

RESPONSE TO LOSS OF SECONDARY HEAT SINK

A. PURPOSE

1. This procedure provides directions to respond to a loss of secondary heat sink in both steam generators.
2. This procedure is applicable for specified entry conditions.

B. SYMPTOMS OR ENTRY CONDITIONS

1. This procedure is entered from the following procedure when minimum AFW flow of 200 GPM can not be established:
 - EOP-0 UNIT 2, REACTOR TRIP OR SAFETY INJECTION, Step 6
2. This procedure is entered from the following procedure on a red path condition:
 - CSP-ST.0 UNIT 2, CRITICAL SAFETY FUNCTION STATUS TREES, FIGURE 3

C. REFERENCES

1. Technical Specifications for Point Beach Nuclear Plant
2. Final Safety Analysis Report for Point Beach Nuclear Plant
3. As-built plant drawings
4. Generic Technical Guidelines developed by the Westinghouse Owners Group (WOG). This consists of the following documents:
 - a. Low pressure version of the WOG Optimal Recovery Guidelines, Status Trees, and Functional Restoration Guidelines
 - b. Background documents for each low pressure version Optimal Recovery Guideline, Status Tree, and Functional Restoration Guideline
 - c. WOG Emergency Response Guideline Executive Volume
 - d. WOG Emergency Response Guideline Maintenance Program Summary

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTIONS

- If total feed flow is less than 200 gpm due to operator action, this procedure should not be performed.
- If a non-faulted S/G is available, then feed flow should not be reestablished to any faulted S/G.

NOTE

Foldout page shall be monitored throughout this procedure.

1 Check If Secondary Heat Sink Is Required:

- | | |
|---|--|
| a. Check RCS pressure - GREATER THAN ANY NON-FAULTED S/G PRESSURE | a. Return to <u>procedure and step in effect.</u> |
| b. Check RCS hot leg temperature - GREATER THAN 350°F | b. Try to place RHR System in service while continuing in this procedure: |
| | 1) Place RHR system in operation per OP-7A. PLACING RESIDUAL HEAT REMOVAL SYSTEM IN OPERATION. |
| | 2) <u>IF</u> adequate cooling with RHR system is established, <u>THEN</u> return to <u>procedure and step in effect.</u> |

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2 Check If RCS Bleed And Feed Is Required:

a. Check either of the following conditions - SATISFIED:

o Wide range level in both S/Gs - LESS THAN [145 INCHES] 55 INCHES

OR

o RCS pressure - GREATER THAN 2335 PSIG DUE TO LOSS OF SECONDARY HEAT SINK

b. OBSERVE CAUTION PRIOR TO STEP 27 and go to Step 27

a. Go to Step 3.

3 Verify S/G Blowdown And Sample Isolation:

Manually shut valves.

a. Ensure S/G blowdown isolations - SHUT

- 2MS-5959 for S/G A
- 2MS-2042 for S/G A
- 2MS-5958 for S/G B
- 2MS-2045 for S/G B

b. Ensure sample isolations - SHUT

- 2MS-2083 for S/G A
- 2MS-2084 for S/G B

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NOTE

If both units require AFW flow, at least one AFW pump must be aligned to each unit.

4 Check Control Room Indications For Cause Of AFW Failure:

- | | |
|---|---|
| a. Check all AFW suction pressure trips and over speed trips - NOT ACTUATED | a. <u>IF</u> CST level greater than 8 feet. <u>THEN</u> reset AFW pump trips per ATTACHMENT A while continuing in this procedure. |
| <ul style="list-style-type: none">• P-38A, train A• P-38B, train B• 2P-29 | |
| b. Ensure power supply to both motor-driven AFW pumps - AVAILABLE | b. Restore power to both 480 Vac buses. |
| <ul style="list-style-type: none">• 1B-03, train A• 2B-04, train B | |
| c. Ensure turbine-driven AFW pump steam supply valves - AT LEAST ONE OPEN | c. Locally open valves as necessary to establish steam supply to turbine-driven AFW pump. |
| <ul style="list-style-type: none">o 2MS-2020, train Ao 2MS-2019, train B | |
| d. Ensure AFW valves - PROPERLY ALIGNED | d. Locally align valves. |
| 1) Unit 2 valves <ul style="list-style-type: none">• AF-4022, train A• AF-4020, train B | |
| 2) Unit 1 valves <ul style="list-style-type: none">• AF-4023, train A• AF-4021, train B | |
| 3) Turbine-driven AFW pump valves <ul style="list-style-type: none">• 2AF-4001, train A• 2AF-4000, train B | |

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5	Check Total Feed Flow To S/Gs - GREATER THAN 200 GPM	Try to restore AFW flow while continuing in this procedure: a. Dispatch operator to locally align AFW valves per ATTACHMENT B. b. Continue attempts to restore AFW from Control Room using Step 4. c. Go to <u>Step 7</u> .
6	Return To <u>Procedure And Step In Effect</u>	
7	Stop Both RCPs • 2P-1A, loop A • 2P-1B, loop B	

CAUTION

If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.

8	Check Condensate Pumps - AT LEAST ONE RUNNING o 2P-25A o 2P-25B	Perform the following: a. Reset SI. b. Start condensate pumps as necessary to establish at least one running. c. <u>IF</u> no condensate pumps can be started, <u>THEN</u> OBSERVE CAUTIONS AND NOTE PRIOR TO STEP 1 and return to <u>Step 1</u> .
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<p>* 9</p> <p>* Maintain Hotwell Level - GREATER</p> <p>* THAN 5 INCHES:</p> <p>* o Use condenser hotwell low flow</p> <p>* makeup control valve</p> <p>* • 2LS-2125</p> <p>* <u>OR</u></p> <p>* o At north end condenser 8'</p> <p>* elevation, use condenser hotwell</p> <p>* manual fill valve</p> <p>* • 2CS-86</p>		<p>Perform the following:</p> <p>a. Trip any running condensate pump.</p> <p>b. <u>IF</u> condenser hotwell level can <u>NOT</u> be maintained, <u>THEN</u> OBSERVE CAUTIONS AND NOTE PRIOR TO <u>STEP 1</u> and return to <u>Step 1</u>.</p>

<p>10</p>	<p>Check Condensate And Feedwater Piping - INTACT</p>	<p>Try to isolate condensate and feedwater system leakage. <u>IF</u> condensate or feedwater system can <u>NOT</u> be placed in service, <u>THEN</u> OBSERVE CAUTIONS AND NOTE PRIOR TO <u>STEP 1</u> and return to <u>Step 1</u>.</p>
<p>11</p> <p>a. Reset SI</p> <p>b. Ensure feedwater regulating valve bypass controllers in manual and shut</p> <p>• 2HC-480 for S/G A</p> <p>• 2HC-481 for S/G B</p> <p>c. Reset feedwater regulating valve bypasses</p> <p>d. Check feedwater regulating valve bypasses - AT LEAST ONE CAPABLE OF BEING OPENED</p> <p>o 2CS-480 for S/G A</p> <p>o 2CS-481 for S/G B</p>		<p><u>IF</u> a feedwater flow path to at least one S/G can <u>NOT</u> be established, <u>THEN</u> OBSERVE CAUTIONS AND NOTE PRIOR TO <u>STEP 1</u> and return to <u>Step 1</u>.</p>

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12	Check Main Feedwater Pumps - AT LEAST ONE RUNNING o 2P-28A o 2P-28B	Complete the following: a. Locally start main feed seal water pumps. • 2P-99A, train A • 2P-99B, train B b. Ensure main feed AC lube oil pumps running. • 2P-73B, train A • 2P-73A, train B c. Manually open low pressure feedwater heater bypass valve. • 2CS-2273 d. Start one main feed pump. e. <u>IF</u> no main feedwater pumps can be started, <u>THEN</u> go to <u>Step 16</u> .
13	Check Main Feed Pump Discharge MOV On Running Pump(s) - OPEN o 2CS-2190 for 2P-28A o 2CS-2189 for 2P-28B	Perform the following: a. Manually open MOV. b. <u>IF</u> a feedwater flow path to at least one S/G can <u>NOT</u> be established, <u>THEN</u> go to <u>Step 16</u> .

