CP&L

Carolina Power & Light Company

SERIAL: NLS-86-365

SEP 25 1986

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
UNIT NO. 1 - DOCKET NO. 50-400
CLASSIFICATION OF CONTAINMENT ISOLATION VALVES

Dear Mr. Denton:

Carolina Power & Light Company hereby submits additional information regarding classification of containment isolation valves at the Shearon Harris Nuclear Power Plant (SHNPP). This information, as provided in Attachment 1, responds to concerns raised by your staff following review of recent FSAR changes.

The SHNPP FSAR will be revised as shown in Attachment 2 in a post-fuel load amendment. Attachment 3 provides marked-up pages to the SHNPP Technical Specifications (TS) which show changes that are to be included in the TS prior to their issuance with the operating license.

If you have any questions on this subject, please contact me at (919) 836-6242.

Yours very truly,

for S. R. Zimmerman
Manager
Nuclear Licensing Section

JDK/pgp (5002JDK)

Attachments

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Mr. D. E. Hollar
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CLASSIFICATION OF CONTAINMENT ISOLATION VALVES

I. Containment Isolation Valves for Seal Injection Lines (Penetrations M-9, M-10, M-11):

The check valves located inside containment will be classified as containment isolation valves and a Type C Local Leak Rate Test will be performed on these valves. These valves are identified as follows:

Penetration Nos.	Valve Numbers Ebasco	CP&L
M-9	CS-V25	1CS-344
M-10	CS-V26	1CS-365
M-11	CS-V27	1CS-426

II. Containment Isolation Valves for the RHR Pump Suction from the RCS Hot Legs (Penetrations M-15 and M-16)

The valves located inside the missile barrier (1RH-V502SB-1 and 1RH-V500SB-1) will not be classified as containment isolation valves. This design is consistent with ANS 56.2 for "Containment Isolation Provisions for Fluid Systems." Since these lines connect to the SI recirculation loops, which are filled with sump water and at least one of which is in operation post accident, there is no need for containment isolation valves in these lines outside containment. The closed system outside containment isolates the line.

III. Containment Isolation Valves for the High Head Safety Injection Lines (Penetrations M-17, M-20, M-21, M-22)

The check valves located inside containment for each of these penetrations will be classified as containment isolation valves.

None of the containment isolation valves for these penetrations will be Type C Local Leak Rate Tested because they are provided with a pressurized water seal at a pressure greater than 1.10 times the accident pressure (Pa) for a minimum of 30 days following an accident. This water seal is provided by the ECCS Low Head Safety Injection (LHSI) pumps via the suction crossover for the ECCS High Head Safety Injection (HHSI) pumps and the system piping from this crossover to these penetrations. The LHSI pumps are automatically actuated for a loss of coolant accident and other accidents. The crossover valves (2CS-V587SA-1, 2CS-V588SB-1, 2CS-V589SA-1, 2CS-V590SB-1) are open for a minimum of 30 days following an accident.

The Boron Injection Tank inlet isolation valves (2SI-V503SA-1 and 2SI-V504SB-1) open automatically after a loss of coolant accident (and other accidents) and remain open for a minimum of 30 days following an accident to provide the pressurized water seal to Penetration M-17.

The water supply to these penetrations is virtually unlimited because the LHSI pumps are supplied initially from the Refueling Water Storage Tank and then from the containment recirculation sumps after transfer to the recirculation mode.

No single active failure can prevent penetration pressurization via this pressurized water seal.

The containment isolation valves located outside containment on these penetrations are gate-type valves with a single piece wedge. Upon closure and pressurization, the wedge will seal the downstream seat (toward containment). The upstream seat will not be seated and will allow the packing and body/bonnett gasket to be pressurized above 1.10 Pa. Thus, no containment atmosphere can enter the valves or be released to the outside environment through the packing or gasket.

These valves are identified as follows:

	Valve Numbers		
Penetration Nos.	Ebasco	CP&L	Valve Type
M-17	SI-V505	1SI-3	gate
	SI-V506	1SI-4	gate
	SI-V17	1SI-8	check
	SI-V23	1SI-9	check
	SI-V29	1SI-10	check
	SI-V30	1SI-43	globe
M-20	SI-V500	1SI-107	gate
	SI-V84	1SI-127	check
	SI-V90	1SI-128	check
	SI-V96	1SI-129	check
M-21	SI-V501	1SI-86	gate
	SI-V39	1SI-104	check
	SI-V45	1SI-105	check
	SI-V51	1SI-106	check
M-22	SI-V502	1SI-52	gate
	SI-V63	1SI-72	check
	SI-V69	1SI-73	check
	SI-V75	1SI-74	check

IV. Containment Isolation Valves for the LHSI to the RCS Hot Legs (Penetration M-18)

The check valves located inside containment for this penetration will be classified as containment isolation valves.

None of the containment isolation valves for this penetration will be Type C Local Leak Rate Tested because they are provided with a pressurized water seal at a pressure greater than 1.10 Pa for a minimum of 30 days following an accident. This water seal is provided by the ECCS LHSI pumps via the crossover line located outside containment. The LHSI pumps are automatically actuated for a loss of coolant accident and other accidents. The crossover valves (2SI-V577SA-1 and 2SI-V576SB-1) are open for a minimum of 30 days following an accident.

The water supply to this penetration is virtually unlimited because the LHSI pumps are supplied initially from the Refueling Water Storage Tank and then from the containment recirculation sumps after transfer to the recirculation mode.

No single active failure can prevent penetration pressurization via this pressurized water seal.

The containment isolation valves located outside containment on this penetration is a gate-type valve with a single piece wedge. Upon closure and pressurization, the wedge will seal the downstream seat (toward containment). The upstream seat will not be seated and will allow the packing and body/bonnett gasket to be pressurized above 1.10 Pa. Thus, no containment atmosphere can enter this valve or be released to the outside environment through the packing or gasket.

These valves are identified as follows:

	Valve Numbers		
Penetration Nos.	Ebasco	CP&L	Valve Type
M-18	SI-V587	1SI-359	gate
	SI-V510	1SI-134	check
	SI-V511	1SI-135	check

V. Containment Isolation Valves for the Component Cooling Water (CCW) Supply to the Reactor Coolant Drain Tank and the Excess Letdown Heat Exchangers (Penetrations M-37 and M-38)

The relief valves on the closed loop inside containment will be classified as containment isolation valves. The setpoint for these relief valves is greater than 1.5 times Pa.

These relief valves will not be Type C tested based upon the justification provided in Section 6.2.6.3 of FSAR Amendment No. 29 for these penetrations.

These valves are identified as follows:

	Valve Numbers		
Penetration Nos.	Ebasco	CP&L	Valve Type
M-37 & M-38	CC-R6	1CC-194	relief
	CC-R5	1CC-186	relief

VI. Containment Isolation Valves for the Containment Recirculation Sump Penetrations (Penetrations M-47, M-48, M-49, and M-50)

The valve located inside the valve chamber on each of these penetrations will be classified as a containment isolation valve.

These valves are identified as follows:

Penetration Nos.	Valve Numbers Ebasco	CP&L	Valve Type
M-47	SI-V571	1SI-300	gate
M-48	SI-V570	1SI-301	gate
M-49	CT-V6	1CT-105	gate
M-50	CT-V7	1CT-102	gate

VII. Containment Isolation Valves for Safety Injection-Low Head to the Cold Legs (Penetrations M-13 and M-14)

The check valves located inside containment will be classified as Containment Isolation Valves for each of these penetrations.

These valves are identified as follows:

Penetration Nos.	Valve Numbers Ebasco	CP&L
M-13	SI-V581	1SI-346
M-14	SI-V580	1SI-347

ATTACHMENT 2 TO

NLS-86-365

TABLE 3.9.3-13 (Cont'd)

NSSS SUPPLIED ACTIVE CLASS 1, 2, AND 3 VALVES

Ebasco Tag Number	Westinghouse Tag Number	System	Location	Environmental Qualification	Type	Operator	Manufacturer	Safety Class	Valve Design Rating	System Operating Conditions	Size	Function
2CS-V586SB	1-8104	CS	RAB	(6)	Globe	Motor	Velan	2	1500	15 psig 150 F	2	Safe Shutdown
2CS-V778SA	1-8453A	CS	RAB		CHECK	ΔP	WESTINGHOUSE	2	150	15 psig / 115°F	8	ECCS OPS
-V779SB	1-8453B	CS	RAB		CHECK	ΔP	WESTINGHOUSE	2	150	15 psig / 115°F	8	ECCS OPS
2CS-V511SA V512SA V513SA	1-8149A,B,C	CS	RCB	(2)	Globe	Air	Copes Vulcan	2	1500	600 psig 382 F	2	Containment Isolation
1RH-V503SB	1-8701A	RH	RCB	(1)	Gate	Motor	Westinghouse	1	1500	2235 psig 620 F	12	Containment Isolation
1RH-V502SA	1-8702A	RH	RCB	(1)	Gate	Motor	Westinghouse	1	1500	2235 psig 620 F	12	Containment Isolation
1RH-V501SB	1-8701B	RH	RCB	(1)	Gate	Motor	Westinghouse	1	1500	2235 psig 620 F	12	Containment Isolation
1RH-V500SB	1-8702B	RH	RCB	(1)	Gate	Motor	Westinghouse	1	1500	2235 psig 620 F	12	Containment Isolation
2CS-R557SN	1-8492A	CS	RAB	-	Relief	Self-actuated	Westinghouse	2	2500	2712 psig 130 F	2½x1½	System Over Pressure Protection
2CS-R558SN	1-8492B	CS	RAB	-	Relief	Self-actuated	Westinghouse	2	2500	2712 psig 130 F	2½x1½	System Over Pressure Protection

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3.9.3-26

Amendment No. 33

SHNPP FSAR

Attachment 2

TABLE 3.9.3-13 (Cont'd)

NSSS SUPPLIED ACTIVE CLASS 1, 2, AND 3 VALVES

Ebasco Tag Number	Westinghouse Tag Number	System	Location	Environmental Qualification	Type	Operator	Manufacturer	Safety Class	Valve Design Rating	System Operating Conditions	Size	Function
1SI-V584SA-1 V585SB-1 V586SA-1	1-8973A,B,C	SI	RCB	-	Check	ΔP	Westinghouse	1	1500	2485 psig 359 F	6	ECCS Operation
2RH-F512SB F513SA	FCV-602A&B	RH	RAB	-	Flo-Ctrl.	Motor	Velan	2	600	600 psig 350 F	3	Normal Operation
2SI-V581SA V580SB	1-8974A,B	SI	RCB	-	Check	ΔP	Westinghouse	2	1500	2485 psig 350 F	10	~~ECCS Operation~~ Containment Isolation
2SI-V579SA V578SB	1-8888A,B	SI	RAB	(6)	Gate	Motor	Westinghouse	2	1500	2485 psig 350 F	10	ECCS Operation
2SI-V577SA V576SB	1-8887A,B	SI	RAB	(6)	Gate	Motor	Westinghouse	2	600	535 psig 350 F	10	ECCS Operation
1SI-V510SA V511SB	1-8988A,B	SI	RCB	-	Check	ΔP	Westinghouse	1	1500	2485 psig 350 F	6	~~ECCS Operation~~ Containment Isolation.
2SI-V587SA	1-8889	SI	RAB	(6)	Gate	Motor	Westinghouse	2	1500	2485 psig 350 F	10	ECCS Operation
2SI-V571SA V570SB	1-8811A,B	SI	RCB	(6)	Gate	Motor	Westinghouse	2	300	400 psig 350 F	14	~~ECCS Operation~~ Containment Isolation

TABLE 3.9.3-1 (cont'd)

NSSS SUPPLIED ACTIVE CLASS 1, 2, AND 3 VALVES

Ebasco Tag Number	Westinghouse Tag Number	System	Location	Environmental Qualification	Type	Operator	Manufacturer	Safety Class	Valve Design Rating	System Operating Conditions	Size	Function
2WG-D590SA-1	1-7126	WG	RCB	-	Diaphragm	Air	Grinnel	2	150	2 psig 100 F	3/4	Containment Isolation
2WG-D291SB-1	1-7150	WG	RCB	-	Diaphragm	Air	Grinnel	2	150	2 psig 100 F	3/4	Containment Isolation
3CC-D547SA-1	-	CC	RAB	-	Diaphragm	Air	ITT-Grinnel	3	150	108 psig 105 F	4	ECCS Operation
3CC-D548SB-1	-	CC	RAB	-	Diaphragm	Air	ITT-Grinnel	3	150	108 psig 150 F	4	ECCS Operation
2CC-R55N	1-9513	CC	RCB		Relief	Self Actuated	Crosby	2	150	108 psig/145 F	3/4	Cont. Isol.
2CC-R65N	1-9512	CC	RCB		Relief	Self Actuated	Crosby	2	150	108 psig/145 F	3/4	Cont. Isol.

