ENCLOSURE 2

INSERVICE TESTING PROGRAM FOR
PUMPS AND VALVES
WATTS BAR NUCLEAR POWER PLANT
UNIT 1

1.0 INTRODUCTION

Under the provisions of 10 CFR 50.55a, in-service testing of safety-related pumps and valves will be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable Addenda. As specified in 10 CFR 50.55a(b), the effective edition of Section XI with regard * to this program is the 1983 edition through the summer 1983 addenda. This program identifies the pump and valve inservice testing that will be performed at the Watts Bar Nuclear Power Plant (WBN) to comply with the requirements of 10 CFR 50.55a for operation of unit 1.

2.0 PUMP INSERVICE TESTING PROGRAM

The pump test program shall be conducted in accordance with Subsection * IWP of Section XI of the 1983 Edition of the ASME Boiler and Pressure * Vessel Code through summer 1983 addenda, except for relief requested under the provisions of 10CFR50.55a(g) (5) (iii). Appendix A details the in-service testing program for all safety related pumps at WBN. Each parameter to be measured, as well as reference to specific relief requests, are also listed. Relief requests are listed numerically in Appendix C.

2.1 Pump Bearing Temperature

Subsection IWP-3300 requires pump bearing temperatures be measured at least once every year. Industry experience demonstrates that bearing temperatures rise only minutes prior to failure. Any bearing failure predicted by a yearly recording of bearing temperature would be a random event and, thus, yearly measurement of bearing temperatures does not increase the level of confidence in component reliability. The expense of adding the additional testing is, therefore, not justified.

Further, IWP-3500(b) specifies that pumps be run until bearing temperatures stablize as determined by three measurements at 10-minute intervals. Clearly the pump would have to be run in excess of one-half hour to obtain these readings. The pump degradation caused by this requirement does not justify the very limited assurance it might provide.

Quarterly measurements of vibration velocity will provide meaningful indication of bearing reliability due to the increased sensitivity of velocity to higher frequency bearing vibration. Additionally, vibration velocity will begin to increase much earlier in bearing failure than temperature will. Data trending will also be more useful utilizing these vibration measurements.

Vibration data taken on a quarterly basis will be trended and significant increases in these data may necessitate further vibration measurements, including vibration analysis, to define the source of the increase. This request for relief should apply for all bearings presently required to be temperature tested.

3.0 VALVE IN-SERVICE TESTING PROGRAM

The valve test program shall be conducted in accordance with Subsection IWV of Section XI of the 1983 edition of the ASME B&PV Code through the summer 1983 addenda, except for relief requested under the provisions of 10 CFR 50a(g) (5) (iii). All valves in safety-related systems were reviewed and categorized. Valves which were categorized as active in any category and passive valves categorized in Category A are listed in Appendix B. Relief requests are identified by number in the column labeled RELIEF and listed numerically in Appendix C. Justifications for testing in cold shutdown in lieu of during operation are listed in Appendix D and identified by number in the column labeled ALTER.

3.1 Category A Valves

Valves for which seat leakage is important may generally be classified as pressure isolation valves (PSIV), containment isolation valves (CIV), or both pressure and containment isolation valves.

3.1.1 CIV

Containment isolation valves falling within the scope of ASME Section XI are tested in accordance with the Section XI requirements of IWV-3410, Category A with the exception of the seat leakage tests (IWV-3420). The seat leakage testing of these valves meets the intent of Section XI, but the actual test procedures shall be in accordance with the 10 CFR 50, Appendix J, Type C, CIV test program. For valves performing a containment isolation function, individual valve leak rates are not in themselves significant. The only pertinent leak rate criterion for CIVs is that the total leak rate for all penetrations and valves be less than that allowed by Appendix J. In recognition of the fact that a single valve should not be allowed to approach

the Appendix J limit, working guidelines have been established to ensure that a single valve does not become the predominate source of leakage. The Watts Bar plant was designed to perform the Appendix J, Type C test, not the individual Category A leak test (i.e., some penetration test connections test more than one valve at a time). Accordingly, all CIV seat leak testing shall be performed in accordance with the requirements of 10 CFR 50, Appendix J, Type C, in lieu of the Category A requirements of Section XI.

3.1.2 PSIV

Pressure isolation valves (PSIV), falling within the scope of IWV-3421, shall be tested in accordance with Subsection IWV of Section XI of the * 1983 edition of the ASME B&PV Code through the summer 1983 addenda except for the relief requested under the provisions of 10 CFR 50a(g)(iii). In addition to the requirements of Subsection IWV, these valves will also be tested in accordance with surveillance requirement 4.4.6.2.2 of the Watts Bar Technical Specifications regarding permissible leakage from the reactor coolant system.

3.2 Thermal Relief Valves

Many safety-related systems, particularly those with heat exchangers, have been provided with relief valves. These relief valves are thermal relief valves (TRV) of small capacity intended to relieve pressure due to thermal expansion of fluid in a "bottled-up" condition. Experience has shown that failure of these valves will not result in failure of a system to fulfill its safety-related function. Thus, the thermal relief valve is not safety-related and such valves have not been included in the program.

3.3 Thermal Relief Check Valves

Several penetrations have been fitted with small spring-loaded check valves designed to relieve pressure due to thermal expansion of fluid in the penetration. These valves will be leak tested in the closed position at each refueling: however, these valves do not have a safety-related function to open. The reasoning is similar to that for the thermal relief valves in that the only occasion that would require the opening function of these valves is when both CIVs are absolutely tight with zero leakage. On that occasion, the thermally induced pressure increase will be stabilized, since only a minute amount of leakage past any barrier would stabilize the penetration pressure. Watts Bar views these valves as safety-related only in the closed position to provide containment isolation function.