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

Cyclling of auxiliary spray and PZR PORVs should be minimized.

17 Depressurize RCS To 1765 PSIG:

- | | |
|--|---|
| a. Check normal letdown - IN SERVICE | a. Perform the following:

1) Depressurize RCS using one PORV.

o 2RC-430
o 2RC-431C

2) <u>IF</u> a PORV is <u>NOT</u> available, <u>THEN</u> use auxiliary spray.

• 2CV-296

3) Go to <u>Step 17.c.</u> |
| b. Depressurize RCS using auxiliary spray

• 2CV-296 | b. Depressurize RCS using one PORV.

o 2RC-430
o 2RC-431C |
| c. Check RCS pressure - LESS THAN 1765 PSIG | c. Return to <u>Step 17.a.</u> |
| d. Stop RCS depressurization | |
| e. Maintain RCS pressure - BETWEEN 1750 PSIG AND 1765 PSIG | |

CAUTION

If PZR pressure rises above 1775 psig, SI actuation circuits will automatically unblock.

18 Block SI Actuation

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* 19	Maintain Stable RCS Conditions:	*
*	*	*
*	a. Establish desired charging flow:	*
*	*	*
*	1) Fully open charging flow	*
*	control valve	*
*	*	*
*	• 2HC-142	*
*	*	*
*	2) Start additional charging	*
*	pumps	*
*	*	*
*	o 2P-2A, train A	*
*	o 2P-2B, train A	*
*	o 2P-2C, train B	*
*	*	*
*	3) Adjust charging pump speed as	*
*	necessary to maintain charging	*
*	flow less than 140 gpm	*
*	*	*
*	b. Control charging flow to maintain	b. Manually operate SI pumps as
*	PZR level greater than [34%] 10%	necessary to maintain PZR level
*	*	greater than [34%] 10%.
*	*	*
*	*	o 2P-15A, train A
*	*	o 2P-15B, train B
*	*	*
*	c. Check RCS subcooling based on	c. Manually operate SI pumps as
*	core exit thermocouples - GREATER	necessary to maintain RCS
*	THAN [80°F] 35°F	subcooling greater than
*	*	[80°F] 35°F.
*	*	*
*	*	o 2P-15A, train A
*	*	o 2P-15B, train B
*	*	*

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NOTE

A cooldown rate greater than 100°F in one hour is allowed in the following step.

20 Depressurize One S/G To Less Than 350 PSIG:

- | | |
|--|---|
| <p>a. Dump steam to condenser at maximum rate from selected S/G:</p> <ol style="list-style-type: none">1) Place Steam Dump Mode Selector switch in Manual2) Shift Condenser Steam Dump Controller to manual<ul style="list-style-type: none">• 2PC-4843) Throttle open two condenser steam dump control valves<ul style="list-style-type: none">o 2MS-2054o 2MS-2055o 2MS-2056o 2MS-2057o 2MS-2050o 2MS-2051o 2MS-2052o 2MS-2053 <p>b. Shut MSIV on S/G not being depressurized</p> <p>c. Check core exit thermocouples - STABLE OR TRENDING LOWER</p> <p>d. Ensure S/Gs - AT LEAST ONE BEING DEPRESSURIZED</p> | <p>a. Manually or locally dump steam at maximum rate from selected S/G:</p> <ol style="list-style-type: none">a) Open atmospheric steam dump.<ul style="list-style-type: none">o 2MS-2016 for S/G Ao 2MS-2015 for S/G Bb) <u>IF</u> atmospheric steam dump <u>NOT</u> available, <u>THEN</u> dump steam using alternate means:<ol style="list-style-type: none">1) Open MSIV bypass valve.<ul style="list-style-type: none">o 2MS-234 for S/G Ao 2MS-236 for S/G B2) Place dump valve test switches on 2C03R to test.<ul style="list-style-type: none">• 2MS-2050 through 2MS-20573) Direct plant personnel to stay clear of LP turbine rupture disks.4) Operate steam dump pressure controller in manual:<ol style="list-style-type: none">a. <u>IF</u> any MSIV is open, <u>THEN</u> throttle open two condenser steam dumps.b. <u>IF</u> both MSIVs are shut, <u>THEN</u> open all condenser steam dumps. <p>c. Dump steam from additional S/G as necessary to stabilize core exit temperatures.</p> <p>d. OBSERVE CAUTIONS AND NOTE PRIOR TO STEP 1 and return to <u>Step 1</u>.</p> |
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	<p>Establish Feedwater Flow Path:</p> <ul style="list-style-type: none"> a. Reset feedwater regulating valve bypasses b. Fully open feedwater regulating valve bypass on S/G being depressurized <ul style="list-style-type: none"> o 2CS-480 for S/G A o 2CS-481 for S/G B 	<p>Perform the following:</p> <ul style="list-style-type: none"> 1. Locally open valve. 2. <u>IF</u> a feedwater flow path to S/G being depressurized can <u>NOT</u> be established, <u>THEN</u> perform the following: <ul style="list-style-type: none"> a) Stop S/G depressurization. b) OBSERVE CAUTIONS AND NOTE PRIOR TO STEP 1 and return to <u>Step 1</u>.
22	<p>Prepare For Condensate Flow While Depressurizing One S/G:</p> <ul style="list-style-type: none"> a. Ensure main feed AC lube oil pumps running <ul style="list-style-type: none"> • 2P-73B, train A • 2P-73A, train B b. Manually shut low pressure feedwater heater bypass valve <ul style="list-style-type: none"> • 2CS-2273 c. Open main feed pump discharge MOVs: <ul style="list-style-type: none"> 1) Open main feed pump discharge MOV and hold switch in open position <ul style="list-style-type: none"> • 2CS-2190, train A • 2CS-2189, train B 2) Open breaker for open MOV(s) <ul style="list-style-type: none"> • 2B52-417M for 2CS-2190 • 2B52-417J for 2CS-2189 	<ul style="list-style-type: none"> c. Perform the following: <ul style="list-style-type: none"> a) Open breakers for both MOVs. b) Locally open MOVs. c) <u>IF</u> a feedwater flow path to S/G being depressurized can <u>NOT</u> be established, <u>THEN</u> perform the following: <ul style="list-style-type: none"> 1) Stop S/G depressurization. 2) OBSERVE CAUTIONS AND NOTE PRIOR TO STEP 1 and return to <u>Step 1</u>.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	<p>Verify Condensate Flow Path To Depressurized S/G:</p> <p>a. Check condensate pumps - AT LEAST ONE RUNNING</p> <p>b. Check flow path from running condensate pump to depressurizing S/G - AVAILABLE</p>	<p><u>IF</u> a condensate flow path to S/G being depressurized can <u>NOT</u> be established, <u>THEN</u> perform the following:</p> <p>1. Stop S/G depressurization.</p> <p>2. OBSERVE CAUTIONS AND NOTE PRIOR TO STEP 1 and return to <u>Step 1</u>.</p>
24	<p>Control Condensate Addition To Depressurized S/G(s):</p> <p>a. Check wide range level in depressurized S/G(s) - STABLE OR TRENDING HIGHER</p> <p>b. Throttle feedwater regulating valve bypass as necessary to maintain depressurized S/G wide range level stable or trending higher</p> <p>c. Check RCS cooldown rate - LESS THAN 100°F/HR</p> <ul style="list-style-type: none"> • PPCS page 321 • {New PPCS "RCS HU CD CURVE"} 	<p>a. <u>IF</u> depressurized S/G(s) pressure greater than 350 psig, <u>THEN</u> OBSERVE NOTE PRIOR TO STEP 20 and return to <u>Step 20</u>.</p> <p>c. Perform the following:</p> <p>1) Reduce steam flow as necessary to maintain RCS cooldown rate less than 100°F/hr.</p> <p>2) Reduce condensate flow as necessary to maintain RCS cooldown rate less than 100°F/hr.</p>

