(ATTACHMENT A TO 1CANØ285Ø7)

ARKANSAS POWER & LIGHT COMPANY

ARKANSAS NUCLEAR ONE

UNIT ONE

SECOND TEN-YEAR

PUMP AND VALVE

INSERVICE TESTING PROGRAM

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I. PHILOSOPHY

The Arkansas Nuclear One Unit 1 (ANO-1) Pump and Valve Inservice Testing (IST) Program has been developed to meet the requirements of 10 CFR 50, Section XI of the ASME Boiler and Pressure Vessel Code (the Code), and the ANO-1 Technical Specifications. The purpose of the IST Program is to detect a change in the operating status of equipment based upon a comparison of baseline data (obtained during initial testing or after equipment overhaul) and the data obtained during the performance of periodic testing, and to initiate corrective action when necessary. The IST Program was developed through the joint effort of the ANO Operations Superintendent, Plant Analysis Superintendent, I&C Supervisor and Mechanical Engineering Supervisor.

ANO-1 Technical Specification 4.0 requires that "inservice inspection of ASME Code Class 1, 2, 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i)."

10 CFR Part 50, Section 50.55a(g)(4)(iv) states that "...tests of pumps and valves . . . may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in paragraph (b) [Section 50.55a(b)] of this section, subject to the limitations and modifications listed in paragraph (b) of this section, and subject to Commission approval." Section 50.55a(b)(2) of the Code of Federal Regulations presently refers to Section XI including "editions through the 1980 edition and addenda through the Winter 1981 Addenda." In accordance with these requirements, Arkansas Power & Light Company will perform inservice testing of the ANO-1 pumps and valves identified herein using IWP and IWV sections of the referenced edition and addenda of the Code.

A review of ANO-1 safety documents (e.g., the FSAR and Technical Specifications) and plant drawings (see Attachment V), was conducted to identify those pumps and valves which are subject to the Code requirements (i.e., perform a specific function in shutting down the reactor or mitigate the consequences of an accident). Where practical, the components are incorporated into the ANO-1 IST program and will be tested in accordance with the 1980 Edition of the Code (through Winter 1981 Addenda). If testing is impractical due to design or operating limitations, relief from Code requirements is requested and alternate testing methods are proposed. (See Section IV)

Operational and Surveillance Test Procedures have been established to govern the IST Program at ANO. The Plant Performance Group at ANO is responsible for monitoring the IST Program and the ANO-1 Operations staff is responsible for performing the periodic surveillance tests prescribed by the IST Program.

II. VALVE TESTING

Subsection IWV of ASME Section XI provides the rules and requirements for inservice testing to verify operational readiness of certain Class 1, 2 and 3 valves (i.e., those valves which are required to perform a specific function in shutting down a reactor to the cold shutdown condition or in mitigating the consequences of an accident). The purpose of the IST valve program is to identify those valves subject to Code requirements and, subsequently, to test them according to the applicable Code requirements. The valves which are covered by the IST Program are listed in Table A.

The following is a brief explanation of the table headings:

Valve Number - Identification number of each valve.

System - The system to which the valve belongs.

Description - A brief description of the function of the valve.

Type - The type of valve (e.g., gate, globe, etc.)

IWV Category - Valve category classification according to subsection IWV of ASME Section XI.

The following is a brief explanation of abbreviations:

