

Comment: Conditions B, H, and J are default Conditions and RA C.1 contains an "Immediately" CT and are therefore excluded.

ECCS - Operating
3.5.1

3.5 EMERGENCY CORE COOLING SYSTEM (ECCS) AND REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of [seven] safety/relief valves shall be OPERABLE.

-----NOTE-----
 Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than [the Residual Heat Removal (RHR) cut in permissive pressure] in MODE 3, if capable of being manually realigned and not otherwise inoperable.

APPLICABILITY: MODE 1, MODES 2 and 3, except high pressure coolant injection (HPCI) and ADS valves are not required to be OPERABLE with reactor steam dome pressure ≤ [150] psig.

ACTIONS

-----NOTE-----
 LCO 3.0.4.b is not applicable to HPCI.

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|--|--|--|
| A. One low pressure ECCS injection/spray subsystem inoperable. <u>OR</u> One LPCI pump in both LPCI subsystems inoperable. | A.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status. [Reviewer's Note: Below applicable to TSTF 505 OR A.2.1 Establish a RICT AND A.2.2 Restore low pressure ECCS injection/spray | 7 days 7 days In accordance with the Risk Informed |

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|-----------|----------------------------------|---|
| | subsystem(s) to OPERABLE status. | Completion Time Program, not to exceed 30 days] |

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|--|--|
| <p>B. Required Action and associated Completion Time of Condition A not met.</p> | <p>B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 4.</p> | <p>12 hours 36 hours</p> |
| <p>C. HPCI System inoperable.</p> | <p>C.1 Verify by administrative means RCIC System is OPERABLE. <u>AND</u> C.2[.1] Restore HPCI System to OPERABLE status. [Reviewer's Note: Below applicable to TSTF 505 OR C.2.2.1 Establish a RICT AND C.2.2.2 Restore HPCI System to OPERABLE status.]</p> | <p>Immediately 14 days 14 days In accordance with the Risk Informed Completion Time Program, not to exceed 30 days]</p> |
| <p>D. HPCI System inoperable. <u>AND</u> Condition A entered.</p> | <p>D.1 Restore HPCI System to OPERABLE status. <u>OR</u> D.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status. [Reviewer's Note: Below applicable to TSTF 505 OR</p> | <p>72 hours 72 hours</p> |

| | | |
|-------------------------------------|--|---|
| | <p>D.3.1 Establish a RICT</p> <p>AND</p> <p>D.3.2 Restore HPCI System or low pressure ECCS injection/spray subsystem to OPERABLE status.</p> | <p>72 hours</p> <p>In accordance with the Risk Informed Completion Time Program, not to exceed 30 days]</p> |
| <p>E. One ADS valve inoperable.</p> | <p>E.1 Restore ADS valve to OPERABLE status.</p> <p>[Reviewer's Note: Below applicable to TSTF 505</p> <p>OR</p> <p>E.2.1 Establish a RICT</p> <p>AND</p> <p>E.2.2 Restore ADS valve to OPERABLE status.</p> | <p>14 days</p> <p>14 days</p> <p>In accordance with the Risk Informed Completion Time Program, not to exceed 30 days]</p> |

ACTIONS (continued)

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| <p>F. One ADS valve inoperable.</p> <p><u>AND</u></p> <p>Condition A entered.</p> | <p>F.1 Restore ADS valve to OPERABLE status.</p> <p><u>OR</u></p> <p>F.2 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.</p> <p>[Reviewer's Note: Below applicable to TSTF 505</p> <p>OR</p> <p>F.3.1 Establish a RICT</p> <p>AND</p> <p>F.3.2 Restore ADS valve or low pressure ECCS injection/spray subsystem to OPERABLE status.</p> | <p>72 hours</p> <p>72 hours</p> <p>72 hours</p> <p>In accordance with the Risk Informed Completion Time Program, not to exceed 30 days]</p> |
| <p>G. Two or more ADS valves inoperable.</p> | <p>G.1 Be in Mode 3</p> <p>AND</p> <p>G.2 Reduce reactor steam dome pressure to ≤ [150] psig.</p> <p>Reviewer's Note: Below applicable to TSTF 505</p> <p>OR</p> <p>G.3.1 Establish a RICT</p> <p>AND</p> <p>G.3.2 Restore inoperable ADS valves to OPERABLE status.</p> | <p>12 hours</p> <p>36 hours</p> <p>1 hour</p> <p>In accordance with the Risk Informed Completion Time Program, not to exceed 30 days]</p> |