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25	Establish S/G Levels: a. Verify flow to S/G(s): 1) Core exit thermocouples - STABLE OR TRENDING LOWER 2) Level in at least one S/G - TRENDING HIGHER o Wide range <u>OR</u> o Narrow range b. Maintain condensate flow to restore at least one S/G level to greater than [51%] 29%	a. OBSERVE CAUTIONS AND NOTE PRIOR TO STEP 1 and return to <u>Step 1</u> .
26	Return To <u>Procedure And Step In Effect</u>	

CAUTION

Steps 27 through 38 must be performed quickly in order to establish RCS heat removal by RCS bleed and feed.

27	Check RCPs - BOTH STOPPED • 2P-1A, loop A • 2P-1B, loop B	Stop both RCPs.
28	Lock In SI Signal: a. Manually actuate SI and Containment Isolation b. Trip all SI bistables • In 2C-111, SI bistable • In 2C-113, SI bistable • In 2C-116, SI bistable	
29	Verify Containment Isolation Actuated: a. Annunciator (C01 C 2-7), CONTAINMENT ISOLATION - LIT	Manually actuate Containment Isolation.

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30	<p>Verify RCS Feed Path:</p> <p>a. Ensure SI pumps - AT LEAST ONE RUNNING</p> <ul style="list-style-type: none">• 2P-15A, train A• 2P-15B, train B <p>b. Verify proper SI valve alignment:</p> <p>1) Check Unit 2 SI Active status panel - ALL LIGHTS LIT</p> <p>2) Check Unit 2 SI - Spray Ready status panel - NO LIGHTS LIT</p>	<p>Perform the following:</p> <p>1. Manually start pumps and align valves as necessary to establish feed path.</p> <p>2. <u>IF</u> a feed path can <u>NOT</u> be established, <u>THEN</u> perform the following:</p> <p>a) Continue attempts to establish S/G feed flow.</p> <p>b) OBSERVE CAUTIONS AND NOTE PRIOR TO STEP 1 and return to <u>Step 1</u>.</p>
31	<p>Direct Operator To Verify SI Actuation Per ATTACHMENT C While Continuing In This Procedure</p>	

CAUTION

If offsite power is lost after SI reset, manual action may be required to restart safeguards equipment.

- 32 Reset SI
- 33 Reset Containment Isolation
- 34 Reset 2B-03 And 2B-04 Non-Safeguards Equipment Lockouts

CAUTION

Placing loads on energized AC safeguards buses in excess of the power source's capacity could result in loss of the power source. Refer to AOP-22 UNIT 2, EDG LOAD MANAGEMENT, for KW ratings.

- 35 Check 4160 Vac Safeguards Buses - BOTH ENERGIZED BY OFFSITE POWER
- 2A-05, train A
 - 2A-06, train B
- Monitor EDG loading per AOP-22 UNIT 2, EDG LOAD MANAGEMENT, while continuing with this procedure.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
36	<p>Reestablish Instrument Air To Containment:</p> <p>a. Start second instrument air compressor</p> <ul style="list-style-type: none">o K-2Ao K-2B <p>b. Check instrument air header pressure - GREATER THAN 80 PSIG</p> <p>c. Open one and then open the other instrument air containment isolation valve</p> <ul style="list-style-type: none">• 2IA-3047• 2IA-3048	<p>b. Start service air compressors as necessary to establish instrument air header pressure greater than 80 psig.</p> <ul style="list-style-type: none">o K-3Ao K-3B <p>c. <u>IF</u> no valve can be opened, <u>THEN</u> gag open one valve as follows:</p> <ol style="list-style-type: none">1) Manually hold valve switch in open position.2) Locally gag open valve.
37	<p>Establish RCS Bleed Path:</p> <p>a. Check power to PORV block valves - AVAILABLE</p> <p>b. Check PORV block valves - BOTH OPEN</p> <ul style="list-style-type: none">• 2RC-515 for 2RC-431C• 2RC-516 for 2RC-430 <p>c. Open both PZR PORVs</p> <ul style="list-style-type: none">• 2RC-430• 2RC-431C	<p>a. Restore power to PORV block valves.</p> <p>b. Open both PORV block valves.</p>

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38	<p>Verify Adequate RCS Bleed Path:</p> <p>a. Check PZR PORVs - BOTH OPEN</p> <ul style="list-style-type: none">• 2RC-430• 2RC-431C <p>b. Check PORV block valves - BOTH OPEN</p> <ul style="list-style-type: none">• 2RC-515 for 2RC-431C• 2RC-516 for 2RC-430	<p>Establish additional RCS cooling:</p> <p>1. Energize and open all RCS vents:</p> <p>a) Open combined gas vent to PZR relief tank solenoid operated valve.</p> <ul style="list-style-type: none">• 2RC-575A, 2C-20 MOB 501 <p>b) Open combined gas vent to containment solenoid operated valve.</p> <ul style="list-style-type: none">• 2RC-575B, 2C-20 MOB 486 <p>c) Open both reactor vessel head vent solenoid operated valves.</p> <ul style="list-style-type: none">• 2RC-570A, 2C-20 MOB 482• 2RC-570B, 2C-20 MOB 497 <p>d) Open both PZR vent isolation valves.</p> <ul style="list-style-type: none">• 2RC-580A, 2C-20 MOB 484• 2RC-580B, 2C-20 MOB 499 <p>2. Align any available water source to the S/Gs.</p> <ul style="list-style-type: none">o AFW flowo Main feedwater flowo Condensate flowo Service watero Fire maino Any other source <p>3. <u>IF</u> a water source is available to any S/G, <u>THEN</u> depressurize that S/G as necessary using atmospheric steam dumps to inject water source.</p> <ul style="list-style-type: none">o 2MS-2016 for S/G Ao 2MS-2015 for S/G B <p>4. <u>IF</u> a S/G water source is <u>NOT</u> available, <u>THEN</u> continue with this procedure.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

The RCS bleed path must be maintained even if RCS pressure remains greater than SI pump shutoff head.