Aux Clg - Auxiliary Cooling

BS - Building Spray

Btfly - Butterfly

BW - Borated Water

BWST - Borated Water Storage Tank

CF - Core Flood

Clr. - Cooler

CS - Condensate System

CV - Control Valve

CW - Chilled Water

CZ - Clean Liquid Radwaste

DH - Decay Heat

Disc - Discharge

DWD - Dirty Waste Drain

EFW - Emergency Feedwater

Emerg. - Emergency

FW - Feedwater

GZ - Waste Gas Radwaste

HP - High Pressure

HVAC - Heating, Ventilation and Air Conditioning

I/C - Inside Containment

ICW - Intermediate Cooling Water

Iso - Isolation

LO - Lube Oil

LP - Low Pressure

MOV - Motor Operated Valve

MS - Main Steam

MU - Make Up

N/A - Not Applicable

NaOH - Sodium Hydroxide

N_2 - Nitrogen

O/C - Outside Containment

PSV - Pressure Safety Valve

PZR - Pressurizer

RB - Reactor Building

RCP - Reactor Coolant Pump

RCS - Reactor System

Rm - Room

SG - Sluice Gate

SS - Sampling System

SW - Service Water

VSF - Ventilation Supply Fan

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
PSV-1001	RCS	Relief Pressurizer	Relief	C
PSV-1002	RCS	Relief Pressurizer	Relief	C
CF-1A	RCS	Core Flood Discharge	Check	C
CF-1B	RCS	Core Flood Discharge	Check	C
DH-13A	RCS	LP Injection	Check	C
DH-13B	RCS	LP Injection	Check	C
DH-14A	RCS	LP Injection	Check	C
DH-14B	RCS	LP Injection	Check	C
DH-17	RCS	LP Injection	Check	C
DH-18	RCS	LP Injection	Check	C
MU-34A	RCS	HP Injection	Check	C
MU-34B	RCS	HP Injection	Check	C
MU-34C	RCS	HP Injection	Check	C
MU-34D	RCS	HP Injection	Check	C
CV-2617	MS	Main Steam to EFW Turbine	Gate	B
CV-2667	MS	Main Steam to EFW Turbine	Gate	B
CV-2691	MS	Main Steam Isolation	Gate	B
CV-2692	MS	Main Steam Isolation	Gate	B
PSV-2684	MS	Relief Main Steam	Relief	C
PSV-2685	MS	Relief Main Steam	Relief	C
PSV-2686	MS	Relief Main Steam	Relief	C
PSV-2687	MS	Relief Main Steam	Relief	C
PSV-2688	MS	Relief Main Steam	Relief	C
PSV-2689	MS	Relief Main Steam	Relief	C

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
PSV-2690	MS	Relief Main Steam	Relief	C
PSV-2691	MS	Relief Main Steam	Relief	C
PSV-2692	MS	Relief Main Steam	Relief	C
PSV-2693	MS	Relief Main Steam	Relief	C
PSV-2694	MS	Relief Main Steam	Relief	C
PSV-2695	MS	Relief Main Steam	Relief	C
PSV-2696	MS	Relief Main Steam	Relief	C
PSV-2697	MS	Relief Main Steam	Relief	C
PSV-2698	MS	Relief Main Steam	Relief	C
PSV-2699	MS	Relief Main Steam	Relief	C
CV-1214	MU	RCS Letdown	Gate	A
CV-1216	MU	RCS Letdown	Gate	A
CV-1219	MU	HP Injection	Gate	B
CV-1220	MU	HP Injection	Gate	B
CV-1221	MU	RCS Letdown	Gate	A
CV-1227	MU	HP Injection	Gate	B
CV-1228	MU	HP Injection	Gate	B
CV-1234	MU	RCS Makeup	Gate	B
CV-1270	MU	RCP Seal Bleed Off	Gate	A
CV-1271	MU	RCP Seal Bleed Off	Gate	A
CV-1272	MU	RCP Seal Bleed Off	Gate	A
CV-1273	MU	RCP Seal Bleed Off	Gate	A
CV-1274	MU	RCP Seal Bleed Off	Gate	A
CV-1300	MU	MU Pump Recirculation	Gate	B
CV-1301	MU	MU Pump Recirculation	Gate	B