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TABLE 3.9.3-14 (continued)

NON-NSSS SUPPLIED CLASS 1, 2 AND 3 ACTIVE VALVES

Tag Number	System	Location	Env. Qual.	Type	Operator	Manufacturer	Safety Class	Valve Design Rating (ANSI #)	System Design Conditions	Size (Inches-ID)	Function
2CT-V6SA	CT	RAB	(3)	Gate	Motor	Anchor-Darling	2	150	45 psig @ 300 F	12	~~ECCS Operation~~ Containment Isolation
2CT-V7SB	CT	RAB	(3)	Gate	Motor	Anchor-Darling	2	150	45 psig @ 300 F	12	~~ECCS Operation~~ Containment Isolation
2CT-V13SA	CT	RAB	(3)	Check	ΔP	Rockwell	2	1500	50 psig @ 200 F	2	ECCS Operation
2CT-V21SA	CT	RAB	(3)	Gate	Motor	Anchor-Darling	2	300	300 psig @ 300 F	8	ECCS Operation
2CT-V27SA	CT	RCB	(4)	Check	ΔP	Anchor-Darling	2	300	300 psig @ 300 F	8	ECCS Operation
2CT-V35SB	CT	RAB	(3)	Check	ΔP	Rockwell	2	1500	50 psig @ 200 F	2	ECCS Operation
2CT-V43SB	CT	RAB	(3)	Gate	Motor	Anchor-Darling	2	300	300 psig @ 300 F	8	ECCS Operation
2CT-V51SB	CT	RCB	(4)	Check	ΔP	Anchor-Darling	2	300	300 psig @ 300 F	8	ECCS Operation
3CT-V85SA	CT	RAB	(3)	Globe	Motor	Yarway	3	1500	15 psig @ 200 F	2	ECCS Operation
3CT-R1SAB	CT	RAB	(3)	Safety	S-A	Crosby	3	150	15 psig @ 200 F	1x1	Protect ECCS
3CT-V95SN	CT	RAB	(3)	Globe	Hand	Yarway	3	1500	15 psig @ 200 F	2	ECCS Operation

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TABLE 3.9.3-14 (continued)

NON-NSSS SUPPLIED CLASS 1, 2 AND 3 ACTIVE VALVES

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Tag Number	System	Location	Env. Qual.	Type	Operator	Manufacturer	Safety Class	Valve Design Rating (ANSI #)	System Design Conditions	Size (inches-ID)	Function
1CS-V711SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	2	RCPB Boundary
1CS-V70SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	2	RCPB Boundary
2CS-V129SN	CS	RAB	(3)	Check	ΔP	Rockwell	2	1500	220 psig @ 200 F	2	Safe Shutdown
3CS-V222SN	CS	RAB	(3)	Check	ΔP	Rockwell	3	1500	150 psig @ 250 F	2	Safe Shutdown
3CS-V223SN	CS	RAB	(3)	Check	ΔP	Rockwell	3	1500	150 psig @ 250 F	2	Safe Shutdown
1SI-V39SA V45SB V51SA	SI	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	2	RCPB Boundary, Containment Isolation
1SI-V63SA V69SB V75SA	SI	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	2	RCPB Boundary, Containment Isolation

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TABLE 3.9.3-14 (continued)

NON-NSSS SUPPLIED CLASS 1, 2 AND 3 ACTIVE VALVES

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Tag Number	System	Location	Env. Qual.	Type	Operator	Manufacturer	Safety Class	Valve Design Rating (ANSI #)	System Design Conditions	Size (Inches-ID)	Function
1SI-V84SA V90SB V96SA	SI	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	2	RCPB Boundary Containment Isolation
1SI-V17SA V23SB V29SA	SI	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	2	RCPB Boundary Containment Isolation
2CB-B1SA	CB Containment Vacuum Relief	RAB	(3)	Butterfly	Pneumatic	BIF	2	150	45 psig @ 366 F	24	Open-Close
2CB-B2SB	CB Containment Vacuum Relief	RAB	(3)	Butterfly	Pneumatic	BIF	2	150	45 psig @ 366 F	24	Open-Close
2CP-B1SA	CB Normal Containment Purge Make-up	RCB	(4)	Butterfly	Pneumatic	BIF	2	150	45 psig @ 366 F	8	Containment Isolation
2CP-B2SB	CB Normal Containment Purge Make-up	RAB	(3)	Butterfly	Pneumatic	BIF	2	150	45 psig @ 366 F	8	Containment Isolation

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TABLE 3.9.3-14 (continued)

NON-NSSS SUPPLIED CLASS 1, 2 AND 3 ACTIVE VALVES

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Tag Number	System	Location	Env. Qual.	Type	Operator	Manufacturer	Safety Class	Valve Design Rating (ANSI #)	System Design Conditions	Size (Inches-ID)	Function
1CS-V22SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	1 1/2	Safe Shutdown
1CS-V23SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	1 1/2	Safe Shutdown
1CS-V24SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	1 1/2	Safe Shutdown
2CS-V25SB	CS	RCB	(4)	Check	ΔP	Rockwell	2	1500	2735 psig @ 200 F	1 1/2	~~Safe Shutdown~~ Containment Isolation

TABLE 3.9.3-14 (continued)

NON-NSSS SUPPLIED CLASS 1, 2 AND 3 ACTIVE VALVES

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Tag Number	System	Location	Env. Qual.	Type	Operator	Manufacturer	Safety Class	Valve Design Rating (ANSI #)	System Design Conditions	Size (Inches-ID)	Function
2CS-V26SB	CS	RCB	(4)	Check	ΔP	Rockwell	2	1500	2735 psig @ 200 F	1 1/2	~~Safe Shutdown~~ Containment Isolation
2CS-V27SB	CS	RCB	(4)	Check	ΔP	Rockwell	2	1500	2735 psig @ 200 F	1 1/2	~~Safe Shutdown~~ Containment Isolation
1CS-V34SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	1 1/2	Safe Shutdown
1CS-V35SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	1 1/2	Safe Shutdown
1CS-V36SN	CS	RCB	(4)	Check	ΔP	Rockwell	1	1521	2485 psig @ 650 F	1 1/2	Safe Shutdown
2CS-V67SB	CS	RCB	(4)	Check	ΔP	Rockwell	2	1500	150 psig @ 500 F	3/4	Containment Isolation
2SI-V188SA	SI	RCB	(4)	Check	ΔP	Rockwell	2	1500	700 psig @ 300 F	1	Containment Isolation
2SI-V150SB	SI	RCB	(4)	Check	ΔP	Rockwell	2	1500	2735 psig @ 300 F	1	Containment Isolation
2CC-V51SN	CC	RCB	(4)	Check	ΔP	Rockwell	2	600	150 psig @ 200 F	3/4	Containment Isolation

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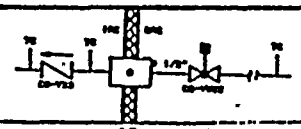
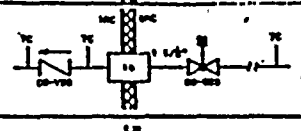
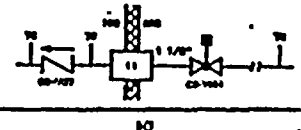
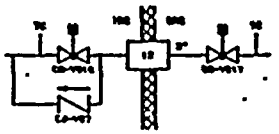
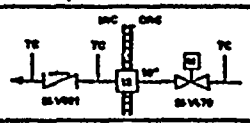
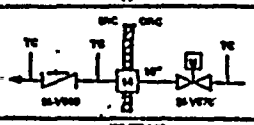
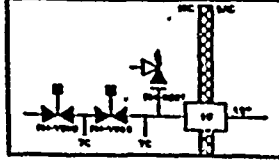
TABLE 6.2.4-1

CONTAINMENT ISOLATION SYSTEM DATA

S!NPP FSAR

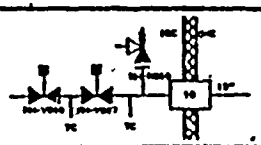
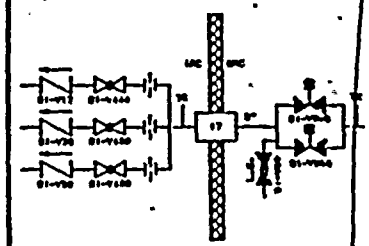
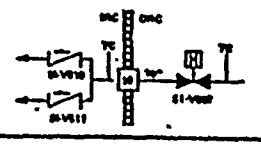
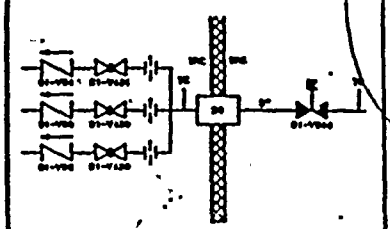
PENETRATION DATA							VALVE DATA																							
PENETRATION DETAIL	PD NUMBER	GENERAL DESIGN CRITERION	FLUID	HIGH ENERGY LINE	BYPASS LEAKAGE PATH	SYSTEM TITLE	VALVE NUMBER	POWER TRAIN	LENGTH of PIPE, FT	VALVE TYPE	ACTUATION	PRIMARY ACTUATION MODE	SECONDARY ACTUATION MODE	ISOLATION SIGNAL	ACCIDENT SIGNAL	RESPONSE TIME	NORMAL	VALVE POSITION: SHUTDOWN	VALVE POSITION: POST-ACCIDENT	VALVE POSITION: POWER FAILURE	VALVE POSITION: ILRT	DIVERSE CONTAINMENT ISOLATION FEATURE	CONTAINMENT ISOLATION VALVE	TYPE C TEST	NOTE
	803	55	W	YES	NO	CVCS - SEAL WATER TO RCP 'A'	V25 V522	- B	2 1	CK GL	SA MO	- RM	- M	- -	- -	- -	O O	O O	O O	- AI	C C	YES YES	YES ~~NO~~ YES	YES ~~NO~~ YES	2	29
	803	55	W	YES	NO	CVCS - SEAL WATER TO RCP 'B'	V26 V523	- B	2 1	CK GL	SA MO	- RM	- M	- -	- -	- -	O O	O O	O O	- AI	C C	YES YES	YES ~~NO~~ YES	YES ~~NO~~ YES	2	
	803	55	W	YES	NO	CVCS - SEAL WATER TO RCP 'C'	V27 V524	- B	2 1	CK GL	SA MO	- RM	- M	- -	- -	- -	O O	O O	O O	- AI	C C	YES YES	YES ~~NO~~ YES	YES ~~NO~~ YES	2	
	803	55	W	NO	NO	CVCS - SEAL WATER RETURN & EXCESS LETDOWN	V67 V516 V517	- A B	4 2 2	CK GL GL	SA MO MO	- A A	- RM RM	- 1 1	- - -	- 10 10	C O O	C O O	C C C	- AI AI	C C C	NO NO NO	YES YES YES	YES YES YES		
	810	55	W	YES	NO	SAFETY INJECTION - LOW HEAD TO COLD LEGS	V581 V579	- A	1 4	CK GA	SA MO	- RM	- M	- -	- -	- -	C O	O O	O O	- AI	O O	YES YES	YES ~~NO~~ YES	NO NO	2, ~~3~~, 17	29
	810	55	W	YES	NO	SAFETY INJECTION - LOW HEAD TO COLD LEGS	V580 V578	- B	1 4	CK GA	SA MO	- RM	- M	- -	- -	- -	C O	O O	O O	- AI	O O	YES YES	YES ~~NO~~ YES	NO NO	2, ~~3~~, 17	29
	824	55	W	YES	NO	RHR SUCTION FROM HOT LEG	8501 V302 V303	- B A	4 100 12	RL GA GA	SA MO MO	- RM RM	- M M	- - -	- - -	- - -	C C C	C O O	C C C	- AI AI	C O O	NO YES YES	YES NO YES	NO NO NO	2, 3, 18	29