- *****
- * 39 Maintain RCS Heat Removal:
 - * a. Maintain SI pumps - BOTH RUNNING
 - * • 2P-15A, train A
 - * • 2P-15B, train B
 - * b. Maintain PZR PORVs - BOTH OPEN
 - * • 2RC-430
 - * • 2RC-431C
 - * c. Maintain PORV block valves - BOTH OPEN
 - * • 2RC-515 for 2RC-431C
 - * • 2RC-516 for 2RC-430
- *****

CAUTION

Placing loads on energized AC safeguards buses in excess of the power source's capacity could result in loss of the power source. Refer to AOP-22 UNIT 2, EDG LOAD MANAGEMENT, for KW ratings.

- | | |
|--|--|
| 40 Check Charging Pumps - ENERGIZED BY OFFSITE POWER | Shed non-essential loads as necessary to ensure adequate diesel capacity to run charging pumps. |
| <ul style="list-style-type: none">• 2B-03 for 2P-2A, train A• 2B-03 for 2P-2B, train A• 2B-04 for 2P-2C, train B | <ul style="list-style-type: none">• 83 kW for 2P-2A, train A• 83 kW for 2P-2B, train A• 91 kW for 2P-2C, train B |

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
41	Verify Charging Flow:	
	a. Check charging pumps - AT LEAST ONE RUNNING	a. Perform the following:
	o 2P-2A, train A	1) <u>IF</u> component cooling water flow to any RCP thermal barrier is lost, <u>THEN</u> locally shut affected RCP(s) seal injection throttle valve before starting charging pumps.
	o 2P-2B, train A	
	o 2P-2C, train B	o 2CV-300A, RCP A
		o 2CV-300B, RCP B
		2) Start charging pumps as necessary to establish at least one running.
	b. Align charging pump suction to RWST:	
	1) Open RWST To Charging Pump Suction MOV	1) Locally open valve.
	• 2CV-112B	
	2) Shut VCT Outlet To Charging Pump Suction MOV	2) Locally shut valve.
	• 2CV-112C	
	c. Establish maximum charging flow:	
	1) Fully open charging flow control valve	
	• 2HC-142	
	2) Start additional charging pumps	
	3) Adjust charging pump speed as necessary to maintain charging flow less than 140 gpm	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

* 42	Verify Containment Sump	
*	Recirculation Not Required:	
*		
*	a. Check RWST level - GREATER	a. Go to <u>EOP-1.3 UNIT 2, TRANSFER TO</u>
*	THAN OR EQUAL TO 60%	<u>CONTAINMENT SUMP RECIRCULATION.</u>
*		
*	b. Check RCS pressure - GREATER THAN	b. <u>IF</u> RHR flow is greater than
*	[425 PSIG] 200 PSIG	450 gpm. <u>THEN</u> go to
*		<u>EOP-1.3 UNIT 2, TRANSFER TO</u>
*		<u>CONTAINMENT SUMP RECIRCULATION.</u>

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

* 44	Check If Containment Spray Should Be Stopped:	
*		
*	a. Check containment spray pumps - ANY RUNNING	a. OBSERVE CAUTION PRIOR TO STEP 45 and go to <u>Step 45</u> .
*		
*	• 2P-14A, train A	
*	• 2P-14B, train B	
*		
*	b. Check containment pressure - LESS THAN 15 PSIG	b. <u>WHEN</u> containment pressure is less than 15 psig, <u>THEN</u> do Steps 44.c through 44.g. OBSERVE CAUTION PRIOR TO STEP 45 and continue with <u>Step 45</u> .
*		
*		
*		
*		
*		
*		
*	c. Reset containment spray signal	
*		
*	d. Stop both containment spray pumps and place in auto-after-stop	
*		
*		
*		
*		
*	• 2P-14A, train A	
*	• 2P-14B, train B	
*		
*		
*	e. Shut containment spray pump discharge valves	
*		
*		
*		
*		
*	• 2SI-860A for 2P-14A	
*	• 2SI-860B for 2P-14A	
*	• 2SI-860C for 2P-14B	
*	• 2SI-860D for 2P-14B	
*		
*		
*	f. Ensure both spray additive tank discharge valves - SHUT	
*		
*		
*		
*		
*	• 2SI-836A, train A	
*	• 2SI-836B, train B	
*		
*		
*		
*	g. Ensure containment spray pump RWST suction MOVs - OPEN	
*		
*		
*		
*		
*	• 2SI-870A for 2P-14A	
*	• 2SI-870B for 2P-14B	
*		

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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CAUTION

If component cooling water is not available to an RHR heat exchanger, the associated RHR pump should not be run longer than 3 hours to prevent pump damage.

45 Check If RHR Pumps Should Be Stopped:

- | | |
|--|----------------------------|
| a. Check RHR pumps - ANY RUNNING | a. Go to <u>Step 45.f.</u> |
| b. Check RHR pumps - ALIGNED FOR INJECTION | b. Go to <u>Step 46.</u> |
| c. Check RCS pressure - GREATER THAN [425 PSIG] 200 PSIG | c. Go to <u>Step 46.</u> |
| d. Check RCS pressure - STABLE OR TRENDING HIGHER | d. Go to <u>Step 46.</u> |
| e. Stop both RHR pumps | |
| • 2P-10A, train A | |
| • 2P-10B, train B | |

* f. Maintain RCS pressure greater than [425 psig] 200 psig f. IF RCS pressure lowers in an uncontrolled manner to less than [425. psig] 200 psig, THEN restart RHR pumps to supply water to RCS. *

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
46	<p>Establish Secondary Heat Sink In One S/G:</p> <p>a. Align available water source to one S/G</p> <ul style="list-style-type: none">o AFW flowo Main feedwater flowo Condensate flowo Any other water source <p>b. Establish feed flow to selected S/G:</p> <p>1) Check RCS temperatures:</p> <ul style="list-style-type: none">• Core exit thermocouples - TRENDING LOWER• RCS hot leg temperatures - TRENDING LOWER <p>2) Establish feed flow less than or equal to 50 gpm</p> <p>c. Check S/G wide range level - GREATER THAN [145 INCHES] 55 INCHES</p> <p>d. Adjust feed flow as necessary to establish S/G level greater than [51%] 29%</p>	<p>a. Go to <u>Step 47</u>.</p> <p>1) Perform the following:</p> <p>a) Establish maximum feed flow to selected S/G.</p> <p>b) Go to <u>Step 47</u>.</p> <p>c. Go to <u>Step 47</u>.</p>
47	<p>Check If Diesels Should Be Stopped:</p> <p>a. Check 4160 Vac safeguards buses - ENERGIZED BY OFFSITE POWER</p> <ul style="list-style-type: none">• 2A-05. train A• 2A-06. train B <p>b. Stop all unloaded EDGs:</p> <ul style="list-style-type: none">o OP-11A G-01. EMERGENCY DIESEL GENERATOR G-01o OP-11A G-02. EMERGENCY DIESEL GENERATOR G-02o OP-11B. EMERGENCY DIESEL GENERATOR G-03 (G-04)	<p>a. Restore offsite power to 4160 Vac safeguards buses.</p>

