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LCR S03-07

PSEG
Nuclear LLC

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

REVISION TO REQUEST FOR CHANGES TO TECHNICAL SPECIFICATIONS CONTAINMENT SYSTEMS – CONTAINMENT COOLING SYSTEM SALEM NUCLEAR GENERATING STATION UNITS 1 and 2 FACILITY OPERATING LICENSES DPR-70 and DPR-75 DOCKET NOs. 50-272 and 50-311

Pursuant to 10 CFR 50.90, PSEG Nuclear LLC (PSEG) hereby requests a revision to the request for changes to the Technical Specifications (TS) for the Salem Nuclear Generating Station, Units 1 and 2 that was previously submitted. By letter, LR-N04-0089, dated April 15, 2004 and revised by letter LR-N04-0343, dated August 11, 2004, PSEG submitted a request to revise the Salem Unit 1 TS to reflect the addition of the chilled water system (closed loop) to provide cooling water to the Containment Fan Cooling Units (CFCUs). This request also addressed a non-conservative Action Statement for Salem Units 1 and 2. The proposed revision is to withdraw the closed loop chilled water cooling modifications to the CFCUs, but maintain the change for the non-conservative TS. In accordance with 10 CFR 50.91 (b)(1), a copy of this submittal has been sent to the State of New Jersey.

During the licensing review in preparation of the previous submittal described above, it was discovered that a potentially non-conservative Action Statement exists in the current TS for Salem Units 1 and 2. The pertinent Action Statement is TS 3.6.2.3 Action b, which currently allows three or more CFCUs to be inoperable provided both containment spray pumps are operable. PSEG deemed this Action Statement to be non-conservative since it allows the plant to operate for 72 hours with less than three CFCUs operable. PSEG reported this condition under LER 04-002, dated May 20, 2004 (LR-N04-0191). This Action Statement is being modified as shown in Attachment 1 & 2. In accordance with NRC Administrative Letter 98-10, PSEG has implemented temporary instructions that will require the affected Salem unit to enter TS 3.0.3 with less than three CFCUs operable regardless of the number of containment spray pumps operable. These restrictions will be in place until this amendment request is approved and implemented.

PSEG has verbally notified the NRC of the decision not to pursue, at this time, the CFCU modifications involving the addition of a closed loop chilled water system.

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The original License Change Request is being modified, since it also included a revision to the non-conservative Action Statement (TS 3.6.2.3 Action b) that is independent of the addition of the closed loop chilled water system. Thus, PSEG requests NRC review of the changes to correct this Action Statement.

Attachment 1, contains a mark-up of the original submittal detailing the withdrawn TS changes due to the deletion of the chilled water system. The Description and No Significant Hazards Evaluation provided with the original submittal remain applicable for the portions involved with this request.

Attachment 2 includes only the applicable TS pages affected by the non-conservative TS and the proposed changes.

PSEG has evaluated the proposed changes in accordance with 10 CFR 50.91 (a)(1), using the criteria in 10 CFR 50.92 (c), and has determined this request involves no significant hazards considerations. This amendment to the Salem TS meets the criteria of 10 CFR 51.22 (c)(9) for categorical exclusion from an environmental impact statement.

Should you have any questions regarding this request, please contact Mr. Steve Mannon at 856-339-1129.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Executed on 8/9/05

Thomas P. Joyce
Site Vice President
Salem Station Units 1 and 2

Attachments (2)

cc Mr. Samuel. J. Collins, Administrator - Region I
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REVISION TO REQUEST FOR CHANGES TO TECHNICAL SPECIFICATIONS CONTAINMENT SYSTEMS – CONTAINMENT COOLING SYSTEM