| | | |
|--|--|---|
| <p>H. Required Action and associated Completion Time of Condition C, D, E, F, or G not met.</p> | <p>H.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>H.2 Reduce reactor steam dome pressure to ≤ [150] psig.</p> | <p>12 hours</p> <p>36 hours</p> |
| <p>I. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.</p> | <p>I.1 Enter LCO 3.0.3</p> <p>OR</p> <p>[Reviewer's Note: Below applicable to TSTF 505</p> <p>-----NOTE-----</p> <p>Required Action I.2.1 and I.2.2 may not be voluntarily entered.</p> <p>-----</p> <p>I.2.1 Establish a RICT</p> <p>AND</p> <p>I.2.2 Restore inoperable systems and ADS valves to OPERABLE status.</p> | <p>Immediately</p> <p>1 hour</p> <p>In accordance with the Risk Informed Completion Time Program, not to exceed 30 days]</p> |
| <p>J. Required Action and associated Completion Time of Condition I not met.</p> | <p>J.1 Enter LCO 3.0.3.</p> | <p>Immediately</p> |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE | | FREQUENCY |
|--------------|---|--|
| SR 3.5.1.1 | Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve. | 31 days |
| SR 3.5.1.2 | Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position. | 31 days |
| SR 3.5.1.3 | Verify ADS [air supply header] pressure is \geq [90] psig. | 31 days |
| SR 3.5.1.4 | [Verify the [RHR] System cross tie valve[s] [is] closed and power is removed from the valve operator[s]. | 31 days] |
| SR 3.5.1.5 | [Verify each LPCI inverter output voltage is \geq [570] V and \leq [630] V while supplying the respective bus. | 31 days] |
| SR 3.5.1.6 | <p>-----NOTE-----</p> <p>Not required to be performed if performed within the previous 31 days.</p> <p>-----</p> <p>Verify each recirculation pump discharge valve [and bypass valve] cycles through one complete cycle of full travel [or is de-energized in the closed position].</p> | Once each startup prior to exceeding 25% RTP |

SURVEILLANCE REQUIREMENTS (continued)

| SURVEILLANCE | | FREQUENCY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|-------------|---------------|-----|--------------|--|--|----|---------------|--|--|-------|--------------|--|--|--|--------------|---------------|------------------|--|--|------|--|--|--|-------|--------------|-----|--------------|------|----------------|-----|-------------|---|
| SR 3.5.1.7 | <p>Verify the following ECCS pumps develop the specified flow rate [against a system head corresponding to the specified reactor pressure].</p> <table border="0"> <tr> <td></td> <td></td> <td>No.</td> <td>[System Head</td> </tr> <tr> <td></td> <td></td> <td>of</td> <td>Corresponding</td> </tr> <tr> <td></td> <td></td> <td>Pumps</td> <td>to a Reactor</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Pressure of]</td> </tr> <tr> <td><u>System</u></td> <td><u>Flow Rate</u></td> <td></td> <td></td> </tr> <tr> <td>Core</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Spray</td> <td>≥ [4250] gpm</td> <td>[1]</td> <td>≥ [113] psig</td> </tr> <tr> <td>LPCI</td> <td>≥ [17,000] gpm</td> <td>[2]</td> <td>≥ [20] psig</td> </tr> </table> | | | No. | [System Head | | | of | Corresponding | | | Pumps | to a Reactor | | | | Pressure of] | <u>System</u> | <u>Flow Rate</u> | | | Core | | | | Spray | ≥ [4250] gpm | [1] | ≥ [113] psig | LPCI | ≥ [17,000] gpm | [2] | ≥ [20] psig | [In accordance with the Inservice Testing Program or 92 days] |
| | | No. | [System Head | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | of | Corresponding | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Pumps | to a Reactor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Pressure of] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>System</u> | <u>Flow Rate</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Core | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spray | ≥ [4250] gpm | [1] | ≥ [113] psig | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LPCI | ≥ [17,000] gpm | [2] | ≥ [20] psig | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SR 3.5.1.8 | <p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with [reactor pressure] ≤ [1020] and ≥ [920] psig, the HPCI pump can develop a flow rate ≥ [4250] gpm [against a system head corresponding to reactor pressure].</p> | 92 days | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SR 3.5.1.9 | <p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with [reactor pressure] ≤ [165] psig, the HPCI pump can develop a flow rate ≥ [4250] gpm [against a system head corresponding to reactor pressure].</p> | [18] months | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SURVEILLANCE REQUIREMENTS (continued)

| SURVEILLANCE | FREQUENCY |
|---|--|
| <p>SR 3.5.1.10</p> <p>-----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p> | <p>[18] months</p> |
| <p>SR 3.5.1.11</p> <p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p> | <p>[18] months</p> |
| <p>SR 3.5.1.12</p> <p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve opens when manually actuated.</p> | <p>[18] months [on a STAGGERED TEST BASIS for each valve solenoid]</p> |