3.4 Corrective Action

Relief is requested from the corrective action requirements of Paragraph IWV-3417 of Section XI. The requirement for corrective action of components in safety systems is adequately covered in the Limiting Conditions for Operation (LCO) contained in the present Watts Bar Technical Specifications.

IWV-3417 requires that if a Category A or B valve fails to test satisfactorily (valve exercising) corrective action be taken immediately; if the condition is not corrected within 24 hours, the valve should be declared inoperable. If repairs are necessary due to CSD testing, the repairs shall be made prior to startup. A retest showing acceptable operation shall be run following any repairs before returning the valves to service.

Watts Bar Technical Specifications regarding corrective actions are more restrictive than those identified in IWV-3417. By the technical specification definition of OPERABLE, no grace period is allowed before a device that is not capable of performing its specified function is declared inoperable. LCO 3.0.4 and specific LCOs adequately address changes in OPERATIONAL MODES with inoperable equipment to ensure against entry into a condition without required safety-related equipment. The definition of OPERABLE again requires an acceptable retest to prove the component capable of performing its intended function prior to declaring the component (i.e., valve) operable.

IWV-3523 requires the same corrective actions for Category C CVs as described above for Category A and B valves. The same discussion as presented above for IWV-3417 applies for IWV-3523.

3.5 Systems Out of Service

Relief is requested from the requirements for testing valves in systems which are out of service before returning those systems to operable status in accordance with IWV-3416 of Section XI. These testing requirements are adequately covered in the Watts Bar Technical Specifications and Plant Procedures.

IWV-3416 states for a valve in a system declared inoperable or not required to be operable, the exercising test schedule need not be followed. Within 30 days prior to return of the system to operable status, the valves shall be exercised and the schedule resumed in accordance with requirements of this Article.

If a system is declared inoperable for the reason of a failure of a valve, then the valve will be exercised and tested satisfactorily prior to returning the system to operable status. This is provided for by the technical specifications definition of OPERABLE. If, however, a system is declared inoperable or is not required to be operable for some reason other than valve problems, e.g., a pump is tagged for maintenance, then the system valves do not have to be exercised prior to returning the system to operable status provided the valve exercising schedule is in the required frequency. In this case, the applicable pump test would be run to determine operability of the system. For an extended outage or period for which the system is not operable or required to be operable, the respective valve exercising must only be in frequency prior to declaring the system operable. Relief is therefore requested only from the 30-day requirement, i.e., valve exercising must only be in frequency (e.g., exercised within 90 days) prior to returning the system operable.

3.6 Emergency Diesel Systems

The in-service operability testing of pumps and valves associated with the emergency diesels, excluding the diesel oil transfer system and diesel air start system, are excluded from the enclosed test programs. These components are an integral part of the emergency diesel system and are functionally tested monthly. Thus, the functional operability testing of the pumps and valves is performed at a frequency greater than that required by Section XI for either pumps or valves. Additionally, the failure of a pump or valve to perform its intended function will be identified by the failure of the associated emergency diesel to meet its functional requirements. The diesel fuel oil transfer pumps and air start valves are included in the enclosed test program.

The Watts Bar emergency power system has a spare diesel generator set. Test frequency of the spare diesel generator need not be maintained when that diesel generator is not required to meet standby emergency power requirements. Prior to declaring the spare diesel operable and utilizing it to meet standby emergency power requirements, Watts Bar will either verify that all required Section XI tests have been performed within the previous three months or perform such tests prior to making the spare diesel operable.

3.7 Fail-Safe Actuators

All those valves which have a fail-safe actuator are exercised normally using that actuator. Thus, the fail-safe actuator is regularly tested when the valve is tested.

3.8 Valve Timing and Remote Indication

During each full-stroke test of a power-operated valve, the full-stroke time shall be measured in accordance with Section XI Article IWV-3413 except for those valves which stroke in less than two seconds. For these fast-acting valves (i.e., stroke time less than two seconds) observation that valve cycling was completed in not more than two seconds will be required. In addition, each valve with a remote indicator shall be stroke timed using that indicator. Proper indication of valve position will be verified not less often than once every two years in accordance with Section XI, Article IWV-3300, except where relief has been granted.

3.9 Passive Valve

These valves, which have no Section XI testing requirements, are valves in safety-related systems which are not required to change position in order to accomplish their required safety function. Watts Bar has included as B-Passive all manually operated valves which are required by procedure to be maintained in their safety-related position. Any valves which are locked-open or locked-closed in their safety-related position are also considered Category B-Passive. Due to the lack of testing requirements, these valves have been excluded from Appendix B.

3.10 Cold Shutdown Testing

Unless otherwise stated in Appendix C or D, reference to testing at cold shutdown in lieu of during operation implies that Watts Bar will commence testing as soon as the cold shutdown condition is achieved but not later than 48 hours after cold shutdown and will continue in a normal manner until all tests are complete or the plant is ready to return to power. Any testing not completed at one cold shutdown will be performed during subsequent cold shutdowns starting from the last test performed at the previous cold shutdown. Therefore, a unit shall not be required to remain in cold shutdown to complete cold shutdown testing. For planned cold shutdowns, where Watts Bar will complete all the tests identified in the IST program for the cold shutdown mode, exception to the above 48-hour start time may be taken (refueling, etc.). In the case of frequent cold shutdowns, valve testing will not be performed more often than once every three months.

