ENCLOSURE 1

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-93-04, REVISION 2)

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 The containment isolation valves specified in Table 3.6-2 shall be OPERABLE with isolation times as shown in Table 3.6-2. R16

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION: Sections A, B, C and D.4 through D.7 of

a. With one or more of the isolation valve(s) specified in Table 3.6-2 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

1. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or

2. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or

3. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange; or

4. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3.1 The isolation valves specified in Table 3.6-2 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by performance of a cycling test and verification of isolation time. R16

b. With one or more containment vacuum relief isolation valve(s) specified in Sections D.1 through D.3 of Table 3.6-2 inoperable, the valve(s) must be returned 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.

TABLE 3.6-2 (Continued)
CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)
A. PHASE "A" ISOLATION (Cont.)		
61. FCV-77-19	RCDT and PRT to V H	10*
62. FCV-77-20	N_2 to RCDT	10*
63 FCV-77-127	Floor Sump Pump Disch	10*
64. FCV-77-128	Floor Sump Pump Disch	10*
65. FCV-81-12	Primary Water Makeup	10*
B. PHASE "B" ISOLATION		
1. FCV-32-80	Control Air Supply	10
2. FCV-32-102	Control Air Supply	10
3. FCV-32-110	Control Air Supply	10
4. FCV-67-83	ERCW - LWR Cmpt Clrs	60*
5. FCV-67-87	ERCW - LWR Cmpt Clrs	60*
6. FCV-67-88	ERCW - LWR Cmpt Clrs	60*
7. FCV-67-89**	ERCW - LWR Cmpt Clrs	70*
8. FCV-67-90**	ERCW - LWR Cmpt Clrs	70*
9. FCV-67-91	ERCW - LWR Cmpt Clrs	60*
10. FCV-67-95	ERCW - LWR Cmpt Clrs	60*
11. FCV-67-96	ERCW - LWR Cmpt Clrs	60*
12. FCV-67-99	ERCW - LWR Cmpt Clrs	60*
13. FCV-67-103	ERCW - LWR Cmpt Clrs	60*
14. FCV-67-104	ERCW - LWR Cmpt Clrs	60*
15. FCV-67-105**	ERCW - LWR Cmpt Clrs	70*
16. FCV-67-106**	ERCW - LWR Cmpt Clrs	70*
17. FCV-67-107	ERCW - LWR Cmpt Clrs	60*
18. FCV-67-111	ERCW - LWR Cmpt Clrs	60*
19. FCV-67-112	ERCW - LWR Cmpt Clrs	60*
20. FCV-67-130	ERCW - Up Cmpt Clrs	60*
21. FCV-67-131	ERCW - Up Cmpt Clrs	60*
22. FCV-67-133	ERCW - Up Cmpt Clrs	60*
23. FCV-67-134	ERCW - Up Cmpt Clrs	60*
24. FCV-67-138	ERCW - Up Cmpt Clrs	60*

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TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER		FUNCTION	MAXIMUM ISOLATION TIME (Seconds)	
B. PHASE "B" ISOLATION (Cont.)				
25.	FCV-67-139	ERCW - Up Cmpt Clrs	60*	R81
26.	FCV-67-141	ERCW - Up Cmpt Clrs	60*	R81
27.	FCV-67-142	ERCW - Up Cmpt Clrs	60*	R81
28.	FCV-67-295	ERCW - Up Cmpt Clrs	60*	R81
29.	FCV-67-296	ERCW - Up Cmpt Clrs	60*	R81
30.	FCV-67-297	ERCW - Up Cmpt Clrs	60*	R81
31.	FCV-67-298	ERCW - Up Cmpt Clrs	60*	R81
32.	FCV-70-87	RCP Thermal Barrier Ret	60	
33.	FCV-70-89	CCS from RCP Oil Coolers	60	
34.	FCV-70-90	RCP Thermal Barrier Ret	60	
35.	FCV-70-92	CCS from RCP Oil Coolers	60	
36.	FCV-70-134	To RCP Thermal Barriers	60	
37.	FCV-70-140	CCS to RCP Oil Coolers	60	
38.	FCV-70-141**	CCS to RCP Oil Coolers	65	R86
C. PHASE "A" CONTAINMENT VENT ISOLATION				
1.	FCV-30-7	Upper Compt Purge Air Supply	4*	R41
2.	FCV-30-8	Upper Compt Purge Air Supply	4*	R41
3.	FCV-30-9	Upper Compt Purge Air Supply	4*	R41
4.	FCV-30-10	Upper Compt Purge Air Supply	4*	R41
5.	FCV-30-14	Lower Compt Purge Air Supply	4*	R41
6.	FCV-30-15	Lower Compt Purge Air Supply	4*	R41
7.	FCV-30-16	Lower Compt Purge Air Supply	4*	R41
8.	FCV-30-17	Lower Compt Purge Air Supply	4*	R41
9.	FCV-30-19	Inst Room Purge Air Supply	4*	R41
10.	FCV-30-20	Inst Room Purge Air Supply	4*	R41
11.	FCV-30-37	Lower Compt Pressure Relief	4*	R41
12.	FCV-30-40	Lower Compt Pressure Relief	4*	R41