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
MU-19A	MU	Pump Discharge	Check	C
MU-19B	MU	Pump Discharge	Check	C
MU-19C	MU	Pump Discharge	Check	C
CV-1400	DH	Pump Isolation	Gate	B
CV-1401	DH	Pump Isolation	Gate	B
CV-1405	DH	Sump Suction	Gate	B
CV-1406	DH	Sump Suction	Gate	B
CV-1407	DH	BWST Outlet	Gate	B
CV-1408	DH	BWST Outlet	Gate	B
DH-2A	DH	Pump Discharge	Check	C
DH-2B	DH	Pump Discharge	Check	C
CV-2400	BS	RB Spray MOV	Globe	B
CV-2401	BS	RB Spray MOV	Globe	B
BW-6A	BS	Pump Suction	Check	C
BW-6B	BS	Pump Suction	Check	C
BS-4A	BS	Pump Discharge	Check	C
BS-4B	BS	Pump Discharge	Check	C
CV-2630	FW	MFW Isolation	Gate	B
CV-2680	FW	MFW Isolation	Gate	B
FW-7A	FW	MFW to "A" Steam Generator	Check	C
FW-7B	FW	MFW to "B" Steam Generator	Check	C
FW-13A	EFW	EFW to "A" Steam Generator	Check	C
FW-13B	EFW	EFW to "B" Steam Generator	Check	C
CV-2620	EFW	P-7A Iso Valve to "B" Steam Generator	Gate	B

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
CV-2626	EFW	P-7B Iso Valve to "B" Steam Generator	Gate	B
CV-2627	EFW	P-7A Iso Valve to "A" Steam Generator	Gate	B
CV-2670	EFW	P-7B Iso Valve to "A" Steam Generator	Gate	B
CV-1616	CA	NaOH Tank Outlet	Gate	B
CV-1617	CA	NaOH Tank Outlet	Gate	B
CA-61	CA	NaOH Discharge	Stop Check	C
CA-62	CA	NaOH Discharge	Stop Check	C
BW-2	BW	MU Pump Suction	Stop Check	C
BW-3	BW	MU Pump Suction	Stop Check	C
BW-4A	BW	BWST Outlet	Check	C
BW-4B	BW	BWST Outlet	Check	C
CV-2214	ICW	Letdown Cooler Isolation	Gate	A
CV-2215	ICW	Letdown Cooler Isolation	Gate	A
CV-2220	ICW	CRD/RCP Cooling Isolation	Gate	A
CV-2221	ICW	CRD/RCP Cooling Isolation	Gate	A
CV-2233	ICW	Letdown Cooler Isolation	Gate	A
CV-2234	ICW	RCP Motor Isolation	Gate	A
CV-2235	ICW	CRD Isolation	Gate	A
CV-1052	CZ	Quench Tank Drain	Gate	A

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
CV-1053	CZ	Quench Tank Drain	Gate	A
CV-1054	SS	Quench Tank Sample	Gate	A
CV-1814	SS	Pressurizer Steam Sample	Gate	B
CV-1816	SS	Pressurizer Water Sample	Gate	B
CV-1845	SS	Quench Tank Sample	Gate	A
CV-5611	Fire	RB Isolation	Gate	A
CV-5612	Fire	RB Isolation	Gate	A
CV-1065	CS	Quench Tank Isolation	Gate	A
CV-1667	N_2	Low Pressure Nitrogen Supply	Gate	A
CV-6202	CW	Inlet Isolation	Gate	A
CV-6203	CW	Outlet Isolation	Gate	A
CV-6205	CW	Outlet Isolation	Gate	A
CV-3800	SW	"D" DH Room Cooler Inlet	Gate	B
CV-3801	SW	"B" DH Room Cooler Inlet	Gate	B
CV-3802	SW	"C" DH Room Cooler Inlet	Gate	B
CV-3803	SW	"A" DH Room Cooler Inlet	Gate	B
CV-3804	SW	E47A Spray Pump Inlet Valve	Gate	B
CV-3805	SW	E47B Spray Pump Inlet Valve	Gate	B
CV-3806	SW	Emergency Diesel "A" Cooler Inlet	Gate	B