4.0 ABBREVIATIONS AND SYSTEM IDENTIFICATION

4.1 Abbreviations Used In Summary Listing of Inservice Test Program

ACT - Valve actuator type
ANG - Angle body valve
BUT - Butterfly valve
BT - Bench test of safety or relief valve to determine setpoint

CATGRY - ASME Section XI category applicable to the valve listed
CK - Self-actuating checkvalve
CV - Full stroke exercising of a checkvalve performed quarterly except for valves where relief has been requested.
COORD - Drawing coordinates at which the valve is shown. The coordinates listed are for the unit 1 valves for drawings which show both units.
CYL - Air, hydraulic, or high pressure fluid cylinder actuator
DIA - Diaphragm body valve (when listed in TYPE column)
DIA - Diaphragm actuator (when listed in ACT column)
DP - Differential pressure developed by a pump during stable operation.
DWG No.- TVA drawing number. The number listed is the last segment of the complete drawing number. To obtain the complete number, the type and size identifier 47W should be added. For example, the complete number of a drawing listed as 801.1 is 47W801.1
GA - Gate valve
GL - Globe valve
LT - Seat leakage measurement test
MOT - Motor operated actuator
N. POS - Normal position of valve. The position listed corresponds to the position the valve is usually in. Some valves which are usually closed, and must close to fulfill their function, are listed as active valves because they may be opened as part of normal plant operation, thus, placing an active requirement to close on them.
OLP - Lubricating oil level or pressure
PLUG - Plug valve
PNU - Pneumatically operated valve
PS - Part stroke
* Q - Volumetric flow rate (when listed as a column headings in Appendix A)
* Q - Quarterly (when listed in the parameter columns of Appendix A)
QT - Full stroke exercising of a power-operated valve performed quarterly except for valves where relief has been requested
REL - Safety or relief valve
RELIEF - Identification of the specific relief request applicable to the valve listed
RD - Rupture disk
SIZE - Nominal valve diameter in inches
SLF - Self actuated valve
SOL - Solenoid valve
SPF - Final suction pressure during stable pump operation
SPI - Initial suction pressure measured prior to pump start
SYS - TVA system identification number. See 4.2 below for listing of system numbers and names.
TB - Bearing temperatures
TESTS - Type of testing required by Section XI for valves of the category listed
TYPE - Valve body type
V - Vibration level

4.2 SYSTEM NUMBER IDENTIFICATION

01	-	Main Steam
02	-	Condensate System
03	-	Main and Auxiliary Feedwater
18	-	Fuel Oil System
26	-	High Pressure Fire Protection
30	-	Ventilation
31	-	Air-Conditioning
32	-	Control Air
43	-	Sampling
52	-	System Testing Facility
61	-	Ice Condenser
62	-	Chemical and Volume Control
63	-	Safety Injection
67	-	Essential Raw Cooling Water
68	-	Reactor Coolant
70	-	Component Cooling
72	-	Containment Spray
74	-	Residual Heat Removal
77	-	Waste Disposal
78	-	Spent Fuel Cooling
81	-	Primary Water
82	-	Diesel Air Start
87	-	Upper Heat Injection
90	-	Radiation Monitoring

APPENDIX-A

PUMP INSERVICE TESTING PROGRAM SUMMARY

PUMPS	...P....	.NUMBER.	SPEED	.SPI.	.SPF.	..Q..	.DP.[redacted]	.VIB.	.OLP.	.TB..	REMARK.....
0671	ESSENTIAL RAW COOLING WATER	A-A	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01	OIL LEVEL OR PRESSURE IS NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED IN THE MAIN FLOW PATH. SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0672	ESSENTIAL RAW COOLING WATER	B-A	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01	OIL LEVEL OR PRESSURE NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED IN THE MAIN FLOW PATH. SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0673	ESSENTIAL RAW COOLING WATER	C-A	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01	OIL LEVEL OR PRESSURE IS NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED IN THE MAIN FLOW PATH. SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0674	ESSENTIAL RAW COOLING WATER	D-A	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01	OIL LEVEL OR PRESSURE IS NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED INSIDE THE MAIN FLOW PATH. SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0675	ESSENTIAL RAW COOLING WATER	E-B	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01	OIL LEVEL OR PRESSURE IS NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED INSIDE THE MAIN FLOW PATH. SPEED

PUMPS	....	P....	.NUMBER.	SPEED	.SPI.	.SPF.	..Q..	.DP	.VIB.	.OLP.	.TB..	REMARK.....
												NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0676	ESSENTIAL RAW COOLING WATER	F-B	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01		OIL LEVEL OR PRESSURE IS NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED INSIDE THE MAIN FLOW PATH. SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0677	ESSENTIAL RAW COOLING WATER	G-B	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01		OIL LEVEL OR PRESSURE NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED INSIDE THE MAIN FLOW PATH. SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0678	ESSENTIAL RAW COOLING WATER	H-B	NR	RR.04	Q	RR.05	RR.05	RR.02 RR.03	NR	RR.01		OIL LEVEL OR PRESSURE NOT REQUIRED BECAUSE BEARINGS ARE NOT OUTSIDE THE FLOW PATH. BEARINGS ARE WATER LUBED SLEEVE TYPE LOCATED INSIDE THE MAIN FLOW PATH. SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
0701	COMPONENT COOLING	C-S	NR	RR.07	Q	RR.05	RR.05	RR.02	Q	RR.01		SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1031	AUXILIARY FEEDWATER PUMP	1A-A	NR	Q	Q	Q	Q	RR.02	Q	RR.01		SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1032	AUXILIARY FEEDWATER PUMP	1B-B	NR	Q	Q	Q	Q	RR.02	Q	RR.01		SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1033	AUXILIARY FEEDWATER	1A-S	Q	Q	Q	Q	Q	RR.02	Q	RR.01		

