRENDING TO 2235 PSIG | b. Verify proper operation of PRZR heaters and spray or take manual control of PRZR press controller 431K. <u>IF</u> PRZR pressure can <u>NOT</u> be controlled, <u>THEN</u> refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE. |
| c. PRZR level - TRENDING TO PROGRAM | c. Verify proper operation of charging pump speed controllers <u>OR</u> take manual control of speed controllers to control PRZR level. |
| d. Rod insertion limit alarms - EXTINGUISHED | d. Failure of a ΔT channel will affect rod insertion limit indication. Determine actual RIL from Tech Spec figure 3.10-1. <u>IF</u> necessary, <u>THEN</u> refer to AP-CVCS.2, IMMEDIATE BORATION and continue with Step 8e. |
| e. Steam dump valves - CLOSED | e. Ensure proper operation of steam dump control system. |



STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

10 Check REGEN Hx Letdown Indications:

- o Annunciator A-4, REGEN HX LETDOWN OUT HI TEMP 395°F - EXTINGUISHED
- o REGEN Hx letdown outlet temperature - STABLE OR DECREASING

Adjust charging flow and HCV-142 as necessary to control REGEN Hx letdown outlet temperature.

IF REGEN Hx letdown outlet temperature can NOT be controlled, THEN perform the following:

- a. Close all letdown orifice valves (AOV-200A, AOV-200B and AOV-202).
- b. Close loop B to REGEN Hx isolation valve (AOV-427).

11 Evaluate Cause Of Turbine Runback:

- a. Verify power to Instrument busses
 - o All red Instrument bus annunciators - EXTINGUISHED
 - o Busses 12A and B - ENERGIZED
- b. Failed instrument channel - IDENTIFIED
- c. Go to ER-INST.1, REACTOR PROTECTION BISTABLE DEFEAT AFTER INSTRUMENTATION LOOP FAILURE

a. Go to Step 15.

- b. Perform the following:
 - 1) Attempt to determine and correct conditions requiring turbine runback.
 - 2) Go to Step 20.

12 Verify Turbine Load Reduction - AT LEAST 20%

Place EH in manual and reduce turbine load by 20%.

11-2-54

EOP:

AP-TURB.2

TITLE:

AUTOMATIC TURBINE RUNBACK

REV: 9

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

13 Check Main Generator Load:

- o Gross load - GREATER THAN 15 MW
- o Load - STABLE

Trip turbine and go to AP-TURB.1, TURBINE TRIP WITHOUT RX TRIP REQUIRED, Step 1.

14 Verify Proper Steam Dump Operation:

- o Annunciator G-15, STEAM DUMP ARMED - LIT
- o Steam dump operating to control Tav_g within 6°F of Tref

Perform the following:

- a. Place steam dump mode selector to MANUAL.
- b. Place steam dump controller, HCV-484, to MANUAL.
- c. Open steam dump valves as required to stabilize Tav_g.

15 Verify Bus 12A And Bus 12B Energized:

- o Bus 12A normal or alternate feed breaker - CLOSED
- o Bus 12B normal or alternate feed breaker - CLOSED
- o Bus 12A and 12B voltage - GREATER THAN 4KV

Go to AP-ELEC.1, LOSS OF 12A AND/OR 12B TRANSFORMER.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

16 Establish Stable Plant Conditions:

- a. Tavg - TRENDING TO TREF
- b. PRZR pressure - TRENDING TO 2235 PSIG
- c. PRZR level - TRENDING TO PROGRAM

- a. Insert control rods or, if necessary, decrease turbine load to match Tavg to Tref.
- b. Verify proper operation of PRZR heaters and spray or take manual control of PRZR press controller 431K. IF PRZR pressure can NOT be controlled, THEN refer to AP-PRZR.1, ABNORMAL PRESSURIZER PRESSURE.
- c. Verify proper operation of charging pump speed controllers or take manual control of speed controllers to control PRZR level.

17 Check REGEN Hx Letdown Indications:

- o Annunciator A-4, REGEN HX LETDOWN OUT HI TEMP 395°F - EXTINGUISHED
- o REGEN Hx letdown outlet temperature - STABLE OR DECREASING

- a. Adjust charging flow and HCV-142 as necessary to control REGEN Hx letdown outlet temperature.

