Attachment B

To

Letter from D. C. Hintz to M. B. Fairtile

Dated May 17, 1985

Revision B to Kewaunee Nuclear Power Plant

Inservice Testing Plan

50-305

PUMPS AND VALVES IST PLAN REVISION B

Docket # 50-305

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REGULATORY DOCKET FILE

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PUMPS AND VALVES IST PLAN

REVISION B

REVIEWED [signature] DATE MAY 16 1985
Operations Engineer

APPROVED [signature] DATE MAY 16 1985
Plant Manager

The Inservice Testing (IST) plan was prepared for the Kewaunee Nuclear Power Plant to address test requirements for the second 10-year cycle. The Kewaunee plant which is located nine miles south of Kewaunee, Wisconsin on the western shore of Lake Michigan is operated by Wisconsin Public Service Corporation. Kewaunee is owned jointly by Wisconsin Public Service Corporation, Wisconsin Power & Light Company, and Madison Gas & Electric Company. The Kewaunee plant is a 540 megawatt electric, Westinghouse design, two loop pressurized water reactor which was placed into commercial operation in June 1974. The second inspection interval began June 16, 1984.

This Inservice Testing (IST) Plan was prepared in accordance with the requirements of the Code of Federal Regulations 10 CFR 50.55a(g).

As specified in 10 CFR 50.55 a(g)(4)(ii), the ASME code edition and addenda selected for the preparation and use of the plan during the second 10-year interval is the latest version incorporated by reference in 10 CFR 50.55 a(b)(2) approved one year prior to the start of the second interval. On June 16, 1983, the 1980 Edition with addenda through Winter 1981 addenda was the latest version of Section XI referenced in 10 CFR 50.55 a(b)(2).

This plan consists of tables which delineate the ASME Code Class 1, 2 and 3 pumps and valves subject to the testing requirements of Subsections IWP and IWV of the ASME Boiler and Pressure Vessel Code, 1980 Edition and addenda through Winter 1981.

The tabulation of pumps, Table 1, identified the pumps to be tested, pump code class, parameters to be measured, test procedures and intervals, and relief requests if necessary.

In addition to relief requests, which address those tests determined to be impractical and for which Nuclear Regulatory Commission approval is required, the plan includes notes in the tables. A note is used to further define the testing method or to reference an exception that is allowed by the Code.

The tabulation of valves, Table 2, identified the valves to be tested, flow drawing on which the valve appears, ASME code class and category as defined by IWV-2200 of the Code, a description of the valve function, test procedures and frequency, and relief requests.

Valves which are not required to change position to perform their required function are considered "passive" valves and do not require exercise testing; however, if the passive valve is a containment isolation valve, leak rate testing is still required. Valves which are passive and for which seat leakage in the closed position is inconsequential for fulfillment of their function are not included in this IST plan.

The NRC Safety Evaluation Report dated September 30, 1982, concluded that the combination of system design and the performance of hydrostatic testing is sufficient to assure that certain containment boundary valves are not relied upon to prevent the escape of containment air to the auxiliary building atmosphere. Therefore, several valves which might appear to be containment isolation valves and thus require leak testing (category A), are categorized as type B valves since their leakage is inconsequential for fulfillment of their function.

In accordance with IWV-3415, valves with fail-safe actuators are tested by observing the operation of the valves upon loss of actuating power. Placing the control switch in the proper position during normal exercising of the fail-safe valves will result in removing actuating power to these valves which would test their fail-safe feature.

A program has been established in accordance with IWV-3300 which requires valves with remote position indicators to be observed at least once every two years to verify that valve operation is accurately indicated.

TABLE 1 - ASME CODE CLASS 1, 2 AND 3 PUMPS

Pump Description	ASME Code Class	Test Parameters	Test Procedure	Test Interval	Notes/ Relief Requests
High Head Safety Injection Pumps 1A and 1B	2	1. Speed (if variable)	N/A	N/A	
		2. Inlet Pressure	SP 33-098	3 months	
		3. Differential Pressure	SP 33-098	3 months	
		4. Flow Rate	SP 33-191	Refueling	RR-5
		5. Vibration Amplitude	SP 55-177	3 months	
		6. Bearing Temperature	SP 33-191	Refueling	RR-14
		7. Lubricant Level or Pressure	SP 33-098	3 months	
Residual Heat Removal Pumps 1A and 1B	2	1. Speed (if variable)	N/A	N/A	
		2. Inlet Pressure	SP 34-099	3 months	
		3. Differential Pressure	SP 34-099	3 months	
		4. Flow Rate	SP 55-167-6	Cold Shutdown	RR-5
		5. Vibration Amplitude	SP 55-177	3 months	
		6. Bearing Temperature	----	----	RR-15
		7. Lubricant Level or Pressure	----	----	RR-15

MAY 16 1985

TABLE 1 - ASME CODE CLASS 1, 2 AND 3 PUMPS

Pump Description	ASME Code Class	Test Parameters	Test Procedure	Test Interval	Notes/ Relief Requests
Service Water	3	1. Speed (if variable)	N/A	N/A	
Pumps		2. Inlet Pressure	SP 02-138	3 months	RR-16
		3. Differential Pressure	SP 02-138	3 months	
1A1		4. Flow Rate	----	----	RR-5
1A2		5. Vibration Amplitude	SP 55-177	3 months	
1B1		6. Bearing Temperature	----	----	RR-3
1B2		7. Lubricant Level or Pressure	----	----	RR-3
Component	3	1. Speed (if variable)	N/A	N/A	
Cooling		2. Inlet Pressure	SP 31-168	3 months	RR-21
Pumps		3. Differential Pressure	SP 31-168	3 months	
		4. Flow Rate	SP 31-168	3 months	RR-11
1A and 1B		5. Vibration Amplitude	SP 55-177	3 months	
		6. Bearing Temperature	----	----	RR-17
		7. Lubricant Level or Pressure	SP 31-168	3 months	

MAY 16 1985

Pump Description	ASME Code Class	Test Parameters	Test Procedure	Test Interval	Notes/ Relief Requests
Auxiliary	3	1. Speed (if variable)	N/A	N/A	
Feedwater		2. Inlet Pressure	SP 05B-104	3 months	
Pumps		3. Differential Pressure	SP 05B-104	3 months	
(Motor Driven)		4. Flow Rate	SP 55-167-6	Cold Shutdown	RR-5
		5. Vibration Amplitude	SP 55-177	3 months	
1A and 1B		6. Bearing Temperature	SP 55-167-7	Refueling	
		7. Lubricant Level or Pressure	SP 05B-104	3 months	
Auxilairy	3	1. Speed (if variable)	SP 05B-105	3 months	
Feedwater		2. Inlet Pressure	SP 05B-105	3 months	
Pump		3. Differential Pressure	SP 05B-105	3 months	
(Turbine Drive)		4. Flow Rate	SP 55-167-6	Cold Shutdown	RR-5
		5. Vibration Amplitude	SP 55-177	3 months	
1C		6. Bearing Temperature	SP 55-167-7	Refueling	
		7. Lubricant Level or Pressure	SP 05B-105	3 months	