PUMPS	....P....	.NUMBER.	SPEED	.SPI.	.SPF.	..Q..	.DP[redacted]	.VIB.	.OLP.	.TB..	REMARK.....
	PUMP										
1181	FUEL OIL TRANSFER PUMP	1A1	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1182	FUEL OIL TRANSFER PUMP	1A2	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1183	FUEL OIL TRANSFER PUMP	1B1	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1184	FUEL OIL TRANSFER PUMP	1B2	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1621	CENTRIFUGAL CHARGING	1A-A	NR	Q	Q	Q	Q	RR.02	Q	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1622	CENTRIFUGAL CHARGING	1B-B	NR	Q	Q	Q	Q	RR.02	Q	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1623	BORIC ACID TRANSFER PUMP	1A-A	Q	Q	Q	RR.08	Q	RR.02	Q	RR.01	
1624	BORIC ACID TRANSFER PUMP	1B-B	Q	Q	Q	RR.08	Q	RR.02	Q	RR.01	
1631	SAFETY INJECTION	1A-A	NR	Q	Q	Q	Q	RR.02	Q	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1632	SAFETY INJECTION	1B-B	NR	Q	Q	Q	Q	RR.02	Q	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1701	COMPONENT COOLING	1A-A	NR	RR.06	Q	RR.05	RR.05	RR.02	Q	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1702	COMPONENT COOLING	1B-B	NR	RR.06	Q	RR.05	RR.05	RR.02	Q	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1721	CONTAINMENT	1A-A	NR	Q	Q	Q	Q	RR.02	Q	RR.01	SPEED NOT REQUIRED FOR

LIST PUMPS [redacted]T DBL.SPC LPTR 09:59:01 04-07-86 PAGE 4[redacted]

PUMPS	....P....	.NUMBER.	SPEED	.SPI.	.SPF.	..Q..	.DP[redacted]	.VIB.	.OLP.	.TB..	REMARK.....
	SPRAY										SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1722	CONTAINMENT SPRAY	1B-B	NR	0	0	0	0	RR.C2	0	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1741	RESIDUAL HEAT REMOVAL	1A-A	NR	0	0	0	0	RR.02	0	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
1742	RESIDUAL HEAT REMOVAL	1B-B	NR	0	0	0	0	RR.02	0	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
2181	FUEL OIL TRANSFER PUMP	2A1	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
2182	FUEL OIL TRANSFER PUMP	2A2	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
2183	FUEL OIL TRANSFER PUMP	2B1	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.
2184	FUEL OIL TRANSFER PUMP	2B2	NR	RR.09	RR.09	RR.10	RR.10	RR.02	RR.11	RR.01	SPEED NOT REQUIRED FOR SYNCHRONOUS OR INDUCTION MOTOR DRIVEN PUMPS.

32 RECORDS LISTED.

APPENDIX-B

VALVE INSERVICE TESTING PROGRAM SUMMARY

LIST VALVES LIMIT DBL.SPC LPTR 07:27:18 04-11-86 PAGE 1

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV01.004T	01	2	801.1	C.4	B.ACT	32	GA	CYL	O	QT	CS.01 PS	
1FCV01.011T	01	2	301.1	E.4	B.ACT	32	GA	CYL	O	QT	CS.01 PS	
1FCV01.022T	01	2	301.1	G.4	B.ACT	32	GA	CYL	O	QT	CS.01 PS	
1FCV01.029T	01	2	801.1	A.4	B.ACT	32	GA	CYL	O	QT	CS.01 PS	
1FCV01.147A	01	2	801.1	C.4	B.ACT	2	GL	DIA	C	QT		
1FCV01.148B	01	2	801.1	E.4	B.ACT	2	GL	DIA	C	QT		
1FCV01.149A	01	2	301.1	G.4	B.ACT	2	GL	DIA	C	QT		
1FCV01.150B	01	2	801.1	A.4	B.ACT	2	GL	DIA	C	QT		
1PCV01.005T	01	2	301.1	C.3	B.ACT	6	GL	DIA	C	QT	CS.02	
1PCV01.012T	01	2	301.1	E.3	B.ACT	6	GL	DIA	C	QT	CS.02	
1PCV01.023T	01	2	301.1	F.3	B.ACT	6	GL	DIA	C	QT	CS.02	
1PCV01.030T	01	2	801.1	A.3	B.ACT	6	GL	DIA	C	QT	CS.02	
1SFV01.512	01	2	801.1	F.2	C.ACT	6	REL	SLF	C	BT		
1SFV01.513	01	2	801.1	F.2	C.ACT	6	REL	SLF	C	BT		
1SFV01.514	01	2	801.1	F.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.515	01	2	801.1	F.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.516	01	2	801.1	F.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.517	01	2	301.1	D.2	C.ACT	6	REL	SLF	C	BT		
1SFV01.518	01	2	801.1	D.2	C.ACT	6	REL	SLF	C	BT		
1SFV01.519	01	2	801.1	D.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.520	01	2	801.1	D.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.521	01	2	801.1	D.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.522	01	2	801.1	C.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.523	01	2	801.1	C.3	C.ACT	6	REL	SLF	C	BT		