Exception to GDC 55 See Section 6.2.4.2.4.2

TABLE 6.2.4-1

CONTAINMENT ISOLATION SYSTEM DATA

SHNPP FSAR

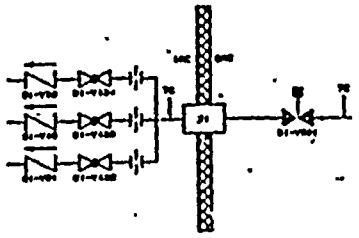
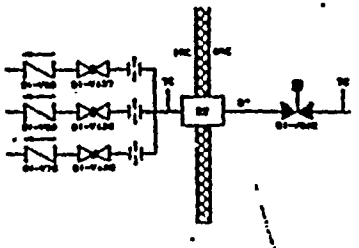
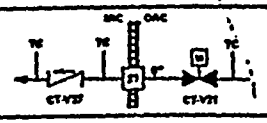
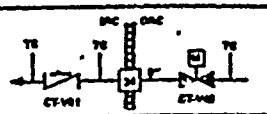
PENETRATION DATA							VALVE DATA																							
PENETRATION DETAIL	P&ID NUMBER	NORMAL DOWN CRITERION	FLUID	HIGH ENERGY LINE	BYPASS LEAKAGE PATH	SYSTEM TITLE	VALVE NUMBER	POWER TRAIN	LENGTH OF PIPE, FT	VALVE TYPE	ACTUATOR	PRIMARY ACTUATION MODE	SECONDARY ACTUATION MODE	ISOLATION SIGNAL	ACCIDENT SIGNAL	RESPONSE TIME	NORMAL	VALVE POSITION: SHUTDOWN	VALVE POSITION: POST-ACCIDENT	VALVE POSITION: POWER FAILURE	VALVE POSITION: ILRT	DESIGNED TO SAFETY FEATURE	CONTAINMENT ISOLATION VALVE	TYPE C TEST	NOTE
	824	55	U	YES	NO	RHR SUCTION FROM HOT LEG	R500	-	4	RF	SA	-	-	-	-	-	C	C	C	-	C	NO	YES	NO		
							V500	B	100	GA	MO	RM	M	-	-	-	C	C	C	AI	O	YES	NO	NO	2, 3,	
							V501	A	12	GA	MO	RM	M	-	-	-	C	O	C	AI	O	YES	YES	NO	18	29
	808	55	U	YES	NO	SAFETY INJECTION - HIGH HEAD TO COLD LEGS	V17	-	126	GK	SA	-	-	-	-	-	C	C	O	-	C	YES	YES	NO		
							V23	-	26	GK	SA	-	-	-	-	-	C	C	O	-	C	YES	NO	NO		
							V29	-	145	GK	SA	-	-	-	-	-	C	C	O	-	C	YES	NO	NO	17	
							V440	-	124	GL	M	M	-	-	-	-	TL	TL	TL	-	TL	YES	NO	NO	2, Y	
							V439	-	25	GL	M	M	-	-	-	-	TL	TL	TL	-	TL	YES	NO	NO		
							V430	-	144	GL	M	M	-	-	-	-	TL	TL	TL	-	TL	YES	NO	NO		
							V30	-	3	GL	M	M	-	-	-	-	LC	LC	LC	-	LC	YES	YES	NO		
							V505	B	2	GA	MO	A	RM	-	3	10	C	C	O	AI	C	YES	YES	YES	NO	29
							V506	A	3	GA	MO	A	RM	-	3	10	C	C	O	AI	C	YES	YES	YES	NO	
	810	55	U	YES	NO	SAFETY INJECTION - LOW HEAD TO HOT LEGS	V510	-	33	GK	SA	-	-	-	-	-	C	C	C	-	C	YES	YES	NO	17	
							V511	-	55	GK	SA	-	-	-	-	-	C	C	C	-	C	YES	NO	NO	2, Y,	
							V587	A	1	GA	MO	RM	M	-	-	-	C	C	C	AI	C	YES	YES	YES	18	29
19						SPARE																								
	808	55	U	YES	NO	SAFETY INJECTION - HIGH HEAD TO HOT LEGS	V84	-	82	GK	SA	-	-	-	-	-	C	C	C	-	C	YES	YES	NO		
							V90	-	36	GK	SA	-	-	-	-	-	C	C	C	-	C	YES	NO	NO		
							V96	-	140	GK	SA	-	-	-	-	-	C	C	C	-	C	YES	NO	NO	17	
							V431	-	81	GL	M	M	-	-	-	-	TL	TL	TL	-	TL	YES	NO	NO	2, Y,	
							V430	-	35	GL	M	M	-	-	-	-	TL	TL	TL	-	TL	YES	NO	NO	18	
							V429	-	139	GL	M	M	-	-	-	-	TL	TL	TL	-	TL	YES	NO	NO		29
							V500	A	1	GA	MO	RM	M	-	-	-	C	C	C	AI	C	YES	YES	YES	NO	

* Exception to GDC 55 See Section 6.2.4.3.4.2

TABLE 6.2.4-1

CONTAINMENT ISOLATION SYSTEM DATA

SHNPP FSAR

PENETRATION DATA							VALVE DATA																							
PENETRATION DETAIL	PD NUMBER	GENERAL DESIGN CRITERION	FLUID	HIGH ENERGY LINE	BYPASS LEAKAGE PATH	SYSTEM TITLE	VALVE NUMBER	POWER TRAIN	LENGTH of PIPE, FT	VALVE TYPE	ACTUATOR	PRIMARY ACTUATION MODE	SECONDARY ACTUATION MODE	ISOLATION SIGNAL	ACCIDENT SIGNAL	RESPONSE TIME	NORMAL	VALVE POSITION: SHUTDOWN	VALVE POSITION: POST-ACCIDENT	VALVE POSITION: POWER FAILURE	VALVE POSITION: ILRT	EMERGENCY SAFETY FEATURE	CONTAINMENT ISOLATION VALVE	TYPE C TEST	NOTE	
	858	55	W	YES	NO	SAFETY INJECTION - HIGH HEAD TO HOT LEGS	V39 V45 V51 V434 V433 V432 V501	- - - - - - B	122 34 136 120 31 138 1	CK CK CK GL GL GL GA	SA SA SA M M M MO	- - - M M M RM	- - - M M M M	- - - - - - -	- - - - - - -	- - - - - - -	C C C TL TL TL C	C C C TL TL TL C	C C C TL TL TL C	- - - - - - AI	C C C TL TL TL C	YES YES YES YES YES YES YES	NO NO NO NO NO NO YES	NO NO NO NO NO NO NO	2,18 17	29
	808	55	W	YES	NO	SAFETY INJECTION - RICH HEAD TO COLD LEGS	V63 V69 V75 V437 V436 V435 V502	- - - - - - A	155 24 153 152 23 80 1	CK CK CK GL GL GL GA	SA SA SA M M M MO	- - - M M M RM	- - - M M M M	- - - - - - -	- - - - - - -	- - - - - - -	C C C TL TL TL C	C C C TL TL TL C	C C C TL TL TL C	- - - - - - AI	C C C TL TL TL C	YES YES YES YES YES YES YES	NO NO NO NO NO NO YES	NO NO NO NO NO NO NO	17 2,18	29
	050	56	W	YES	NO	CONTAINMENT SPRAY	V27 V21	- A	3 2	CK GA	SA MO	- A	- RM	- -	- 11	- 10	C C	C C	O O	- AI	C C	YES YES	YES YES	YES YES		29
	050	56	W	YES	NO	CONTAINMENT SPRAY	V51 V43	- B	3 2	CK GA	SA MO	- A	- RM	- -	- 11	- 10	C C	C C	O O	- AI	C C	YES YES	YES YES	YES YES		29
	047	57	W	NO	NO	SERVICE WATER TO FAN COOLER AH-3	B46	A	1	BF	MO	RM	M	-	-	-	O	O	O	AI	O	YES	YES	NO	1,3	29

1 Exception to GDC 57, see Section 6.2.4.2.4.2.

TABLE 6.2.4-1

CONTAINMENT ISOLATION SYSTEM DATA

SHNPP FSAR

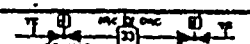
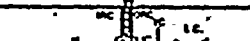
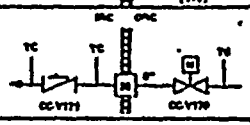
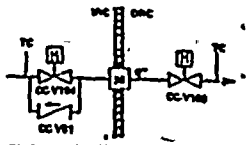
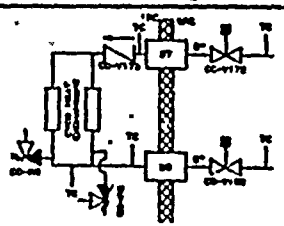
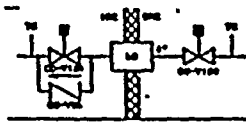
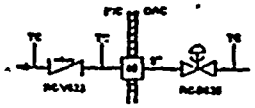
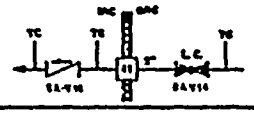
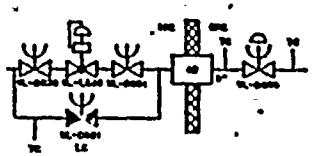
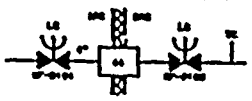
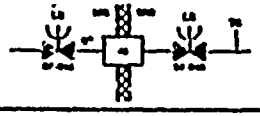
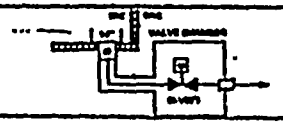
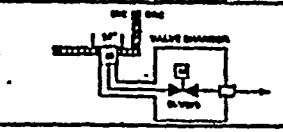
PENETRATION DATA							VALVE DATA																								
PENETRATION DETAIL	P.D. NUMBER	GENERAL CRITERION	FLUID	NORM. ENERGY LINE	OUTSIDE LEAKAGE PATH	SYSTEM TITLE	VALVE NUMBER	POWER TRAIN	LENGTH of PIPE, FT	VALVE TYPE	ACTUATOR	PRIMARY ACTUATION MODE	SECONDARY ACTUATION MODE	ISOLATION SIGNAL	ACCIDENT SIGNAL	RESPONSE TIME	NORMAL	VALVE POSITION: SHUTDOWN	VALVE POSITION: POST-ACCIDENT	VALVE POSITION: POWER FAILURE	VALVE POSITION: I&LRT	ENGINEERED SAFETY FEATURE	CONTAINMENT ISOLATION VALVE	TYPE C TEST	NOTE	
	032	56	A	NO	YES	GAS SAMPLE RETURN FROM POST ACCIDENT SKID	V408 V409	B A	2 2	GL GL	SO SO	A A	RM RM	1 1	– –	5 5	C C	C C	CT CT	C C	C C	NO NO	YES YES	YES YES	19	29
	416	56	A	NO	YES	ILRT ROTOMETER	V2	–	3	C	H	H	–	–	–	–	LC	LC	LC	–	–	O	NO	YES	YES	5	
	821	56	M	NO	NO	COMPONENT COOLING WATER - TO RCP	V171 V170	– B	1 2	CK GA	SA MO	– A	– RM	– 2	– –	– 10	O O	O O	C C	– AI	C C	NO NO	YES YES	YES YES	1	29
	821	56	M	NO	NO	COMPONENT COOLING WATER FROM RCP	V51 V184 V183	– A B	3 2 2	CK GA GA	SA MO MO	– A A	– RM RM	– 2 2	– – –	– 10 10	C O O	O O O	C C C	– AI AI	C C C	NO NO NO	YES YES YES	YES YES YES		29
	821	57	M	NO	NO	COMPONENT COOLING WATER TO REACTOR COOLANT DRAIN TANK AND EXCESS LET-DOWN HEAT EXCHANGERS	V173 V172 V182 R5 R6	– B B – –	2 2 2 42 60	CK GA GA BL BL	SA MO MO SA SA	– A A – –	– RM RM – –	– 1 1 – –	– – – – –	– 10 10 – –	O O O C C	O O O C C	C C C C C	– AI AI – –	C C C C C	NO NO NO NO NO	NO YES YES YES NO	NO NO NO YES NO	1	29
	821	56	M	NO	NO	COMPONENT COOLING WATER FROM RCP THERMAL BARRIERS	V50 V191 V190	– A B	3 2 1	CK GA GA	SA MO MO	– A A	– RM RM	– 2 2	– – –	– 10 10	C O O	C O O	C C C	– AI AI	C C C	NO NO NO	YES YES YES	YES YES YES		29
	801	56	M	NO	YES	DEMIN WATER TO PRT	V525 D525	– B	8 4	CK DA	SA AO	– A	– RM	– 1	– –	– <60	O O	C C	C C	– C	C C	NO NO	YES YES	YES YES	7	29

TABLE 6.2.4-1

CONTAINMENT ISOLATION SYSTEM DATA

SHNPP FSAR

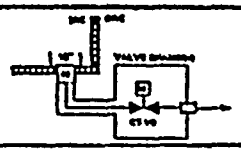
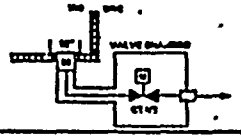
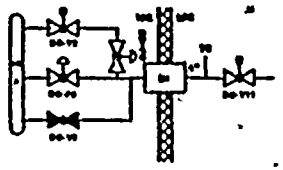
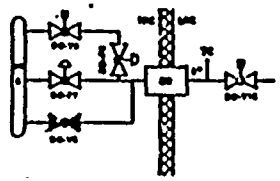
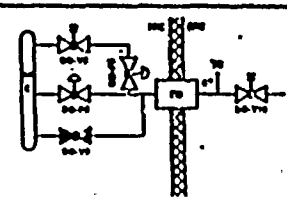
PENETRATION DATA							VALVE DATA																							
																				VALVE POSITION										
PENETRATION DETAIL	TD NUMBER	GENERAL CONTAINMENT DESIGN	FLUID	NON ESSENTIAL LINE	STEAM LEAKAGE PATH	SYSTEM TITLE	VALVE NUMBER	POWER TRAIN	LENGTH of PIPE, FT	VALVE TYPE	ACTUATOR	PRIMARY ACTUATION MODE	SECONDARY ACTUATION MODE	ISOLATION SIGNAL	ACCIDENT SIGNAL	RESPONSE TIME	NORMAL	SHUTDOWN	POST-ACCIDENT	POWER FAILURE	ILRT	UNDETECTED SAFETY FEATURE	CONTAINMENT ISOLATION VALVE	TYPE C TEST	NOTE
	300	56	A	NO	YES	SERVICE AIR	V15 V14	- -	2 8	CK GL	SA M	- M	- -	- -	- -	- -	C LC	C LC	C LC	- -	C LC	NO NO	YES YES	YES YES	5
	813	56	W	NO	YES	RCDT PUMP DISCHARGE	D653 D654 D651 L600 D650	- - - A B	6 4 7 6 4	DA DA DA GL DA	M M M AO AO	M M M A A	- - - RM RM	- - - 1 1	- - - - -	- - - 10 10	0 0 LC 0 0	0 0 LC 0 0	0 0 LC C C	- - - C C	0 0 LC C C	NO NO NO NO NO	NO NO YES YES YES	NO NO YES YES YES	
43						SPARE																				
	061	56	W	NO	YES	REFUELING CAVITY CLEAN-UP	D164 D165	- -	1 2	DA DA	M M	M M	- -	- -	- -	- -	LC LC	LC LC	LC LC	- -	LC LC	NO NO	YES YES	YES YES	5, 14
	061	56	W	NO	YES	REFUELING CAVITY CLEAN-UP	D25 D26	- -	2 2	DA DA	M M	M M	- -	- -	- -	- -	LC LC	LC LC	LC LC	- -	LC LC	NO NO	YES YES	YES YES	5, 14
44						SPARE																				
	810	56	W	YES	NO	CONTAINMENT SUMP TO RHR PUMP	V571	A	35	GA	MO	A	RM	-	3,4	20	C	C	O	AI	C	YES	YES NO	NO	15
	810	56	W	YES	NO	CONTAINMENT SUMP TO RHR PUMP	V570	B	35	GA	MO	A	RM	-	3,4	20	C	C	O	AI	C	YES	YES NO	NO	15