SALEM NUCLEAR GENERATING STATION UNITS 1 & 2
FACILITY OPERATING LICENSES DPR-70 AND DPR-75
DOCKET NOs. 50-272 AND 50-311

ATTACHMENT 1

PROPOSED CHANGES WITHDRAWN

TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE ~~ITEMS~~TIMES

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME IN SECONDS
1.	Manual		
	a.	Safety Injection (ECCS)	Not Applicable
		Feedwater Isolation	Not Applicable
		Reactor Trip (SI)	Not Applicable
		Containment Isolation-Phase "A"	Not Applicable
		Containment Ventilation Isolation	Not Applicable
		Auxiliary Feedwater Pumps	Not Applicable
		Service Water System	Not Applicable
		Containment Fan Cooler	Not Applicable
	b.	Containment Spray	Not Applicable
		Containment Isolation-Phase "B"	Not Applicable
		Containment Ventilation Isolation	Not Applicable
	c.	Containment Isolation-Phase "A"	Not Applicable
		Containment Ventilation Isolation	Not Applicable
	d.	Steam Line Isolation	Not Applicable
2.	Containment Pressure-High		
	a.	Safety Injection (ECCS)	≤ 27.0(1)
	b.	Reactor Trip (from SI)	≤ 2.0
	c.	Feedwater Isolation	≤ 10.0
	d.	Containment Isolation-Phase "A"	≤ 17.0(2)/27.0(3)
	e.	Containment Ventilation Isolation	Not Applicable
	f.	Auxiliary Feedwater Pumps	≤ 60
	g.	Service Water System	≤ 13.0(2)/45.0(3)
	h.	Containment Fan Coolers	≤ 60.0 (7)

TABLE NOTATION

(1) Diesel generator starting and sequence loading delays included. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps, SI and RHR pumps.

(2) Diesel generator starting and sequence loading delays not included. Offsite power available. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps.

(3) Diesel generator starting and sequence loading delays included. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps.

(4) On 2/3 in any steam generator.

(5) On 2/3 in 2/4 steam generators.

(6) The response time is the time the isolation circuitry input reaches the isolation setpoint to the time the Isolation Valves are fully shut.

(7) The response time includes the time to automatically isolate the chilled water supply and align the service water flow to the CFCUs following an accident coincident with a loss of offsite power, it also includes the time delays associated with isolation of the Turbine Generator Area service water header.

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 Primary CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Without primary CONTAINMENT INTEGRITY, restore CONTAINMENT INTEGRITY within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 Primary CONTAINMENT INTEGRITY shall be demonstrated:

a1. At least once per 31 days by verifying that each containment manual valve or blind flange that is located outside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls. Valves and blind flanges in high radiation areas may be verified by use of administrative controls.

a2. Prior to entering Mode 4 from Mode 5 if not performed within the last 92 days by verifying that each containment manual valve or blind flange that is located inside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls. Valves and blind flanges in high radiation areas may be verified by use of administrative controls.

b. By verifying that each containment air lock is OPERABLE per Specification 3.6.1.3.

~~c. At least once per 12 hours by verifying that the surveillance requirements of 4.6.2.3.a are met for penetrations associated with the containment fan coil units.~~

~~d. At least once per 18 months by verifying that the surveillance requirements of 4.6.2.3.d are met for penetrations associated with the containment fan coil units.~~

3/4.6.1 PRIMARY CONTAINMENT

3/4 6.1.1 CONTAINMENT INTEGRITY

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. This restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10 CFR 100 during accident conditions.

The purpose of this surveillance requirement (4.6.1.1a) is not to perform any testing or valve manipulations, but to verify that containment isolation valves capable of being mispositioned are in their proper safety position (closed).

Physical verification (hands on verification) that these penetrations (containment isolation valves) are in the proper position is performed prior to entering Mode 4 from Mode 5 and documented in the appropriate valve line-up. Allowing the use of administrative means to verify compliance with the surveillance requirement for these valves is acceptable based on the limited access to these areas in Modes 1, 2, 3, and 4 for ALARA reasons. Therefore, the probability of misalignment of these containment isolation valves, once they have been verified in the proper position, is small.

~~The service water accumulator vessel and discharge valves function to maintain water filled, subcooled fluid conditions in the containment fan coil unit (CFCU) cooling loops during accident conditions. The service water accumulator vessel and discharge valves were installed to address the Generic Letter 96-06 issues of column separation/waterhammer and two phase flow during an accident involving a loss of offsite power.~~ The operability of ~~each~~ the service water accumulator ~~vessel and discharge valve~~ **as required in TS 3.6.2.3, Containment Cooling System** is required to ensure the integrity of containment penetrations associated with the containment **cooling** fan ~~coil~~ units during accident conditions. If ~~a~~ the service water accumulator ~~vessel~~ does not meet the ~~vessel~~ surveillance requirements **listed in TS 4.6.2.3a, the Action Statement TS 3.6.2.3d will require returning the service water accumulator to the required parameters within 4 hours or a unit shutdown will be required. These actions are designed to ensure ,that, the containment integrity requirements of the CFCU cooling loops are met.** ~~or if the discharge valve response time does not meet design acceptance criteria when tested in accordance with procedures, the containment integrity requirements of the CFCU cooling loops .exclusively supplied by the inoperable accumulator vessel or discharge valve are not met. Limiting Condition for Operation 3.6.1.1 is applicable, and the cooling loops for the two CFCU's exclusively supplied by the inoperable accumulator fire to be removed from service and isolated to maintain containment integrity.~~