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1SFV01.524	01	2	801.1	C.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.525	01	2	301.1	C.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.526	01	2	801.1	C.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.527	01	2	801.1	A.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.528	01	2	801.1	A.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.529	01	2	801.1	A.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.530	01	2	801.1	A.3	C.ACT	6	REL	SLF	C	BT		
1SFV01.531	01	2	301.1	A.3	C.ACT	6	REL	SLF	C	BT		
1FCV01.007B	01	2	801.2	C.3	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.014A	01	2	801.2	E.3	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.025B	01	2	801.2	G.3	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.032A	01	2	801.2	A.3	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.181A	01	2	801.2	C.2	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.182B	01	2	801.2	E.2	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.183A	01	2	801.2	G.2	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.184B	01	2	801.2	A.2	B.ACT	2	GA	SOL	O	QT		RR.21
1FCV01.015A	01	2	803.2	B.9	B.ACT	4	GA	MOT	O	QT		
1FCV01.016A	01	2	803.2	A.9	B.ACT	4	GA	MOT	O	QT		
1FCV01.017A	01	3	803.2	B.8	B.ACT	4	GA	MOT	O	QT	CS.03	
1FCV01.018B	01	2	803.2	B.8	B.ACT	4	GA	MOT	O	QT	CS.03	
1CKV02.667	02	3	804.1	G.3	C.ACT	2.5	CK	SLF	C	CV		
1CKV03.508	03	2	803.1	E.2	C.ACT	16	CK	SLF	O	CV	CS.04	RR.28
1CKV03.509	03	2	803.1	D.2	C.ACT	16	CK	SLF	O	CV	CS.04	RR.28
1CKV03.510	03	2	803.1	C.2	C.ACT	16	CK	SLF	O	CV	CS.04	RR.28
1CKV03.511	03	2	803.1	B.2	C.ACT	16	CK	SLF	O	CV	CS.04	RR.28

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1CKV03.638	C3	2	803.1	A.3	C.ACT	6	CK	SLF	0	CV	CS.05	
1CKV03.652	C3	2	803.1	C.3	C.ACT	6	CK	SLF	0	CV	CS.05	
1CKV03.669	C3	2	803.1	D.2	C.ACT	6	CK	SLF	0	CV	CS.05	
1CKV03.678	C3	2	803.1	F.2	C.ACT	6	CK	SLF	0	CV	CS.05	
1FCV03.033A	C3	2	803.1	C.3	B.ACT	16	GA	MOT	0	QT	CS.04	
1FCV03.047B	C3	2	803.1	E.3	B.ACT	16	GA	MOT	0	QT	CS.04	
1FCV03.087A	C3	2	803.1	G.3	B.ACT	16	GA	MOT	0	QT	CS.04	
1FCV03.100B	C3	2	803.1	B.3	B.ACT	16	GA	MOT	0	QT	CS.04	
1FCV03.185	C3	2	803.1	C.2	B.ACT	2	GA	DIA	C	QT	CS.06	
1FCV03.186	C3	2	803.1	E.2	B.ACT	2	GA	DIA	C	QT	CS.06	
1FCV03.187	C3	2	803.1	G.2	B.ACT	2	GA	DIA	C	QT	CS.06	
1FCV03.188	C3	2	803.1	B.2	B.ACT	2	GA	DIA	C	QT	CS.06	
1FCV03.236	C3	2	803.1	C.3	B.ACT	6	GA	DIA	0	QT	CS.07	
1FCV03.239	C3	2	803.1	D.3	B.ACT	6	GA	DIA	0	QT	CS.07	
1FCV03.242	C3	2	803.1	F.3	B.ACT	6	GA	DIA	0	QT	CS.07	
1FCV03.245	C3	2	803.1	A.3	B.ACT	6	GA	DIA	0	QT	CS.07	
1CKV03.805A	C3	3	803.2	F.5	C.ACT	8	CK	SLF	C	CV	CS.08 PS	
1CKV03.806B	C3	3	803.2	F.6	C.ACT	8	CK	SLF	C	CV	CS.08 PS	
1CKV03.810S	C3	3	803.2	G.4	C.ACT	10	CK	SLF	C	CV	CS.08 PS	
1CKV03.814A	C3	3	803.2	F.5	C.ACT	1.5	CK	SLF	C	CV		
1CKV03.815B	C3	3	803.2	F.6	C.ACT	1.5	CK	SLF	C	CV		
1CKV03.818S	C3	3	803.2	G.6	C.ACT	1.5	CK	SLF	C	CV		
1CKV03.820A	C3	3	803.2	F.5	C.ACT	6	CK	SLF	C	CV	CS.09	
1CKV03.821B	C3	3	803.2	F.6	C.ACT	6	CK	SLF	C	CV	CS.09	

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1CKV03.830B	03	2	803.2	F.8	C.ACT	4	CK	SLF	C	CV	CS.09	
1CKV03.831A	03	2	803.2	E.8	C.ACT	4	CK	SLF	C	CV	CS.09	
1CKV03.832A	03	2	803.2	C.8	C.ACT	4	CK	SLF	C	CV	CS.09	
1CKV03.833B	03	2	803.2	B.8	C.ACT	4	CK	SLF	C	CV	CS.09	
1CKV03.861S	03	2	803.2	G.10	C.ACT	4	CK	SLF	C	CV	CS.09	
1CKV03.862S	03	2	803.2	E.10	C.ACT	4	CK	SLF	C	CV	CS.09	
1CKV03.864S	03	3	803.2	G.6	C.ACT	6	CK	SLF	C	CV	CS.10	
1CKV03.871A	03	2	803.2	F.8	C.ACT	4	CK	SLF	C	CV	CS.10	
1CKV03.872B	03	2	803.2	D.8	C.ACT	4	CK	SLF	C	CV	CS.10	
1CKV03.873B	03	2	803.2	C.8	C.ACT	4	CK	SLF	C	CV	CS.10	
1CKV03.874A	03	2	803.2	A.8	C.ACT	4	CK	SLF	C	CV	CS.10	
1CKV03.891S	03	2	803.2	B.8	C.ACT	4	CK	SLF	C	CV	CS.11 PS	
1CKV03.892S	03	2	803.2	A.8	C.ACT	4	CK	SLF	C	CV	CS.11 PS	
1CKV03.921S	03	2	803.2	G.10	C.ACT	4	CK	SLF	C	CV	CS.09	
1CKV03.922S	03	2	803.2	E.10	C.ACT	4	CK	SLF	C	CV	CS.09	
1FCV03.116A.A	03	3	803.2	F.5	B.ACT	4	GA	MOT	C	QT		
1FCV03.116B.A	03	3	803.2	F.5	B.ACT	4	GA	MOT	C	QT		
1FCV03.126A.B	03	3	803.2	F.7	B.ACT	4	GA	MOT	C	QT		
1FCV03.126B.B	03	3	803.2	F.7	B.ACT	4	GA	MOT	C	QT		
1FCV03.136A.A	03	3	803.2	G.5	B.ACT	6	GA	MOT	C	QT		
1FCV03.136B.A	03	3	803.2	G.5	B.ACT	6	GA	MOT	C	QT		
1FCV03.179A.B	03	3	803.2	H.5	B.ACT	6	GA	MOT	C	QT		
1FCV03.179B.B	03	3	803.2	H.5	B.ACT	6	GA	MOT	C	QT		
1LCV03.148.B	03	3	803.2	F.8	B.ACT	4	GL	DIA	C	QT		
1LCV03.148A.B	03	3	803.2	F.8	S.ACT	2	ANG	DIA	C	QT		

