TABLE 3.6-1

CONTAINMENT ISOLATION VALVES

PENT. NO.	IDENTIFICATION/DESCRIPTION	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)
29	Fuel transfer tube	flange	NA	(1)	NA
100	charging line to "B" loop	CV 370B	NA	(2)	NA
101	SI Pump 1B discharge	CV 889B CV 870B	NA NA	(5) (5)	NA NA
102	Alternate charging to "A" cold leg	CV 383B	NA	(2)	NA
103	Construction Fire Service Water	welded flange	NA	MV 5129	NA
105	Containment Spray Pump 1A	CV 862A	NA	(3)	NA
106	"A" Reactor Coolant Pump (RCP) seal water inlet	CV 304A	NA	(2)	NA
107	Sump A discharge to Waste Holdup Tank	AOV 1728	60	AOV 1723	60
108	RCP seal water out and excess letdown to VCT	MOV 313	60	(4)	NA
109	Containment Spray Pump 1B	CV 862B	NA	(3)	NA
110	"B" RCP seal water inlet	CV 304B	NA	(2)	NA
110	SI test line	MV 879	NA	(5)	NA
111	RHR to "B" cold leg	MOV 720(20)	NA	(6)	NA
112	letdown to Non-regen. Heat exchanger	AOV 371	60	MV 204A MV 820 (14)(17)	NA
113	SI Pump 1A discharge	CV 889A CV 870A	NA NA	(5) (5)	NA NA
120	Nitrogen to Accumulators	CV 8623	NA	AOV 846	60
120	Pressurizer Relief Tank (PRT) to Gas Analyzer (GA)	AOV 539	60	MV 546(7)	NA

PENT. NO.	IDENTIFICATION/DESCRIPTION	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)
121	Nitrogen to PRT	CV 528	NA	MV 547(8)	NA
121	Reactor Makeup water to PRT	CV 529	NA	AOV 508	60
121	Cont. Press. transmitter PT-945 (10)	PT 945	NA	MV 1819A	NA
121	Cont. Press. transmitter PT-946 (10)	PT 946	NA	MV 1819B	NA
123	Reactor Coolant Drain Tank (RCDT) to GA	AOV 1789	60	MV 1655(7)	NA
124	Excess letdown supply and return to heat exchanger	AOV 745 CV 743	60 NA	(11) (11)	NA NA
124	Post Accident air sample "C" fan	MV 1569 MV 1572	NA NA	MV 1571 MV 1574	NA NA
125	Component Cooling Water (CCW) from 1B RCP	MOV 759B	NA	(12)	NA
126	CCW from 1A RCP	MOV 759A	NA	(12)	NA
127	CCW to 1A RCP	CV 750A	NA	MOV 749A	60
128	CCW to 1B RCP	CV 750B	NA	MOV 749B	60
129	RCDT & PRT to Vent Header	AOV 1787 CV 1713	60 NA	AOV 1786	60
130	CCW to reactor support cooling	MOV 813	60	(19)	NA
131	CCW to reactor support cooling	MOV 814	60	(19)	NA
132	Depressurization at power	AOV 7970	60	AOV 7971	60
140	RHR pump suction from "A" Hot leg	MOV 701(20)	NA	(6)	NA
141	RHR-#1 pump suction from Sump B	MOV 850A(13)	NA	MOV 851A(13)	NA
142	RHR-#2 pump suction from Sump B	MOV 850B(13)	NA	MOV 851B(13)	NA
143	RCDT pump suction	AOV 1721	60	AOV 1003A AOV 1003B	60 60
201	Reactor Compart. cooling Unit A & B	MV 4757(16) MV 4636(16)	NA NA	(11) (11)	NA NA
202	"B" Hydrogen recombiner (pilot & main)	MV 1076B MV 1084B	NA NA	SOV IV-3B SOV IV-5B	NA Normally Closed NA Normally Closed