3/4 6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure P_a. As an added conservatism, the measured overall integrated leakage rate (Type A test) is further limited to less than or equal to 0.75 L_a or less than or equal to 0.75 L_t, as applicable, during performance of the periodic test to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance testing for measuring leakage rates are consistent with the Containment Leakage Rate Testing Program.

3/4 6.1.3 CONTAINMENT AIR LOCKS

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all MODES of operation. Each air lock is nominally a right circular cylinder, 10 feet in diameter, with a door at each end. The doors are interlocked during normal operation to prevent simultaneous opening.

CONTAINMENT SYSTEMS

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.3 Five containment cooling fans shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3

ACTION:

a. With one or two of the above required containment cooling fans inoperable, restore the inoperable cooling fan(s) to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With three or more of the above required containment cooling fans inoperable~~, and both containment spray systems OPERABLE~~, restore at least three cooling fans to OPERABLE status within ~~72~~ 1 hours or be in at least HOT STANDBY WITHIN the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the remaining inoperable cooling fans to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. Operation with Emergency Containment Cooling Water System (service water) shall be limited to 30 continuous days[1] or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. The provisions of Specification 3.0.4 are not applicable.

d. With the service water accumulator inoperable, restore the accumulator to OPERABLE status within 4 hours or be in at least HOT STANDBY WITHIN the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

e. While operating on the Normal Containment Cooling System (Chilled Water), and upon a loss of the chilled water system capability, within 1 hour either re-establish containment cooling (normal or emergency) or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

[1] Operation beyond 30 days, while using Service Water, may be allowed based on an engineering evaluation that takes into consideration the requirements of NRC Generic Letter 89-13, Service Water Problems Affecting Safety-Related Equipment.

4.6.2.3 Each containment cooling fan shall be demonstrated OPERABLE:

a. At least once per 12 hours by:

1. Verifying the water level in ~~each~~ the service water accumulator ~~vessel~~ is greater than or equal to ~~226~~ 204 inches and less than or equal to ~~252~~ 300 inches.

2. Verifying the temperature in ~~each~~ the service water accumulator ~~vessel~~ is greater than or equal to 55°F and less than or equal to ~~95~~°F.

3. Verifying the nitrogen cover pressure in ~~each~~ the service water accumulator ~~vessel~~ is greater than or equal to ~~135~~ 61 psig ~~and less than or equal to 160 psig~~.

b. At least once per 31 days by:

1. Starting (unless already operating) each fan from the control room in low speed.

2. Verifying that each fan operates for at least 15 minutes in low speed.

3. **Verifying the fixed resistance corresponding to greater than or equal to 1200 gpm SW flow to each CFCU by testing with chilled water[1].**

c. **At least once per 92 days by:**

1. **Stroking each valve that functions to isolate normal cooling water during accident conditions.**

2. **Stroking each valve that functions to initiate emergency containment cooling water during accident conditions.**

~~c.~~**d.** At least once per 18 months by verifying that on a safety injection test signal:

1. Each fan starts automatically in low speed.

2. The automatic valves ~~and dampers actuate to their correct positions~~ **that isolate normal containment cooling water and initiate emergency containment cooling water to the containment cooling fans receive the required actuation signals.**

~~d. At least once per 18 months by verifying that on a loss of offsite power test signal, each service water accumulator vessel discharge valve response time is within limits.~~

[1] **If chilled water is isolated, by testing with service water.**

CONTAINMENT SYSTEMS

AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall not exceed 120°F.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the containment average air temperature > 120°F, reduce the average air temperature to within the limit within 8 hours, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5 Verify the Containment Average Air Temperature is within limit at least once per twenty four hours.