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
												RR.13
1FCV26.244B	26	3	850.9	G.1	E.ACT	4	GA	MOT	O	QT		
1FCV26.245A	26	3	850.9	G.1	E.ACT	4	GA	MOT	O	QT		
1FCV30.007A	30	2	866.1	C.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.008B	30	2	866.1	C.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.009B	30	2	866.1	C.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.010A	30	2	866.1	C.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.014A	30	2	866.1	E.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.015B	30	2	866.1	E.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.016	30	2	866.1	F.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.017	30	2	866.1	F.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.019B	30	2	866.1	G.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.020A	30	2	866.1	G.2	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.037	30	2	866.1	D.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.040	30	2	866.1	D.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.050B	30	2	866.1	C.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.051A	30	2	866.1	C.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.052A	30	2	866.1	C.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV30.053B	30	2	866.1	C.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.056A	30	2	866.1	E.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.057B	30	2	866.1	E.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.058B	30	2	866.1	G.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FCV30.059A	30	2	866.1	G.10	A.ACT	24	BUT	CYL	C	QT.LT	AJ	RR.12 RR.13
1FSV30.134	30	2	866.1	F.9	A.ACT	0.5	PLUG	SOL	O	QT.LT	AJ	RR.12 RR.13 RR.21
1FSV30.135	30	2	866.1	F.10	A.ACT	0.5	PLUG	SOL	O	QT.LT	AJ	RR.12 RR.13 RR.21
1FCV31.305B	31	2	865.5	B.7	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV31.306A	31	2	865.5	B.8	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV31.308A	31	2	865.5	C.8	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV31.309B	31	2	865.5	C.7	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV31.326A	31	2	865.5	E.7	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV31.327B	31	2	865.5	E.8	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV31.329B	31	2	865.5	F.8	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV31.330A	31	2	865.5	F.7	A.ACT	2	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1IBD31.3378	31	2	865.5	F.8	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1IBD31.3392	31	2	865.5	E.8	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
												RR.13
1IBD31.3407	31	2	865.5	C.8	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1IBD31.3421	31	2	865.5	B.8	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1BYV32.288	32	2	848.1	C.9	A.PAS	2	GL	MAN	C	LT	AJ	RR.12 RR.13
1BYV32.298A	32	2	848.1	B.9	A.PAS	2	GL	MAN	C	LT	AJ	RR.12 RR.13
1BYV32.308B	32	2	848.1	D.9	A.PAS	2	GL	MAN	C	LT	AJ	RR.12 RR.13
1CKV32.293A	32	2	848.1	B.10	AC.ACT	2	CK	SLF	O	CV.LT	CS.12 AJ	RR.12 RR.13
1CKV32.303A	32	2	848.1	C.10	AC.ACT	2	CK	SLF	O	CV.LT	CS.12 AJ	RR.12 RR.13
1CKV32.313B	32	2	848.1	D.10	AC.ACT	2	CK	SLF	O	CV.LT	CS.12 AJ	RR.12 RR.13
1FCV32.080A	32	2	848.1	C.9	A.ACT	2	GA	DIA	O	QT.LT	CS.12 AJ	RR.12 RR.13
1FCV32.102B	32	2	848.1	D.9	A.ACT	2	GA	DIA	O	QT.LT	CS.12 AJ	RR.12 RR.13
1FCV32.110A	32	2	848.1	A.9	A.ACT	2	GA	DIA	O	QT.LT	CS.12 AJ	RR.12 RR.13
1CKV33.714	33	2	846.2	F.6	AC.PAS	3	CK	SLF	C	LT	AJ	RR.12 RR.13
1ISV33.713	33	2	846.2	F.6	A.PAS	2	DIA	MAN	C	LT	AJ	RR.12 RR.13
1FCV43.002B	43	2	625.01	D.3	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV43.011B	43	2	625.01	B.2	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV43.022B	43	2	625.01	F.5	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.023A	43	2	625.01	D.5	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
												RR.13
1FCV43.034B	43	2	625.02	B.2	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV43.035A	43	2	625.02	C.4	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV43.054D.B	43	2	625.02	C.7	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.055A	43	2	625.02	C.6	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.056D.B	43	2	625.02	C.8	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.058A	43	2	625.02	C.7	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.059D.B	43	2	625.02	D.8	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.061A	43	2	625.02	D.8	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.063D.B	43	2	625.02	D.9	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.064A	43	2	625.02	D.8	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.075	43	2	625.07	E.7	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV43.077A	43	2	625.07	E.8	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV43.201A	43	2	625.11	H.5	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.202A	43	2	625.11	G.5	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.207B	43	2	625.11	E.7	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV43.208B	43	2	625.11	D.7	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1CKV43.N0001	43	2	625.15	G.4	AC.ACT	.375	CK	SLF	C	LT	CS.13	RR.12