POINT BEACH NUCLEAR PLANT
CRITICAL SAFETY PROCEDURE
RESPONSE TO LOSS OF SECONDARY HEAT SINK

CSP-H.1 UNIT 2 RED
SAFETY RELATED
Revision 22 4/26/2001
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
48	<p>Ensure Miscellaneous Electrical Loads Are Energized:</p> <p>a. Ensure MCCs - ENERGIZED</p> <ul style="list-style-type: none">• B-33, 2B52-37C, train A• B-21, 2B52-28C, train B <p>b. Check battery chargers supplying DC buses - ENERGIZED</p> <ul style="list-style-type: none">o D-08o D-09o D-107o D-109 <p>c. Ensure cavity cooling fan - ONE RUNNING</p> <ul style="list-style-type: none">o 2W-4A, train Ao 2W-4B, train A <p>d. Check cable spreading room ventilation operating:</p> <p>1) Check cable spreading room recirc fans - ONE RUNNING</p> <ul style="list-style-type: none">o W-13A1o W-13A2 <p>2) Check CSR chilled water recirc pumps - ONE RUNNING</p> <ul style="list-style-type: none">o P-111Ao P-111B <p>e. Start additional loads as necessary to meet current plant conditions. Refer to AOP-22 UNIT 2, EDG LOAD MANAGEMENT</p>	<p>b. Restore battery chargers:</p> <p>1) Close affected battery charger supply contactor.</p> <p>2) <u>IF</u> contactor does <u>NOT</u> close <u>OR</u> battery charger will <u>NOT</u> operate, <u>THEN</u> restore battery chargers per AOP-0.0, VITAL DC SYSTEM MALFUNCTION, while continuing with this procedure.</p> <p>d. Restore cable spreading room ventilation per OI-90, CONTROL, COMPUTER, AND CABLE SPREADING ROOM VENTILATION SYSTEMS.</p>

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
49	<p>Check Control Room Fans Armed:</p> <p>a. Check Control Room Charcoal Filter Fan W-14B - WHITE LIGHT OFF</p> <p>b. Check Control Room Recirc Fan W-13B1 - WHITE LIGHT OFF</p>	<p>a. At MCC 2B-42, depress Control Circuit Arming pushbutton for Control Room charcoal filter fan W-14B.</p> <ul style="list-style-type: none"> • 2B52-4211M <p>b. At MCC 2B-32, depress Control Circuit Arming pushbutton for Control Room recirc fan W-13B1.</p> <ul style="list-style-type: none"> • 2B52-328H
50	<p>Check For Adequate Secondary Heat Sink:</p> <p>a. Level in at least one S/G - GREATER THAN [51%] 29%</p>	<p>Return to <u>Step 37</u>.</p>
51	<p>Check RCS Temperatures:</p> <p>a. Core exit thermocouples - TRENDING LOWER</p> <p>b. RCS hot leg temperatures - TRENDING LOWER</p>	<p>Return to <u>Step 37</u>.</p>
52	<p>Check Heat Sink Intact:</p> <ul style="list-style-type: none"> • Selected S/G - INTACT <p style="text-align: center;"><u>AND</u></p> <ul style="list-style-type: none"> • Selected S/G tubes - INTACT 	<p>Perform the following:</p> <p>a. Establish feedwater to other intact S/G.</p> <p>b. <u>IF</u> no S/G intact, <u>THEN</u> use best available S/G.</p> <p>c. Isolate S/G not in use.</p>

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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- 53 Shut RCS Vent Paths:
- a. Shut both reactor vessel head vent solenoid operated valves
 - 2RC-570A, train A
 - 2RC-570B, train B
 - b. Shut both PZR vent isolation valves
 - 2RC-580A, train A
 - 2RC-580B, train B
 - c. Shut combined gas vent to PZR relief tank solenoid operated valve
 - 2RC-575A, train A
 - d. Shut combined gas vent to containment solenoid operated valve
 - 2RC-575B, train B

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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54 Check If SI Pump Should Be Stopped:

a. Check SI pumps - BOTH RUNNING

- 2P-15A, train A
- 2P-15B, train B

b. Determine required subcooling:

CHARGING PUMPS RUNNING	REQUIRED RCS SUBCOOLING (°F)
0	[130°F] 80°F
1	[130°F] 75°F
GREATER THAN 1	[125°F] 75°F

c. Check RCS subcooling based on core exit thermocouples - GREATER THAN REQUIRED SUBCOOLING

d. Check PZR level - GREATER THAN [34%] 10%

e. Stop SI pump A

- 2P-15A

a. OBSERVE NOTE PRIOR TO STEP 55 and go to Step 55.

c. Perform the following:

- 1) IF RCS hot leg temperatures greater than 350°F, THEN go to Step 57.
- 2) IF RCS hot leg temperatures less than 350°F, THEN perform the following:
 - a) Start RHR pumps as necessary to establish one running.
 - o 2P-10A, train A
 - o 2P-10B, train B
 - b) IF no RHR pumps can be started, THEN go to Step 57.

d. Go to Step 57.

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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NOTE

After stopping SI pump, RCS pressure should be stable or trending higher before stopping last SI pump.

55 Check SI Pumps - ONLY SI PUMP B
RUNNING

- 2P-15B

Perform the following:

a. IF SI pump A running, THEN
disable SI pump B as follows:

1) Open both SI pump discharge
cross-connect valves.

- 2SI-829A
- 2SI-829B

2) Shut train "A" SI pump
discharge MOV.

- 2SI-866A

b. IF no SI pump running, THEN go to
Step 59.

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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56 Check If Last SI Pump Should Be Stopped:

a. Determine required subcooling:

CHARGING PUMPS RUNNING	REQUIRED RCS SUBCOOLING (°F)
0	DO NOT STOP LAST SI PUMP
1	[345°F] 285°F
2	[335°F] 280°F
3	[330°F] 270°F

b. Check RCS subcooling based on core exit thermocouples - GREATER THAN REQUIRED SUBCOOLING

b. Perform the following:

1) IF RCS hot leg temperatures greater than 350°F. THEN go to Step 57.

2) IF RCS hot leg temperatures less than 350°F. THEN perform the following:

a) Start RHR pumps as necessary to establish one running.

- o 2P-10A, train A
- o 2P-10B, train B

b) IF no RHR pumps can be started, THEN go to Step 57.

c. Check PZR level - GREATER THAN [34%] 10%

c. Go to Step 57.

d. Stop last SI pump

- o 2P-15A, train A
- o 2P-15B, train B

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
57	<p>Check RCS Bleed Path Status:</p> <p>a. Check PZR PORVs and associated block valves - ANY BLEED PATH OPEN</p> <ul style="list-style-type: none">o 2RC-515 and 2RC-431Co 2RC-516 and 2RC-430 <p>b. Shut one PZR PORV</p> <ul style="list-style-type: none">o 2RC-430o 2RC-431C	<p>a. Go to <u>EOP-1 UNIT 2, LOSS OF REACTOR OR SECONDARY COOLANT.</u></p> <p>b. Isolate that PORV:</p> <ol style="list-style-type: none">1) Manually shut associated block valve.<ul style="list-style-type: none">o 2RC-515 for 2RC-431Co 2RC-516 for 2RC-4302) <u>IF</u> any open PORV can <u>NOT</u> be isolated, <u>THEN</u> go to <u>EOP-1 UNIT 2, LOSS OF REACTOR OR SECONDARY COOLANT.</u>

NOTE

After shutting a PORV, it may be necessary to wait for RCS pressure to rise to permit stopping SI pumps.