NO CHANGES TO THIS PAGE FOR ILLUSTRATION ONLY

3/4.7.4 SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4.1 At least two independent service water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With only one service water loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.4.1 At least two service water loops shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on Safeguards Initiation signal, **except as noted in Surveillance Requirement 4.6.2.3.d.2.**

3/4.6.1.4 INTERNAL PRESSURE

The limitations on containment internal pressure ensure that: 1) the containment structure is prevented from exceeding its design negative pressure differential with respect to the outside atmosphere of 3.5 psig and 2) the containment peak pressure does not exceed the design pressure of 47 psig during the limiting pipe break conditions. The pipe breaks considered are LOCA and steam line breaks.

The limit of 0.3 psig for initial positive containment pressure is consistent with the accident analyses initial conditions.

The maximum peak pressure expected to be obtained from a LOCA or steam line break event is 47 psig.

3/4.6.1.5 AIR TEMPERATURE

The limitations on containment average air temperature ensure that the overall containment average air temperature does not exceed the initial temperature condition assumed in the accident analysis for a LOCA or steam line break. In order to determine the containment average air temperature, an average is calculated using measurements taken at locations within containment selected to provide a representative sample of the overall containment atmosphere.

The OPERABILITY of the containment cooling system ensures that the containment air temperature will be maintained within limits during normal operation.

3/4.6.1.6 CONTAINMENT STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the containment will withstand the design pressure. The visual inspections of the concrete and liner and the Type A leakage test both in accordance with the Containment Leakage Rate Testing Program are sufficient to demonstrate this capability.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the accident analyses.

Revised Westinghouse analysis (WCAP 16193 dated March, 2004) takes credit for post-LOCA recirculation sprays to ensure that containment heat removal is sufficient to remove the maximum possible discharge of mass and energy release to containment.

Normal plant operation and maintenance practices are not expected to trigger surveillance requirement 4.6.2.1.d. Only an unanticipated circumstance would initiate this surveillance, such as inadvertent spray actuation, a major configuration change, or a loss of foreign material control when working within the affected boundary of the system. If an activity occurred that presents the potential of creating nozzle blockage, an evaluation would be performed by the engineering organization to determine if the amount of nozzle blockage would impact the required design capabilities of the containment spray system. If the evaluation determines that the containment spray system would continue to perform its design basis function, then performance of the air or smoke flow test would not be required. If the evaluation cannot conclusively determine the impact to the containment spray system, then the air or smoke flow test would be performed to determine if any nozzle blockage has occurred.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

The OPERABILITY of the spray additive system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH minimum volume and ~~concentration,~~**concentration** ensure that 1) the iodine removal efficiency of the spray water is maintained because of the increase in pH value, and 2) corrosion effects on components within containment are minimized. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics. These assumptions are consistent with the iodine removal efficiency assumed in the accident analyses.

3/4.6.2.3 CONTAINMENT COOLING SYSTEM

The OPERABILITY of the containment cooling system ensures that: **1) the containment air temperature and pressure will be maintained within limits 2) adequate heat removal capacity is available when operated in conjunction with the** containment spray systems during post-LOCA conditions **and 3) provides sufficient air circulation in containment post-LOCA to have adequate mixing rate between the sprayed and unsprayed regions of containment.**

NORMAL CONTAINMENT COOLING WATER SYSTEM – Chilled Water System

An independent Containment Fan Cooling Units (CFCUs) non-safety related chilled water cooling system with redundant components is supplied for Salem Unit 1. The Normal Containment Cooling Water System (NCCWS) provides chilled water for containment cooling during normal power operation, normal shutdown, and refueling. It is not relied upon for design basis accident heat removal. The system is capable of maintaining normal containment temperatures at approximately 90°F but, for conservatism and safety margin, the accident analysis, for containment response following a DBA, assumes containment temperature of 120°F at the onset of the accident.

Service Water (SW) cooling is required during any DBA that releases mass/energy into the containment, even if the CFCU NCCWS remains available, since the DBA heat load would trip out the chillers on overload. A revised Westinghouse analysis, that credits improved CFCU fouling factor and improvements in accident modeling, shows that only two CFCUs, each with a minimum of 1200 gpm SW flow, are adequate for DBA containment cooling. However, since the current source term dose calculations credits the equivalent of 3 CFCUs for DBA containment air mixing and iodine scrubbing, and a single active component failure (SACF) will disable two CFCUs, the Containment Cooling System Technical Specifications will retain the requirements to maintain five CFCUs operable.