MAY 16 1985

TABLE 1 - ASME CODE CLASS 1, 2 AND 3 PUMPS (Page 4 of 4)

Pump Description	ASME Code Class	Test Parameters	Test Procedure	Test Interval	Notes/ Relief Requests
Containment	2	1. Speed (if variable)	N/A	N/A	
Spray Pumps		2. Inlet Pressure	SP 23-100	3 months	RR-22
		3. Differential Pressure	SP 23-100	3 months	
1A and 1B		4. Flow Rate	----	----	RR-5
		5. Vibration Amplitude	SP 55-177	3 months	
		6. Bearing Temperature	----	----	RR-17
		7. Lubricant Level or Pressure	SP 23-100	3 months	

MAY 16 1985

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
PR-1A PR-1B	X-K100-10	1	B	3-inch MOV Prz Relief Block Valve	SP55-167-5	N/A	3 months	N/A	
PR-2A PR-2B	X-K100-10	1	C	3-inch AOV Prz Relief Valves	SP55-167-9	N/A	Refueling Note 4		
PR-3A PR-3B	X-K100-10	1	C	6-inch safety Prz Safety Valves	SP-076B	N/A	Note 3	N/A	
PR-33A PR-33B	X-K100-10	1	B	1-inch solenoid Prz Steam Space Vent	SP55-167-9	N/A	Refueling	N/A	RR-19
RC-45A RC-45B	X-K100-10	1	B	1-inch solenoid Rx Head Vent	SP55-167-9	N/A	Refueling	N/A	RR-19
RC-49	X-K100-10	1	B	1-inch solenoid Prz and Rx Vent to Cont.	SP55-167-9	N/A	Refueling	N/A	RR-19
RC-46	X-K100-10	1	B	1-inch solenoid Prz and Rx Vent. to PRT	SP55-167-9	N/A	Refueling	N/A	RR-19
MG-(R)-513 MG-(R)-512	X-K100-10	2	A	3/8-inch AOV PRT to Gas Analyzer	SP55-167-3	SP56-090	3 months	Refueling	
NG-304	X-K100-10	2	A/C	3/4-inch check N2 supply to PRT	----	SP56-090	----	Refueling	RR-6
NG-302	X-K100-10	2	A	3/4-inch AOV N2 supply to PRT	SP55-167-5	SP56-090	3 months	Refueling	
MU-1011	X-K100-10	2	A/C	2-inch check Rx Make-up to PRT	----	SP56-090	----	Refueling	RR-6

MAY 16 1985

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
MU-1010-1	X-K100-10	2	A	2-inch AOV Rx Make-up to PRT	SP55-167-5	SP56-090	3 months	Refueling	
RHR-1A RHR-1B	X-K100-18	1	B	8-inch MOV RHR take off from hot legs	SP55-167-6	N/A	Cold Shutdown Note 7	N/A	
RHR-2A RHR-2B	X-K100-18	1	B	8-inch MOV RHR take off from hot legs	SP55-167-6	N/A	Cold Shutdown Note 7	N/A	
RHR-33	X-K100-18	2	C	2-inch, relief valve RHR suction relief valve	SP34-192	N/A	Note 3	N/A	
RHR-33-1	X-K100-18	2	C	6-inch, safety relief RHR suction LTOP protection	SP-34-192	N/A	Note 3	N/A	
RHR-3A RHR-3B	X-K100-18	2	C	8-inch, check RHR pump suction from hot legs	SP55-167-6	N/A	Cold Shutdown Note 7	N/A	
RHR-5A RHR-5B	X-K100-18	2	C	8-inch, check RHR pump discharge	SP55-167-6	N/A	Cold Shutdown Note 9	N/A	
RHR-11	X-K100-18	1	B	10-inch MOV RHR to Loop B cold leg	SP55-167-6	N/A	Cold Shutdown Note 8	N/A	

MAY 16 1985

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
CC-3A CC-3B	X-K100-19	3	C	10-inch, check Comp. cooling pump discharge	SP31-168	N/A	3 months	N/A	
CC-400A CC-400B	X-K100-19	3	B	10-inch, MOV CC water to RHR Hx	SP31-168	N/A	3 months	N/A	
SW-1400	X-K100-19	3	B	2-inch MOV CC Emergency Makeup SW	----	N/A	----	N/A	RR-18
CC-653	X-K100-20	2	B	3-inch MOV CCW from Excess Letdown HX	SP31-168	N/A	3 months Note 4	N/A	
SI-22A	X-K100-28	1	C	12-inch, Check Accum. disch. to Cold Leg	SP33-144	N/A	Cold Shutdown Note 18	N/A	RR-10
SI-22B	X-K100-28	1	A/C	12-inch, check Accum. disch. to Cold Leg	SP33-144	SP33-204	Cold Shutdown Note 18	Note 2	RR-10
SI-21A SI-21B	X-K100-28	1	C	12-inch, check Accum. disch. Stop Valves	SP33-144	N/A	Cold Shutdown Note 18	N/A	RR-10
SI-13A SI-13B	X-K100-28	1	C	6-inch, check HPSI to Cold Legs	SP33-191	N/A	Refueling	N/A	RR-13
SI-12A SI-12B	X-K100-28	1	C	2-inch, check HPSI to Cold Legs	SP33-191	N/A	Refueling	N/A	RR-13

MAY 16 1985

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
SI-16A SI-16B	X-K100-28	1	C	2-inch, check HPSI to Rx.Vessel Core Flood	SP33-191	N/A	Refueling	N/A	RR-13
SI-15A SI-15B	X-K100-28	2	B	12-inch, MOV HPSI to Rx.Vessel Core Flood	SP33-098	N/A	3 months	N/A	
SI-304A SI-304B	X-K100-28	1	A/C	6-inch, check HPSI and LPSI to Rx. Vessel	SP55-167-9	SP34-203	Refueling	Note 2	RR-13
SI-303A SI-303B	X-K100-28	1	A/C	6-inch, check LPSI to Rx. Vessel	SP55-167-9	SP34-203	Refueling	Note 2	RR-13
NG-108A NG-108B	X-K100-28	2	A	1-inch AOV N2 supply to Accum.	N/A	SP56-090	Note 1	Refueling	
NG-107	X-K100-28	2	A	1-inch AOV N2 supply to Accum.	SP55-167-5	SP56-090	3 months	Refueling	
SI-350A SI-350B SI-351A SI-351B	X-K100-28	2	B	12-inch MOV Cont. Sump Recirc. to RHR	SP34-099	N/A	3 months	N/A	
SI-6A SI-6B	X-K100-29	2	C	4-inch, check HPSI pump discharge	SP33-191	N/A	Refueling	N/A	RR-13
SI-5A SI-5B	X-K100-29	2	B	6-inch, MOV HPSI pump suction	SP33-098	N/A	3 months	N/A	