58 Return To Step 54

59 Check PZR PORVs - BOTH SHUT

- 2RC-430
- 2RC-431C

Shut PZR PORVs. IF any PZR PORV can NOT be shut, THEN manually shut associated block valve.

- o 2RC-515 for 2RC-431C
- o 2RC-516 for 2RC-430

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
60	Check If Letdown Should Be Established:	
	a. Check normal letdown - ISOLATED	a. Go to <u>Step 61</u> .
	b. Check PZR Level - GREATER THAN 80%	b. Go to <u>Step 61</u> .
	c. Check RCS subcooling based on core exit thermocouples - GREATER THAN [80°F] 35°F	c. Go to <u>Step 61</u> .
	d. Establish letdown:	d. Perform the following:
	1) Open letdown line containment isolation valves <ul style="list-style-type: none"> • 2CV-371A • 2CV-371 	a) Establish excess letdown per OP-5E, ESTABLISHING AND SECURING EXCESS LETDOWN.
	2) Open RCS Loop B Cold Leg Letdown Isolation valve <ul style="list-style-type: none"> • 2RC-427 	b) <u>IF</u> excess letdown can <u>NOT</u> be established, <u>THEN</u> control charging as necessary to maintain PZR level.
	3) Ensure component cooling flow to non-regenerative heat exchanger - ESTABLISHED <ul style="list-style-type: none"> • 2HC-130 	
	4) Ensure charging flow - AT LEAST 20 GPM	
	5) Adjust backpressure as necessary and open letdown isolation valves to establish desired letdown flow <ul style="list-style-type: none"> o 2CV-200A o 2CV-200B o 2CV-200C 	

 * 61 Control Charging And Letdown To *
 * Maintain Stable PZR Level And Stable *
 * RCS Pressure *

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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62 Check If RHR Pumps Should Be Stopped:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Check RCS pressure - GREATER THAN [425 PSIG] 200 PSIG b. Check RCS pressure - STABLE OR TRENDING HIGHER c. Check RHR pumps - ANY RUNNING d. Check RHR pumps - ALIGNED FOR INJECTION e. Stop both RHR pumps <ul style="list-style-type: none"> • 2P-10A, train A • 2P-10B, train B | <ul style="list-style-type: none"> a. Go to <u>EOP-1 UNIT 2, LOSS OF REACTOR OR SECONDARY COOLANT.</u> b. Go to <u>EOP-1 UNIT 2, LOSS OF REACTOR OR SECONDARY COOLANT.</u> c. Go to <u>Step 62.f.</u> d. Go to <u>Step 63.</u> |
|---|--|

 * f. Maintain RCS pressure greater than [425 psig] 200 psig *
 * f. IF RCS pressure lowers in an uncontrolled manner to less than [425 psig] 200 psig. THEN restart RHR pumps to supply water to RCS. *

63 Go To EOP-1.1 UNIT 2, SI TERMINATION, Step 9

-END-

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT A
(Page 1 of 1)
RESET/OVER-RIDE AFW PUMP TRIPS

A1 Reset Motor-Driven AFW Pump Low
Suction Pressure Trip If Necessary:

a. Place motor driven AFW Pump
control switches in "Pull-out"
then to "Start" position and
release

- P-38A, train A
- P-38B, train B

b. Check "Motor Driven AFP Lo
Suction Press Trip Enabled" light
- LIT

b. Ensure motor-driven AFW pump low
suction pressure trip overridden:

1) Check annunciator CO1A 3-8,
P-38A AUX FEED PUMP SUCTION
PRESS TRIP DISABLED - LIT

2) Check annunciator CO1A 3-10,
P-38B AUX FEED PUMP SUCTION
PRESS TRIP DISABLED - LIT

A2 Check Turbine-Driven AFW Pump
Overspeed Amber Light - NOT LIT

Locally move plug/stem latching
mechanism into line by moving trip
rod to extreme south position.

A3 Open Low Suction/Overspeed Trip
Valve From Control Room:

Locally open Low Suction/Overspeed
Trip Valve:

a. Place 2MS-2082, 2P-29 Low
Suction/Overspeed Trip Valve
Reset Operator to "CLOSE"

1. Turn motor operator handwheel
clockwise until trip latching
mechanism is aligned in latched
closed position.

b. Check 2MS-2082, 2P-29 Low
Suction/Overspeed Trip Valve
Reset Operator - CLOSED

2. Turn motor operator handwheel,
counterclockwise until valve is
fully open.

c. Place 2MS-2082, 2P-29 Low
Suction/Overspeed Trip Valve
Reset Operator to "OPEN"

d. Check 2MS-2082, 2P-29 Low
Suction/Overspeed Trip Valve
Reset Operator - OPEN

-END-

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT B
(Page 1 of 2)
LOCAL AUXILIARY FEEDWATER VALVE LINEUP

B1 At Turbine Building 26 Ft Elevation.
Verify Condensate Storage Tank
Alignment:

- a. Ensure condensate storage tank
service outlet valves - OPEN
 - AF-3, train A
 - AF-8, train B

- b. Ensure condensate storage tank
outlet to auxiliary feedwater
pumps - OPEN
 - AF-5, train A
 - AF-6, train B

- c. Ensure AFW pump recirculation
header isolation - OPEN
 - AF-1, train A

- d. Ensure condensate storage tank
mini-recirculation isolation -
OPEN
 - AF-2, train A
 - AF-9, train B

B2 In AFW Pump Room, Ensure AFW Suction
Valves - OPEN

- 2AF-64 for 2P-29
- AF-39 for P-38A
- AF-52 for P-38B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT B
(Page 2 of 2)

LOCAL AUXILIARY FEEDWATER VALVE LINEUP

B3 In AFW Pump Room, Verify AFW Alignment:

a. Ensure AFW discharge to S/Gs - OPEN

- 2AF-56, 2P-29 to S/G A
- 2AF-32, P-38A to S/G A
- 2AF-57, 2P-29 to S/G B
- 2AF-45, P-38B to S/G B

b. Ensure AFW pump mini-recirculation valves - OPEN

- 2AF-15 for 2P-29
- AF-27 for P-38A
- AF-40 for P-38B

c. Ensure turbine-driven AFW pump steam supply inlet - OPEN

- 2MS-126

B4 Locally Verify The Following Valves:

a. Ensure AFW discharge to S/Gs - OPEN

- 2AF-4001, 2P-29 for S/G A
- AF-4022, P-38A for S/G A
- AF-4012, P-38A for S/G A
- 2AF-4000, 2P-29 for S/G B
- AF-4020, P-38B for S/G B
- AF-4019, P-38B for S/G B

b. Ensure AFW pump mini-recirculation valves - OPEN

- 2AF-4002 for 2P-29
- AF-4007 for P-38A
- AF-4014 for P-38B

-END-

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 1 of 8)
ACTIONS IN EVENT OF SI ACTUATION