Revision to SDC 56 See Section 6.2.4.2.4.2

TABLE 6.2.4-1

CONTAINMENT ISOLATION SYSTEM DATA

SHNPP FSAR

PENETRATION DATA							VALVE DATA																							
																				VALVE POSITION										
PENETRATION DETAIL	P.D. NUMBER	GENERAL DESIGN CRITERION	FLUID	NON CONTAINMENT LINE	BYPASS LEAKAGE PATH	SYSTEM TITLE	VALVE NUMBER	POWER TRAIN	LENGTH of PIPE, FT	VALVE TYPE	ACTUATOR	PRIMARY ACTUATION MODE	SECONDARY ACTUATION MODE	ISOLATION SIGNAL	ACCIDENT SIGNAL	RESPONSE TIME	NORMAL	SHUTDOWN	POST-ACCIDENT	POWER FAILURE	I&A	UNPROVIDED SAFETY FEATURE	CONTAINMENT ISOLATION VALVE	TYPE C TEST	NOTE	
	030	56	W	YES	NO	CONTAINMENT SUMP TO CT PUMP	V6	A	32	GA	MO	A	RM	-	A	102	C	C	O	AI	C	YES	NO	NO	13	29
	030	56	W	YES	NO	CONTAINMENT SUMP TO CT PUMP	V7	B	32	GA	MO	A	RM	-	A	102	C	C	O	AI	C	YES	NO	NO	13	29
	031	57	W	YES	NO	STEAM GENERATOR 'A' BLOWDOWN	V6 V2 V3 V11 P6	B B - A -	55 71 55 10 61	GL GL GL GL GL	AO AO M AO AO	A A M A A	RM RM - RM RM	3 3 - 3 -	- - - - -	<60 <60 - <60 -	0 0 C 0 0	0 0 C 0 0	C C C C C	C C - C C	C C C C C	NO NO NO YES NO	NO NO NO NO NO	NO NO NO NO NO	1	
	031	57	W	YES	NO	STEAM GENERATOR 'B' BLOWDOWN	P7 V5 V6 V15 P4	B B - A -	26 37 47 9 31	GL GL GL GL GL	AO AO M AO AO	A A M A A	RM RM - RM RM	3 3 - 3 -	- - - - -	<60 <60 - <60 -	0 0 C 0 0	0 0 C 0 0	C C C C C	C C - C C	C C C C C	NO NO NO YES NO	NO NO NO NO NO	NO NO NO NO NO	1	29
	031	57	W	YES	NO	STEAM GENERATOR 'C' BLOWDOWN	P8 V8 V9 V19 P5	B B - A -	51 61 52 10 56	GL GL GL GL GL	AO AO M AO AO	A A M A A	RM RM - RM RM	3 3 - 3 -	- - - - -	<60 <60 - <60 -	0 0 C 0 0	0 0 C 0 0	C C C C C	C C - C C	C C C C C	NO NO NO YES NO	NO NO NO NO NO	NO NO NO NO NO	1	

** Exception to GDC 56 See Section 6.2.4.2.4.3

Add as new FSAR page

The RHR pumps and the Safety Injection system piping provide a pressurized water seal to containment penetrations M-13, M-14, M-17, M-18, M-20, M-21, and M-22 for a minimum period of 30 days following a design basis accident. This seal is maintained following any single active failure. This water seal ensures that the Containment Atmosphere cannot leak to the environment following a design basis accident (See section 6.2.6). The requirement to maintain this seal imposes the following restrictions on valve positions during the specified period.

1. The Charging Pump Suction Header Crossover Valves must remain open during the post-accident injection and recirculation modes. An additional benefit of these valves being open is that a failure of an RHR pump in the recirculation modes will not result in loss of a charging pump because one RHR pump can provide sufficient flow and NPSH for two charging pumps.

2. At least one of the Boron Injection Tank inlet isolation valves must remain open during the post-accident injection and recirculation modes.

3. The RHR system crossover valves at the connection to the line supplying flow to the RCS Hot Legs for Hot Leg Recirculation must remain open during the post-accident injection and recirculation modes.

4. A motor operated Containment Isolation Valve on one of the low head flowpaths to the RCS Cold Legs must be closed during the post-accident cold leg recirculation mode to prevent RHR pump runout should a single active failure of an RHR pump occur.

pg 6.3.1-26

TABLE 6.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM
FAILURE MODES AND EFFECTS ANALYSIS

Component	Failure Mode	Function*	Effect on System*	Failure Detection Method**	Remarks*
			the suction of LHSI/RHR pump 1 (pump 2) to the RWST.		
16. Motor operated gate valve 1-8887A (1-8887B analogous)	Fails to close on demand.	Provides separation between two independent flow paths outside containment during cold leg recirculation. Directs LHSI flow to hot legs during hot leg recirculation.	Failure reduces redundancy to prevent excessive pump runout during cold leg recirculation. No effect on system operation. Isolation Valve 1-8887B (1-8887A) provides backup separation of flow paths.	Same as item #1.	During the first 24 hours of long term phase incident recovery LHSI/RHR pumps are aligned for injection into cold legs of RCS coolant loops. After 24 hours, pumps are aligned by operator for recirculation flow into the hot legs.
	Fails to open on demand.		Failure reduces redundancy of providing fluid flow from LHSI/RHR pumps for injection into hot legs of RCS loops. Minimum flow requirements will be met by opening of isolation valve 1-8887B (1-8887A) and flow from from LHSI/RHR pump 2 (pump 1).	Same as item #11.	

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TABLE 6.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM
FAILURE MODES AND EFFECTS ANALYSIS

Component	Failure Mode	Function*	Effect on System*	Failure Detection Method**	Remarks*
17. Motor operated gate valve 1-8888A (1-8888B analogous)	Fails to close.	Provides isolation of fluid flow from LHSI/RHR pump 1 (pump 2) to cold leg injection header of RCS coolant loops.	Failure reduces flow of recirculation coolant to hot legs of RCS coolant loops from LHSI/RHR pump 1 (pump 2). Minimum flow requirements to hot leg of RCS coolant loops will be met by delivery of coolant from LHSI/RHR pump 2 (pump 1) and ~~HHSI/CHG pump 2 (pump 1) to the hot legs.~~ two HHSI/CHG pumps.	Same as item #1. In addition LHSI/RHR pump discharge header pressure and flow indication and miniflow valve monitoring at MCB.	Hot legs RCS coolant loop recirculation required to prevent boron precipitation problem for long-term core cooling.
18. Motor operated gate valve 1-8889	Fails to open on demand.	Provides isolation of fluid flow from LHSI/RHR pumps to hot leg injection header of RCS coolant loops.	Failure prevents fluid flow from LHSI/RHR pumps to hot leg injection header of RCS coolant loops. Minimum flow requirements to hot legs of RCS coolant loop will be met by delivery of coolant from two HHSI/CHG pumps.	Same as item #2. In addition, LHSI/RHR pump discharge header pressure and flow indication and miniflow valve monitoring at MCB.	

TABLE 6.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM
FAILURE MODES AND EFFECTS ANALYSIS

Component	Failure Mode	Function*	Effect on System*	Failure Detection Method**	Remarks*
	Fails to close on demand.		Failure reduces redundancy of providing isolation of recirculation of fluid into hot legs of RCS coolant loops by LHSI/RHR pumps. Negligible effect on recirculation into cold legs of RCS coolant loops. ~~Alternate fluid flow isolation provided by closing of isolation valves 1-8887A and 1-8887B.~~ Two HHSI/CHG and two LHSI/RHR pumps can meet minimum flow requirements for RCS Cold Leg recirculation even with simultaneous flows provided to LH SI hot leg recirculation penetration.		
9. Motor operated gate valve 1-8706A. (1-8706B analogous)	Fails to open on demand.	Provides isolation of fluid flow from LHSI/RHR pump 1 (pump 2) via RHR Heat Exchanger, (exchanger 2) to suction line of HHSI/CHG pump 1 (HHSI/CHG 2).	No effect on system operation. HHSI/CHG pumps 1 and 2 will be provided suction head by LHSI/RHR pump 2 (pump 1) via the common charging pump suction header.	Same as that stated for item #2. In addition, HHSI/CHG pump 1 (pump 2) flow indication at MCB.	

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TABLE 6.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM
FAILURE MODES AND EFFECTS ANALYSIS

Component	Failure Mode	Function*	Effect on System*	Failure Detection Method**	Remarks*
4. Motor operated gate valve 1-8801A (1-8801B analogous)	Fails to close on demand.	Provides isolation of fluid flow from HHSI/CHG pump #2 discharge line via BIT to cold legs of RCS coolant loops.	Failure reduces redundancy of providing isolation of fluid flow from HHSI/CHG pump 2 to cold legs of RCS coolant loops. ~~Negligible effect on system operation. Alternate isolation valves 1-8803A and 1-8803B provides backup isolation valves 8803A and 8803B of fluid flow from HHSI/CHG pump 2.~~ Failure reduces flow delivery of HHSI/CHG pumps to RCS hot legs. Minimum flow will be met by HHSI/CHG pump #1 providing flow to its hot leg recirculation flow path.	Same as item #2. In addition, pressure of BIT discharge line indicated at MCB.	Valves are activated to open by an SIAS. Prior to the closing of the valves, reactor operator resets the SIAS.
5. Motor operated gate valve 1-8803A (1-8803B analogous)	Fails to close on demand.	Same as item 24.	Same as item #24 except isolation valves 1-8801A and 1-8801B provides backup isolation of fluid flow from HHSI/CHG pump #2.	Same as item #21.	Valves are closed by the reactor operator for recirculation into hot legs of RCS coolant loops and open by the operator when recirculation into cold legs of RCS coolant is desired during long term incident recovery period.

A two out of four coincident logic is utilized in both protection cabinets A and B to ensure a trip signal in the event that two out of the four level channel bistables are energized. This trip signal, in conjunction with the "S" signal, provides the actuation signal to automatically open the corresponding containment sump isolation valves.

23 As part of the manual switchover procedure, the discharge of the residual heat removal pumps are aligned to the suctions of the charging pumps. Charging pump ~~suction and~~ discharge header cross connect valves are closed in order to establish two separate and redundant high head recirculation systems. The suction header cross-connect valves are not closed to insure that subsequent RHR pump failure does not cause an immediate charging pump failure. To minimize the possibility of low temperature overpressure transient during startup and cooldown, low pressurizer pressure and low steam line pressure safety injection actuation logic is manually blocked at 1900 psi. At 1000 psi, power is locked out from the accumulator isolation valves and from the non-operating charging pumps. It should be noted that the high containment pressure safety injection actuation logic cannot be blocked.

If a steamline rupture occurs while both of these SI actuation signals are blocked, steamline isolation will occur on high negative steam pressure rate. An alarm for steam line isolation will alert the operator of the accident. The nuclear power and core flux increase is terminated at RCS pressure that approximates the beginning of accumulator discharge. This transient is, however, terminated by the boron resulting from BIT injection so no adverse impact would be expected to result from accumulator isolation.

For large LOCAs, sufficient mass and energy would be released to the containment to automatically actuate SI when the containment high pressure setpoint is reached. At this time, the operator would be alerted to the occurrence of a LOCA by the following safety-related indications:

a) loss of pressurizer level,

b) rapid decrease of RCS pressure, and

c) increase in containment pressure.

In addition to the above, the following indications are normally available to the operator at the control board:

a) radiation alarms inside containment,

b) increase in sump water level,

c) decrease off scale of accumulator water levels and decrease in pressure,

d) ECCS valve and pump position and status light in ECCS energized indication, and annunciators light as safeguards equipment becomes energized, and

e) flow from ECCS pumps.