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
											AJ	RR.13
1CKV43.N0002	43	2	625.15	B.10	AC.ACT	.375	CK	SLF	C	LT	CS.13 AJ	RR.12 RR.13
1CKV43.N0026	43	2	625.15	B.10	AC.ACT	.375	CK	SLF	C	LT	CS.13 AJ	RR.12 RR.13
1CKV43.N0030	43	2	625.15	H.4	AC.ACT	.375	CK	SLF	C	LT	CS.13 AJ	RR.12 RR.13
1FSV43.250	43	2	625.15	D.1	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.251	43	2	625.15	C.1	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.287	43	2	625.15	C.9	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.288	43	2	625.15	B.9	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.307	43	2	625.15	C.10	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.309	43	2	625.15	D.2	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.310	43	2	625.15	C.2	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.318	43	2	625.15	C.9	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.319	43	2	625.15	B.9	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.325	43	2	625.15	C.10	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FSV43.341	43	2	625.15	H.5	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FSV43.342	43	2	625.15	G.5	A.ACT	.375	PLUG	SOL	C	LT	CS.13 AJ	RR.12 RR.13 RR.21
1FCV43.003A	43	2	652.01	C.5	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV43.012A	43	2	652.01	B.4	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1ISB52.500	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISB52.501	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISB52.502	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISB52.503	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISB52.504	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISB52.505	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISB52.506	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISB52.507	52	2	331.3	H.4	A.PAS	0.75	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISV59.522	59	2	856.1	F.3	A.PAS	2	GA	MAN	C	LT	AJ	RR.12 RR.13
1ISV59.698	59	2	856.1	F.3	A.PAS	2	DIA	MAN	C	LT	AJ	RR.12 RR.13
1CKV61.533	61	2	814.2	A.6	AC.PAS	.375	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV61.680	61	2	814.2	A.6	AC.PAS	.375	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV61.692	61	2	814.2	F.10	AC.PAS	.375	CK	SLF	C	LT	AJ	RR.12

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
												RR.13
1CKV61.745	61	2	814.2	H.10	AC.PAS	.375	CK	SLF	C	LT	AJ	RR.12 RR.13
1FCV61.096A	61	2	814.2	F.10	A.ACT	2	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV61.097B	61	2	814.2	F.10	A.ACT	2	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV61.110A	61	2	814.2	H.10	A.ACT	2	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV61.122B	61	2	814.2	H.10	A.ACT	2	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV61.191A	61	2	814.2	A.5	A.ACT	4	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV61.192B	61	2	814.2	A.6	A.ACT	4	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV61.193A	61	2	314.2	A.5	A.ACT	4	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV61.194B	61	2	814.2	A.6	A.ACT	4	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1CKV62.504S	62	2	809.1	H.10	C.ACT	8	CK	SLF	C	CV	PS.RR	RR.14
1CKV62.519S	62	2	809.1	F.9	C.ACT	3	CK	SLF	O	CV		RR.27
1CKV62.523A	62	2	809.1	H.9	C.ACT	2	CK	SLF	C	CV		
1CKV62.525A	62	2	809.1	H.9	C.ACT	4	CK	SLF	C	CV	PS.RR	RR.15 RR.27
1CKV62.530B	62	2	809.1	G.9	C.ACT	2	CK	SLF	C	CV		
1CKV62.532B	62	2	809.1	G.9	C.ACT	4	CK	SLF	C	CV	PS.RR	RR.15 RR.27
1CKV62.639S	62	2	809.1	C.7	AC.PAS	0.75	CK	SLF	C	LT	AJ	RR.12 RR.13
1FCV62.061B	62	2	809.1	B.7	A.ACT	4	GA	MOT	O	QT.LT	CS.14 AJ	RR.12 RR.13
1FCV62.063A	62	2	809.1	B.8	A.ACT	4	GA	MOT	O	QT.LT	CS.14 AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV62.072A	62	2	809.1	A.5	A.ACT	2	GL	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV62.073A	62	2	809.1	A.4	A.ACT	2	GL	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV62.074A	62	2	809.1	A.4	A.ACT	2	GL	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV62.076A	62	2	809.1	A.5	A.ACT	2	GL	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV62.077B	62	2	809.1	A.7	A.ACT	2	GL	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV62.090A	62	2	809.1	D.7	B.ACT	3	GA	MOT	O	QT		
1FCV62.091B	62	2	809.1	D.8	B.ACT	3	GA	MOT	O	QT		
1LCV62.132A	62	2	809.1	E.10	B.ACT	4	GA	MOT	O	QT	CS.16	
1LCV62.133B	62	2	809.1	E.10	B.ACT	4	GA	MOT	O	QT	CS.16	
1LCV62.135A	62	2	809.1	H.10	B.ACT	8	GA	MOT	C	QT	CS.17	
1LCV62.136B	62	2	809.1	H.10	B.ACT	8	GA	MOT	C	QT	CS.17	
1RFV62.505	62	2	809.1	F.10	C.ACT	1	REL	SLF	C	BT		
1RFV62.636S	62	2	809.1	B.6	C.ACT	2	REL	SLF	C	BT		
1RFV62.649S	62	2	809.1	C.9	C.ACT	2	REL	SLF	C	BT		
1RFV62.662S	62	2	809.1	A.3	AC.ACT	2	REL	SLF	C	BT.LT	AJ	RR.12 RR.13
1RFV62.675S	62	2	809.1	A.10	C.ACT	2	REL	SLF	C	BT		
1RFV62.688S	62	2	809.1	D.9	C.ACT	3	REL	SLF	C	BT		
1SFV62.518	62	2	809.1	E.9	C.ACT	.75	REL	SLF	C	BT		
1FCV62.138B	62	2	809.2	B.4	B.ACT	3	GL	MOT		QT		
1CKV63.502S	63	2	811.1	F.10	C.ACT	12	CK	SLF	C	CV	PS.RR	RR.16
1CKV63.510S	63	2	811.1	D.10	C.ACT	8	CK	SLF	C	CV	PS.RR	RR.17
1CKV63.524A	63	2	811.1	E.8	C.ACT	4	CK	SLF	C	CV	PS.RR	RR.27 RR.34