IF REGEN Hx letdown outlet temperature can NOT be controlled, THEN perform the following:

- a. Close all letdown orifice valves (AOV-200A, AOV-200B and AOV-202).
- b. Close loop B to REGEN Hx isolation valve (AOV-427).

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: With a PR lower detector failed low, the plant could experience both a dropped rod turbine runback with continuing ΔT runbacks.

18 Check NIS PR Indication:

- o All PR total channel indicators - ON SCALE
- o All ΔI indicators - APPROXIMATELY EQUAL

IF a NIS PR failure is indicated, THEN perform the following:

- a. Verify 20% dropped rod runback has occurred. IF ΔT runbacks still occurring, THEN allow runbacks to reduce power to less than 75% and place EH in manual to terminate runbacks.
- b. Refer to ER-NIS.3, PR MALFUNCTION.
- c. Go to Step 21.

19 Verify Dropped Rod Indication:

- a. Check dropped rod indication
 - o MRPT indicates rod on bottom

-OR-

 - o Annunciator C-14, ROD BOTTOM
ROD STOP - LIT
- b. Go to AP-RCC.2, RCC/RPI MALFUNCTION

- a. IF the cause of the runback has NOT been determined, THEN return to Step 2.

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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

20 Establish Normal Plant Conditions:

- a. Verify EH control in AUTO IMP IN
- b. Verify steam dump controller, HC-484, in AUTO at 1005 psig
- c. Verify annunciator G-15, STEAM DUMP ARMED - EXTINGUISHED
- d. Verify charging pump speed control in AUTO
- e. Verify Rod Control Selector Switch in AUTO

a. IF conditions requiring runback have cleared, THEN place EH in AUTO IMP IN.

c. IF Tavg within 6°F of Tref, THEN perform the following:

1) Ensure steam dump valves closed.

2) Reset steam dump.

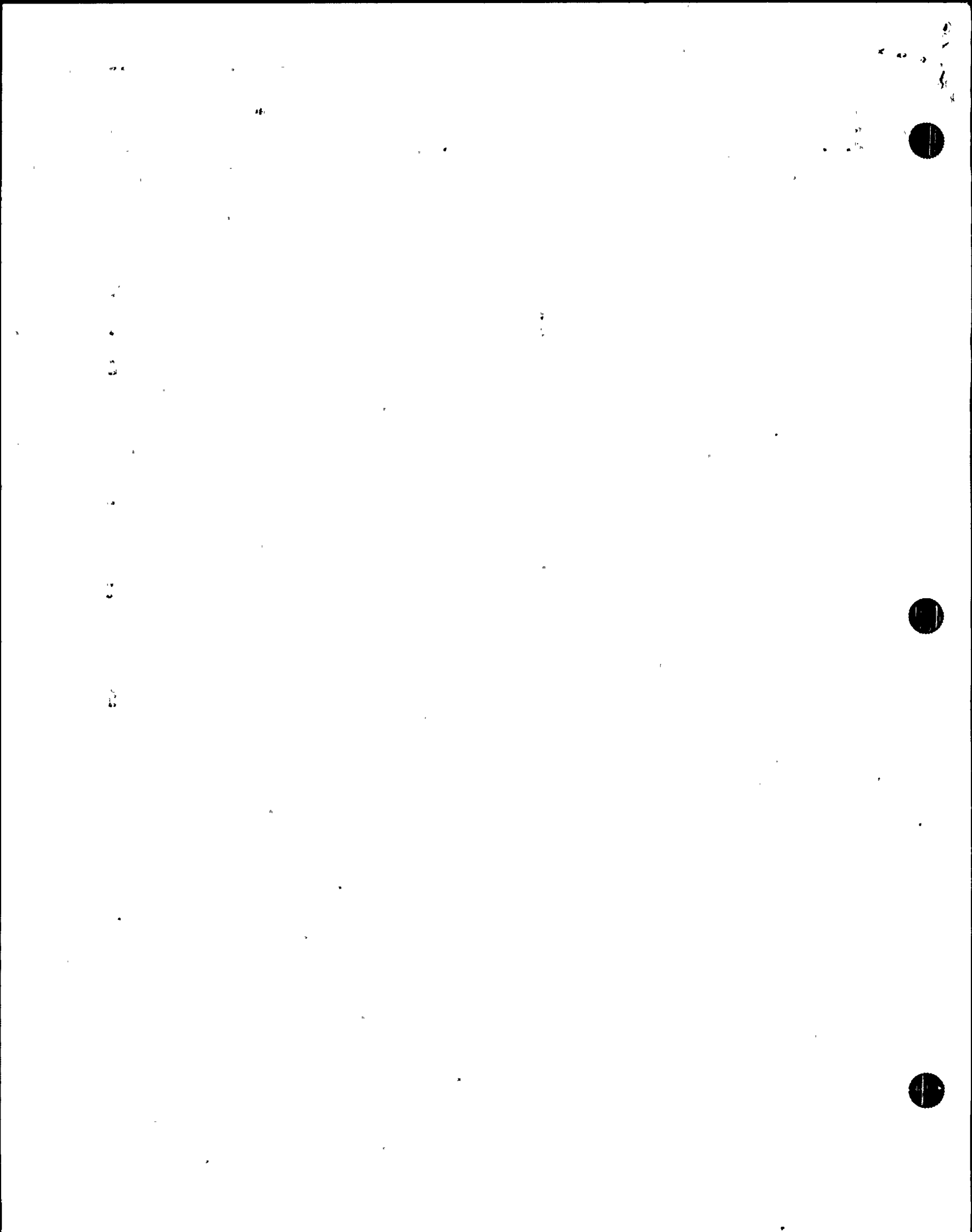
d. Place charging pump speed control in AUTO if desired.