LOCAs during startup and cooldown have been evaluated to determine the effects of the unavailability of the accumulators. The limiting case is, of course,

TABLE 6.3.2-6

SEQUENCE OF SWITCHOVER OPERATION FROM INJECTION TO RECIRCULATION

Manual operator actions are required to complete the switchover from the injection mode to the recirculation mode. During the injection mode, the operator verifies that all ECCS pumps are operating and monitors the RWST and reactor building recirculation sump levels in anticipation of switchover. The operator opens or verifies open, the component cooling water inlet isolation valves to the residual heat removal heat exchanger prior to switchover isolation. Upon receipt of the RWST low-low level signal in conjunction with the safety injection signal, the containment sump isolation valves automatically open. Following this automatic action, the operator is required to complete the switchover.

The following manual actions must be performed to align the charging pump suction to the residual heat removal pumps discharge.

1. Verify that the containment sump isolation valves are open and close the residual heat removal pump suction valves from the refueling water storage tank.
2. Close one (not both) of the cold leg header isolation valves associated with the RHR pumps. ~~Close the valves in the crossover line downstream of the residual heat removal heat exchanger.~~ (This action prevents RHR pump runout in the recirculation condition)
3. Open residual heat removal pump discharge valves to the charging pump suction.

All ECCS pumps are now aligned with suction flow from the containment sump. The operator verifies proper operation and alignment of all ECCS components and proceeds to complete the following manual actions to align the ECCS in redundant flow paths for long term recirculation operation.

4. Close refueling water storage tank valves to charging pump suction.
5. Deleted. ~~Close valves (depending on operating charging pumps) in the suction headers to establish two separate recirculation suction systems.~~
6. Open valve in the alternate high head cold leg recirculation line.
7. Close valves (depending on operating charging pumps) in the discharge header to establish two separate high head recirculation systems.

The following manual operator actions are required to perform the change-over operation from the cold leg recirculation mode to the hot leg recirculation mode.

TABLE 6.3.2-6 (Continued)

SEQUENCE OF SWITCHOVER OPERATION FROM INJECTION TO RECIRCULATION

1. Close the cold leg header isolation valves associated with the RHR pumps.
2. Deleted ~~Open the cross-connect isolation valves from the RHR pumps to the hot leg header.~~
3. Open the hot leg header isolation valve from the RHR pumps.
4. Stop charging pump No. 1. If pump No. 1 was out of service prior to the accident, stop the swing pump (charging pump No. 3).
5. Close the alternate high head cold leg header isolation valve and open the corresponding high head hot leg header isolation valve.
6. Restart the charging pump stopped in Step 4.
7. Stop charging pump No. 2. If pump No. 2 was out of service prior to the accident, stop the swing pump (charging pump No. 3).
8. Close ~~the boron injection tank inlet isolation valves and/or~~ the boron injection tank discharge isolation valves and open the corresponding high head hot leg header isolation valve.
9. Restart the charging pump stopped in step 7.

NOTES TO FIGURES 6.3.2-4 THROUGH 6.3.2-6

VALVE ALIGNMENT TABLE
PRINCIPLE MODES OF ECCS OPERATION

(Sheet 2)

Valve No.	A Normal Standby	B Injection Maximum Safeguards	C Injection Minimum Safeguards (Train A Only)	D Cold Leg Recirculation Maximum Safeguards	E Cold Leg Recirculation Minimum Safeguards (Train A Only)	F Hot Leg Recirculation Maximum Safeguards	G Hot Leg Recirculation Minimum Safeguards (Train A Only)
1A	O	O	O	C	C	C	C
1B	O	O	O	C	O	C	O
2A	O	O	O	O	O	O	O
2B	O	O	O	O	O	O	O
3A	C	C	C	C	C	C	C
3B	C	C	C	C	C	C	C
4A	O	C	C	C	C	C	C
4B	O	C	O	C	O	C	O
5A	C	C	C	O	O	O	O
5B	C	C	C	O	C	O	C
6A	O	O	O	O C	O C	O	O
6B	O	O	O	O C	O	O	O
7A	O	O	O	O	O	C	C
7B	O	O	O	C C *	C C *	C	O
8	C	C	C	C	C	O	O
9A	C	C	C	O	O	O	O
9B	C	C	C	O	C	O	C
10A	C	C	C	O	O	O	O
10B	C	C	C	O	C	O	C
11A	C	C	C	C	C	C	C
11B	C	C	C	C	C	C	C
12A	C	C	C	C	C	C	C
12B	C	C	C	C	C	C	C
13A	C	O	O	C	C	C	C
13B	C	O	C	C	C	C	C
14A	O	C	C	C	C	C	C
14B	O	C	O	C	O	C	O

* Valve 7A can be closed in lieu of 7B. Valve closure prevents RHR pump run-out.

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NOTES TO FIGURES 6.3.2-4 THROUGH 6.3.2-6

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VALVE ALIGNMENT TABLE
PRINCIPLE MODES OF ECCS OPERATION

(Sheet 3)

Valve No.	A Normal Standby	B Injection Maximum Safeguards	C Injection Minimum Safeguards (Train A Only)	D Cold Leg Recirculation Maximum Safeguards	E Cold Leg Recirculation Minimum Safeguards (Train A Only)	F Hot Leg Recirculation Maximum Safeguards	G Hot Leg Recirculation Minimum Safeguards (Train A Only)
15A	O	O	O	O	O	O	O
15B	O	O	O	O	O	O	O
16A	O	O	O	O	O	O	O
16B	O	O	O	O	O	O	O
17A	O	O	O	C	O	C	O
17B	O	O	O	C	O	C	O
18A	O	O	O	C	O	C	O
18B	O	O	O	C	O	C	O
19A	O	C	O	C	O	C	O
19B	O	C	O	C	O	C	O
19C	O	C	O	C	O	C	O
20	O	C	C	C	C	C	C
21A	O	C	C	C	C	C	C
21B	O	C	O	C	O	C	O
22A	C	O	O	O	O	C O	O
22B	C	O	C	O	C	C O	C
23A	C	O	O	O	O	C	C
23B	C	O	C	O	C	C	C
24	C	C	C	C	C	O	C
25	C	C	C	C	C	O	O
26	C	C	C	O	C	C	C
29A	O	O	O	O	O	O	O
29B	O	O	O	O	O	O	O
29C	O	O	O	O	O	O	O

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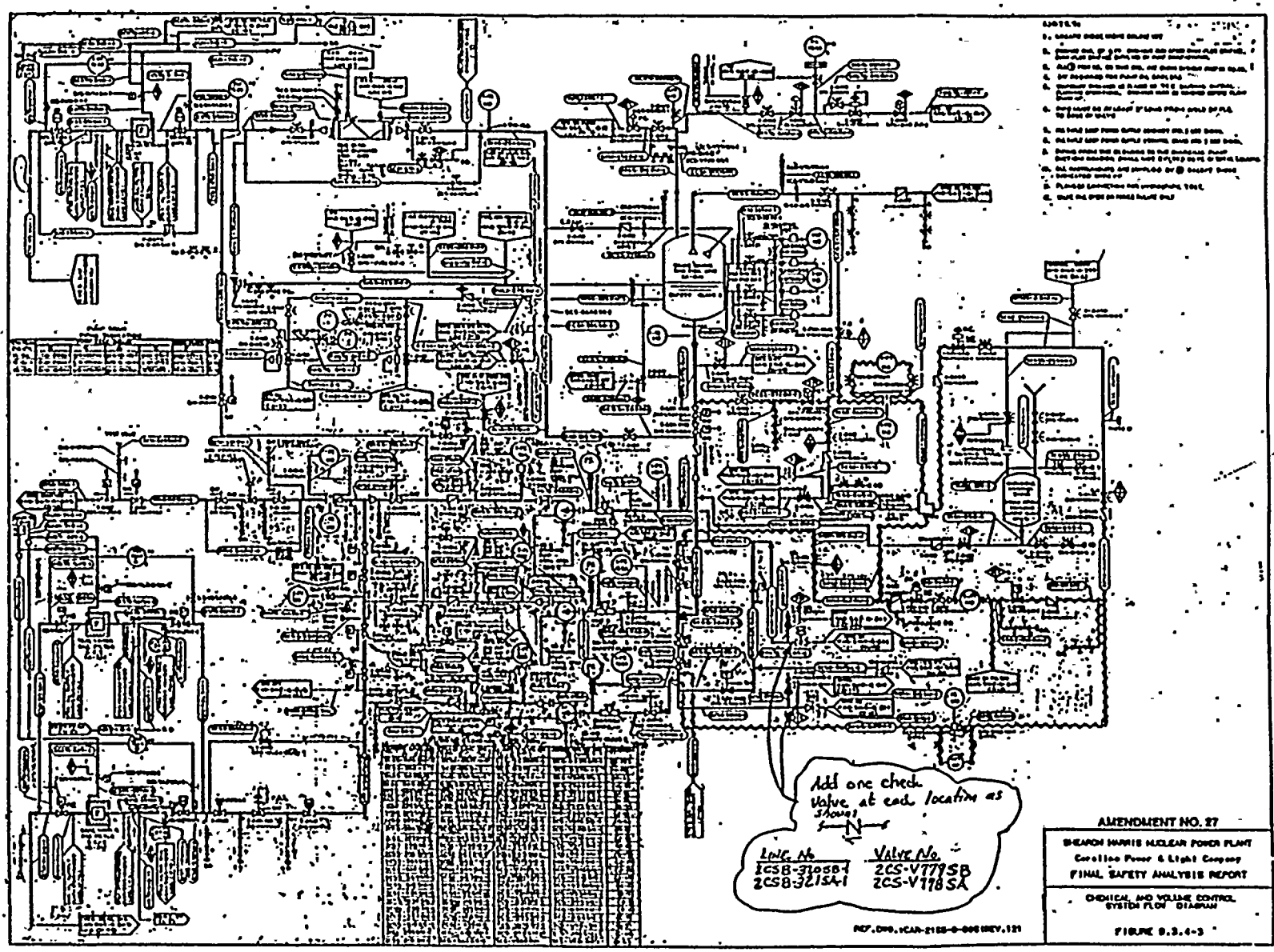
Add one check valve at each location as shown
Line No
2CS8-310SB-1
2CS8-321SA-1
Valve No.
2CS-V779SB
2CS-V778SA
AMENDMENT NO. 27
SHEARON HARRIS NUCLEAR POWER PLANT
Carolina Power & Light Company
FINAL SAFETY ANALYSIS REPORT
CHEMICAL AND VOLUME CONTROL SYSTEM FLOW DIAGRAM
FIGURE 9.3.4-3

ATTACHMENT 3 TO

NLS-86-365

Attachment 3

FINAL DRAF

Table 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION NO.	VALVE NO. CP&L (EBASCO)	FUNCTION	MAXIMUM ISOLATION TIME (SEC)	APPLICABLE NOTES
13	1SI-340 (SI-V579)	SI-LOW HEAD TO COLD LEGS	N/A	1
14	1SI-341 (SI-V578)	SI-LOW HEAD TO COLD LEGS	N/A	1
15	1RH-2 (RH-V503)	RHR PUMP SUCTION (TRAIN A)	N/A	1,3
16	1RH-40 (RH-V501)	RHR PUMP SUCTION (TRAIN B)	N/A	1,3
18	1SI-359 (SI-V587)	SI LOW HEAD TO HOT LEG	N/A	1,3
20	1SI-107 (SI-V500)	SI HIGH HEAD TO HOT LEG	N/A	1,3
21	1SI-86 (SI-V501)	SI HIGH HEAD TO HOT LEG	N/A	1, 3
22	1SI-52 (SI-V502)	SI HIGH HEAD TO COLD LEG	N/A	1, 3
25	1SW-92 (SW-B46)	SERVICE WATER TO FAN COOLER AH-3	N/A	1,6
26	1SW-91 (SW-B45)	SERVICE WATER TO FAN COOLER AH-2	N/A	1,6
27	1SW-225 (SW-B52)	SERVICE WATER TO FAN COOLER AH-1	N/A	1,6
28	1SW-227 (SW-B51)	SERVICE WATER TO FAN COOLER AH-4	N/A	1,6
29	1SW-97 (SW-B47)	SERVICE WATER FROM FAN COOLER AH-3	N/A	1,6
30	1SW-109 (SW-B49)	SERVICE WATER FROM FAN COOLER AH-2	N/A	1,6
31	1SW-98 (SW-B48)	SERVICE WATER FROM FAN COOLER AH-1	N/A	1,6

Attachment 3 (Continued)

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Table 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION NO.	VALVE NO. CP&L (EBASCO)	FUNCTION	MAXIMUM ISOLATION TIME (SEC)	APPLICABLE NOTES
32	1SW-110 (SW-850)	SERVICE WATER FROM FAN COOLER AH-4	N/A	1,6
17	1SI-3 (SI-V505)	SI TO HIGH HEAD COLD LEG	N/A	1, 3
17	1SI-4 (SI-V506)	SI TO HIGH HEAD COLD LEG	N/A	1, 3
2	1MS-70 (MS-V8)	MAIN STEAM B TO AUXILIARY F.W. TURBINE	N/A	1,3,6
1	1MS-72 (MS-V9)	MAIN STEAM C TO AUXILIARY F.W. TURBINE	N/A	1,3,6
63	CH-[redacted]2 (CH-85)	H_2 PURGE EXHAUST	N/A	3
10. MANUAL VALVES				
17	1SI-43 (SI-V30)	SI-HIGH HEAD TO COLD LEGS	N/A	1,3
34	1LT-6 (LT-V2)	ILRT ROTOMETER (LOCKED CLOSED)	N/A	2,3
41	1SA-80 (SA-V14)	SERVICE AIR (LOCKED CLOSED)	N/A	2,3
42	1ED-119 (WL-0651)	RCDT PUMP DISCH BYPASS (LOCKED CLOSED)	N/A	2,3
44	1SF-145 (SF-0164)	REFUELING CAVITY CLEANUP (LOCKED CLOSED)	N/A	2,3
44	1SF-144 (SF-0165)	REFUELING CAVITY CLEANUP (LOCKED CLOSED)	N/A	2,3
45	1SF-118 (SF-025)	REFUELING CAVITY CLEANUP (LOCKED CLOSED)	N/A	2,3
45	1SF-119 (SF-026)	REFUELING CAVITY CLEANUP (LOCKED CLOSED)	N/A	2,3
39	1CC-250 (CC-V50)	CCW FROM RCP THERMAL BARRIER	N/A	N/A

INSERT "4" VALVES FROM PAGE 3/4 6-25(a)

MOVE THIS VALVE UNDER ITEM FOR CHECK VALVES.