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
CV-3807	SW	Emergency Diesel "B" Cooler Inlet	Gate	B
CV-3808	SW	MU Pump Lube Oil Cooler Inlet A	Gate	B
CV-3809	SW	MU Pump Lube Oil Cooler Inlet B	Gate	B
CV-3810	SW	MU Pump Lube Oil Cooler Inlet C	Gate	B
CV-3821	SW	B-DH Cooler Inlet	Btfly	B
CV-3822	SW	A-DH Cooler Inlet	Btfly	B
CV-3840	SW	A-DH Lube Oil Cooler Inlet	Gate	B
CV-3841	SW	B-DH Lube Oil Cooler Inlet	Gate	B
CV-3811	SW	SW Loop II Iso to ICW	Btfly	B
CV-3820	SW	SW Loop I Iso to ICW	Btfly	B
CV-3640	SW	Cross-tie SW B to C Discharge	Btfly	B
CV-3641	SW	Loop II Isolation	Btfly	B
CV-3642	SW	Cross-tie SW B to C Discharge	Btfly	B
CV-3643	SW	Aux Clg Loop Isolation	Btfly	B
CV-3644	SW	Cross-tie SW A to B Discharge	Btfly	B
CV-3645	SW	Loop I Isolation	Btfly	B
CV-3646	SW	Cross-tie SW A to B Discharge	Btfly	B
CV-3812	SW	RB Cooler SW Inlet	Btfly	B
CV-3813	SW	RB Cooler SW Inlet	Btfly	B

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
CV-3814	SW	RB Cooler SW Outlet	Btfly	B
CV-3815	SW	RB Cooler SW Outlet	Btfly	B
CV-7443	HVAC	O/C Hydrogen Purge	Gate	A
CV-7444	HVAC	I/C Hydrogen Purge	Gate	A
CV-7445	HVAC	O/C Hydrogen Purge	Gate	A
CV-7446	HVAC	I/C Hydrogen Purge	Gate	A
CV-7447	HVAC	O/C Hydrogen Purge	Gate	A
CV-7448	HVAC	I/C Hydrogen Purge	Gate	A
CV-7449	HVAC	O/C Hydrogen Purge	Gate	A
CV-7450	HVAC	I/C Hydrogen Purge	Gate	A
CV-7453	HVAC	Air Particulate I/C Monitor	Gate	A
CV-7454	HVAC	Air Particulate O/C Monitor	Gate	A
CV-1404	DH	DH Removal from RCS	Gate	B
CV-1050	DH	DH Removal from RCS	Gate	B
CV-1410	DH	DH Removal from RCS	Gate	B
CV-1414	DH	"A" DH RB Sump Suction	Gate	B
CV-1415	DH	"B" DH RB Sump Suction	Gate	B

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
CV-4400	DWD	O/C RB Sump Drain	Gate	A
CV-4446	DWD	I/C RB Sump Drain	Gate	A
CV-4803	GZ	RB Vent to Gaseous Waste	Gate	A
CV-4804	GZ	RB Vent to Gaseous Waste	Gate	A
CV-7401	HVAC	RB Purge Air O/C	Btfly	A
CV-7402	HVAC	RB Purge Air O/C	Btfly	A
CV-7403	HVAC	RB Purge Air I/C	Btfly	A
CV-7404	HVAC	RB Purge Air I/C	Btfly	A
CV-3823	SW	Combined SW Discharge to Pond	Btfly	B
CV-3824	SW	Combined SW Loop Discharge to Flume	Btfly	B
CV-3730	SW	Sluice Gate #1	SG	B
CV-3731	SW	Sluice Gate #2	SG	B
CV-3732	SW	Sluice Gate #3	SG	B
CV-3733	SW	Sluice Gate #4	SG	B
CV-3734	SW	Sluice Gate #5	SG	B
CV-3735	SW	Sluice Gate #6	SG	B
CV-3636	SW	Sluice Gate #7	SG	B