On a safety injection signal, the CFCU flow is automatically realigned from NCCWS to ECCWS. The CFCU chilled water system is isolated and service water flow is then aligned by first opening the CFCU SW supply header isolation valves and then opening the SW return header isolation valves. However, if a LOOP occurs at the same time, the SW valve opening is delayed until after the SW pumps are restarted.

The CFCU NCCWS is the normal mode for containment cooling under all normal plant conditions, including power operations, shutdown periods, and refueling. The CFCU NCCWS has been designed with substantial redundancy and reliability such that the CFCU NCCWS is expected to be available to support plant operations. In the unlikely event that the CFCU NCCWS is unavailable to support plant operations, and to prevent unnecessary transients on the units, service water can be used for normal plant cooling under the conditions described in the Abnormal Operation section.

The surveillance requirements ensure that:

a. Each NCCWS valve actuates to the closed position to isolate the non-safety related portions of the CFCU cooling water system.

b. Each ECCWS valve actuates to the open position to automatically initiate SW cooling to the three CFCUs served by that header. The limiting single failure is addressed by having two separate CFCU SW headers each of which can cool the minimum required number of CFCUs.

c. The service water accumulator ensures the tank contains sufficient water and nitrogen to maintain water filled, subcooled fluid conditions in all five containment fan coil unit (CFCU) cooling loops in response to a loss of off-site power, without injecting nitrogen cover gas into the containment fan coil unit loops, assuming the most limiting single failure.

d. Each CFCU will have a minimum SW flow of 1200 gpm.

The service water accumulator functions to maintain water filled, subcooled fluid conditions in the containment fan coil unit (CFCU) cooling loops during accident conditions. The service water accumulator was installed to address the Generic Letter 96-06 issues of column separation water-hammer and two phase flow during an accident involving a loss of offsite power. The operability of the service water accumulator is required intended to prevent water column separation in the CFCU headers. TS 3.6.2.3 Action Statement d. applies when the service water accumulator does not meet the applicable surveillance requirements.

The MSLB and LOCA containment response analyses have been performed for Salem Unit 1. These analyses included long-term pressure and temperature profiles. All cases analyzed resulted in a peak containment pressure that was less than 47 psig.

In addition, long-term cases were well below 50% of the peak value within 24 hours. Based on the results, all applicable Standard Review Plan (SRP) criteria for Salem Unit 1 are satisfied.

The **analysis** and results are contained in WCAP 16193 dated March 2004.

The fixed resistance in the CFCU flow path, required for a minimum SW flow of 1200 gpm/CFCU, will be confirmed in post-installation SW flow testing. Differential pressure instrumentation between the CFCU NCCWS supply and return header and flow instrumentation will be used to periodically verify that the CFCU flow path fixed resistance has not changed.

The **operation of the recirculation sprays is credited** for the long term LOCA containment temperature **requirements.**

EMERGENCY CONTAINMENT COOLING WATER SYSTEM – Service Water Supply

Service Water (SW) cooling is required during any DBA that releases mass/energy into the containment, even if the CFCU **NCCWS (chilled water)** remains available since the DBA heat load will trip out the chillers on overload. Westinghouse analysis **(WCAP 16193)** credits improved CFCU fouling factor and improvements in accident modeling, shows that only two **CFCUs**, each with a minimum of 1200 gpm SW flow, are adequate for DBA containment cooling. However, since the current source term dose calculations credits the equivalent of 3 **CFCUs** for DBA containment air mixing and iodine scrubbing, and a single active component failure (SACF) will disable two **CFCUs**, the **Containment Cooling System** Technical Specifications will retain the requirements to maintain five **CFCUs operable.**

On a safety injection signal, the CFCU flow is automatically realigned from NCCWS to ECCWS. The CFCU chilled water system is isolated and service water flow is then aligned by first opening the CFCU SW supply header isolation valves and then opening the SW return header isolation valves. However, if a LOOP occurs at the same time, the SW valve opening is delayed until after the SW pumps are restarted.

ABNORMAL OPERATION-CFCU NORMAL CONTAINMENT COOLING WATER SYSTEM UNAVAILABLE

The CFCU NCCWS is the normal mode for containment cooling under all normal plant conditions, including power operations, shutdown periods, and refueling. The CFCU NCCWS has been designed with substantial redundancy and reliability such that the CFCU NCCWS is expected to be available to support plant operations. In the unlikely event that a loss of CFCU NCCWS capability occurs, both the containment temperature and pressure will quickly rise and could exceed the initial conditions assumed in the accident analysis within a few minutes. Therefore, the action to restore normal cooling, initiate Service Water cooling or shutdown within one hour will ensure operation will not proceed in an unanalyzed condition. This action is comparable to the TS action for primary containment internal pressure (3.6.1.4) and is more restrictive than that for average air temperature (TS 3.6.1.5). However, it results in a more immediate response since the action time starts from the loss of equipment and not a measured parameter.