Attachment 3 (continued)

Penetration No.	Valve No. CP&L (EBASCO)	Function	Max. Isolation Time (sec)	Applicable Notes
47	1SI-300 (SI-V571)	Containment Sump to RHR Pump "A"	N/A	1, 3
48	1SI-301 (SI-V570)	Containment Sump to RHR Pump "B"	N/A	1, 3
49	1CT-105 (CT-V6)	Containment Sump to CT Pump "A"	N/A	1, 3
50	1CT-102 (CT-V7)	Containment Sump to CT Pump "B"	N/A	1, 3

Attachment 3 (continued)

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FINAL DRAF

Table 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATION NO.	VALVE NO. CP&L (EBASCO)	FUNCTION	MAXIMUM ISOLATION TIME (SEC)	APPLICABLE NOTES
98	CB-V2 (CB-V2)	CONTAINMENT VACUUM RELIEF	N/A	N/A
105	1FP-349 (FP-V46)	FIRE WATER SPRINKLER SUPPLY	N/A	N/A
12.	RELIEF VALVES			
	1CS-10 (CS-R500)	CVCS NORMAL LETDOWN	N/A	N/A
15	1RH-7 (RH-R501)	RHR SUCTION FROM HOT LEG	N/A	1
16	1RH-45 (RH-R500)	RHR SUCTION FROM HOT LEG	N/A	1
29	1SW-95 (SW-R1)	SERVICE WATER FROM FAN COOLER AH-3	N/A	1
30	1SW-107 (SW-R3)	SERVICE WATER FROM FAN COOLER AH-2	N/A	1
31	1SW-96 (SW-R2)	SERVICE WATER FROM FAN COOLER AH-1	N/A	1
32	1SW-108 (SW-R4)	SERVICE WATER FROM FAN COOLER AH-4	N/A	1

Check valves →

INSERT Valves From pages 3/4 6-28 (a), (b), and (c)

Relief Valves

38	1CC-194 (CC-R6)	CCW FROM EXCESS LTDN HEAT EXCH.	N/A	1
38	1CC-186 (CC-R5)	CCW FROM RCDT HEAT EXCH.	N/A	1

Attachment 2 (continued)

	Penetration No.	Valve No. CP&L (EBASCO)	FUNCTION	MAX. ISOLATION TIME(SEC)	APPLICABLE NOTES
✓	9	1CS-344 (CS-V25)	CVCS- Seal Water to RCP "A"	N/A	N/A
✓	10	1CS-385 (CS-V26)	CVCS- Seal Water to RCP "B"	N/A	N/A
✓	11	1CS-426 (CS-V27)	CVCS- Seal Water to RCP "C"	N/A	N/A
✓	13	1SI-346 (SI-V581)	Safety Injection- Low Head to Cold Legs	N/A	1
✓	14	1SI-347 (SI-V580)	Safety Injection- Low Head to Cold Legs	N/A	1
✓	17	1SI-8 (SI-V17)	Safety Injection- High Head to Loop 1 Cold Leg	N/A	1
✓	17	1SI-9 (SI-V23)	Safety Injection- High Head to Loop 2 Cold Leg	N/A	1
✓	17	1SI-10 (SI-V29)	Safety Injection- High Head to Loop 3 Cold Leg	N/A	1
✓	18	1SI-134 (SI-V510)	Safety Injection- Low Head to Loop 1 Hot Leg Dn 3/4 (n-28 (n)	N/A	1

Attachment 3 (continued)

Penetration No.	Valve No. CP&L (EBASCO)	FUNCTION	MAX. Isolation Time (sec)	Applicable Notes
✓18	1SI-135 (SI-V511)	Safety Injection - Low Head to Loop 2 Hot Leg	N/A	1
✓20	1SI-127 (SI-V84)	Safety Injection - High Head to Loop 1 Hot Leg	N/A	1
✓20	1SI-128 (SI-V90)	Safety Injection - High Head to Loop 2 Hot Leg	N/A	1
✓20	1SI-129 (SI-V96)	Safety Injection - High Head to Loop 3 Hot Leg	N/A	1
✓21	1SI-104 (SI-V39)	Safety Injection - High Head to Loop 1 Hot Leg	N/A	1
✓21	1SI-105 (SI-V45)	Safety Injection - High Head to Loop 2 Hot Leg	N/A	1
✓21	1SI-106 (SI-V51)	Safety Injection - High Head to Loop 3 Hot Leg	N/A	1
✓22	1SI-72 (SI-V63)	Safety Injection - High Head to Loop 1 Cold Leg	N/A	1
✓22	1SI-73 (SI-V69)	Safety Injection - High Head to Loop 2 Cold Leg	N/A	1

3/1 1-72 (L)

Attachment 2 (continued)

Penetration No.	Valve No. CP&L (EBASCO)	FUNCTION	Max. Isolation Time (sec)	Applicable Notes
22	1SI-74 (SI-V75)	Safety Injection High Head to Loop 3 Cold Leg	N/A	1

OK
8/5/86

CP&L Comments

SHNPP Proof and Review Technical Specifications

Record Number: 778

Comment Type: ERROR

LCO Number: NRC TYPOs

Page Number: SEE LIST

Section Number:

Comment:

CHANGES HAVE BEEN MADE TO THE FOLLOWING PAGES TO CORRECT TYPOGRAPHICAL ERRORS MADE IN THE TYPING OF THE FINAL DRAFT TECH SPECS.

✓ 2-7 ✓ OK
✓ 2-9 ✓ OK
✓ 3/4 3-22 ✓ OK (typo only for this sheet)
✓ 3/4 6-3 ✓ OK (see ~~change~~ many comments)
3/4 6-20 & 21 ✓ OK ~~(typo only for this sheet)~~
3/4 6-25 & 26 ✓ OK
3/4 7-3 & 4 ✓ OK (typo only for this sheet)
~~3/4 7-38~~ No, because fire prot. TS will be removed (?)
3/4 7-41 ✓ (typo only for this sheet)
3/4 8-2 ✓ OK
3/4 8-5 ✓ OK
B 3/4 3-6 ✓ OK
✓ 3/4 4-40 ✓ OK

Basis

TYPOGRPHICAL ERRORS

Done 9/10/86

FINAL DRAFT
SHNPP
REVISION
JUL 1986

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

VALVE NUMBER			LIFT SETTING (± 1%)*	ORIFICE SIZE (IN.^{2})
STEAM GENERATOR				
A	B	C		
1MS-43	1MS-44	1MS-45	1170 psig	16.0
1MS-46	1MS-47	1MS-48	1185 psig	16.0
1MS-49	1MS-50	1MS-51	1200 psig	16.0
1MS-52	1MS-53	1MS-54	1215 psig	16.0
1MS-55	1MS-56	1MS-57	1230 psig	16.0

*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

OK 1200 8/5/86

FINAL DRAFT
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JUL 1986

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses, and

b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2.1 Each auxiliary feedwater pump shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Verifying that each motor-driven pump develops a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of greater than or equal to 50 gpm.

2. Verifying that the steam turbine-driven pump develops a discharge pressure of greater than or equal to 1510 psig on a recirculation flow of greater than or equal to 90 gpm when the secondary steam supply pressure is greater than 210 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3;

OK

CP&L Comments

SHNPP Proof and Review Technical Specifications

Record Number: 722

Comment Type: IMPROVEMENT

LCO Number: 3.07.01.02

Page Number: 3/4 7-4

Section Number: 4.7.1.2.1.a

Comment:

ITEM 4.7.1.2.1.a.1 - CHANGE "1510" TO "1590".
ITEM 4.7.1.2.1.a.2 - CHANGE "1450" TO "1510".

Basis

NEW VALUES HAVE BEEN PROVIDED BY THE A.E. FOR THESE DISCHARGE PRESSURES BASED ON PUMP CURVES AND TESTING RESULTS.

plant specific
OK RAB 8/6/86

Done 9/10/86

FINAL DRAFT
SHNPP
REVISION
JUL 1986

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses, and

b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2.1 Each auxiliary feedwater pump shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Verifying that each motor-driven pump develops a discharge pressure of greater than or equal to ~~1610~~ 1590 psig at a recirculation flow of greater than or equal to 50 gpm.

2. Verifying that the steam turbine-driven pump develops a discharge pressure of greater than or equal to ~~1460~~ 1510 psig on a recirculation flow of greater than or equal to 90 gpm when the secondary steam supply pressure is greater than 210 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3;

OK

Shearon Harris
Technical Specifications
Resolution of Staff Comments

Originator: EICSB, MauckK
Comment Date: 7/30/86

Page: 3/4 7-4
TS 3.7.1.2

Comment:

Based on our review of the final draft Technical Specifications and discussions with the FOB, it is not apparent that all of the EICSB items identified in our memorandum of March 11, 1986 were satisfactorily considered in the development of the final Technical Specifications. Items 12, 21, and 25 should be resolved prior to plant startup. In addition, we found (1) that the surveillance requirements of Standard Technical Specification (STS) Sections 4.8.1.1.2e(2) and (11) have been omitted from the Shearon Harris Technical Specifications and (2) that adequate justification(s) has not been provided for the ESFAS slave relays that are not testable during power operation. We recommend that these sections be included with the STS. We also recommend that for each ESFAS slave relay not testable at-power adequate justification(s) be provided.

Resolution	Basis
See original resolution of Mauck #25 in P&R No action needed on FD TS.	See attached copy of resolution of Item 25 at P&R stage.

Done 9/10/86

Resolution Accepted:

NRC Ron Benedict

Date: 8/13/86

CP&L _____

Date: _____

Shearon Harris
Technical Specifications
Resolution of Comments

Originator: NRC/EI&CSB, Mauck
Comment Date: MARCH 11, 1986
CP&L Record No.:

Page: 3/4 7-5
TS: 3.7.1.2

Comment: (25) Previously approved TS provide four (4) verification steps that are to be performed every 18 months to ensure that the auxiliary feedwater system is operable. As presently written, the Shearon Harris TS provide verification that the auxiliary feedwater pumps start and that the respective pressure control valve responds. Justify the omission of the verification of the positions for the supply valves, suction valves, and each automatic valve in the auxiliary feedwater flow path.

Basis:

Resolution:

~~TS ok as is, because pressure control valve is the~~

Mauck stated, 5/27/86, that he will accept, as resolution of this comment, resolution of similar comment by R. Hicciardo.

See resolution by W. LeFave of CP&L item for p 3/4 7-4 & 5, following.

RaB 6/25/86

Resolution Accepted:

NRC R A Benedict

Date: 5/27/86

CP&L Done 5/28/86

Date:

PSB
E/F

CP&L Comments

SHNPP Final Draft Technical Specifications

Record Number: 792

Comment Type: ERROR

LCO Number: 3.07.01.05

Page Number: 3/4 7-9

Section Number: 4.7.1.5

Comment:

IN 4.7.1.5 CHANGE "MODE 3" TO "MODES 3 or 4."

Basis

A CHANGE TO SHOW MODE 4 FOR THE MSIV's WAS MADE SOME TIME AGO TO RESOLVE A LONG STANDING CONFLICT WITH THE STS. HOWEVER. IT IS STILL NOT POSSIBLE TO PROPERLY TEST THE VALVES UNTIL THERE IS SUFFICENT STEAM PRESSURE. THE STS HAS ALWAYS GRANTED THE 4.0.4 EXEMPTION FOR MODE 3 AND THIS IS SIMPLY A LOGICAL ENTENSION TO THE LOWER MODE.