MAY 16 1985

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
SI-4A SI-4B	X-K100-29	2	B	12-inch, MOV RWST supply to HPSI	SP33-098	N/A	3 months	N/A	
SI-2A SI-2B	X-K100-29	2	B	8-inch, MOV BAT supply to HPSI	SP33-098	N/A	3 months	N/A	
RHR-300A RHR-300B	X-K100-29	2	B	6-inch, MOV HPSI pump suction from RHR	SP-33-098	N/A	3 months	N/A	
SI-301A SI-301B	X-K100-29	2	C	10-inch, check RWST supply to RHR pumps	SP55-167-9	N/A	Refueling	N/A	RR-13
SI-300A SI-300B	X-K100-29	2	B	10-inch, MOV RWST Supply to RHR Pumps	SP34-099	N/A	3 months	N/A	
SI-208 SI-209	X-K100-29	2	B	2-inch, MOV Test line to RWST	SP33-098	N/A	3 months	N/A	
SI-206A SI-206B	X-K100-29	2	C	2-inch, check Test line to RWST	----	N/A	----	N/A	RR-5
LD-4A LD-4B LD-4C	X-K100-35	2	A	2-inch, AOV Outlet from Letdown Orifices	SP55-167-5	SP56-090	3 months	Refueling	
LD-6	X-K100-35	2	A	2-inch, AOV Letdown to Heat Exchanger	SP55-167-6	SP56-090	Cold Shutdown Note 13	Refueling	
CVC-211 CVC-212	X-K100-35	2	A	3-inch, MOV RCP seal return	SP55-167-6	SP56-090	Cold Shutdown	Refueling	RR-20

MAY 16 1985

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
CVC-205A CVC-205B CVC-206A CVC-206B	X-K100-35	1	A/C	2-inch, check RCP seal injection	----	SP56-090	----	Refueling	RR-1
CVC-10	X-K100-35	2	A/C	2-inch, check Charging to Regen. Hx.	----	SP56-090	----	Refueling	RR-1
CVC-7	X-K100-36	2	A	2-inch, control Charging to Regen. Hx.	----	SP56-090		Refueling	RR-12
CVC-9	X-K100-36	2	A	2-inch, manual Charging to Regen. Hx.	N/A	SP56-090	Note 1	Refueling	
CVC-440	X-K100-36	NOTE 4	NOTE 4	2-inch, MOV Emergency Boration	SP55-167-5	N/A	3 months	N/A	
RC-402 RC-403	X-K100-44	1	A	3/8-inch AOV Prz Steam Space Sample	SP55-167-5	SP56-090	3 months	Refueling	
RC-412 RC-413	X-K100-44	1	A	3/8-inch AOV Prz liquid space sample	SP55-167-5	SP56-090	3 months	Refueling	
RC-422 RC-423	X-K100-44	1	A	3/8-inch solenoid RC Hot Leg Sample	SP55-167-5	SP56-090	3 months	Refueling	

MAY 1 6 1985

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
MG(R)-503 MG(R)-504	X-K100-131	2	A	3/8-inch AOV RCDT Vent to Gas Analyzer	SP55-167-3	SP56-090	3 months	Refueling	
MG(R)-509 MG(R)-510	X-K100-131	2	A	1-inch AOV RCDT to vent Header	SP55-167-3	SP56-090	3 months	Refueling	
RC-507 RC-508	X-K100-131	2	A	3-inch AOV RCDT pump discharge	SP55-167-5	SP56-090	3 months	Refueling	
MD(R)-134 MD(R)-135	X-K100-131	2	A	3-inch AOV Cont. sump pump discharge	SP55-167-3	SP56-090	3 months	Refueling	
SW1A1 SW1A2 SW1B1 SW1B2	M-202	3	C	14-inch, check SW pump discharge	SP02-138	N/A	3 months	N/A	
SW3A SW3B	M-202	3	B	24-inch, AOV SW pump disch. cross Connect	SP02-138	N/A	3 months	N/A	
SW4A SW4B	M-202	3	B	20-inch, AOV SW supply to Turb. Bldg.	SP02-138	N/A	3 months	N/A	
SW-1300A SW-1300B	M-202	3	B	10-inch, MOV SW to CC Heat Exchanger	SP31-168	N/A	3 months	N/A	

MAY 16 1995

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
SW301A SW301B	M-202	3	B	4-inch, AOV SW return from D/G Coolers	----	N/A	----	N/A	RR-4
SW1111A SW1111B	M-202	3	C	3/4-inch check SW return from SI pump	SP 33-098	N/A	3 months Note 14	N/A	
SW1121A SW1121B	M-202	3	C	3/4-inch check SW return from SI pump Lube oil Hx	SP 33-098	N/A	3 months Note 14	N/A	
SW601A SW601B SW502	M-202	3	B	4-inch MOV SW supply to AFW pumps	SP05B-104 SP05B-105	N/A	3 months	N/A	
SW501A SW501B	M-202	3	C	3-inch check SW to AFW pumps	SP05B-105	N/A	3 months	N/A	
SW6010	M-202	2	A	2-inch, manual SW to Cont. Hse. Stations	N/A	SP56-090	Note 1	Refueling	
SW6011	M-202	2	A/C	2-inch, check SW to Cont. Hse. Stations	N/A	SP56-090	Note 1	Refueling	
SD1B1 SD1B2 SD1B3 SD1B4 SD1B5 SD1A1 SD1A2 SD1A3 SD1A4 SD1A5	M-203	2	C	6-inch, safety relief Main steam line S/V	SP06-077	N/A	Note 3	N/A	

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
MS-1A MS-1B	M-203	2	B/C	30-inch AOV/check Main Steam Isolation Valves	SP55-167-6	N/A	Cold Shutdown Note 10	N/A	
MS100A MS100B	M-203	2	B	3-inch MOV MS to TD AFW pump	SP05B-105	N/A	3 months	N/A	
MS101A MS101B	M-203	3	C	3-inch check MS to TD AFW pump	SP05B-105/ SP55-167-6	N/A	3 months/ Cold Shutdown Note 16	N/A	
MS102	M-203	3	B	3-inch MOV MS to TD AFW pump	SP05B-105	N/A	3 months	N/A	
BT-2A BT-2B BT-3A BT-3B	M-203	2	B	2-inch MOV S/G Blowdown isol. valves	SP55-167-1	N/A	3 months	N/A	
FW-12A FW-12B	M-205	2	B	16-inch MOV Main FW to S/G isol. Valves	SP55-167-6	N/A	Cold Shutdown Note 11	N/A	
FW-13A FW-13B	M-205	2	C	16-inch check Main FW to S/G	SP55-167-6	N/A	Cold Shutdown Note 11	N/A	
MU-311A MU-311B MU-311C	M-205	3	C	4-inch check CST supply to AFW pumps	SP05B-104/ SP05B-105	N/A	3 months Note 16	N/A	