TABLE 3.6-2 Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER		FUNCTION	MAXIMUM ISOLATION TIME (Seconds)	
C. PHASE "A" CONTAINMENT VENT ISOLATION (Cont.)				
13.	FCV-30-50	Upper Compt Purge Air Exh	4*	R74
14.	FCV-30-51	Upper Compt Purge Air Exh	4*	
15.	FCV-30-52	Upper Compt Purge Air Exh	4*	
16.	FCV-30-53	Upper Compt Purge Air Exh	4*	
17.	FCV-30-56	Lower Compt Purge Air Exh	4*	
18.	FCV-30-57	Lower Compt Purge Air Exh	4*	
19.	FCV-30-58	Inst Room Purge Air Exh	4*	
20.	FCV-30-59	Inst Room Purge Air Exh	4*	
21.	FCV-90-107	Cntmt Bldg LWR Compt Air Mon	5*	
22.	FCV-90-108	Cntmt Bldg LWR Compt Air Mon	5*	
23.	FCV-90-109	Cntmt Bldg LWR Compt Air Mon	5*	
24.	FCV-90-110	Cntmt Bldg LWR Compt Air Mon	5*	
25.	FCV-90-111	Cntmt Bldg LWR Compt Air Mon	5*	
26.	FCV-90-113	Cntmt Bldg UPR Compt Air Mon	5*	
27.	FCV-90-114	Cntmt Bldg UPR Compt Air Mon	5*	
28.	FCV-90-115	Cntmt Bldg UPR Compt Air Mon	5*	
29.	FCV-90-116	Cntmt Bldg UPR Compt Air Mon	5*	
30.	FCV-90-117	Cntmt Bldg UPR Compt Air Mon	5*	
D. OTHER				
1.	FCV-30-46	Vacuum Relief Isolation Valve	25	
2.	FCV-30-47	Vacuum Relief Isolation Valve	25	
3.	FCV-30-48	Vacuum Relief Isolation Valve	25	R105
~~4.~~ 7.	FCV-62-90	Normal Charging Isolation Valve	12	
4.	30-571	Vacuum Relief Valve	**	
5.	30-572	Vacuum Relief Valve	**	
6.	30-573	Vacuum Relief Valve	**	

*Provisions of LCO 3.0.4 are not applicable if valve is secured in its isolated position with power removed and leakage limits of Specification 4.6.1.1.c are satisfied. For purge valves, leakage limits under Surveillance Requirement 4.6.1.9.3 must also be satisfied. R180

#Provisions of LCO 3.0.4 are not applicable if valve is secured in its isolated position with power removed and either FCV-62-73 or FCV-62-74 is maintained operable. R41

**~~This valve is required after completion of the associated modification.~~ R86
Vacuum relief valves perform a containment isolation function. The maximum isolation time is not applicable to these normally closed self-acting valves.

3/4.6.6 VACUUM RELIEF ~~VALVES~~ LINES

LIMITING CONDITION FOR OPERATION

3.6.6 ~~The~~ Three primary containment vacuum relief ~~valves~~ lines shall be OPERABLE.* ~~with an actuation set point of less than or equal to 0.1 PSID.~~

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one primary containment vacuum relief ~~valve~~ line inoperable, restore the ~~valve~~ line to OPERABLE status within ~~4~~ 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

4.6.6.1 No additional Surveillance Requirements other than those required by Specification 4.0.5.

* Refer to LCO 3.6.3 if one or more containment vacuum relief isolation or containment vacuum relief valves are incapable of performing a containment isolation function.

3/4.6.1.8 EMERGENCY GAS TREATMENT SYSTEM (EGTS)

The OPERABILITY of the EGTS cleanup subsystem ensures that during LOCA conditions, containment vessel leakage into the annulus will be filtered through the HEPA filters and charcoal adsorber trains prior to discharge to the atmosphere. This requirement is necessary to meet the assumptions used in the accident analyses and limit the site boundary radiation doses to within the limits of 10 CFR 100 during LOCA conditions. Cumulative operation of the system with the heaters on for 10 hours over a 31 day period is sufficient to reduce the buildup of moisture on the absorbers and HEPA filters. ANSI N510-1975 will be used as a procedural guide for surveillance testing. FP R118

3/4.6.1.9 CONTAINMENT VENTILATION SYSTEM

Use of the containment purge lines is restricted to only one pair (one supply line and one exhaust line) of purge system lines at a time to ensure that the site boundary dose guidelines of 10 CFR Part 100 would not be exceeded in the event of a loss of coolant accident during purging operations. The analysis of this accident assumed purging through the largest pair of lines (a 24 inch inlet line and a 24 inch outlet line), a pre-existing iodine spike in the reactor coolant and four second valve closure times.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SUBSYSTEMS R154

The OPERABILITY of the containment spray subsystems 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.

3/4.6.2.2 CONTAINMENT COOLING FANS R71

The OPERABILITY of the lower containment vent coolers ensures that adequate heat removal capacity is available to provide long-term cooling following a non-LOCA event. Postaccident use of these coolers ensures containment temperatures remain within environmental qualification limits for all safety-related equipment required to remain functional.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The valves identified in Table 3.6-2 are containment isolation valves as defined per 10 CFR 50. The operability of these 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 loss of coolant accident. R163

Additional valves have been identified as barrier valves, which in addition to the containment isolation valves discussed above, are a part of the accident monitoring instrumentation in Technical Specification 3/4.3.3.7 and are designated as Category 1 in accordance with Regulatory Guide 1.97, Revision 2, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1980.