A loss of CFCU NCCWS capability is defined as a loss of all CH flow to the CFCUs or a loss of more than two (2) chillers, or the equivalent of two (2) chillers. Since each chiller has four (4) refrigerant circuits with a separate compressor, separate electrical circuit, refrigerant pressure boundary, and condenser cooling coil, the four (4) chillers have a total of sixteen (16) refrigerant circuits. A loss of more than eight (8) refrigerant circuits among the four chillers is equivalent to a loss of more than two chillers.

Service Water can be used for containment cooling during normal plant operations provided chilled water is restored within 30 days. Operation beyond 30 days while using Service Water may be allowed based on an engineering evaluation that takes into consideration the requirements of Generic Letter 89-13, Service Water Problems Affecting Safety-Related Equipment.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation within the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

The opening of locked or sealed closed containment isolation valves (penetration flow paths) on an intermittent basis under administrative control includes the following considerations: (1) stationing a dedicated individual, who is in constant communication with the control room, at the valve controls, (2) instructing this individual to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

The main steam isolation valves (MSIVs) fulfill their containment isolation function as remote-manual containment isolation valves. The automatic closure of the MSIVs is not required for containment isolation due to having a closed system inside containment. The remote-manual containment isolation function of the MSIVs can be accomplished through either the use of the hydraulic operator or when the MSIV has been tested in accordance with surveillance requirement 4.7.1.5 the steam assist function can be credited.

Surveillance Requirement (SR) 4.6.3.1.3 only applies to the MS7 (Main Steam Drain) valves and the MS18 (Main Steam Bypass) valves. The MS167 (Main Steam Isolation) valves are tested for main steam isolation purposes by SR 4.7.1.5. For containment isolation purposes, the MS167s are tested as remote/manual valves pursuant to Specification 4.0.5.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water and 3) corrosion of metals within containment.

FORMAT CHANGES ONLY

PLANT SYSTEMS

3/4.7.4 SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4.1 At least two independent service water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With only one service water loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.4.1 At least two service water loops shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.

b. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on Safeguards Initiation signal, **except as noted in Surveillance 4.6.2.3.d.2.**

~~* Operation with only the 11 service water loop OPERABLE may continue for up to 10 days. This note is applicable for one time use during Salem Unit No. 1 Cycle 15.~~

CONTAINMENT SYSTEMS

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.3 Five containment cooling fans shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one or two of the above required containment cooling fans inoperable, restore the inoperable cooling fan(s) to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With three or more of the above required containment cooling fans inoperable ~~, and both containment spray systems OPERABLE~~, restore at least three cooling fans to OPERABLE status within ~~72~~ 1 hours or be in at least HOT STANDBY WITHIN the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the remaining inoperable cooling fans to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.3 Each containment cooling fan shall be demonstrated OPERABLE:

REVISION TO REQUEST FOR CHANGES TO TECHNICAL SPECIFICATIONS CONTAINMENT SYSTEMS – CONTAINMENT COOLING SYSTEM

SALEM NUCLEAR GENERATING STATION UNITS 1 & 2
FACILITY OPERATING LICENSES DPR-70 AND DPR-75
DOCKET NOs. 50-272 AND 50-311

ATTACHMENT 2

PROPOSED CHANGES

AFFECTED PAGES:

Unit 1	Unit 2
3/4 6-11	3/4 6-12
B 3/4 6-3	B 3/4 6-3

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.3 Five containment cooling fans shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one or two of the above required containment cooling fans inoperable, restore the inoperable cooling fan(s) to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With three or more of the above required containment cooling fans inoperable, ~~and both containment spray systems OPERABLE,~~ restore at least three cooling fans to OPERABLE status within ~~72~~ hours or be in at least HOT STANDBY WITHIN the next 6 hours and in ~~COLD SHUTDOWN~~ within the following 30 hours. Restore the remaining inoperable cooling fans to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.3 Each containment cooling fan shall be demonstrated OPERABLE:

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM when operated in conjunction with the Containment Cooling System,

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the accident analyses.