William T. LeFave
9/3/86

Done 9/10/86

PLANT SYSTEMS

MAIN STEAM LINE ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.5 Each main steam line isolation valve (MSIV) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

MODE 1:

With one MSIV inoperable but open, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 4 hours; otherwise be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

MODES 2 and 3:

With one MSIV inoperable, subsequent operation in MODE 2 or 3 may proceed provided the isolation valve is maintained closed. Otherwise, be in HOI STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours. The provisions of Specifications 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.1.5 Each MSIV shall be demonstrated OPERABLE by verifying full closure within 5 seconds when tested pursuant to Specification 4.0.5. The provisions of Specification 4.0.4 are not applicable for entry into MODEs 3 or 4.

SHNPP
REVISION
AUG 1986

OK

Shearon Harris
Technical Specifications
Resolution of Staff Comments

Originator: PSB - Lefave & Page: 3/4 7-12
Comment Date: 8/5/86

Comment:

Section 3/4.7.4, Item - General Emergency Service Water System Page 3/4 7-12:

1. A similar LCO and surveillance requirement should be provided for the booster pumps or the booster pumps should be included as a surveillance requirement to establish the ESW system operability.

2. Add a surveillance requirement to the effect that every 18 months verify that upon loss of their respective discharge line pressures, that emergency service water pumps start automatically, and that the lineup of valves required for the switchover occurs automatically following startup of the ESW pumps.

Resolution	Basis
① CP&L Accepts Sec proposed change to 4.7.4.b.2 ② As per 8-13 discussion of C S Bohanan and W Lefave this surveillance is not needed. This start signal is not assumed in any accident analyses. Plant could readily handle loss of NSW transient by manual start of an ESW pump. Any valves that reposition would already be tested as part of the 18 mo SI Test in 4.7.4.b.1 C S Bohanan 8-14-86	

Resolution Accepted:

NRC William T. La Fave Done 9/10/86

Date: 8/26/86

CP&L _____

Date: _____

R/WL

PLANT SYSTEMS

3/4.7.4 EMERGENCY SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4 At least two independent emergency service water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With only one emergency 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 At least two emergency 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; and

b. At least once per 18 months during shutdown, by verifying that:

1. Each automatic valve servicing safety-related equipment or isolating non-safety portions of the system actuates to its correct position on a safety injection test signal, and

2. Each emergency service water pump and each service water booster pump starts automatically on a safety injection test signal.

3. Each emergency service water pump starts automatically upon loss of their respective ~~discharge line~~ discharge header pressure (— PSIG) and that the lineup of valves required for the switchover occurs automatically following startup of the ESW pumps.

PLANT SYSTEMS

3/4.7.4 EMERGENCY SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4 At least two independent emergency service water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With only one emergency 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 At least two emergency 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; and

b. At least once per 18 months during shutdown, by verifying that:

1. Each automatic valve servicing safety-related equipment or isolating non-safety portions of the system actuates to its correct position on a safety injection test signal, and

2. Each emergency service water pump starts automatically on a safety injection test signal.

AND emergency service water booster pump

Shearon Harris
Technical Specifications
Resolution of Staff Comments

Originator: PSB - LeFave
Comment Date: Verbal 9/18/86

Page: 3/4 7-13
TS 3.7.5

Comment:

FSAR requires both auxiliary and main reservoirs to be maintained at their appropriate levels; otherwise, the plant would be shut down. The TS should reflect this requirement.

Resolution	Basis
In the second line of TS 3.7.5a, change the word "or" to "and".	Makes TS consistent with FSAR.

Resolution Accepted:

NRC W. L. T. Lo... Date: 9/25/86

CP&L Gregg A. Sander Date: 9/25/86

PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.5 The ultimate heat sink shall be OPERABLE with:

a. A minimum auxiliary reservoir water level at or above elevation 250 feet Mean Sea Level, USGS datum, or a minimum main reservoir water level at or above 205.7 feet mean sea level, USGS datum, and

b. A water temperature as measured at the respective intake structure of less than or equal to 95°F.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With the requirements of the above specification not satisfied, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.5 The ultimate heat sink shall be determined OPERABLE at least once per 24 hours by verifying the water temperature and water level to be within their limits.

Shearon Harris
Technical Specifications
Resolution of Staff Comments

Originator: PSB - Fell
Comment Date: 8/5/86

Page: 3/4 7-15

Comment:

Section 3/4.7.6, Item 4.7.6.d.3, Page 3/4 7-15:

Control room leakage rate to be closed out by SSER, mid-August 1986.

The pressurization flow rate in Technical Specification 3/4.7.6 reflects the value Carolina Power & Light Company (CP&L) is currently attempting to justify. This value is in the technical specifications and the staff is in the process of completing the review of the CP&L analysis. Only a couple of questions remain on the analysis and CP&L had indicated that Ebasco Services will be coming to Bethesda to go over the analysis with the staff.

Resolution	Basis
No TS action required.	

Done 9/10/86

Resolution Accepted:

NRC _____

Date: 8/26/86

CP&L _____

Date: _____

SURVEILLANCE REQUIREMENTS (Continued)

Revisions 2, March 1978, and the system flow rate is 4000 cfm ± 10% during system operation when tested in accordance with ANSI N510-1975; and

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5.1 inches water gauge while operating the system at a flow rate of 4000 cfm ± 10%;

2. Verifying that, on a safety injection and high radiation test signal, the system automatically switches into an isolation with recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks;

3. Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge at less than or equal to a pressurization flow of 315 cfm relative to adjacent areas during system operation;

4. Verifying that the heaters dissipate 14 ± 1.4 kW when tested in accordance with ANSI N510-1975; and

5. Verifying that, on a High Chlorine test signal, the system automatically isolates the control room within 15 seconds and initiates a recirculation flow through the HEPA filters and charcoal adsorber banks.

OK

CP&L Comments

NPP Proof and Review Technical Specifications

Record Number: 731

Comment Type: IMPROVEMENT

LCO Number: 3.07.06

Page Number: 3/4 7-15

Section Number: 4.7.6.d.1 2

Comment:

CHANGE THE FIRST LINE OF SURVEILLANCE TO THE FOLLOWING:

"Verifying that, on either a safety injection or a high radiation test signal, the system....

Basis

THIS CHANGE IS TO CLARIFY THAT TWO DIFFERENT TESTS ARE INVOLVED IN MEETING THIS SURVEILLANCE.

OK Fell

Done 9/10/86

SURVEILLANCE REQUIREMENTS (Continued)

Revisions 2, March 1978, and the system flow rate is 4000 cfm ± 10% during system operation when tested in accordance with ANSI N510-~~1975~~ 1980; and

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5.1 inches water gauge while operating the system at a flow rate of 4000 cfm ± 10%;

2. Verifying that, on ~~a~~ EITHER A safety injection ~~and~~ OR A high radiation test signal, the system automatically switches into an isolation with recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks;

3. Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge at less than or equal to a pressurization flow of 315 cfm relative to adjacent areas during system operation;

4. Verifying that the heaters dissipate 14 ± 1.4 kW when tested in accordance with ANSI N510-~~1975~~ 1980; and

5. Verifying that, on a High Chlorine test signal, the system automatically isolates the control room within 15 seconds and initiates a recirculation flow through the HEPA filters and charcoal adsorber banks.

OK

CP&L Comments

NPP Proof and Review Technical Specifications

Record Number: 701

Comment Type: ERROR

LCO Number: 3.07.06

Page Number: 3/4 7-15,16 & B 3/4 7-3

Section Number: VARIOUS

Comment:

ITEMS 4.7.6.b.1, 4.7.6.d.4, 4.7.6.e, 4.7.6.f AND BASES 4.7.6 - CHANGE ANSI N510-1975 TO ANSI N510-1980 IN ALL PLACES

Basis

THIS CHANGE IS MADE FOR CONSISTENCY WITH THE FSAR.

Ok Fell

Done 9/10/86

FINAL DRAFT
SHNPP
REVISION
JUL 1986

SURVEILLANCE REQUIREMENTS (Continued)

Revisions 2, March 1978, and the system flow rate is 4000 cfm ± 10% during system operation when tested in accordance with ANSI N510-~~1975~~ 1980; and

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 0.175% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 5.1 inches water gauge while operating the system at a flow rate of 4000 cfm ± 10%;

2. Verifying that, on ~~a~~ either A safety injection ~~test~~ or A high radiation test signal, the system automatically switches into an isolation with recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks;

3. Verifying that the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge at less than or equal to a pressurization flow of 315 cfm relative to adjacent areas during system operation;

4. Verifying that the heaters dissipate 14 ± 1.4 kW when tested in accordance with ANSI N510-~~1975~~ 1980; and

5. Verifying that, on a High Chlorine test signal, the system automatically isolates the control room within 15 seconds and initiates a recirculation flow through the HEPA filters and charcoal adsorber banks.

SURVEILLANCE REQUIREMENTS (Continued)

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-~~1975~~ 1980 for a DOP test aerosol while operating the system at a flow rate of 4000 cfm ± 10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the cleanup system satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-~~1975~~ 1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 4000 cfm ± 10%.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the Component Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.4 EMERGENCY SERVICE WATER SYSTEM

The OPERABILITY of the Emergency Service Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.5 ULTIMATE HEAT SINK

The limitations on the ultimate heat sink level and temperature ensure that sufficient cooling capacity is available either: (1) provide normal cooldown of the facility or (2) mitigate the effects of accident conditions within acceptable limits.

The limitations on minimum water level and maximum temperature are based on providing a 30-day cooling water supply to safety-related equipment without exceeding its design basis temperature and is consistent with the recommendations of Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Plants," Rev. 2, January 1976.

3/4.7.6 CONTROL ROOM EMERGENCY FILTRATION SYSTEM

The OPERABILITY of the Control Room Emergency Filtration System ensures that the control room will remain habitable for operations personnel during and following all credible accident conditions. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50. ANSI N510-~~1975~~ 1980 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon a removal efficiency of 99% for elemental, particulate and organic forms of radioiodine. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for these components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit.

3/4.7.7 REACTOR AUXILIARY BUILDING EMERGENCY EXHAUST SYSTEM

The OPERABILITY of the Reactor Auxiliary Building Emergency Exhaust System ensures that radioactive materials leaking from the ECCS equipment within the

Fell

NE

CP&L Comments

SHNPP Final Draft Technical Specifications

Record Number: 795

Comment Type: ~~ERROR~~

LCO Number: 3.07.07 & 3.09.12

Page Number: 3/4 7-17 etc & 9-14 etc.

Section Number: 4.7.7 & 4.9.12

Comment:

IN ITEMS 4.7.7.b.1 (P 7-17) and 4.9.12.b.1 (P 9-14) - CHANGE "0.05%" TO "0.05% HEPA 1.0% CHARCOAL
4.7.7.e (P 7-18) and 4.9.12.f (P 9-16) - CHANGE "0.05%" TO "1.0 %".

Basis

THE FILTERS COVERED BY THESE TWO SPECIFICATIONS ARE 95% EFFICIENT. ACCORDING TO GENERIC LETTER 83-13. MARCH 2. 1983. A VALUE OF 1.0% IS APPROPRIATE FOR FILTERS ASSUMED TO BE 95% EFFICIENT. THE INCORRECT VALUE WAS ERRONEOUSLY SUBMITTED BY CP&L.

NO! Generic Letter is not valid and in addition by pass leakage around 1.0% ~~is~~ charcoal filter will require a re analysis for site boundary dose. Therefore No Change is approved; Note 5% is ~~degrees~~ penetration test & allow requires a 0.01 this credit. RWF 9/10/86

PLANT SYSTEMS

3/4.7.7 REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent RAB Emergency Exhaust Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one RAB Emergency Exhaust System inoperable, restore the inoperable system 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.

SURVEILLANCE REQUIREMENTS

4.7.7 Each RAB Emergency Exhaust System shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the HEPA, 1% charcoal cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the unit flow rate is 6800 cfm ± 10% during system operation when tested in accordance with ANSI N510-~~1975~~ 1980;

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,

SURVEILLANCE REQUIREMENTS (Continued)

meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is less than 4.1 inches water gauge while operating the unit at a flow rate of 6800 cfm ± 10%,

2. Verifying that the system starts on a safety injection test signal,

3. Verifying that the system maintains the areas served by the exhaust system at a negative pressure of greater than or equal to 1/8 inch water gauge relative to the outside atmosphere,

4. Verifying that the filter cooling bypass valve is locked in the balanced position, and

5. Verifying that the heaters dissipate 40 ± 4 kW when tested in accordance with ANSI N510-~~1975~~ 1980.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-~~1975~~ 1980 for a DOP test aerosol while operating the unit at a flow rate of 6800 cfm ± 10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than ~~0.05%~~ 1.0% in accordance with ANSI N510-~~1975~~ 1980 for a halogenated hydrocarbon refrigerant test gas while operating the unit at a flow rate of 6800 cfm ± 10%.

OK

CP&L Comments

NPP Proof and Review Technical Specifications

Record Number: 702

Comment Type: ERROR

LCO Number: 3.07.07

Page Number: 3/4 7-17, 18 &B 3/4 7-4

Section Number: VARIOUS

Comment:

ITEMS 4.7.7.b.1, 4.7.7.d.5, 4.7.7.e, 4.7.7.f AND BASES 4.7.7 - CHANGE ANSI N510-1975 TO ANSI N510-1980.