INSERT A

INSERT A

Note that due to competing requirements and dual functions associated with the containment vacuum relief isolation valves (FCV-30-46, -47, and -48), the air supply and solenoid arrangement is designed such that upon the unavailability of Train A essential control air, the containment vacuum relief isolation valves are incapable of automatic closure and are therefore considered inoperable for the containment isolation function without operator action.

The containment vacuum relief valves (30-571, -572, and -573) are qualified to perform a containment isolation function. These valves are not powered from any electrical source and no spurious signal or operator action could initiate opening. The valves are spring loaded, swing disk (check) valves with an elastomer seat. The valves are normally closed and are equipped with limit switches that provide fully open and fully closed indication in the main control room (MCR). Based upon the above information, a 72 hour allowed action time is appropriate while actions are taken to return the containment vacuum relief isolation valves to service.

3/4.6.5.7 and 3/4.6.5.8 FLOOR AND REFUELING CANAL DRAINS

The OPERABILITY of the ice condenser floor and refueling canal drains ensures that following a LOCA, the water from the melted ice and containment spray system has access for drainage back to the containment lower compartment and subsequently to the sump. This condition ensures the availability of the water for long term cooling of the reactor during the post accident phase.

3/4.6.5.9 DIVIDER BARRIER SEAL

The requirement for the divider barrier seal to be OPERABLE ensures that a minimum bypass steam flow will occur from the lower to the upper containment compartments during a LOCA. This condition ensures a diversion of steam through the ice condenser bays that is consistent with the LOCA analyses.

3/4.6.6 VACUUM RELIEF ~~VALVES~~ LINES

The OPERABILITY of ~~the~~ three primary containment to atmosphere vacuum relief ~~valves~~ lines ensures that the containment internal pressure does not become more negative than 0.1 psid. This condition is necessary to prevent exceeding the containment design limit for internal vacuum of 0.5 psid.

A vacuum relief line consists of a self-actuating vacuum relief valve, a pneumatically operated isolation valve, associated piping, and instrumentation and controls.

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3 The containment isolation valves specified in Table 3.6-2 shall be OPERABLE with isolation times as shown in Table 3.6-2.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

Sections A, B, C and D.4 through D.7 of

a. With one or more of the isolation valve(s) specified in Table 3.6-2 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

1. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or
2. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or
3. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange, or
4. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3.1 The isolation valves specified in Table 3.6-2 shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair or replacement work is performed on the valve or its associated actuator, control or power circuit by performance of a cycling test and verification of isolation time.

b. With one or more containment vacuum relief isolation valve(s) specified in Sections D.1 through D.3 of Table 3.6-2 inoperable, the valve(s) must be returned 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.

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)	
A. PHASE "A" ISOLATION (Cont.)			
61. FCV-77-19	RCDT and PRT to V H	10*	R62
62. FCV-77-20	N_2 to RCDT	10*	
63. FCV-77-127	Floor Sump Pump Disch	10*	
64. FCV-77-128	Floor Sump Pump Disch	10*	
65. FCV-81-12	Primary Water Makeup	10*	R131
B. PHASE "B" ISOLATION			
1. FCV-32-81	Control Air Supply	10	R29
2. FCV-32-103	Control Air Supply	10	
3. FCV-32-111	Control Air Supply	10	
4. FCV-67-83	ERCW - LWR Cmpt Clrs	60*	
5. FCV-67-87	ERCW - LWR Cmpt Clrs	60*	
6. FCV-67-88	ERCW - LWR Cmpt Clrs	60*	
7. FCV-67-89**	ERCW - LWR Cmpt Clrs	70*	R73
8. FCV-67-90**	ERCW - LWR Cmpt Clrs	70*	
9. FCV-67-91	ERCW - LWR Cmpt Clrs	60*	
10. FCV-67-95	ERCW - LWR Cmpt Clrs	60*	R29
11. FCV-67-96	ERCW - LWR Cmpt Clrs	60*	
12. FCV-67-99	ERCW - LWR Cmpt Clrs	60*	
13. FCV-67-103	ERCW - LWR Cmpt Clrs	60*	
14. FCV-67-104	ERCW - LWR Cmpt Clrs	60*	
15. FCV-67-105**	ERCW - LWR Cmpt Clrs	70*	R73
16. FCV-67-106**	ERCW - LWR Cmpt Clrs	70*	
17. FCV-67-107	ERCW - LWR Cmpt Clrs	60*	
18. FCV-67-111	ERCW - LWR Cmpt Clrs	60*	R29
19. FCV-67-112	ERCW - LWR Cmpt Clrs	60*	
20. FCV-67-130	ERCW - Up Cmpt Clrs	60*	
21. FCV-67-131	ERCW - Up Cmpt Clrs	60*	
22. FCV-67-133	ERCW - Up Cmpt Clrs	60*	