C1 Verify Safeguards Buses Energized:

- | | |
|--|---|
| <p>a. Check 4160 Vac safeguards buses -
AT LEAST ONE ENERGIZED</p> <ul style="list-style-type: none">o 2A-05, train Ao 2A-06, train B <p>b. Check 480 Vac safeguards buses -
AT LEAST ONE ENERGIZED</p> <ul style="list-style-type: none">o 2B-03, train Ao 2B-04, train B | <p>a. Go to <u>ECA-0.0 UNIT 2, LOSS OF ALL AC POWER.</u></p> <p>b. Go to <u>ECA-0.0 UNIT 2, LOSS OF ALL AC POWER.</u></p> |
|--|---|

C2 Verify Feedwater Isolation:

- | | |
|--|---|
| <p>a. Check main feed lines isolated:</p> <p>1) Feedwater regulating control valves - BOTH SHUT</p> <ul style="list-style-type: none">• 2CS-466 for S/G A• 2CS-476 for S/G B <p>2) Feedwater regulating bypass valves - BOTH SHUT</p> <ul style="list-style-type: none">• 2CS-480 for S/G A• 2CS-481 for S/G B <p>b. Check main feed pumps - BOTH TRIPPED</p> <ul style="list-style-type: none">• 2P-28A• 2P-28B <p>c. Check MFP discharge MOVs - BOTH SHUT</p> <ul style="list-style-type: none">• 2CS-2190, train A• 2CS-2189, train B | <p>a. <u>IF</u> any main feedline can <u>NOT</u> be isolated, <u>THEN</u> perform the following:</p> <p>a) Trip main feed pumps.</p> <ul style="list-style-type: none">• 2P-28A• 2P-28B <p>b) Place condensate pumps in pull-out.</p> <ul style="list-style-type: none">• 2P-25A• 2P-25B <p>c) Stop heater drain tank pumps.</p> <ul style="list-style-type: none">• 2P-27A• 2P-27B• 2P-27C <p>b. Trip main feed pumps.</p> <p>c. Manually shut valves.</p> |
|--|---|

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 2 of 8)
ACTIONS IN EVENT OF SI ACTUATION

C3 Verify Containment Isolation:

a. Check containment isolation panels "A" and "B" - ALL LIGHTS LIT

a. Perform the following:

- 1) Manually actuate Containment Isolation.
- 2) IF any valve open AND flow path NOT required, THEN shut valve(s). Refer to ATTACHMENT D.

b. Check other valves - SHUT

b. Manually shut valve(s).

- CC-LW-63. Radwaste system component cooling water supply
- CC-LW-64. Radwaste system component cooling water return
- RS-SA-10. Unit 2 steam supply to rad waste system
- Any valve which may be open under administrative control

C4 Check SI Pumps - BOTH RUNNING

Perform the following:

- 2P-15A. train A
- 2P-15B. train B

a. Manually actuate both trains of SI and Containment Isolation.

b. WHEN SI sequence complete, THEN establish SI flow as follows:

- 1) Manually start SI pumps.
- 2) IF any SI pump can NOT be started, THEN isolate system boundary as follows:
 - a) Place affected SI pump in pull-out.
 - b) Ensure affected SI pump suction valve shut.
 - o 2SI-896A, train A
 - o 2SI-896B, train B

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 3 of 8)
ACTIONS IN EVENT OF SI ACTUATION

C5 Check RHR Pumps - BOTH RUNNING

- 2P-10A, train A
- 2P-10B, train B

WHEN SI sequence complete, THEN establish RHR flow as follows:

- a. Manually start RHR pumps.
- b. IF any RHR pump can NOT be started, THEN isolate system boundary as follows:
 - 1) Place affected RHR pump in pull-out.
 - 2) Ensure affected RHR pump suction valve shut.
 - o 2SI-856A, train A
 - o 2SI-856B, train B

C6 Check Component Cooling Water Pumps
- ONLY ONE RUNNING

- o 2P-11A, train A
- o 2P-11B, train B

Establish one component cooling water pump running as follows:

- a. IF no component cooling water pump running, THEN perform the following:
 - 1) Stop all RCP(s).
 - 2P-1A, loop A
 - 2P-1B, loop B
 - 2) Manually start one component cooling water pump by placing control switch to stop and then auto-after-stop.
 - 3) Match flags for running and stopped pumps.
- b. IF both component cooling water pumps running, THEN place one pump in standby.

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 4 of 8)
ACTIONS IN EVENT OF SI ACTUATION

C7 Verify Service Water System Alignment:

- | | |
|--|---|
| <p>a. Check service water pumps - SIX RUNNING</p> <ul style="list-style-type: none">• P-32A, train A• P-32B, train A• P-32F, train A• P-32C, train B• P-32D, train B• P-32E, train B <p>b. Check service water isolation valves - SHUT</p> <ul style="list-style-type: none">• At least one spent fuel pool heat exchanger A isolation MOV<ul style="list-style-type: none">o SW-2927Ao SW-2930A• At least one spent fuel pool heat exchanger B isolation MOV<ul style="list-style-type: none">o SW-2927Bo SW-2930B• At least one auxiliary building A/C condenser isolation MOV<ul style="list-style-type: none">o SW-2816, train Ao SW-4479, train B• At least one water treatment system inlet MOV<ul style="list-style-type: none">o SW-4478, train Ao SW-2817, train B <p>c. Locally at blowdown evap panel C-180, check at least one radwaste service water valve shut</p> <ul style="list-style-type: none">o SW-LW-61, train Ao SW-LW-62, train B | <p>a. <u>WHEN</u> SI sequence complete. <u>THEN</u> manually start pumps.</p> <p>b. Perform the following:</p> <ol style="list-style-type: none">1) Manually shut valve(s).2) <u>IF</u> any isolation valve will <u>NOT</u> shut. <u>THEN</u> locally shut valve or associated manual isolation valve. <p>c. Perform the following:</p> <ol style="list-style-type: none">1) Locally shut valve(s).2) <u>IF</u> any valve will <u>NOT</u> shut. <u>THEN</u> locally shut associated manual isolation valve. |
|--|---|

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 5 of 8)
ACTIONS IN EVENT OF SI ACTUATION

C8 Verify Containment Accident Cooling
Units Running:

- | | |
|---|---|
| <p>a. Check containment accident recirculation fans - ALL RUNNING</p> <ul style="list-style-type: none">• 2W-1A1, train A• 2W-1B1, train A• 2W-1C1, train B• 2W-1D1, train B <p>b. Check containment ventilation cooler outlet emergency FCVs - BOTH OPEN</p> <ul style="list-style-type: none">• 2SW-2907, train A• 2SW-2908, train B <p>c. Check annunciator CO1C 2-9, UNIT 2 CONTAINMENT RECIRC COOLERS WATER FLOW LOW - CLEAR</p> | <p>a. <u>WHEN</u> SI sequence complete, <u>THEN</u> manually start fans.</p> <p>b. Manually open containment ventilation cooler outlet emergency FCVs.</p> <p>c. Perform the following:</p> <ol style="list-style-type: none">1) Ensure non-affected unit's service water isolation valves - BOTH SHUT<ul style="list-style-type: none">• 1SW-2907, train A• 1SW-2908, train B2) Isolate service water to non-safety loads as necessary to clear annunciator. |
|---|---|