Basis

THIS CHANGE IS MADE FOR CONSISTENCY WITH THE FSAR.

Fell

Done 9/10/86

PLANT SYSTEMS

3/4.7.7 REACTOR AUXILIARY BUILDING (RAB) EMERGENCY EXHAUST SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.7 Two independent RAB Emergency Exhaust Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With one RAB Emergency Exhaust System inoperable, restore the inoperable system 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.

SURVEILLANCE REQUIREMENTS

4.7.7 Each RAB Emergency Exhaust System shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters operating;

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the unit flow rate is 6800 cfm ± 10% during system operation when tested in accordance with ANSI N510-~~1975~~ 1980;

2. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

c. After every 720 hours of charcoal adsorber operation, by verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978,

meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is less than 4.1 inches water gauge while operating the unit at a flow rate of 6800 cfm ± 10%,

2. Verifying that the system starts on a safety injection test signal,

3. Verifying that the system maintains the areas served by the exhaust system at a negative pressure of greater than or equal to 1/8 inch water gauge relative to the outside atmosphere,

4. Verifying that the filter cooling bypass valve is locked in the balanced position, and

5. Verifying that the heaters dissipate 40 ± 4 kW when tested in accordance with ANSI N510-1980.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the unit at a flow rate of 6800 cfm ± 10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the unit at a flow rate of 6800 cfm ± 10%.

REACTOR AUXILIARY BUILDING EMERGENCY EXHAUST SYSTEM (Continued)

pump room following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses. ANSI N510-~~1975~~ 1980 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon removal efficiencies of 95% for organic and elemental forms of radioiodine and 99% for particulate forms. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for these components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit.

3/4.7.8 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Manager-Technical Support. The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location, etc.), and the recommendations of Regulatory Guides 8.8 and 8.10. The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to each safety-related system during an earthquake or severe transient. Therefore, the required inspection interval varies inversely with the observed snubber failures on a given system and is determined by the number of inoperable snubbers found during an inspection of each system. In order to establish the inspection frequency for each type of snubber on a safety-related system, it was assumed that the frequency of snubber failures and initiating events is constant with time and that the failure of any snubber on that system could cause the system to be unprotected and to result in failure during an assumed initiating event. Inspections performed before that interval has

OK

Shearon Harris
Technical Specifications
Resolution of Staff Comments

Originator: PSB - Fell
Comment Date: 8/5/86

Page: 3/4 7-18

Comment:

Section 3/4.7.7, Item 4.7.7.d.3, Page 3/4 7-18:

Closed item: However, value of 1/8" water gauge relative to outside atmosphere to be subject of a later proposed generic issue.

With respect to the technical specification on the emergency filtration system for ECCS pump rooms, Technical Specification 3/4.7.7, the Westinghouse Standard Technical Specifications have a number inconsistent with staff practice. The number specified for negative pressure should be 1/4" water gauge versus the 1/8" listed. In addition, the measurement of the pressure differential should be made relative to all adjoining areas versus the atmosphere. Because both of these items would involve backfit considerations for Shearon Harris, PSB will not pursue them for Shearon Harris but will send a separate memo to FOB regarding generic implications.

Resolution	Basis
No action required.	Generic application to SFS

Done 9/10/86

Resolution Accepted:

NRC R A Benedict

Date: 8/22/86

CP&L _____

Date: _____

SURVEILLANCE REQUIREMENTS (Continued)

meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978, by showing a methyl iodide penetration of less than 1.0% when tested at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803.

d. At least once per 18 months by:

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber bank is less than 4.1 inches water gauge while operating the unit at a flow rate of 6800 cfm ± 10%,

2. Verifying that the system starts on a safety injection test signal,

3. Verifying that the system maintains the areas served by the exhaust system at a negative pressure of greater than or equal to 1/8 inch water gauge relative to the outside atmosphere,

4. Verifying that the filter cooling bypass valve is locked in the balanced position, and

5. Verifying that the heaters dissipate 40 ± 4 kW when tested in accordance with ANSI N510-1975.

e. After each complete or partial replacement of a HEPA filter bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1975 for a DOP test aerosol while operating the unit at a flow rate of 6800 cfm ± 10%; and

f. After each complete or partial replacement of a charcoal adsorber bank, by verifying that the unit satisfies the in-place penetration leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1975 for a halogenated hydrocarbon refrigerant test gas while operating the unit at a flow rate of 6800 cfm ± 10%.

EK

Shearon Harris
Technical Specifications
Resolution of Staff Comments

Originator: E.B. Sullivan by Elliott (J. Brammer) Page: 3/4 7-19, 20
Comment Date:

Comment:

See attached marked-up pages.

Resolution	Basis
Delete the "system" phrases.	The "system" phrases are not per STS -- they were inadvertently included.

Done 9/10/86

Resolution Accepted:

NRC R.A. Benedict

Date: 8/12/86

CP&L C.R. Bohanan

Date: 8-12-86

PLANT SYSTEMS

3/4.7.8 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.8 All snubbers shall be OPERABLE. The only snubbers excluded from the requirements are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed would have no adverse effect on any safety-related system.

APPLICABILITY: MODES 1, 2, 3, and 4. MODES 5 and 6 for snubbers located on systems required OPERABLE in those MODES.

ACTION:

With one or more snubbers inoperable on any system, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation per Specification 4.7.8g. on the attached component or declare the attached system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.8 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program ~~in lieu of~~ and the requirements of Specification 4.0.5. RAB 8/22/86

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these groups (inaccessible and accessible) may be inspected independently according to the schedule below. The first inservice visual inspection of each type of snubber shall be performed after 4 months but within 10 months of commencing POWER OPERATION and shall include all snubbers. If all snubbers of each type on any system are found OPERABLE during the first inservice visual inspection, the second inservice visual inspection of that system shall be performed at the first refueling outage. Otherwise, subsequent visual inspections of a given system shall be performed in accordance with the following schedule:

SURVEILLANCE REQUIREMENTS (Continued)

No. of Inoperable Snubbers of Each Type on Any System per Inspection Period	Subsequent Visual Inspection Period*,**
0	18 months ± 25%
1	12 months ± 25%
2	6 months ± 25%
3,4	124 days ± 25%
5,6,7	62 days ± 25%
8 or more	31 days ± 25%

c. Visual Inspection Acceptance Criteria

Visual inspections shall verify that: (1) there are no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, provided that: (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers ~~irrespective of type on that system~~ that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.7.8f. All snubbers connected to an inoperable common hydraulic fluid reservoir shall be counted as inoperable snubbers. ~~For those snubbers common to more than one system, the OPERABILITY of such snubbers shall be considered in assessing the surveillance schedule for each of the related systems.~~

RAJB 8/22/

RAJB 8/22/

d. Transient Event Inspection

An inspection shall be performed of all snubbers attached to sections of systems that have experienced unexpected, potentially damaging transients as determined from a review of operational data and a visual inspection of the systems within 6 months following such an event. In addition to satisfying the visual inspection acceptance criteria, freedom-of-motion of mechanical snubbers shall be verified using at least one of the following: (1) manually induced snubber movement; or (2) evaluation of in-place snubber piston setting; or (3) stroking the mechanical snubber through its full range of travel.

*The inspection interval for each type of snubber on a given system shall not be lengthened more than one step at a time unless a generic problem has been identified and corrected; in that event the inspection interval may be lengthened one step the first time and two steps thereafter if no inoperable snubbers of that type are found on that system.

**The provisions of Specification 4.0.2 are not applicable.

PLANT SYSTEMS

3/4.7.8 SNUBBERS

LIMITING CONDITION FOR OPERATION

3.7.8 All snubbers shall be OPERABLE. The only snubbers excluded from the requirements are those installed on nonsafety-related systems and then only if their failure or failure of the system on which they are installed would have no adverse effect on any safety-related system.

APPLICABILITY: MODES 1, 2, 3, and 4. MODES 5 and 6 for snubbers located on systems required OPERABLE in those MODES.

ACTION:

With one or more snubbers inoperable on any system, within 72 hours replace or restore the inoperable snubber(s) to OPERABLE status and perform an engineering evaluation per Specification 4.7.8g. on the attached component or declare the attached system inoperable and follow the appropriate ACTION statement for that system.

SURVEILLANCE REQUIREMENTS

4.7.8 Each snubber shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program ~~in lieu of~~ and the requirements of Specification 4.0.5.

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these groups (inaccessible and accessible) may be inspected independently according to the schedule below. The first inservice visual inspection of each type of snubber shall be performed after 4 months but within 10 months of commencing POWER OPERATION and shall include all snubbers. If all snubbers of each type ~~on any system~~ are found OPERABLE during the first inservice visual inspection, the second inservice visual inspection ~~of those systems~~ shall be performed at the first refueling outage. Otherwise, subsequent visual inspections ~~of a given system~~ shall be performed in accordance with the following schedule:

Per Gen. Letter 84-13, (See also Susquehanna memo attached)

SURVEILLANCE REQUIREMENTS (Continued)

No. of Inoperable Snubbers of Each Type ~~on Any System~~ per Inspection Period	Subsequent Visual Inspection Period*,**
0	18 months ± 25%
1	12 months ± 25%
2	6 months ± 25%
3,4	124 days ± 25%
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c. Visual Inspection Acceptance Criteria

Visual inspections shall verify that: (1) there are no visible indications of damage or impaired OPERABILITY, (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for attachment of the snubber to the component and to the snubber anchorage are functional. Snubbers which appear inoperable as a result of visual inspections may be determined OPERABLE for the purpose of establishing the next visual inspection interval, provided that: (1) the cause of the rejection is clearly established ~~and remedied~~ for that particular snubber and for other snubbers ~~irrespective of type on that system~~ that may be generically susceptible; and (2) the ~~affected~~ snubber is functionally tested in the as-found condition and determined OPERABLE per Specification 4.7.8f. All snubbers connected to an inoperable common hydraulic fluid reservoir shall be counted as inoperable snubbers. ~~For those snubbers common to more than one system, the OPERABILITY of such snubbers shall be considered in assessing the surveillance schedule for each of the related systems.~~

d. Transient Event Inspection

An inspection shall be performed of all snubbers attached to sections of systems that have experienced unexpected, potentially damaging transients as determined from a review of operational data and a visual inspection of the systems within 6 months following such an event. In addition to satisfying the visual inspection acceptance criteria, freedom-of-motion of mechanical snubbers shall be verified using at least one of the following: (1) manually induced snubber movement; or (2) evaluation of in-place snubber piston setting; or (3) stroking the mechanical snubber through its full range of travel.

*The inspection interval for each type of snubber ~~on a given system~~ shall not be lengthened more than one step at a time unless a generic problem has been identified and corrected; in that event the inspection interval may be lengthened one step the first time and two steps thereafter if no inoperable snubbers of that type are found ~~on that system~~.

**The provisions of Specification 4.0.2 are not applicable.

BASES

REACTOR AUXILIARY BUILDING EMERGENCY EXHAUST SYSTEM (Continued)

pump room following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses. ANSI N510-1975 will be used as a procedural guide for surveillance testing. Criteria for laboratory testing of charcoal and for in-place testing of HEPA filters and charcoal adsorbers is based upon removal efficiencies of 95% for organic and elemental forms of radioiodine and 99% for particulate forms. The filter pressure drop was chosen to be half-way between the estimated clean and dirty pressure drops for these components. This assures the full functionality of the filters for a prolonged period, even at the Technical Specification limit.

3/4.7.8 SNUBBERS

All snubbers are required OPERABLE to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

Snubbers are classified and grouped by design and manufacturer but not by size. For example, mechanical snubbers utilizing the same design features of the 2-kip, 10-kip and 100-kip capacity manufactured by Company "A" are of the same type. The same design mechanical snubbers manufactured by Company "B" for the purposes of this Technical Specification would be of a different type, as would hydraulic snubbers from either manufacturer.

A list of individual snubbers with detailed information of snubber location and size and of system affected shall be available at the plant in accordance with Section 50.71(c) of 10 CFR Part 50. The accessibility of each snubber shall be determined and approved by the Manager-Technical Support. The determination shall be based upon the existing radiation levels and the expected time to perform a visual inspection in each snubber location as well as other factors associated with accessibility during plant operations (e.g., temperature, atmosphere, location, etc.), and the recommendations of Regulatory Guides 8.8 and 8.10. The addition or deletion of any hydraulic or mechanical snubber shall be made in accordance with Section 50.59 of 10 CFR Part 50.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to each safety-related system during an earthquake or severe transient. Therefore, the required inspection interval varies inversely with the observed snubber failures ~~on a given system~~ and is determined by the number of inoperable snubbers found during an inspection ~~of each system~~. In order to establish the inspection frequency for each type of snubber, ~~on a safety related system~~ it was assumed that the frequency of snubber failures and initiating events is constant with time and that the failure of any snubber ~~on that system~~ could cause the system to be unprotected and to result in failure during an assumed initiating event. Inspections performed before that interval has