TABLE 3.6-2 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)	
B. PHASE "B" ISOLATION (Cont.)			
23. FCV-67-134	ERCW - Up Cmpt Clrs	60*	R29
24. FCV-67-138	ERCW - Up Cmpt Clrs	60*	R29
25. FCV-67-139	ERCW - Up Cmpt Clrs	60*	R29
26. FCV-67-141	ERCW - Up Cmpt Clrs	60*	R29
27. FCV-67-142	ERCW - Up Cmpt Clrs	60*	R29
28. FCV-67-295	ERCW - Up Cmpt Clrs	60*	R29
29. FCV-67-296	ERCW - Up Cmpt Clrs	60*	R29
30. FCV-67-297	ERCW - Up Cmpt Clrs	60*	R29
31. FCV-67-298	ERCW - Up Cmpt Clrs	60*	R29
32. FCV-70-87	RCP Thermal Barrier Ret	60	
33. FCV-70-89	CCS from RCP Oil Coolers	60	
34. FCV-70-90	RCP Thermal Barrier Ret	60	
35. FCV-70-92	CCS from RCP Oil Coolers	60	
36. FCV-70-134	To RCP Thermal Barriers	60	
37. FCV-70-140	CCS to RCP Oil Coolers	60	
38. FCV-70-141 (AA)	CCS to RCP Oil Coolers	65	R73
C. PHASE "A" CONTAINMENT VENT ISOLATION			
1. FCV-30-7	Upper Compt Purge Air Supply	4*	R29
2. FCV-30-8	Upper Compt Purge Air Supply	4*	R29
3. FCV-30-9	Upper Compt Purge Air Supply	4*	R29
4. FCV-30-10	Upper Compt Purge Air Supply	4*	R29
5. FCV-30-14	Lower Compt Purge Air Supply	4*	R29
6. FCV-30-15	Lower Compt Purge Air Supply	4*	R29
7. FCV-30-16	Lower Compt Purge Air Supply	4*	R29
8. FCV-30-17	Lower Compt Purge Air Supply	4*	R29
9. FCV-30-19	Inst Room Purge Air Supply	4*	
10. FCV-30-20	Inst Room Purge Air Supply	4*	
11. FCV-30-37	Lower Compt Pressure Relief	4*	
12. FCV-30-40	Lower Compt Pressure Relief	4*	

TABLE 3.6 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NUMBER	FUNCTION	MAXIMUM ISOLATION TIME (Seconds)	
C. PHASE "A" CONTAINMENT VENT ISOLATION (Cont.)			
13. FCV-30-50	Upper Compt Purge Air Exh	4*	R62
14. FCV-30-51	Upper Compt Purge Air Exh	4*	
15. FCV-30-52	Upper Compt Purge Air Exh	4*	
16. FCV-30-53	Upper Compt Purge Air Exh	4*	
17. FCV-30-56	Lower Compt Purge Air Exh	4*	
18. FCV-30-57	Lower Compt Purge Air Exh	4*	
19. FCV-30-58	Inst Room Purge Air Exh	4*	
20. FCV-30-59	Inst Room Purge Air Exh	4*	
21. FCV-90-107	Cntmt Bldg LWR Compt Air Mon	5*	
22. FCV-90-108	Cntmt Bldg LWR Compt Air Mon	5*	
23. FCV-90-109	Cntmt Bldg LWR Compt Air Mon	5*	
24. FCV-90-110	Cntmt Bldg LWR Compt Air Mon	5*	
25. FCV-90-111	Cntmt Bldg LWR Compt Air Mon	5*	
26. FCV-90-113	Cntmt Bldg UPR Compt Air Mon	5*	
27. FCV-90-114	Cntmt Bldg UPR Compt Air Mon	5*	
28. FCV-90-115	Cntmt Bldg UPR Compt Air Mon	5*	
29. FCV-90-116	Cntmt Bldg UPR Compt Air Mon	5*	
30. FCV-90-117	Cntmt Bldg UPR Compt Air Mon	5*	
D. OTHER			
1. FCV-30-46	Vacuum Relief Isolation Valve	25	
2. FCV-30-47	Vacuum Relief Isolation Valve	25	
3. FCV-30-48	Vacuum Relief Isolation Valve	25	R90
~~4.~~ FCV-62-90	Normal Charging Isolation Valve	12	
4. 30-571	Vacuum Relief Valve	**	
5. 30-572	Vacuum Relief Valve	**	
6. 30-573	Vacuum Relief Valve	**	

*Provisions of LCO 3.0.4 are not applicable if valve is secured in its isolated position with power removed and leakage limits of Specification 4.6.1.1.c are satisfied. For purge valves, leakage limits under surveillance Requirement 4.6.1.9.3 must also be satisfied. R167

#Provisions of LCO 3.0.4 are not applicable if valve is secured in its isolated position with power removed and either FCV-62-73 or FCV-62-74 is maintained operable. R29

**~~This valve is required after completion of the associated modification.~~ R73

Vacuum relief valves perform a containment isolation function. The maximum isolation time is not applicable to these normally closed self-acting valves.

3/4.6.6 VACUUM RELIEF ~~VALVES~~ LINES

LIMITING CONDITION FOR OPERATION

3.6.6 ~~The~~ Three primary containment vacuum relief ~~valves~~ lines shall be OPERABLE* ~~with an actuation set point of less than or equal to 0.1 psid.~~

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one primary containment vacuum relief ~~valve~~ line inoperable, restore the ~~valve~~ line 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. 72

SURVEILLANCE REQUIREMENTS

4.6.6 No additional Surveillance Requirements other than those required by Specification 4.0.5.

* Refer to LCO 3.6.3 if one or more containment vacuum relief isolation or containment vacuum relief valves are incapable of performing a containment isolation function.

3/4.6.1.8 EMERGENCY GAS TREATMENT SYSTEM (EGTS)

The OPERABILITY of the EGTS cleanup subsystem ensures that during LOCA conditions, containment vessel leakage into the annulus will be filtered through the HEPA filters and charcoal adsorber trains prior to discharge to the atmosphere. This requirement is necessary to meet the assumptions used in the accident analyses and limit the site boundary radiation doses to within the limits of 10 CFR 100 during LOCA conditions. Cumulative operation of the system with the heaters on for 10 hours over a 31 day period is sufficient to reduce the buildup of moisture on the absorbers and HEPA filters. ANSI N510-1975 will be used as a procedural guide for surveillance testing.