PENT. NO.	IDENTIFICATION/DESCRIPTION	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)
203	Contain. Press. transmitter PT-947 & 948	PT 947 PT 948	NA NA	MV 1819C MV 1819D	NA NA
203	Post accident air sample to "B" fan	MV 1563 MV 1566	NA NA	MV 1565 MV 1568	NA NA
204	Purge Supply Duct	AOV 5870	5	AOV 5869	5
205	Hot leg loop sample	AOV 966C	60	MV 956D(14)	NA
206	Przr. liquid space sample	AOV 966B	60	MV 956E(14)	NA
206	"A" S/G sample	AOV 5735	60	MV 5733(7)	NA
207	Przr. Steam space sample	AOV 966A	60	MV 956F	NA
207	"B" S/G sample	AOV 5736	60	MV 5734(7)	NA
209	Reactor Compart. cooling Units A & B	MV 4758(16) MV 4635(16)	NA NA	(11) (11)	NA NA
210	Oxygen makeup to A & B recombiners	MV 1080A	NA	SOV IV-2A SOV IV-2B	NA Normally Closed NA Normally Closed
300	Purge Exhaust Duct	AOV 5878	5	AOV 5879	5
301	Aux. steam supply to containment	MV 6151	NA	MV 6165(15)	NA
303	Aux. steam condensate return	MV 6175	NA	MV 6152(15)	NA
304	"A" Hydrogen recombiner (pilot and main)	MV 1084A MV 1076A	NA NA	SOV IV-5A SOV IV-3A	NA Normally Closed NA Normally Closed
305	Radiation Monitors R-11, R-12 & R-10A Auto Inlet Isol.	AOV 1597	60	MV 1596	NA
305	R-11, R-12 & R-10A Outlet	CV 1599	NA	AOV 1598	60
305	Post Accident air sample (containment)	MV 1554 MV 1557 MV 1560	NA NA NA	MV 1556 MV 1559 MV 1562	NA NA NA
307	Fire Service Water	CV 9229	NA	AOV 9227	(18)

PENT. NO.	IDENTIFICATION/DESCRIPTION	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)
308	Service Water to "A" fan cooler	MV 4627(16)	NA	(11)	NA
309	Leakage test depressurization	flange	NA	MOV 7445	NA Normally Closed
310	Service Air to Contain.	CV 7226	NA	MV7141	NA
310	Instrument Air to Contain.	CV 5393	NA	AOV 5392	60
311	Service Water from "B" fan cooler	MV 4630(16)	NA	(11)	NA
312	Service Water to "D" fan cooler	MV 4642(16)	NA	(11)	NA
313	Leakage test depressurization	flange	NA	MOV 7444	NA Normally Closed
315	Service Water from "C" fan cooler	MV 4643(16)	NA	(11)	NA
316	Service Water to "B" fan cooler	MV 4628(16)	NA	(11)	NA
317	Leakage test supply	flange	NA	MOV 7443	NA Normally Closed
318	Dead weight tester (decommissioned)	tubing cap	NA	cap	NA
319	Service Water from "A" fan cooler	MV 4629(16)	NA	(11)	NA
320	Service water to "C" fan cooler	MV 4641(16)	NA	(11)	NA
321	A S/G Blowdown	AOV 5738	60	MV 5701(7)	NA
322	B S/G Blowdown	AOV 5737	60	MV 5702(7)	NA
323	Service Water from "D" fan cooler	MV 4644(16)	NA	(11)	NA
324	Demineralized water to Containment	CV 8419	NA	AOV 8418	60
332	Cont. Press. Trans. PT-944, 949 & 950	PT 944	NA	MV 1819G	NA
		PT 949	NA	MV 1819F	NA
		PT 950	NA	MV 1819E	NA
332	Leakage test and hydrogen monitor instrumentation lines	MV 7448	NA	cap	NA
		MV 7452	NA	cap	NA
		MV 7456	NA	cap	NA
		SOV 921	NA	(21)	NA
		SOV 922	NA	(21)	NA
		SOV 923	NA	(21)	NA
		SOV 924	NA	(21)	NA