MAY 16 1985

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
AFW-1A AFW-1B AFW-1C	M-205	3	C	3-inch check AFW pumps discharge	SP55-167-6	N/A	Cold Shutdown Note 12	N/A	
AFW-10A AFW-10B	M-205	2	B	3-inch MOV TD AFW pump cross connects	SP05B-105	N/A	3 months	N/A	
AFW-4A AFW-4B	M-205	2	C	3-inch check AFW to steam generators	SP55-167-6	N/A	Cold Shutdown Note 12	N/A	
MU-301	M-205	Note 4	Note 4	6-inch check CST supply to AFW pumps	SP05B-104/ SP05B-105	N/A	3 months Note 16	N/A	
SA-2002A SA-2002B	M-213	3	C	1-inch, check Serv. air from air Receiver to D/G	----	N/A	----	N/A	RR-4
SA-471 SA-472	M-213	2	A	2-inch, manual Serv. air to cont.	N/A	SP56-090	Note 1	Refueling	
IA-103 IA-102	M-213	2	A/C	1-inch check Inst. air to cont.	----	SP56-090	----	Refueling	RR-1
IA-101	M-213	2	A	1-inch AOV Inst. air to cont.	SP55-167-6	SP56-090	Cold Shutdown Note 15	Refueling	
SA-471-1 SA-471-2	M-213	2	A	3/4-inch, manual Serv. air to cont.	N/A	SP56-090	----	Refueling	
SA-2012A SA-2012B	M-213	3	B	1/4-inch Solenoid Start-up Comp. & Receiver to SW-301A(B)	----	N/A	----	N/A	RR-4

MAY 16 1985

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
NG-210 NG-220 NG-230 NG-240 NG-250 NG-260	M-216	2	A	3/4-inch, manual Elec. pen. inlet valves	N/A	SP56-090	Note 1	Refueling	
ICS-3A ICS-3B	M-217	2	C	8-inch check RWST supply to ICS pumps	SP23-100	N/A	3 months	N/A	RR-7
RHR-400A RHR-400B	M-217	2	B	6-inch MOV RHR supply to ICS pumps	SP23-100	N/A	3 months	N/A	
RHR-401A RHR-401B	M-217	2	C	6-inch check RHR supply to ICS pumps	SP34-167-8	N/A	Refueling	N/A	RR-8
ICS-4A ICS-4B	M-217	2	C	6-inch check ICS pump discharge	SP23-100	N/A	3 months	N/A	RR-7
ICS-5A ICS-5B ICS-6A ICS-6B	M-217	2	B	6-inch, MOV ICS pump discharge	SP23-100	N/A	3 months	N/A	
ICS8A ICS8B	M-217	2	C	6-inch check ISC discharge line spray header	----	N/A	----	N/A	RR-9
ICS-201 ICS-202	M-217	2	B	2-inch, AOV ICS recirc. to RWST	SP23-100	N/A	3 months	N/A	

MAY 16 1985

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
BT-31A BT-31B BT-32A BT-32B	M-219	2	B	3/8-inch AOV SGBT sample lines	SP55-167-1	N/A	3 months	N/A	
LOCA 2A LOCA 2B	M-403	2	A	2-inch MOV H2 control post LOCA Cont. sample	SP55-167-4	SP56-090	3 months	Refueling	
LOCA 3A LOCA 3B	M-403	2	A	1-inch AOV H2 control post LOCA Cont. sample	SP55-167-4	SP56-090	3 months	Refueling	
LOCA 10A LOCA 10B	M-403	2	A	1-inch AOV H2 control post LOCA Cont. sample	SP55-167-4	SP56-090	3 months	Refueling	
LOCA 100A LOCA 100B	M-403	2	A	2-inch AOV H2 Control post LOCA to H2 recombiners	SP55-167-4	SP56-090	3 months	Refueling	
SA 7004A SA 7004B	M-403	2	A/C	2-inch check Air supply to containment	N/A	SP56-090	Note 1	Refueling	
SA 7003A SA 7003B	M-403	2	A	2-inch MOV Air supply to containment	SP55-167-4	SP56-090	3 months	Refueling	

MAY 16 1985

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
WG-310	M-539	2	A	2-inch solenoid Dearated drain tank Vent to Cont.	N/A	SP56-090	Note 1	Refueling	
WG-311	M-539	2	A	1-inch solenoid Dearated drain tank Vent to Cont.	N/A	SP56-090	Note 1	Refueling	
CVC-54	M-539	2	A	2-inch solenoid VCT offgas vent to Cont.	N/A	SP56-090	Note 1	Refueling	
CVC-55	M-539	2	A/C	2-inch check VCT offgas vent to Cont.	N/A	SP56-090	Note 1	Refueling	
MD(R)-323A MD(R)-323B	M-539	2	A	3-inch MOV Dearated drain pumps to Cont.	N/A	SP56-090	Note 1	Refueling	
MD(R)-324	M-539	2	A/C	3-inch check Dearated drain pumps to Cont.	N/A	SP56-090	Note 1	Refueling	
SW-901A SW-901B SW-901C SW-901D	M-547	2	C	8-inch check SW supply to cont. F/C units	SP 02-138	N/A	3 months	N/A	
SW-901A-1 SW-901B-1 SW-901C-1 SW-901D-1	M-547	2	B	8-inch AOV Shroud Cooling Coil Bypass	SP 02-138	N/A	3 months	N/A	

MAY 16 1985

TABLE 2 - ASME CODE CLASS 1, 2, AND 3 VALVES

Valve Indent. Ops. No.	Flow Diagram	ASME Code Class	Valve Cat.	Description	Test Procedure Exercise	Test Procedure Leakage	Test Frequency Exercise	Test Frequency Leakage	Relief Requests
SW-903A SW-903B SW-903C SW-903D	M-547	2	B	8-inch MOV SW return from F/C units	SP02-138	N/A	3 months	N/A	
SW-910A SW-910B SW-910C SW-910D	M-547	2	B	3-inch AOV Shroud Cooling Coil Supply	SP02-138	N/A	3 months	N/A	
SW-914A SW-914B SW-914C SW-914D	M-547	2	B	3-inch AOV Shroud Cooling Coil Discharge	SP02-138	N/A	3 months	N/A	
AS-32	M-602	2	A	1-inch AOV Cont. air sample return	SP55-167-5	SP56-090	3 months	Refueling	
AS-33	M-602	2	A/C	1-inch check Cont. Air sample return	----	SP56-090	3 months	Refueling	RR-2
AS-1 AS-2	M-602	2	A	1-inch AOV Cont. air sample to Rad. monitors	SP55-167-5	SP56-090	3 months	Refueling	
VB-10A VB-10B	M-602	2	A	18-inch AOV Cont. vacuum breaker	SP55-167-6	SP56-090	Cold Shutdown Note 17	Refueling	
VB-11A VB-11B	M-602	2	A/C	21-inch check Cont. vacuum breaker	N/A	SP56-090	Note 1	Refueling	
RBV-1 RBV-2 RBV-3 RBV-4	M-602	2	A	36-inch AOV Cont. purge & vent	N/A	SP56-090/ SP18-092	Note 1 Note 6	Refueling/ 6 months	

MAY 16 1985

APPENDIX A

Inservice Testing Program

Generic Relief Requests

The following relief requests are general in nature and apply to the entire IST program. These relief requests are not indicated on the program tables because they apply to the entire program and need not be noted as a relief for each individual pump or valve.