3/4.6.1.9 CONTAINMENT VENTILATION SYSTEM

Use of the containment purge lines is restricted to only one pair (one supply line and one exhaust line) of purge system lines at a time to ensure that the site boundary dose guidelines of 10 CFR Part 100 would not be exceeded in the event of a loss of coolant accident during purging operations. The analysis of this accident assumed purging through the largest pair of lines (a 24 inch inlet line and a 24 inch outlet line), a pre-existing iodine spike in the reactor coolant and four second valve closure times.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SUBSYSTEMS R140

The OPERABILITY of the containment spray subsystems 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.

3/4.6.2.2 CONTAINMENT COOLING FANS

The OPERABILITY of the lower containment vent coolers ensures that adequate heat removal capacity is available to provide long-term cooling following a non-LOCA event. Postaccident use of these coolers ensures containment temperatures remain within environmental qualification limits for all safety-related equipment required to remain functional. R59

3/4.6.3 CONTAINMENT ISOLATION VALVES

The valves identified in Table 3.6-2 are containment isolation valves as defined per 10 CFR 50. The operability of these 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 loss of coolant accident. R149

Additional valves have been identified as barrier valves, which in addition to the containment isolation valves discussed above, are a part of the accident monitoring instrumentation in Technical Specification 3/4.3.3.7 and are designated as Category 1 in accordance with Regulatory Guide 1.97, Revision 2, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1980.

INSERT A

INSERT A

Note that due to competing requirements and dual functions associated with the containment vacuum relief isolation valves (FCV-30-46, -47, and -48), the air supply and solenoid arrangement is designed such that upon the unavailability of Train A essential control air, the containment vacuum relief isolation valves are incapable of automatic closure and are therefore considered inoperable for the containment isolation function without operator action.

The containment vacuum relief valves (30-571, -572, and -573) are qualified to perform a containment isolation function. These valves are not powered from any electrical source and no spurious signal or operator action could initiate opening. The valves are spring loaded, swing disk (check) valves with an elastomer seat. The valves are normally closed and are equipped with limit switches that provide fully open and fully closed indication in the main control room (MCR). Based upon the above information, a 72 hour allowed action time is appropriate while actions are taken to return the containment vacuum relief isolation valves to service.

3/4.6.5.7 and 3/4.6.5.8 FLOOR AND REFUELING CANAL DRAINS

The OPERABILITY of the ice condenser floor and refueling canal drains ensures that following a LOCA, the water from the melted ice and containment spray system has access for drainage back to the containment lower compartment and subsequently to the sump. This condition ensures the availability of the water for long term cooling of the reactor during the post accident phase.

3/4.6.5.9 DIVIDER BARRIER SEAL

The requirement for the divider barrier seal to be OPERABLE ensures that a minimum bypass steam flow will occur from the lower to the upper containment compartments during a LOCA. This condition ensures a diversion of steam through the ice condenser bays that is consistent with the LOCA analyses.

3/4.6.6 VACUUM RELIEF ~~VALVES~~ LINES

The OPERABILITY of ~~the~~ three primary containment to atmosphere vacuum relief ~~valves~~ lines ensures that the containment internal pressure does not become more negative than 0.1 psid. This condition is necessary to prevent exceeding the containment design limit for internal vacuum of 0.5 psid.

A vacuum relief line consists of a self-actuating vacuum relief valve, a pneumatically operated isolation valve, associated piping, and instrumentation and controls.

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ENCLOSURE 2

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-93-04, REVISION 2)

DESCRIPTION AND JUSTIFICATION FOR

CONTAINMENT VACUUM RELIEF LINES

Description of Change

TVA proposes to revise SQN Technical Specifications (TSs) 3/4.6.3, "Containment Isolation Valves," and 3/4.6.6, "Vacuum Relief Valves," and their associated bases.

The first proposed change adds a new action statement to SQN TS 3/4.6.3 that reads:

"b. With one or more vacuum relief isolation valve(s) specified in Sections D.1 through D.3 in Table 3.6-2 inoperable, the valve(s) must be returned 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."

Included with the new action statement is a revision that designates the current action statement as Action Statement (a) and inserts the phrase, "Sections A, B, C, and D.4 through D.7 of," as it applies to Table 3.6-2.

The second proposed change revises TS 3/4.6.6 to incorporate the following:

a. Revise Limiting Condition for Operation (LCO) 3.6.6 to state: "Three primary containment vacuum relief lines shall be OPERABLE."

b. Add a footnote to LCO 3.6.6 that states: "Refer to LCO 3.6.3 if one or more containment vacuum relief isolation or containment vacuum relief valves are incapable of performing a containment isolation function."

c. Change the terminology in the action statement and TS title from "vacuum relief valve" to "vacuum relief line."

d. Modify the allowed outage time (AOT) for restoring an inoperable vacuum relief line from 4 hours to 72 hours.

In addition to the changes described above, TVA has added information to SQN TS Bases 3/4.6.3 and 3/4.6.6. The added information provides the basis for the TS requirements and dual design functions associated with SQN's containment vacuum relief system.