PENT. NO.	IDENTIFICATION/DESCRIPTION	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)	ISOLATION BOUNDARY	MAXIMUM ISOLATION TIME *(SEC)
401	Main steam from A S/G	NA**	NA	NA	NA
402	Main steam from B S/G	NA**	NA	NA	NA
403	Feedwater line to A S/G	NA**	NA	NA	NA
404	Feedwater line to B S/G	NA**	NA	NA	NA
1000	Personnel Hatch	NA	NA	NA	NA
2000	Equipment Hatch	NA	NA	NA	NA

*The maximum isolation time does not include diesel start time.

**The MSIVs and feedwater isolation valves are not considered to be containment isolation valves. The containment boundary is the steam generator secondary side and tubes.

MV - Manual Valve
MOV - Motor Operated Valve
AOV - Air Operated Valve
CV - Check Valve
SOV - Solenoid Operated Valve

(10) The pressure transmitter provides a boundary.

(11) Normally operating incoming and outgoing lines which are connected to closed systems inside containment and protected against missiles throughout their length, are provided with at least one manual isolation valve outside containment (FSAR 5.2.2 pg. 5.2.2-2).

(12) The single remotely controlled containment isolation valve is normally open and motor operated. The cooling water return line is not directly connected to the reactor coolant system and, should remain open while the coolant pump is running. A second automatic isolation barrier is provided by the component cooling water loop, a closed system. (FSAR 5.2.2 pg. 5.2.2-1a)

(13) See FSAR Table 5.2.2-1 and Figure 5.2.2-2. Sump lines are in operation and filled with fluid following an accident. Containment leakage testing is not required. The valves are subjected to RHR system hydrostatic test.

(14) Normally operating outgoing lines connected to the Reactor Coolant System are provided with at least one automatically operated trip valve and one manual isolation valve in series located outside the containment. In addition to the isolation valves, each line connected to the Reactor Coolant System is provided with a remote operated root valve located near its connection to the Reactor Coolant System. (FSAR 5.2.2 pg. 5.2.2-1)

(15) See FSAR Table 5.2.2-1 and Figure 5.2.2-17.

(16) The Service Water system operates at a pressure higher than the containment accident pressure and is missile protected inside containment. Therefore, these valves are used for flow control only and need not be leak tested.

(17) A manual valve outside containment in series with an automatic valve is provided for normally operating outgoing RCS lines (FSAR pg. 5.2.2-1).

(18) Fire Service Water will be used only to fight fires inside containment. AOV 9227 is closed during power operation. A containment isolation signal to automatically close this valve is not required because a spurious signal during a fire may be hazardous to personnel and may impede fire suppression activities.

(19) See FSAR Table 5.2.2-1 and Figure 5.2.2-16.

(20) Containment leakage testing is not required per L. D. White, Jr. letter to Dennis L. Ziemann, USNRC dated September 21, 1978.

(21) Acceptable isolation capability is provided for instrument lines by two isolation boundaries outside containment. One of the boundaries outside containment may be a Seismic Class 1 closed system which is subjected to Type C leak rate testing.

Attachment B

The proposed changes will revise the containment isolation valve table, Technical Specification Table 3.6-1, to incorporate plant system modifications.

Penetration 318, the deadweight tester, is no longer used for calibration of pressurizer instrumentation. Decommissioning the penetration with caps both inside and outside the containment near the containment wall provides a secure means of preventing containment leakage. Removing the valve outside containment and replacing it with a cap reduces the potential for line leakage and eliminates the need for testing a valve and line which is not used. This modification was performed after Table 3.6-1 was submitted for NRC approval but before the table was incorprated in the Technical Specifications. The means of decommissioning this tubing penetration was discussed with the NRC Staff and verbal approval was given in November 1980. The modified configuration is consistent with other penetrations not in service which have been previously approved by the Staff.