RR-G1

Individual valves and groups of valves which are required to perform a containment isolation function under postulated accident conditions are leak tested in accordance with Appendix J to 10 CFR 50 and need not be further leak tested in accordance with Section XI, Articles IWV-3421 through IWV-3425.

Leakage limits for containment isolation valves or groups of containment isolation valves and associated corrective actions have been established in lieu of the trending requirements of IWV-3427(b) of the ASME code. This method was discussed with the NRC staff during a March 12 and 13, 1985 meeting regarding the Kewaunee Inservice Testing Program.

RR-G2

In lieu of the requirements of Article IWV-3417 of the ASME code, Alert and Action levels based on minimum/maximum acceptable stroke times have been established. When a valve exhibits a stroke time exceeding the Alert level, the valve testing frequency is increased to monthly until the condition is corrected (for valves which are tested only at Cold or Refueling Shutdowns the condition is investigated and resolved prior to leaving the shutdown mode). If a valve's stroke time exceeds the Action level limit, the valve will be declared inoperable.

A normal operating range has been established which defines the historical variance in the stroke times during past exercises. Stroke times which are not within the normal range are not necessarily indicative of degradation or unacceptability, however further monitoring may be warranted.

For valves which normally exhibit a stroke time of less than 10 seconds, the Alert level is defined as the value at which the measured stroke time is less than 50% of the normal stroke time or greater than 150% of the normal stroke time.

For valves which normally exhibit a stroke time of greater than 10 seconds, the Alert level is defined as the value at which the stroke time is less than 75% of the normal stroke time or greater than 125% of the normal stroke time.

The Action level is defined as the value at which the measured stroke time is either less than half of the Alert minimum stroke time or greater than twice the Alert maximum stroke time.

Fast acting valves (those that exhibit normal travel times of less than 5 seconds) will not have a lower limit Alert or Action level. The upper limit Alert and Action levels will be established using good engineering judgement.

In all cases if a predefined limit exists (such as FSAR limits, good engineering judgement, etc.) the most limiting of either the predefined limit or the calculated limit will be used.

The establishment of stroke time ranges meets the intent of the ASME code by providing a method of identifying degradation of valve performance and establishing limits at which corrective action must be taken.

APPENDIX B

INSERVICE TESTING PROGRAM

RELIEF REQUESTS

Relief Request IST-RR-1

Components Affected

The following check valves are affected:

Valve #	Flow Diagram
CVC-205A	X-K-100-35
CVC-205B	X-K-100-35
CVC-206A	X-K-100-35
CVC-206B	X-K-100-35
CVC-10	X-K-100-35
IA-102	M-213
IA-103	M-213

Section XI Requirements

Article IWV-3522 requires that these check valves shall be exercised to the position required to fulfill their function at least once every 3 months unless such operation is not practical during plant operation. If only limited operation is practical, during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

The safeguard function required for these valves is to provide containment isolation. Exercise tests in the closed direction are not performed during plant operation since these lines are required to operate.

Alternate Method of Testing

These valves do act as containment isolation valves and will receive leakage tests in accordance with 10 CFR 50, Appendix J during refueling which will verify full closure capability.

Relief Request IST-RR-2

Components Affected

Valve #	Flow Diagram
AS-33	M-602

Section XI Requirements

Article IWV-3522 requires that these check valves shall be exercised to the position required to fulfill their function at least once every 3 months unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

The safeguard function required for this valve is to provide containment isolation. Quarterly exercise tests on the air operated sample isolation valve (AS-32) do exercise this valve in the closed direction during plant operation; however due to lack of position indication, full closure cannot be verified.

Alternate Method of Testing

This valve does act as a containment isolation valve and will receive leakage tests in accordance with 10 CFR 50, Appendix J during refueling which will verify full closure capability.

Relief Request IST-RR-3

Components Affected

The following parameters on service water pumps 1A1, 1A2, 1B1, 1B2, are affected:

1) Proper lubricant level or pressure

2) Bearing temperature

Section XI Requirements

Article IWP-3110 requires that pump bearing temperature be measured and that proper lubricant level or pressure be observed. The frequency for performing these pump tests is at least once every 3 months.

Basis for Requesting Relief

Seal injection flow is used for bearing cooling and the water being pumped provides lubrication. The system design does not provide for monitoring the seal injection water and the submerged impeller pump design does not include bearing temperature measuring capability; therefore, bearing temperature and lubricant level cannot be measured. The seal injection low flow alarm, annunciated in the control room, will provide early indication of loss of cooling water.

Alternate Method of Testing

There is no practical means of measuring these parameters.

Relief Request IST-RR-4

Components Affected

Valve #	Flow Diagram
SW-301A	M-202
SW-301B	M-202
SA-2012A	M-213
SA-2012B	M-213
SA-2002A	M-213
SA-2002B	M-213
Diesel Generator Air Start Valves	N/A

Section XI Requirements

Articles IWV-3411, 3412 and 3413 require that these normally closed valves be full-stroke exercised to the open position at least once every three months. The limiting value of full-stroke time of each power operated valve shall be specified by the owner.

Basis for Requesting Relief

These valves receive an automatic open signal as part of the diesel generator start sequence. There is no operator action necessary to open these valves nor is there any remote position indication. There is no practical method of performing full stroke exercise timing tests on these valves.

Alternate Method of Testing

SA-2012A (B) and SW-301A (B)

These valves receive an auto open signal based on diesel RPM during diesel generator start. The valves are verified to be in full open position by observing local indication on the top of the valve. Insufficient valve opening will be indicated by inadequate cooling of the diesel generator components (i.e. high bearing lube oil temperature alarm). Monthly testing and monitoring of the diesel generators will verify proper operation of the valves.

Diesel Generator 1A Air Start Valve #1 and #2 and Diesel Generator 1B Air Start Valve #1 and #2

These valves open to supply air to the air start motors on the diesel generator. The valves receive an automatic open signal as part of the diesel generator start sequence. The diesel generators are tested at full load for 4 hours each month. There are two pairs of air start motors per diesel generator which are alternated each test to verify operation of the respective air start valve. This assures that the valves are tested at least once every 3 months. Since no practical method exists to measure the valve full stroke time, the diesel generator start times are monitored to determine valve performance. Any degradation in the operations of the air start valve will be identified by monitoring the diesel start time.

Relief Request IST-RR-4 (Continued)

SA-2002A(B)

These check valves open to supply air to the above valves and are also verified to operate by monitoring the diesel generator start times on a monthly basis.

Relief Request IST-RR-5

Components Affected

Safety Injection Pumps 1A and 1B
Residual Heat Removal Pumps 1A and 1B
Service Water Pumps 1A1, 1A2, 1B1 and 1B2
Auxiliary Feedwater Pump 1A, 1B and 1C
Internal Containment Spray Pumps 1A and 1B

Section XI Requirement

Article IWP-3100 details the pump parameters that must be measured or observed at least once every 3 months with the pump operating. Included in the parameters to be measured is flow rate.