e. Place Rod Control Selector Switch in AUTO if desired.

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

21 Notify Higher Supervision

-END-



EOP: ATT	TITLE: EOP/AP ATTACHMENTS	REV: 0 PAGE 1 of 1
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ATTACHMENT AUX BLDG SW Supt. Joseph Widay Date 4-4-90

- 1) Dispatch AO to locally open AUX BLDG SW isolation valve breakers:
 - o MOV-4615, MCC C position 14J
 - o MOV-4616, MCC C position 6F
- 2) Manually open AUX BLDG SW isolation valves MOV-4734 and MOV-4735 (control board switches).
- 3) Direct AO to locally open MOV-4615 and MOV-4616 slowly to approximately half open. (middle level opposite 1G charcoal filter)
- 4) Direct AO to locally close AUX BLDG SW isolation valve breakers:
 - o MOV-4615, MCC C position 14J
 - o MOV-4616, MCC C position 6F
- 5) Ensure AUX BLDG SW isolation valves MOV-4615 and MOV-4616 open fully.



EOP: ATT	TITLE: EOP/AP ATTACHMENTS	REV: 1 PAGE 1 of 1
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ATTACHMENT SAFW Supt. Joseph A. Wilay Date 1-4-90

To place SAFW in service perform the following:

1. Verify the following valves OPEN:
 - o MOV-9701A, SAFW PUMP C DISCH VALVE
 - o MOV-9701B, SAFW PUMP D DISCH VALVE
 - o MOV-9704A, SAFW ISOL TO S/G A
 - o MOV-9704B, SAFW ISOL TO S/G B
 - o MOV-9746, SAFW PUMP D EMERG DISCH VLV
2. Open SAFW pump suction valves:
 - o MOV-9629A, SAFW PUMP C SUCTION VALVE
 - o MOV-9629B, SAFW PUMP D SUCTION VALVE

CAUTION

IF SW ISOLATION HAS OCCURRED, THEN AUX BLDG SW ISOLATION VALVES TO SAFW SHOULD BE OPENED SLOWLY LOCALLY TO PREVENT WATER HAMMER IN THE SAFW PUMP SUCTION.

3. Ensure SW isolation valves MOV-4615 for C SAFW pump and MOV-4616 for D SAFW pump are open. IF closed, THEN reset SI and dispatch AO to locally open valves slowly.
4. Verify associated MDAFW pump switch in stop position.
5. Start either or both SAFW PUMPS as necessary to supply feedwater to the S/Gs.