Penetration 332, leakage test instrumentation lines, is to be modified for installation of the containment hydrogen monitors required by NUREG-0737. Leakage from the lines in the penetration in its existing configuration is prevented by a cap inside containment and normally closed manual valves outside containment. This configuration was acceptable for normal operation because the lines were opened for use only during integrated leak rate tests of the containment. In the modified configuration, the caps will be removed inside the containment to allow use of the lines in post accident conditions for monitoring containment hydrogen concentrations.

An acceptable method of isolating this penetration is to provide an isolation valve on each of the three tubing lines both inside and outside containment. This configuration tends to reduce the reliability of the hydrogen monitors which require both series valves in the suction and return lines to be open to enable sampling of the containment atmosphere. Limitations within the containment isolation valve relay racks also prohibited adding six additional isolation valves, at least until two new isolation relay rack cabinets are added to the plant.

Another acceptable method of isolating these lines is to provide a design which meets the guidelines of Regulatory Guide 1.11 and Instrument Society of America (ISA) standard S67.02-1980, Nuclear-Safety-Related Instrument Sensing Line Piping and Tubing Standards For Use in Nuclear Power Plants. Compliance with the criteria of these documents assure that the design is acceptable on "some other defined basis" as allowed by General Design Criterion 56, the criterion applicable to lines penetrating the containment which are connected directly to the containment atmosphere. The deadline imposed for installation of the hydrogen monitors

has not allowed sufficient time to complete the analysis required to demonstrate that the release rate through the as-designed tubing system will be sufficiently limited to meet 10 CFR Part 100 dose limitations and that the flow rate will still be high enough to allow proper functioning of the monitors.

An alternative defined basis for isolation of these tubing lines is to provide redundant, seismically designed barriers outside containment which will be protected from the effects of events inside containment which require containment isolation. Appropriate isolation barriers to meet this criterion include administratively controlled closed manual valves, closed remote manual isolation valves, tube caps and seismically designed closed system outside containment. Specifically, the tube branch lines which serve the leak test instrumentation (used only periodically during outages) will have a closed manual valve in each line near containment and each line will be disconnected and capped near the valve. Branch lines serving the hydrogen monitors will have one normally closed remote manual isolation valve; also close to the containment wall. Each hydrogen monitor has been designed and installed to meet Seismic Class I criteria and will be leak tested to Appendix J Type C standards.

Little additional protection is provided by locating one of the barriers inside containment if both barriers outside containment are protected against the dynamic effects of events which require isolation. Plant safety is enhanced by making the hydrogen monitors available for use following LOCAs. Therefore, isolation of this penetration by two barriers in each tubing line outside containment provides acceptable protection against leakage.

Penetration 307, fire service water, has two isolation valves, check valve 9229 inside containment and AOV 9227 outside containment. Containment isolation criteria normally require a locked closed valve or an automatic valve outside containment. AOV 9227 is normally closed during power operation, has position indication and tamper indication in the control room and is remote manually controlled from the control room. AOV 9227 currently gets a containment isolation signal. We propose to remove the signal after NRC approval. The only time this valve will be open during power operation is during a fire inside containment. Under these circumstances, it is possible that the fire could damage transmitters or cables which could generate a containment isolation signal and subsequently cause a loss of fire water to the firefighters inside containment. The potential hazard to the firefighters is an unacceptable personnel risk and is a greater risk than that posed by a potential leakage path through redundant normally closed valves following a LOCA.

Both position indication and tamper indication in the control room provide adequate assurance that AOV 9227 will be closed following events which require containment isolation without requiring an automatic closure signal or a lock on the valve. A locked valve may inhibit quick fire brigade action. Therefore, check valve 9229 and normally closed AOV 9227 with tamper indication provide adequate protection of public health and safety through some "other defined basis" as allowed by General Design Criteria 56.

Therefore, the proposed technical specification changes will not result in significant increases in potential containment leakage nor increase the allowable containment leakage.