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
N/A	RCS	Reactor Vessel Internal Vent Valves (quantity:8)	Check	C
SW-1A	SW	P4A Discharge	Check	C
SW-1B	SW	P4B Discharge	Check	C
SW-1C	SW	P4C Discharge	Check	C
MU-1211	MU	HP Injection	Check	C
MU-1212	MU	HP Injection	Check	C
MU-1213	MU	HP Injection	Check	C
MU-1214	MU	HP Injection	Check	C
MU-1215	MU	HP Injection	Check	C
SV-1077	RCS	Pzr Vent	Globe	B
SV-1079	RCS	Pzr Vent	Globe	B
SV-1081	RCS	"A" Loop T_H Vent	Globe	B
SV-1082	RCS	"A" Loop T_H Vent	Globe	B
SV-1083	RCS	"A" Loop T_H Vent	Globe	B
SV-1084	RCS	"A" Loop T_H Vent	Globe	B
SV-1091	RCS	"B" Loop T_H Vent	Globe	B
SV-1092	RCS	"B" Loop T_H Vent	Globe	B
SV-1093	RCS	"B" Loop T_H Vent	Globe	B
SV-1094	RCS	"B" Loop T_H Vent	Globe	B
CV-2869	EFW	P7B Test Recirc Isolation	Gate	B
CV-2870	EFW	P7A Test Recirc Isolation	Gate	B
CV-2645	EFW	P7A to "A" Steam Generator Control Valve	Globe	B

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
CV-2646	EFW	P7B to "A" Steam Generator Control Valve	Globe	B
CV-2647	EFW	P7A to "B" Steam Generator Control Valve	Globe	B
CV-2648	EFW	P7B to "B" Steam Generator Control Valve	Globe	B
CV-2800	EFW	P7B Suction from CST	Gate	B
CV-2803	EFW	P7B Suction from SW	Gate	B
CV-3850	EFW	EFW Suction from SW Loop I	Gate	B
CV-2802	EFW	P7A Suction from CST	Gate	B
CV-2806	EFW	P7A Suction from SW	Gate	B
CV-3851	EFW	EFW Suction from SW Loop II	Gate	B
FW-10A	EFW	P7A Discharge/Minimum Recirc Valve	Check	C
FW-10B	EFW	P7B Discharge/Minimum Recirc Valve	Check	C
FW-55A	EFW	P7A to "B" Steam Generator	Check	C
FW-55B	EFW	P7A to "A" Steam Generator	Check	C
FW-56A	EFW	P7B to "A" Steam Generator	Check	C
FW-56B	EFW	P7B to "B" Steam Generator	Check	C
CS-98	EFW	EFW Suction from CST	Check	C
CS-99	EFW	EFW Suction from CST	Check	C
CS-261	EFW	EFW Suction from CST	Check	C

TABLE A
UNIT I VALVES REQUIRING INSERVICE TESTING

VALVE NO.	SYSTEM	DESCRIPTION	TYPE	IWV CAT
CS-262	EFW	EFW Suction from CST	Check	C
SW-11	EFW	EFW Suction from SW Loop I	Check	C
SW-13	EFW	EFW Suction from SW Loop II	Check	C
CV-2613	EFW	P7A Steam Admission	Gate	B
CV-2663	EFW	P7A Steam Admission	Gate	B
SV-2613	EFW	P7A Steam Admission	Globe	B
SV-2663	EFW	P7A Steam Admission	Globe	B
FW-61	EFW	P7A Minimum Recirc Valve	Check	C
FW-62	EFW	P7B Minimum Recirc Valve	Check	C

III. PUMP TESTING

Subsection IWP of ASME Section XI provides the rules and requirements for inservice testing to verify operational readiness of Class 1, 2 and 3 pumps which are provided with an emergency power source. The purpose of the IST pump program is to identify those pumps and, subsequently, to test them according to the applicable Code requirements. The pumps which are covered by the IST Program are listed in Table B.

Reference values for pump parameters were established using original surveillance test data or data from later tests when the pump was operating acceptably in accordance with IWP-3110. Acceptance criteria for the periodic tests are based on the reference values and the allowable ranges specified in Table IWP-3100-2. Following pump maintenance the previous reference values will be confirmed or a new set of reference values will be determined in accordance with IWP-3111. Post-maintenance testing will be performed by the applicable pump surveillance test.

Relief requests for pumps subject to Code testing are detailed in Section IV.