Reason for Change

On July 28, 1992, TVA discovered that the configuration of the air supplies and solenoids for SQN's containment vacuum relief isolation valves (air-operated butterfly valves) would result in the loss of guaranteed automatic closure capability upon the unavailability of Train A essential control air, rendering the valves inoperable. Since Train A essential control air has been unavailable at times over the operating life of the plant without applying the action provisions of TS 3.6.3 to the vacuum relief isolation valves, it was concluded that the plant has technically operated in a condition prohibited by TSs. This

finding was reported to NRC in Licensee Event Report (LER) 50-327/92015 dated August 27, 1992. Two corrective actions were identified in Section V of the LER. The first action involved establishing an interim compensatory action to maintain operability of the valves during periods when Train A essential control air is unavailable. The second corrective action involved preparing a TS change to clarify the dual design function of SQN's vacuum relief lines and provide relaxation in the TSs that recognizes the unique nature of this penetration. The enclosed TS change completes the second corrective action.

Other proposed TS changes include the addition of a 72-hour AOT. The other changes are needed to complement the TS changes resulting from the LER and provide consistency with standard TSs (NUREG-1431).

Justification for Change

The SQN vacuum relief system is designed to protect the free-standing steel containment vessel from excessive external force in the event an overcooling or depressurization transient occurs inside containment. The system is sized to ensure that the external pressure differential on the containment vessel does not exceed 0.5 pounds per square inch differential (psid).

System Description:

The vacuum relief system consists of three identical vacuum relief lines, each comprised of a self-actuating vacuum relief valve, a pneumatically operated isolation valve, associated piping, and instrumentation and controls.

The three vacuum relief lines are located in the annulus between the primary steel containment vessel and the shield building. The containment penetration numbers associated with these units are X-111, -112, and -113. The vacuum relief valve is located outboard of the isolation valve as shown on Final Safety Analysis Report (FSAR), Figure 6.2.4-17.

Each vacuum relief valve is a 24-inch, spring-loaded, swing-disc (check) valve with an elastomer seat. The valve is normally closed and is equipped with limit switches that provide fully open and fully closed indication in the main control room (MCR). This instrumentation is designed in accordance with Regulatory Guide (RG) 1.97. The vacuum relief valve is designed to start opening at a differential pressure of 0.1 psid and to be fully open for a vacuum relief system design basis event.

Each vacuum relief isolation valve is an air-operated butterfly valve with an elastomer seat. Two separate trains of control air are provided to the two separate solenoid valves that control the air supply power to the isolation valve. The isolation valves are normally open, fail-open, and close when the containment pressure increases to the high set pressure of 1.5 pounds per square inch gauge (psig). This isolation signal is developed from either of two

independent pressure sensors for each valve and is completely independent of other containment isolation signals. Fully open and fully closed positions are indicated in the MCR; and if the isolation valve is not in the fully open position, an alarm is annunciated in the MCR.

A complete description of the design function for this system is provided in the SQN FSAR, Section 6.2.6.

Design Bases:

The SQN vacuum relief system is designed to mitigate the following abnormal operational occurrences:

1. Inadvertent containment spray actuation
2. Inadvertent containment air return fan operation
3. Simultaneous occurrence of inadvertent spray and air return fan operation

Two of the three vacuum relief lines are required to mitigate the limiting external differential pressure event (inadvertent spray actuation).

The vacuum relief system is not required to actively mitigate a loss-of-coolant accident (LOCA) or any other accident scenario that might result in the release of radioactivity inside containment. As an extension of the primary containment boundary, the vacuum relief system provides a barrier against leakage of airborne fission products from the containment atmosphere under normal and accident conditions. The outboard isolation valves are designed to isolate automatically to provide positive containment isolation upon sensing containment pressure greater than or equal to 1.5 psig. The outboard self-actuating check valves are normally closed.

The system is designed to withstand a safe-shutdown earthquake without failure.

Justification:

As discussed in NUREG-1232, Volume 2, page 3-57, the greater safety function of SQN's vacuum relief lines and associated isolation valves is to protect the containment vessel from collapse (depressurization relative to the annulus) and hence, total loss of containment integrity. Based on NRC's evaluation, an exemption to 10 CFR 50, General Design Criteria 56 was granted for this unique dual-purpose system. The basic conclusion is that the vacuum relief penetrations are designed to ensure containment integrity from both an external and internal pressurization event, and the end result is the assurance of containment integrity for all postulated events. As stated in NUREG-1232, "The staff concludes that for Sequoyah, due in part to its low capability to sustain reverse differential pressures, the fail-open position of the butterfly isolation valves is acceptable."

The loss of Train A essential control air to the air-operated butterfly isolation valves, as described in LER 50-327/92015, does not result in the loss of containment integrity. The butterfly valves are designed to fail open from loss of air. Without Train A air, the butterfly isolation valves (air to close) remain in their fail-safe design position (fully open) to fulfill the primary function of vacuum relief for the containment vessel. The loss of Train A air results in the butterfly isolation valves remaining fully open (with or without Train A single failure). Assuming a single failure occurs to the Train B air supply, the butterfly isolation valves would continue to remain in their fail-safe design position (fully open) since Train B air would not be available to close the valve. With the butterfly valves open, the normally closed spring-loaded vacuum relief check valves would serve as the barrier for containment isolation in the event of an accident.