Normal plant operation and maintenance practices are not expected to trigger surveillance requirement 4.6.2.1.d. Only an unanticipated circumstance would initiate this surveillance, such as inadvertent spray actuation, a major configuration change, or a loss of foreign material control when working within the affected boundary of the system. If an activity occurred that presents the potential of creating nozzle blockage, an evaluation would be performed by the engineering organization to determine if the amount of nozzle blockage would impact the required design capabilities of the containment spray system. If the evaluation determines that the containment spray system would continue to perform its design basis function, then performance of the air or smoke flow test would not be required. If the evaluation cannot conclusively determine the impact to the containment spray system, then the air or smoke flow test would be performed to determine if any nozzle blockage has occurred.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

The OPERABILITY of the spray additive system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH minimum volume and concentration, ensure that 1) the iodine removal efficiency of the spray water is maintained because of the increase in pH value, and 2) corrosion effects on components within containment are minimized. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics. These assumptions are consistent with the iodine removal efficiency assumed in the accident analyses.

3/4.6.2.3 CONTAINMENT COOLING SYSTEM

The OPERABILITY of the containment cooling system ensures that adequate heat removal capacity is available when operated in conjunction with the containment spray systems during post-LOCA conditions.

The surveillance requirements for the service water accumulator vessels ensure each tank contains sufficient water and nitrogen to maintain water filled, subcooled fluid conditions in three containment fan coil unit (CFCU) cooling loops in response to a loss of offsite power, without injecting nitrogen covergas into the containment fan coil unit loops assuming the most limiting single failure. The surveillance requirement for the discharge

CONTAINMENT SYSTEMS

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.3 Five containment cooling fans shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

a. With one or two of the above required containment cooling fans inoperable, restore the inoperable cooling fan(s) to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With three or more of the above required containment cooling fans inoperable ~~and both containment spray systems OPERABLE~~, restore at least three cooling fans to OPERABLE status within ~~72~~ hours or be in at least HOT STANDBY WITHIN the next 6 hours and in ~~COLD~~ SHUTDOWN within the following 30 hours. Restore the remaining inoperable cooling fans to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.3 Each containment cooling fan shall be demonstrated OPERABLE:

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

when operated in conjunction with the Containment Cooling System,

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the accident analyses.

~~The containment spray system and the containment cooling system are redundant to each other in providing post accident cooling of the containment atmosphere. However,~~ The containment spray system also provides a mechanism for removing iodine from the containment atmosphere and therefore the time requirements for restoring an inoperable spray system to OPERABLE status have been maintained consistent with that assigned other inoperable ESF equipment.

Normal plant operation and maintenance practices are not expected to trigger surveillance requirement 4.6.2.1.d. Only an unanticipated circumstance would initiate this surveillance, such as inadvertent spray actuation, a major configuration change, or a loss of foreign material control when working within the affected boundary of the system. If an activity occurred that presents the potential of creating nozzle blockage, an evaluation would be performed by the engineering organization to determine if the amount of nozzle blockage would impact the required design capabilities of the containment spray system. If the evaluation determines that the containment spray system would continue to perform its design basis function, then performance of the air or smoke flow test would not be required. If the evaluation cannot conclusively determine the impact to the containment spray system, then the air or smoke flow test would be performed to determine if any nozzle blockage has occurred.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

The OPERABILITY of the spray additive system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH volume and concentration, ensure that 1) the iodine removal efficiency of the spray water is maintained because of the increase in pH value, and 2) corrosion effects on components within containment are minimized. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics. These assumptions are consistent with the iodine removal efficiency assumed in the accident analyses.

3/4.6.2.3 CONTAINMENT COOLING SYSTEM

The OPERABILITY of the containment cooling system ensures that adequate heat removal capacity is available when operated in conjunction with the containment spray systems during post-LOCA conditions.

Delete

~~The containment cooling system and the containment spray system are redundant to each other in providing post accident cooling of the containment atmosphere. As a result of this redundancy in cooling capability, the allowable out of service time requirements for the containment cooling system have been appropriately adjusted. However, the allowable out of service time requirements for the containment spray system have been maintained consistent with that assigned other inoperable ESF equipment since the containment spray system also provides a mechanism for removing iodine from the containment atmosphere.~~