Basis for Requesting Relief

As allowed by Article IWP-1400 of the ASME code, a pump can be tested in a bypass loop if its normal path cannot be practically tested. These pumps are operated at least once every 3 months and tested using a fixed resistance recirculation path. In each case the recirculation bypasses the installed system flow instrumentation; therefore, measuring flow rate through the bypass loop is not possible.

Since each pump is tested using a fixed resistance flow path, the flow rate is not a variable during test performance. In addition, if the characteristics of the recirculation line were to change, causing a change in flow rate, measuring the pump differential pressure will indicate the change in the pump/test loop system and appropriate corrective actions will be initiated.

Alternative Methods of Testing

The Auxiliary Feedwater pumps and the Residual Heat Removal pumps are tested in a configuration that allows flow measurement under full-flow conditions on a cold shutdown frequency. The high head Safety Injection pumps are tested in a configuration that allows flow measurement under full-flow conditions on a refueling outage frequency.

The Service Water pumps and the Containment Spray pumps are tested quarterly using a fixed-resistance flow path. System design prohibits measuring flow rate therefore, pump differential pressure will be evaluated to identify pump degradation.

Relief Request IST-RR-6

Component Affected

Valve#	Flow Diagram
NG-304	X-K100-10
MU-1011	X-K100-10

Section XI Requirements

Article IWV-3522 requires that these check valves shall be exercised to the position required to fulfill their function at least once every 3 months unless such operation is not practical during plant operation. If only limited operation is practical, during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

These valves are normally closed check valves whose safety function is to remain closed post accident to provide containment isolation (i.e. passive). Periodic opening of these valves during power operation may be necessary to maintain desired pressurizer relief tank level, temperature and pressure. If these valves are opened during power operation, they are opened for short duration only. Opening of these valves would necessitate recategorizing these valves as active, however, no practical means exist to verify full closure of these check valves following their usage.

Alternate Method of Testing

These valves do act as containment isolation valves and will receive leakage tests in accordance with 10 CFR 50, Appendix J during refueling which will verify full closure capability.

Relief Request IST-RR-7

Components Affected

Valve #	Flow Diagram
ICS-3A (B)	M-217
ICS-4A (B)	M-217

Section XI Requirement

Article IWV-3522 requires that these check valves be exercised to the position required to fulfill their function at least once every three months unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

There is no method of full stroke exercising these valves with flow without spraying water into containment. A test line downstream of these valves is designed to recirculate water back to the Refueling Water Storage Tank (RWST) during the monthly Internal Containment Spary (ICS) pump test. The test line is sized to pass sufficient flow such that pump damage will not occur, however, no practical method exists to determine full stroke capability under these conditions.

Alternate Method of Testing

During the quarterly ICS pump run test, partial stroke operation of these check valves will be verified. The system line-up is such that flow can be established through valves ICS-3A(B) and ICS-4A(B) and the test line back to the RWST. Comparisons of pump discharge pressure under different valve configuration will be used to verify that flow exists through check valves ICS-3A(B) and ICS-4A(B). Acceptance criteria based on historical data have been established and predefined corrective actions are implemented as necessary. This method of testing is consistent with the method of paragraphs IWV-3522(b).

Relief Request IST-RR-8

Components Affected

Valve #	Flow Diagram
RHR-401A	M-217
RHR-401B	M-217

Section XI Requirement

Article IWV-3522 requires that these check valves be exercised to the position required to fulfill their function at least once every three months unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

Full-stroke verification would require full flow testing of the Residual Heat Removal (RHR) system concurrent with full flow testing of the Internal Containment Spray (ICS) systems. Since the ICS pumps cannot be full flow tested without spraying water into containment, these check valves which supply RHR water to the ICS pump suction cannot be full-stroke exercised.

Alternate Method of Testing

During the quarterly RHR pump run test, partial stroke operation of these check valves will be verified. Opening the motor operated suction isolation valve (RHR-400A(B)) during the RHR pump test and measuring an increase in pressure on the ICS pump discharge pressure instrumentation will verify partial stroke exercising of these check valves. Acceptance criteria have been established and predefined corrective actions are implemented as necessary. This method of testing is consistent with the method of paragraph IWV-3522(b).

Relief Request IST-RR-9

Components Affected

Valve #	Flow Diagram
ICS-8A	M-217
ICS-8B	M-217

Section XI Requirement

Article IWV-3522 requires that these check valves shall be exercised to the position required to fulfill their function at least once every 3 months unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

Introducing flow through these valves would result in water being sprayed into the containment. The valve design does not provide for the use of a mechanical exerciser, therefore neither partial nor full stroke exercising of these valves is possible.

Removing the valve once every five years is sufficient to identify valve degradation. Results of past inspections have not indicated any need for more frequent disassembly and inspection. More frequent disassembly and inspections would increase the risk of error during reassembly.

Alternate Method of Testing

These valves are removed from the piping and physically inspected to observe freedom of disc movement once every five years. The visual inspection includes an evaluation of internal wear, pin wear, spring conditions, seat leakage and freedom of disc movement.

Relief Request IST-RR-10

Components Affected

Valve #	Flow Diagram
SI-21A	X-K100-28
SI-21B	X-K100-28
SI-22A	X-K100-28
SI-22B	X-K100-28

Section XI Requirement

Article IWV-3522 requires that these check valves shall be exercised to the position required to fulfill their function at least once every 3 months unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

These check valves will be tested during cold shutdowns (see Note 18); however, it is not feasible to exercise these check valves at the design basis LOCA flow rate (approximately 14,000 gpm).

Alternate Method of Testing

Consistent with paragraph IWV-3522(b), these check valves will be partial flow exercised in a manner demonstrating that the disk moves freely off its seat by comparison of pressure differential and flow rate.

Relief Request IST-RR-11

Components Affected

Component Cooling Pump 1A
Component Cooling Pump 1B

Section XI Requirement

Article IWP-3100 details the parameters that must be measured or observed at least once every three months with the pump operating. Included in the parameters to be measured is flow rate.

Basis for Requesting Relief

Component Cooling flow will vary depending on plant mode and amount of equipment in service needing cooling. Therefore, a stable flow rate at a predefined reference value cannot be reproduced during each quarterly test.

Alternate Methods of Testing

Pump performance measurements are made with the flow condition of nominal flow during power operation plus flow through RHR heat exchanger 1B.

Flow measurements are made from a computer point and differential pressures are measured and recorded. The differential pressure is compared to that predicted by the pump curve for the measured flow rate. Action levels have been established based on the deviation from the predicted pump curve valves. This method of establishing Action levels is consistent with Article IWP-3110.

Relief Request IST-RR-12

Components Affected

Valve #	Flow Diagram
CVC-7	X-K100-36

Section XI Requirement

Article IWV-1200 states that valves used for system control are exempt from testing, however this manual control valve may perform a containment isolation function, therefore in accordance with IWV-2100 this normally open valve is considered "active" and should be exercise tested to the closed position quarterly.

Basis for Requesting Relief

Exercise timing tests are not performed on this valve quarterly since it is a control valve required to remain open during normal operation. Since the valve is a manual control valve, measuring closing time is not appropriate.