TABLE B

UNIT I PUMPS REQUIRING INSERVICE TESTING

PUMP NUMBER	DESCRIPTION
P34A	DECAY HEAT REMOVAL PUMP
P34B	DECAY HEAT REMOVAL PUMP
P35A	REACTOR BUILDING SPRAY PUMP
P35B	REACTOR BUILDING SPRAY PUMP
P36A	MAKEUP PUMP
P36B	MAKEUP PUMP
P36C	MAKEUP PUMP
P4A	SERVICE WATER PUMP
P4B	SERVICE WATER PUMP
P4C	SERVICE WATER PUMP
P7A	EMERGENCY F.W. PUMP
P7B	EMERGENCY F.W. PUMP

IV. RELIEF REQUESTS

A. VALVES SUBJECT TO SECTION IWV OF THE CODE

1. COMPONENT: All valves stroked per IWV-3413

REFERENCE: NA

CODE REQUIREMENT: Corrective action per IWV-3417 at 25% increase in stroke time from the previous test (if stroke time greater than 10 seconds) or 50% increase in stroke time from the previous test (if stroke time less than or equal to 10 seconds).

REASON FOR RELIEF REQUEST: Corrective action levels based on stroke times for these valves are incorporated into the test procedures. Literal implementation of the Code requirements would require a procedure revision each time the procedure is performed. The alternative method proposed is considered adequate and conservative.

ALTERNATIVE EXAMINATION: Valve stroke times will be compared to fixed reference values to determine if valve degradation has occurred. The changes in stroke time will be restricted to the 25% and 50% limits specified in IWV-3417 for increasing the frequency of stroke testing.

2. COMPONENT: CF-1A, CF-1B

REFERENCE: P&ID M-230

CODE REQUIREMENT: IWV-3522 - Valves that cannot be exercised during plant operation . . . shall be full-stroke exercised during cold shutdown.

REASON FOR RELIEF REQUEST: Full-stroke testing of these valves during cold shutdown could delay startup more than eight (8) hours and could create as much as 28,000 gallons of liquid waste.

ALTERNATE EXAMINATION: These valves shall be partial-stroke tested during each refueling outage.

3. COMPONENT: BS-4A, BS-4B

REFERENCE: P&ID M-236

CODE REQUIREMENT: IWV-3522 - Valves that cannot be exercised during plant operation . . shall be full-stroke exercised during cold shutdown.

REASON FOR RELIEF REQUEST: These valves are immediately upstream of the Reactor Building spray nozzles (i.e., no isolation valves between nozzles and BS-4A/4B). Water cannot be used to stroke BS-4A and 4B because this would introduce water into containment via the spray headers.

ALTERNATE EXAMINATION: These valves will be disassembled and full-stroke tested once every other refueling outage (i.e., one per outage on an alternating basis).

4. COMPONENT: SW-11, SW-13

REFERENCE: P&ID M-204

CODE REQUIREMENT: IWV-3521 - Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522.

IWV-3522 - . . . Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

REASON FOR RELIEF REQUEST: These are the check valves in the EFW pumps suction lines from the service water system. Full stroking these valves during power operation or during any cold shutdown is not practical because it could allow service water to be injected into the steam generators.

ALTERNATE EXAMINATION: These valves will be disassembled and full-stroke tested per the following schedule: both valves will be opened and full-stroked by hand during the next refueling outage, 1R7. If both valves prove operable, we will then manually full-stroke one valve during each refueling outage, alternating between the two valves.

5. COMPONENT: FW-13A, B

REFERENCE: P&ID M-204

CODE REQUIREMENT: IWV-3522 - Check valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation.

IWV-3522 - . . . Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and snall be full-stroke exercised during cold shutdowns.

REASON FOR RELIEF REQUEST: These check valves cannot be exercised during plant operation because cold water would be sprayed onto steam generator tubing and tube degradation could result. Moreover, flow testing during cold shutdowns must be done at reduced flow rates (< 500 gpm) to prevent tube degradation due to vibration and to minimize the impact on steam generator chemistry.

ALTERNATE EXAMINATION: None. The valves will be stroked at reduced flow rate (< 500 gpm).

6. COMPONENT: CS-98, 99, 261, 262

REFERENCE: P&ID M-204

CODE REQUIREMENT: IWV-3522 - Check valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation.