It is important to note that these vacuum relief check valves are designed to provide a qualified containment boundary against leakage of airborne fission products from the containment atmosphere under normal and accident conditions. Each check valve is leak tested in accordance with 10 CFR 50, Appendix J (Type C test), to ensure the total combined leakage rate from all containment penetrations remains within the maximum allowable leakage rate (0.60 L_a). The containment leak rate assumed in the worst-case design basis accident analysis (LOCA) bounds the 0.60 L_a leakage limit. In addition, positive valve position indication is provided in the MCR. The valves are not powered from any electrical source; therefore, no spurious signal or inadvertent operator action could initiate opening these valves. The valves are held closed by a spring force during periods of normal containment pressure and would experience additional closing force from a pressurization event inside containment.

With regard to the current TS Action Statement 3.6.3.b, it is apparent that the condition described in LER 50-327/92015 (loss of Train A air) would require the affected vacuum relief lines to be isolated within four hours or begin unit shutdown. The current TS action requirement would involve closing the affected air-operated butterfly isolation valve(s) and removing electrical power from the valve(s) to fulfill the isolation requirement for the affected line "by use of at least one deactivated automatic valve secured in the isolation position." This action to isolate would be in conflict with SQN TS 3/4.6.6 that requires the vacuum relief line to remain open for operability of SQN's vacuum relief system. To appropriately address provisions for continued operation for the subject lines, TVA proposes to make the following changes to Specifications 3/4.6.3 and 3/4.6.6.

The first proposed change adds a new Action Statement (b) to TS 3/4.6.3 that states:

"b. With one or more containment vacuum relief isolation valve(s) specified in Sections D.1 through D.3 of Table 3.6-2 inoperable, the inoperable valve(s) must be returned 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."

The purpose of the above action is to include specific guidance to the operator for the case involving an inoperable containment vacuum relief isolation valve(s). The new action statement provides a 72-hour AOT for restoring the inoperable containment vacuum relief isolation valve(s). These valves are listed in SQN's current TS Table 3.6-2, Section D. Included with this change is a minor editorial change to the existing action statement to identify it as Action (a) and to specify the sections of Table 3.6-2 that are applicable to the (a) action.

The 72-hour AOT is considered appropriate for satisfying the containment isolation requirements associated with SQN's vacuum relief lines. For a scenario involving a vacuum relief line having an inoperable vacuum relief isolation valve (i.e., incapable of performing a containment isolation function), the containment isolation requirement for isolating the affected line is satisfied by a closed vacuum relief valve. SQN's vacuum relief valves are normally closed valves that provide a qualified containment isolation boundary. The valves are spring-loaded, swing-disk (check) valves with an elastomer seat. The vacuum relief valves are equipped with limit switches that provide fully open and fully closed indication in the MCR. These valves are not powered from any electrical source; therefore, no spurious signal or operator action could initiate opening of these valves. Accordingly, the addition of a 72-hour AOT within SQN's containment isolation Specification 3.6.3 is considered appropriate for satisfying containment isolation requirements while actions are taken to return the containment vacuum relief isolation valves to service.

It should be noted that the 72-hour AOT was selected to be consistent with the AOT from the Westinghouse Electric Corporation standard TS (STS) for vacuum relief valves (reference LCO 3.6.12 of NUREG-1431). The 72-hour time period for the vacuum relief valves is based on the standard action time for other LCOs involving the loss of one train of a system that is required to mitigate the consequences of a LOCA or other design basis accident.

Included with the proposed change described above is the addition of SQN's vacuum relief valves to Table 3.6-2. Addition of these valves to the table clarifies the containment isolation function that these valves serve. Since these valves are normally closed, self-acting, check valves, a footnote has been included in Table 3.6-2 to note that the maximum isolation time for these valves is not applicable.

The second proposed change involves SQN TS 3/4.6.6. Justification for each specific change to TS 3/4.6.6 is described below:

1. Revise the LCO requirements.

   SQN's current LCO states:

   "The primary containment vacuum relief valves shall be OPERABLE with an actuation set point of less than or equal to 0.1 PSID"

The proposed change rewords SQN's LCO to state:

"Three primary containment vacuum relief lines shall be OPERABLE"

Rewording the LCO provides language that is consistent with the STS of NUREG-1431 and the SQN design. SQN design assumes single failure of one line such that two of the three vacuum relief lines are required to mitigate the limiting event (inadvertent containment spray actuation). Accordingly, the LCO requirements maintain three vacuum relief lines operable. The STS uses the words "vacuum relief lines" rather than "vacuum relief valves" in the LCO. This clarification ensures that the individual components of a vacuum relief line (i.e., valves, piping, instrumentation) are encompassed by the LCO requirement. In addition, the LCO words "with an actuation setpoint of less than or equal to 0.1 PSID" have been removed to be consistent with the STS. This is justified since testing of the vacuum relief valve setpoint is performed under SQN's In-Service Test Program (i.e., Surveillance Requirement [SR] 4.0.5 referred to in SQN SR 4.6.6).

2. Add a footnote to the LCO.

   TVA proposes to add a footnote to the LCO to reference the containment isolation valve LCO (LCO 3.6.3). The proposed footnote is needed for guidance when one or both valves in a containment vacuum relief line are incapable of performing a containment isolation function. The footnote will ensure that appropriate actions are taken in response to a condition that involves a valve(s) within a vacuum relief line that are inoperable for containment isolation.

3. Modify the AOT.

   TVA proposes to modify the AOT for restoring an inoperable vacuum relief line(s) from 4 hours to 72 hours. This proposed change is based on the STS AOT for vacuum relief valves. The 72-hour AOT provides consistent AOT requirements between TVA's newly proposed action requirement for LCO 3.6.3 and LCO 3.6.6.