C9 Check Control Room Fans Armed:

- | | |
|---|--|
| <p>a. Check Control Room Charcoal Filter Fan W-14B - WHITE LIGHT OFF</p> <p>b. Check Control Room Recirc Fan W-13B1 - WHITE LIGHT OFF</p> | <p>a. At MCC 2B-42, depress Control Circuit Arming pushbutton for Control Room charcoal filter fan W-14B.</p> <ul style="list-style-type: none">• 2B52-4211M <p>b. At MCC 2B-32, depress Control Circuit Arming pushbutton for Control Room recirc fan W-13B1.</p> <ul style="list-style-type: none">• 2B52-328H |
|---|--|

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 6 of 8)
ACTIONS IN EVENT OF SI ACTUATION

C10	Check Control Room Ventilation - IN AN ACCIDENT MODE	Align Control Room ventilation per OI-90, CONTROL, COMPUTER, AND CABLE SPREADING ROOM VENTILATION SYSTEMS.
	<ul style="list-style-type: none"> • Control Room recirc fans - AT LEAST ONE RUNNING 	
	<ul style="list-style-type: none"> o W-13B1 o W-13B2 	
	<ul style="list-style-type: none"> • Control Room damper solenoid valve - PURPLE LIGHT LIT 	
C11	Check If Main Steam Lines Can Remain Open:	
	a. Check MSIVs - ANY OPEN	a. Go to <u>Step C12</u> .
	b. Check containment pressure - LESS THAN OR EQUAL TO 15 PSIG	b. Isolate both steam lines as follows: <ol style="list-style-type: none"> 1) Shut both main steam isolation valves. <ul style="list-style-type: none"> • 2MS-2018 for S/G A • 2MS-2017 for S/G B 2) Go to <u>Step C12</u>.
	c. Check high-high steam flow bistable light - NOT LIT	c. Ensure main steam isolation valve on affected main steam line(s) shut. <ul style="list-style-type: none"> o 2MS-2018 for S/G A o 2MS-2017 for S/G B
	d. Check high steam flow bistable light - NOT LIT	d. <u>IF</u> RCS average temperature is less than 543°F. <u>THEN</u> ensure main steam isolation valve on affected main steam line(s) shut. <ul style="list-style-type: none"> o 2MS-2018 for S/G A o 2MS-2017 for S/G B

RESPONSE TO LOSS OF SECONDARY HEAT SINK

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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ATTACHMENT C
(Page 8 of 8)
ACTIONS IN EVENT OF SI ACTUATION

CAUTION

Placing loads on energized AC safeguards buses in excess of the power source's capacity could result in loss of the power source. Refer to AOP-22 UNIT 2, EDG LOAD-MANAGEMENT, for KW ratings.

* C13 Check 4160 Vac Safeguards Buses - Monitor EDG loading per *
* BOTH ENERGIZED BY OFFSITE POWER AOP-22 UNIT 2, EDG LOAD MANAGEMENT, *
* while continuing with this *
* procedure. *
* • 2A-05, train A *
* • 2A-06, train B *

C14 Return To Procedure And Step In
Effect

-END-

RESPONSE TO LOSS OF SECONDARY HEAT SINK

ATTACHMENT D
(Page 1 of 2)
CONTAINMENT ISOLATION VALVES

PANEL A		
COMPONENT	DESCRIPTION	TRAIN
2CV-1296	Auxiliary charging line	A
2RC-538	Pressurizer relief tank to gas analyzer	A
2WG-1788	Reactor coolant drain tank to gas analyzer	A
2WL-1698	Reactor coolant drain tank to -19 ft sump	A
2WL-1003A	Reactor coolant drain tank pump suction	A
2WL-1003B	Reactor coolant drain tank pump suction	A
2RC-508	Reactor makeup water to containment	A or B
2RC-539	Pressurizer relief tank to gas analyzer	B
2WG-1789	Reactor coolant drain tank to gas analyzer	B
2SI-846	Accumulator nitrogen supply	A or B
2WL-1721	Reactor coolant drain tank pumps suction	B
2VNPSE-3244	Containment purge supply	A
2VNPSE-3212	Containment purge exhaust	A
2WL-1723	Sump A drain	A
2SC-951	Pressurizer steam sample	A
2SC-953	Pressurizer liquid sample	A
2VNPSE-3245	Containment purge supply	B
2VNPSE-3213	Containment purge exhaust	B
2WL-1728	Sump A drain	B
2SC-966A	Pressurizer steam sample	A or B
2SC-966B	Pressurizer liquid sample	A or B

RESPONSE TO LOSS OF SECONDARY HEAT SINK

ATTACHMENT D
(Page 2 of 2)
CONTAINMENT ISOLATION VALVES

PANEL B		
COMPONENT	DESCRIPTION	TRAIN
2CC-769	Component cooling water outlet from excess letdown heat exchanger	A or B
2CV-313	Reactor coolant pump seal return	A
2CV-371	Letdown line	A
2MS-5959	Steam generator blowdown	A or B
2MS-5958	Steam generator blowdown	A or B
2WG-1786	Reactor coolant drain tank vent	A
2CV-313A	Reactor coolant pump seal return	B
2CV-371A	Letdown line	B
2WG-1787	Reactor coolant drain tank vent	B
2RM-3200C	RE-211/212 supply	A
2RM-3200A	RE-211/212 return	A or B
2MS-2083	Steam generator A sample	A or B
2MS-2084	Steam generator B sample	A or B
2SC-955	Reactor coolant hot leg sample	A
2IA-3047	Instrument air line	A or B
2RM-3200B	RE-211/212 supply	B
2SC-966C	Reactor coolant hot leg sample	A or B
2IA-3048	Instrument air line	A or B

-END-

FOLDOUT PAGE FOR CSP-H.1 UNIT 2

1. RCS BLEED AND FEED CRITERIA

IF either of the following conditions satisfied, THEN go to
CSP-H.1 UNIT 2, RESPONSE TO LOSS OF SECONDARY HEAT SINK, Step 27:

o Wide range level in both S/Gs - LESS THAN [145 INCHES] 55 INCHES
OR

o RCS pressure - GREATER THAN 2335 PSIG DUE TO LOSS OF SECONDARY HEAT
SINK

2. SI VERIFICATION CRITERIA

IF SI actuates during this procedure, THEN verify SI actuation per
ATTACHMENT C while continuing in this procedure.

3. AFW SUPPLY SWITCHOVER CRITERIA

IF CST level lowers to less than 8 feet, THEN switch to alternate AFW
suction supply per AOP-23 UNIT 2, ESTABLISHING ALTERNATE AFW SUCTION
SUPPLY.

4. ADVERSE CONTAINMENT CONDITIONS

IF any condition listed below occurs, THEN adverse containment setpoint
values in brackets, [], shall be used:

o Containment pressure - GREATER THAN 10 PSIG

OR

o Containment radiation level - GREATER THAN OR EQUAL TO 10^5 R/HR

OR

o Integrated dose to containment - GREATER THAN 10^6 R