Alternate Methods of Testing

Since this valve may perform a containment isolation function the valve is closed and leak tested each refueling. When closed for leakage testing, the valve will be verified to exhibit smooth closure capability.

Relief Request IST-RR-13

Components Affected

Valve #	Flow Diagram	Valve #	Flow Diagram
SI-12A	X-K100-28	SI-303A	X-K100-28
SI-12B	X-K100-28	SI-303B	X-K100-28
SI-13A	X-K100-28	SI-304A	X-K100-28
SI-13B	X-K100-28	SI-304B	X-K100-28
SI-16A	X-K100-28	SI-6A	X-K100-29
SI-16B	X-K100-28	SI-6B	X-K100-29
		SI-301A	X-K100-29
		SI-301B	X-K100-29

Section XI Requirement

Article IWV-3522 requires that these check valves shall be exercised to the position required to fulfill their function at least once every 3 months unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke exercised during cold shutdowns. Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

Basis for Requesting Relief

These HPSI and LPSI check valves cannot be full or partial stroke exercised during power operation because neither the SI pump head or the RHR pump head is sufficient to overcome RCS pressure. The HPSI check valves cannot be full-stroke exercised using the SI pumps during cold shutdowns since this could result in a challenge to the RCS low-temperature overpressurization protection system.

The LPSI check valves cannot be full-stroke exercised during cold shutdowns since there is not sufficient expansion volume in the RCS to allow flow to be established to test these valves. In addition, these valves cannot be exercised during cold shutdowns since establishing RHR flow through them may cause cooling flow to bypass the core and not remove decay heat.

Alternate Methods of Examination

These valves will be exercise tested on a refueling outage frequency.

Relief Request IST-RR-14

Components Affected

Safety Injection Pump 1A
Safety Injection Pump 1B

Section XI Requirement

Article IWP-3500(b) states that the pumps shall be run until the bearing temperatures stabilize, and then the quantities specified shall be measured or observed and recorded. A bearing temperature shall be considered stable when three successive readings taken at 10 minute intervals do not vary by more than 3%.

Basis for Requesting Relief

The Safety Injection pumps are limited to a maximum of 30 minutes operation on the mini-flow recirculation line to avoid pump damage; this restriction prevents obtaining stable bearing temperatures during the quarterly pump tests. Lack of adequate expansion volume in the RCS while at Cold Shutdown prevents obtaining stable bearing temperatures with the plant at cold shutdown.

The bearing temperatures on these pumps are measured during the refueling outage during filling of the refueling cavity. Stabilization of bearing temperature prior to the refueling cavity becoming full may not always be possible. In addition, the bearing oil cooling system for this pump is cooled by the service water system. The system is not temperature stabilized therefore, meaningful results from the recording of this temperature cannot be expected.

Alternative Method of Testing

The bearing temperatures on the Safety Injection Pumps are measured during the refueling outage while filling the reactor cavity. If bearing temperature are not stabilized by the time the cavity is filled, the temperature reached just prior to the cavity becoming full will be utilized.

Relief Request IST-RR-15

Components Affected

Residual Heat Removal Pump 1A
Residual Heat Removal Pump 1B

Section XI Requirement

Article IWP-3100 details the parameters that must be monitored either quarterly or annually when the pump is running. Included in the required parameters are verification of proper lubricant level or pressure and measurement of bearing temperature.

Basis for Requesting Relief

These pumps depend primarily on the liquid being pumped for lubrication of the pump bearings. The bearing lubricating water flow cannot be verified and pressure cannot be monitored. It is impractical to measure bearing temperature and lubricant level with this system design.

Alternate Method of Testing

No practical method of testing these parameters exists for this pump design.

Relief Request IST-RR-16

Components Affected

Service Water Pump 1A1
Service Water Pump 1A2
Service Water Pump 1B1
Service Water Pump 1B2

Section XI Requirement

Article IWP-3100 details the parameters that must be monitored on a quarterly basis when the pump is running. Included in the parameters to be measured is the pump inlet pressure.

Basis for Requesting Relief

The Service Water pumps are of submerged impeller vertical design with no means of direct inlet pressure measurement as required by IWP-4200. The pumps suction side water supply is provided by the forebay.

Alternative Methods of Examination

Inlet pressure to these pumps will be established by reference to the level of water above the pump suction (forebay level).

Additionally, measurement of SW pump static suction pressure is not possible because all four pumps are submerged in, and take a suction directly from, the forebay. Since there normally is at least two Service Water pumps operating at all times, static pump suction conditions cannot be obtained.

Relief Request IST-RR-17

Components Affected

Component Cooling Pump 1A
Component Cooling Pump 1B
Containment Spray Pump 1A
Containment Spray Pump 1B

Section XI Requirement

Article IWP-3100 details the parameters that must be measured either quarterly or annually when the pump is running. Included in the parameters to be measured on an annual basis is the pump bearing temperature (IWP-3300).

Basis for Requesting Relief

These pumps utilize an oil cooling reservoir internal to the pump to provide cooling to the bearings. The reservoir is cooled by natural convection through the pump casing (i.e. no cooling water is supplied). The pump design does not provide instrument ports to monitor the reservoir temperature nor does the manufacturer require monitoring the bearing temperature.

Alternate Methods of Testing

The lubricant level will be monitored via a local sight glass to ensure adequate lubricant level for cooling.

Relief Request IST-RR-18

Components Affected

Valve #	Flow Diagram
SW-1400	X-K100-19

Section XI Requirement

Article IWV-3411 requires that these normally closed valves be full stroke exercised at least once every three months except as provided by IWV-3412(a). IWV-3412(a) states that "valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the valve shall be part stroked during plant operation and full stroke exercised during cold shutdowns."

Basis for Requesting Relief

Cycling of this valve would result in Service Water being injected into the Component Cooling System. The injection of service water (lake water) into the closed loop Component Cooling System is not desirable. Current System design prohibits exercise testing of this valve.

Alternate Method of Testing

Currently no practical method exists to exercise test this valve, however, a design change request has been initiated which will modify the system design such that exercise testing will be achievable.

Relief Request IST-RR-20

Components Affected

Valve #	Flow Diagram
CVC-211	X-K100-35
CVC-212	X-K100-35

Section XI Requirement

Article IWV-3411 requires that these normally open valves be full stroke exercised at least once every three months except as provided by IWV-3412(a). IWV-3412(a) states that "valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation, the valve shall be part stroked during plant operation and full stroke exercised during cold shutdowns."

Basis for Requesting Relief

The safety function of these valves is to provide containment isolation. If the RCP seal return line containment isolation valves were placed in the closed position during power operation it would challenge the seal return relief valve and could cause a loss of RCS water to the pressurizer relief tanks. Therefore closure of these valves during reactor coolant pump operation is not in the best interest of safety.

Alternative Methods of Examination

If the reactor coolant pumps are stopped during a cold shutdown, these valves will be exercised at that time, otherwise they will be exercised during the refueling outage. This ensures that the valves will be exercised at least on a refueling outage frequency.