4. Modify the TS title and action statement.

   TVA proposes to change the terminology in the action statement and TS title from vacuum relief valve to vacuum relief line. This change is an editorial change that maintains consistent terminology with the STS LCO.

In conclusion, TVA's proposed change provides a TS improvement that clarifies the dual design function of SQN's vacuum relief lines and eliminates the potential for misinterpretation regarding the requirements of LCO 3.6.3 and LCO 3.6.6. In addition, the TVA design is consistent with the bases of NUREG-1431.

Environmental Impact Evaluation

The proposed change request does not involve an unreviewed environmental question because operation of SQN Units 1 and 2 in accordance with this change would not:

1. Result in a significant increase in any adverse environmental impact previously evaluated in the Final Environmental Statement (FES) as modified by NRC's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or decisions of the Atomic Safety and Licensing Board.

2. Result in a significant change in effluents or power levels.

3. Result in matters not previously reviewed in the licensing basis for SQN that may have a significant environmental impact.

Enclosure 3

PROPOSED TECHNICAL SPECIFICATION CHANGE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-93-04, REVISION 2)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

Significant Hazards Evaluation

TVA has evaluated the proposed technical specification (TS) change and has determined that it does not represent a significant hazards consideration based on criteria established in 10 CFR 50.92(c). Operation of Sequoyah Nuclear Plant (SQN) in accordance with the proposed amendment will not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   TVA's proposed TS change does not affect any system functions or design functions. The proposed change addresses the acceptability of SQN's vacuum relief valves for containment isolation protection, and utilizing these normally closed valves for TS-required isolation in the event the associated air-operated butterfly isolation valve(s) is incapable of automatic closure. This approach remains consistent with the vacuum relief valve's containment isolation design function.

   SQN's vacuum relief valves (spring-loaded, swing-disk check valves) are designed to provide a qualified containment boundary to limit leakage of airborne fission products from the containment atmosphere during normal operation and during an analyzed pressurization event inside containment. Each valve is leak tested in accordance with 10 CFR 50, Appendix J (Type C test), to ensure that the leakage rate from the valve (when combined with the leakage rate from all other Types B and C containment penetrations) remains within the maximum allowable leakage rate of 0.60 L_a. The containment leak rate assumed in the worst-case design basis accident analysis (loss-of-coolant accident [LOCA]) bounds the 0.60 L_a leakage limit.

   The vacuum relief valves are normally closed valves and are held closed by a spring force during normal plant operation. The valves would experience additional closing force during a pressurization event inside containment (e.g., LOCA). A review of the design basis events involving containment depressurization indicates that there are no postulated scenarios that would open the vacuum relief valves followed by a LOCA or other accident condition requiring containment isolation. This containment isolation function remains consistent with the SQN Final Safety Analysis Report Section 6.2.6, and the exemption to 10 CFR 50, General Design Criteria 56, provided in NUREG-1232.

   A 72-hour timeframe for returning an inoperable vacuum relief isolation valve to operable status ensures that redundant isolation capability is restored in a reasonable amount of time. SQN's vacuum relief valves are considered to be highly realible as a containment isolation boundary. Accordingly, the proposed TS change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The 72-hour allowed outage time for restoring the containment vacuum relief function is consistent with standard TS (STS) bases and does not increase the probability of consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any previously analyzed.

   No physical modification is being made to any plant hardware, plant operating setpoints, limits, or operating procedures as a result of this change. TVA's proposed change provides a TS improvement that clarifies the configuration and function of SQN's vacuum relief valves as designed. The proposed change removes the potential for creating a conflict between Specification 3/4.6.3, "Containment Isolation Valves," and Specification 3/4.6.6, "Vacuum Relief Valves." SQN's vacuum relief valves provide qualified containment isolation protection that meets the intent of the TS action requirement for containment isolation.

   The proposed change does not alter any accident analysis or any assumptions used to support the accident analyses. The containment leakage assumptions used to determine offsite dose limits for compliance with 10 CFR 100 are not affected.

   A 72-hour timeframe for returning an inoperable vacuum relief isolation valve to operable status ensures that redundant isolation capability is restored in a reasonable amount of time. SQN's vacuum relief valves are considered to be highly reliable as a containment isolation boundary. Consequently, the proposed change does not create the possibility of a new or different kind of accident from any previously analyzed.

   The 72-hour allowed outage time (AOT) for restoring the containment vacuum relief function is consistent with STS bases and does not create the possibility of a new or different kind of accident from any previously analyzed.

3. Involve a significant reduction in a margin of safety.

   The margin of safety provided by the design of SQN's containment vacuum relief lines remains unchanged. TVA's proposed change does not affect the containment isolation function or the allowable containment leakage rate values specified in the TSs. The proposed change ensures that the proper action is taken in the event the automatic closure capability of the containment vacuum relief isolation valve(s) is lost for any reason (improper action would be the isolation of a vacuum relief line that is required to be operable in accordance with TS 3/4.6.6).

   The 72-hour timeframe for returning an inoperable vacuum relief isolation valve to operable status does not reduce the margin of safety because the containment isolation function is satisfied by qualified vacuum relief valves. The vacuum relief and containment isolation functions continue to be maintained under the proposed TS change. Accordingly, the proposed change does not involve a reduction in the margin of safety.

   The 72-hour AOT for restoring the containment vacuum relief function is consistent with STS bases and does not reduce the margin of safety.