IWV-3522 - . . . Valves that cannot be exercised during plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during cold shutdowns.

REASON FOR RELIEF REQUEST: These check valves are in a series-parallel configuration. They are in the supply line from the Condensate Storage Tank to the suction of the Emergency Feedwater (EFW) Pumps. Should one of the series valves fail to open, the other loop would have increased flow to meet the EFW demand. Due to system design, there is no way to test this single failure configuration.

ALTERNATE EXAMINATION: None. The valves will continue to be exercised assuming no single failure.

B. PUMPS SUBJECT TO SECTION IWP OF THE CODE

1. COMPONENT: Service Water pumps (P-4A, P-4B, P-4C)

REFERENCE: P&ID M-209

CODE REQUIREMENTS: Per IWP-4510, the location of vibration measurements shall generally be ". . . on a bearing housing."

REASON FOR RELIEF REQUEST: These pumps are submerged with extended casings and shafts. The radial bearings are water lubricated and located in the fluid flow path.

ALTERNATE TESTING: Vibration readings will be taken at the lower driver bearing (both radial and axial).

2. COMPONENT: Service Water Pumps (P-4A, P-4B, P-4C)

REFERENCE: P&ID M-209, M-210

CODE REQUIREMENT: Per Table IWP-3100-1, both pump differential pressure (dP) and flow rate will be measured. Table IWP-4110-1 requires a flow rate accuracy of ± 2%.

REASON FOR RELIEF REQUEST: By letter dated May 19, 1978, AP&L requested a relief from flow rate measurements until venturis and flow indicators were installed. This relief was granted by the NRC by letter dated March 8, 1979. Venturis and flow indicators were installed in 1979 and incorporated into our test procedure in 1980. However, the accuracy and repeatability of the instrumentation has never been consistent. The flow rate instrument accuracy problems have not been resolved.

ALTERNATE TESTING:

a. Continue monthly dP measurements to indicate gross changes in pump performance.

b. Once per refueling cycle, confirm adequate loop flows with a simulated engineered safeguards (ES) lineup using portable flow measuring instruments.

(ATTACHMENT A TO 1CANØ285Ø7)

LIST OF P&IDs OF ANO-1 SAFETY-RELATED SYSTEMS

P&ID	DESCRIPTION
M-204, Sheet 3. .	Emergency Feedwater
M-209	Circulating Water and Intake Structure Equipment
M-210	Service Water
M-230, Sheet 1. .	Reactor Coolant Syste
M-230, Sheet 2. .	Reactor Coolant System
M-231, Sheet 1. .	Makeup and Purification System
M-231, Sheet 2. .	Makeup and Purification System
M-232	Decay Heat Removal System
M-236	Reactor Building Spray and Core Flooding Systems

(ATTACHMENT B TO 1CANØ285Ø7)

DESCRIPTION OF SIGNIFICANT CHANGES

TO THE ORIGINAL INSERVICE TESTING PROGRAM

A. Change to the AP&L Response to the NRC Letter of April 22, 1981 (AP&L Letter 1CAN078106 Dated July 27, 1981)

Item 1.a) CF-1A, 1B - Core Flood Tank Discharge Check Valves - These valves, in series with DH-14A and B, are tested at power for pressure isolation capability by continuous monitoring of Core Flood Tank pressure and level and the Reactor Coolant System (RCS) leak rate. The valves are not tested according to Section XI of the ASME Code (hereafter, the Code) due to system design and ALARA considerations. Consequently, we are reclassifying CF-1A and 1B Category C. We will continue to test the pressure isolation function of the valves as described above.

Item 1.b) DH-14A, 14B - Decay Heat Check Valves - These check valves are the last valves in the Decay Heat piping tying to the Reactor Coolant System (RCS). The pressure isolation capability of these valves (in conjunction with several other valves) is tested continuously at power by monitoring RCS leak rate. Leak rate testing of DH-14A and 14B is also performed during each cold shutdown. Neither of these tests meet the requirements of Section XI of the Code. Such testing is precluded due to system design and ALARA considerations. Consequently, we are reclassifying DH-14A and 14B Category C. We will continue to test the pressure isolation function of the valves as described above.