Relief Request IST-RR-19

Components Affected

Valve #	Flow Diagram
PR-33A	X-K100-10
PR-33B	X-K100-10
RC-45A	X-K100-10
RC-45B	X-K100-10
RC-46	X-K100-10
RC-49	X-K100-10

Section XI Requirement

Article IWV-3411 requires that these normally closed valves be full stroke exercised at least once every three months except as provided by IWV-3412(a). IWV-3412(a) states that "valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the valve shall be part stroked during plant operation and full stroke exercised during cold shutdown."

Basis for Requesting Relief

These valves are the pressurizer and reactor vessel head vent valves. These valves cannot be operated during power operation because opening the valves could relieve reactor coolant water to either the pressurizer relief tank or directly to containment. Unnecessarily challenging these valves during power operation could result in a significant loss of coolant inventory. These valves cannot be exercise tested during cold shutdown conditions for similar reasons. Testing during cold shutdown conditions has indicated that unexpected valve openings can occur. As one of two valves in a series is opened, the associated valve has experienced burping or chattering. Unnecessary challenges to the system under cold shutdown conditions is not warranted.

Alternate Method of Examination

These valves will be exercise tested on a refueling outage frequency.

Relief Request IST-RR-21

Components Affected

Component Cooling Pump 1A
Component Cooling Pump 1B

Section XI Requirement

Article IWP-3100 details the parameters that must be measured either quarterly or annually when the pump is running. Included in the parameters to be measured is the pump inlet pressure before starting the pump.

Basis for Requesting Relief

At least one Component Cooling Pump is always running during plant operation. Since the pumps are arranged in parallel with common inlet and discharge piping, measuring the "before pump start" inlet pressure provides no meaningful data.

Alternate Method of Testing

None, the inlet pressure before pump start will not be measured.

Relief Request IST-RR-22

Components Affected

Containment Spray Pump 1A
Containment Spray Pump 1B

Section XI Requirement

Article IWP-3100 details the parameters that must be measured either quarterly or annually when the pump is running. Included in the parameters to be measured is the pump inlet pressure.

Basis for Requesting Relief

The pump suction is supplied from the RWST with no installed pressure instrumentation capability.

Alternate Method of Testing

Pump inlet pressure is calculated from the RWST level. Since RWST level is confined to a very narrow band by Technical Specifications and does not change during test performance, the containment spray pump inlet pressure remains at a constant value and is included as a known quantity in the test procedure. The change in pump inlet pressure with and without the pump running is beyond the accuracy of the calculation method; therefore, inlet pressure before pump start is not recorded.

APPENDIX C

INSERVICE TESTING PROGRAM

NOTES

Note 1 These valves have been defined as "passive" in accordance with Article IWV-2100. Exercise testing of these valves is not required.

Note 2 The leakage testing of these valves is performed in accordance with Technical Specification 4.2.a.1.C.

Note 3 Testing of safety and relief valves will be in accordance with the requirements of IWV-3500.

Note 4 Testing of these valves is not required by the ASME Code; however, since the operation of this valve has been determined to be important, the valve has been included in the program.

Note 5 Deleted

Note 6 These valves are administratively locked closed, thus exercise testing is not required.

Note 7 These valves are associated with the residual heat removal (RHR) system. The RHR suction valves (RHR-1A, RHR-1B, RHR-2A, RHR-2B) are interlocked with the RCS pressure and cannot be opened when RCS pressure is above 450 psig. The RHR pump suction check valves (RHR-3A and RHR-3B) cannot be exercised during power operation since the flow path involves taking a suction from the RCS hot legs and the suction isolation valves cannot be opened at normal operating RCS pressure. In accordance with Article IWV-3412(a) of the ASME code, these valves will be exercised during cold shutdowns.

Note 8 This valve does not perform a safety related function, however, it is the normal RHR cooldown flow path isolation valve. Since this valve will be operated during a normal controlled cooldown evolution, periodic testing is prudent; therefore, the valve has been included in the program. Exercise testing during cold shutdowns will identify valve degradation.

Note 9 These RHR pump discharge check valves cannot be full-stroke exercised during power operation since the RHR pump head is not sufficient to overcome RCS pressure. These valves are partial stroked on a quarterly basis during the RHR pump test which utilizes a minimum flow recirculation line. In accordance with Article IWV-3412(a) of the ASME Code, these valves will be full stroke exercised during cold shutdowns.

Note 10 Exercising the main steam isolation valves (either full or partial stroke) during power operation would cause a plant transient that would result in a plant trip. In accordance with Article IWV-3412(a) of the ASME Code and Technical Specification 4.7, these valves will be full stroke exercised to the closed position during cold shutdowns.

Note 11 Exercising these valves during power operation would result in a loss of feedwater to the steam generators which would cause a plant trip. In accordance with Article IWV-3412(a) of the ASME Code, these valves will be full stroke exercised during cold shutdown. The check valves will be verified closed by comparing pressures in the steam generators with the pressures upstream of the valves.

Note 12 Exercising these valves during power operation would result in thermal cycling of the feedwater nozzles and piping, which could result in premature component failure. In accordance with Article IWV-3412(a) of the ASME Code, these valves will be full stroke exercised during cold shutdowns.

Note 13 Exercising this isolation valve in the letdown line to the closed position during power operation could thermal shock the regenerative heat exchanger and charging piping, possibly causing premature failure. In accordance with Article IWV-3412(a) of the ASME Code, this valve will be full stroke exercised during cold shutdowns.

Note 14 These valves are normally open check valves which supply service water flow to the Safety Injection Pumps for pump cooling purposes. The safety function of these valves is to remain in the open position. There is a sight flow indicator available to verify flow through these valves. During the quarterly test of the safety injection pumps, pump parameters are monitored. Failure of these valves to remain open and pass cooling water flow would be identified during the quarterly pump test.

Note 15 Closure of this normally open valve would result in isolation of instrument air to containment. Removing instrument air to containment results in several air operated valves failing to their safe position. Several systems which are desired operable during power operation, such as charging and letdown, would isolate on loss of instrument air to the system's isolation valves. In accordance with Article IWV-3412(a) of the ASME code, this valve will be full stroke exercised during cold shutdowns.

Note 16 Since the Auxiliary Feedwater (AFW) pumps are not full flow tested during power operation (see note 12), full stroke verification for these check valves cannot be performed during power operation. In accordance with IWV-3412(a) these valves will be partial stroked during the quarterly AFW pump test and full stroke exercised during cold shutdown.

Note 17 Opening these containment vacuum breaker valves during power operation would result in a violation of Technical Specification 3.6.a regarding Containment System integrity. In accordance with Article IWV-3412(a) of the ASME Code, these valves will be exercised during cold shutdowns.

Note 18 These SI Accumulator discharge check valves cannot be full or partial stroke exercised during power operation since neither Accumulator pressure or SI pump discharge pressure are sufficient to overcome RCS pressure. In accordance with Article IWV-3412(a) of the ASME Code, these valves will be exercised during cold shutdowns (see RR-10).