Item 1.c) DH-13A, 13B - Decay Heat Check Valves - The pressure isolation capability of these valves, in series with DH-14A and B and in parallel with DH-17 and 18, is continuously monitored at power by monitoring RCS leak rate. Leak rate testing of DH-13A and 13B and DH-17 and 18 is performed during each cold shutdown. Neither of these tests meet the requirements of Section XI of the Code. Such testing is precluded by system design and ALARA considerations. Consequently, we are reclassifying these valves Category C. We will continue to test the pressure isolation function of the valves as described above.

Item 1.d) MU-34A, B, C and D - High Pressure Injection Check Valves - These check valves, in series with MU-1211, 1212, 1213, 1214 and 1215, are leak tested quarterly at power by measuring the upstream (non-flow) line pressure. This test provides assurance of the pressure isolation capability of the check valves but does not meet the requirements of Section XI of the Code. Such testing is precluded by system design and

ALARA considerations. Consequently, MU-1211, 1212, 1213, 1214 and 1215 have been added to the IST program. These valves and MU-34A, B, C and D have been reclassified Category C. We will continue to leak test these valves as described above. Also, CV-1219, 1220, 1227 and 1228 have been reclassified Category B since they are open to perform their safety function. MU-19A, B and C have been reclassified Category C since the other check valves upstream provide adequate pressure isolation from the RCS.

Item 1.e and f) DH-17 and 18 - Decay Heat Check Valves - These valves are tested as described in Item 1.c, above. These tests do not meet the requirements of Section XI of the Code. Consequently, we are reclassifying these valves Category C. We will continue to test the valves as described in Item 1.c.

Item 1.i andj) CV-1050 and CV-1410 - Decay Heat Suction Line Isolation Valves - The pressure isolation function of these valves is tested quarterly by monitoring the downstream pressure in the piping. This test does not meet Section XI Code requirements. The valves are reclassified Category B, and testing will be continued as described above.

Item 1.k) No change.

B. Addition of Reactor Coolant System (RCS) Vents to the IST Program

Since the initial IST submittal, RCS vents have been added to the Reactor Vessel head, the T_{hot} leg high points and the pressurizer--a total of 10 valves. All of these valves are classified Category B per NUREG 0737. Due to operational restraints the valves cannot be tested at power, so they will be tested per Section XI of the Code during each cold shutdown unless less than three months have elapsed since the previous test (per Subsection IWV-3412).

C. Addition of Emergency Feedwater (EFW) Valves to the IST Program

Since the original IST submittal, the EFW system has been upgraded to a safety grade system. Also, a number of new valves have been added to the system during installation of the Emergency Feedwater Initiation and Control (EFIC) subsystem. All Class 1, 2 or 3 valves in the system which are used to bring the plant to cold shutdown or to mitigate the consequences of an accident have been added to the IST program. The valves will be tested in accordance with Subsection IWV of the Code except that:

1. Check valves in the EFW pump suction line from the Condensate Storage Tank (CS-98, 99, 261, 262) cannot be full stroked because of the piping configuration. They are stroked monthly with sufficient flow to perform their accident function under normal

(non-failure) conditions. However, should one of the check valves fail to open, the other (non-failed) loop must pass increased flow to meet pump demands. The check valves cannot be tested for this condition. A relief request is made for this exception.

2. Certain check valves in the pump discharge line (FW-13A and B) cannot be stroked during the monthly test because cold water would be fed to the steam generators and tube damage could result. These check valves are stroke tested quarterly during cold shutdown unless they have been tested within the previous three months, or during refueling outages. Allowed flow during testing is less than Code requirements. A relief request is made for this exception.

3. Check valves in the suction piping to the EFW pump from the Service Water System (SW-11 and 13) cannot be full stroke tested during plant operation because lake water would be fed to the steam generators. Both these valves will be manually stroke tested in refueling outage 1R7. If the stroke test is satisfactory, each valve will be manually stroked every other refueling outage thereafter.