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1CKV63.526B	63	2	811.1	D.8	C.ACT	4	CK	SLF	C	CV	PS.RR	RR.27 RR.34
1CKV63.528A	63	2	811.1	E.8	C.ACT	0.75	CK	SLF	C	CV		
1CKV63.530B	63	2	811.1	D.8	C.ACT	0.75	CK	SLF	C	CV		
1CKV63.543A	63	1	811.1	F.4	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.545A	63	1	811.1	E.4	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.547B	63	1	811.1	D.4	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.549B	63	1	811.1	E.4	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.551S	63	1	811.1	G.1	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.553S	63	1	811.1	H.3	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.19
1CKV63.555S	63	1	811.1	G.3	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.557S	63	1	811.1	G.2	AC.ACT	2	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.558B	63	1	811.1	E.2	AC.ACT	6	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.559B	63	1	811.1	D.1	AC.ACT	6	CK	SLF	C	CV.LT	PS.RR	RR.18
1CKV63.560S	63	1	811.1	E.1	AC.ACT	10	CK	SLF	C	CV.LT		RR.20
1CKV63.561S	63	1	811.1	D.2	AC.ACT	10	CK	SLF	C	CV.LT		RR.20
1CKV63.562S	63	1	811.1	D.3	AC.ACT	10	CK	SLF	C	CV.LT		RR.20
1CKV63.563S	63	1	811.1	F.2	AC.ACT	10	CK	SLF	C	CV.LT		RR.20
1CKV63.581S	63	1	811.1	B.7	C.ACT	3	CK	SLF	C	CV	PS.RR	RR.19
1CKV63.586S	63	1	811.1	E.1	C.ACT	1.5	CK	SLF	C	CV	PS.RR	RR.19
1CKV63.587S	63	1	811.1	D.2	C.ACT	1.5	CK	SLF	C	CV	PS.RR	RR.19
1CKV63.588S	63	1	811.1	D.2	C.ACT	1.5	CK	SLF	C	CV	PS.RR	RR.19
1CKV63.589S	63	1	811.1	E.2	C.ACT	1.5	CK	SLF	C	CV	PS.RR	RR.19
1CKV63.622S	63	1	811.1	C.1	AC.ACT	10	CK	SLF	C	CV.LT	PS	RR.20
1CKV63.623S	63	1	811.1	C.2	AC.ACT	10	CK	SLF	C	CV.LT	PS	RR.20
1CKV63.624S	63	1	811.1	C.3	AC.ACT	10	CK	SLF	C	CV.LT	PS	RR.20

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1CKV63.625S	63	1	811.1	C.3	AC.ACT	10	CK	SLF	C	CV.LT	PS	RR.20
1CKV63.632A	63	1	811.1	G.3	AC.ACT	6	CK	SLF	C	CV.LT	CS.18	
1CKV63.633B	63	1	811.1	G.2	AC.ACT	6	CK	SLF	C	CV.LT	CS.18	
1CKV63.634A	63	1	811.1	G.3	AC.ACT	6	CK	SLF	C	CV.LT	CS.18	
1CKV63.635B	63	1	811.1	G.2	AC.ACT	6	CK	SLF	C	CV.LT	CS.18	
1CKV63.640S	63	1	811.1	F.4	AC.ACT	8	CK	SLF	C	CV.LT		RR.35
1CKV63.641S	63	1	811.1	F.4	AC.ACT	8	CK	SLF	C	CV.LT		RR.18
1CKV63.643S	63	1	811.1	F.4	AC.ACT	8	CK	SLF	C	CV.LT		RR.35
1CKV63.644S	63	1	811.1	D.2	AC.ACT	6	CK	SLF	C	CV.LT		RR.18
1FCV63.001A	63	2	811.1	E.10	B.ACT	14	GA	MOT	O	QT	CS.19	
1FCV63.003A	63	2	811.1	D.8	B.ACT	2	GL	MOT	O	QT	CS.20	
1FCV63.004B	63	2	811.1	D.8	B.ACT	2	GL	MOT	O	QT		
1FCV63.005B	63	2	811.1	D.10	B.ACT	8	GA	MOT	O	QT	CS.21	
1FCV63.006B	63	2	811.1	F.10	B.ACT	4	GA	MOT	C	QT		
1FCV63.007A	63	2	811.1	F.10	B.ACT	4	GA	MOT	C	QT		
1FCV63.008A	63	2	811.1	H.9	B.ACT	8	GA	MOT	C	QT	CS.22	
1FCV63.011B	63	2	811.1	E.9	B.ACT	8	GA	MOT	C	QT	CS.22	
1FCV63.022B	63	2	811.1	D.6	B.ACT	4	GA	MOT	O	QT	CS.23	
1FCV63.023B	63	2	811.1	D.7	A.ACT	1	GL	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV63.025B	63	2	811.1	A.7	B.ACT	4	GA	MOT	C	QT		
1FCV63.026A	63	2	811.1	B.7	B.ACT	4	GA	MOT	C	QT		
1FCV63.047A	63	2	811.1	E.10	B.ACT	6	GA	MOT	O	QT		
1FCV63.048B	63	2	811.1	D.10	B.ACT	6	GA	MOT	O	QT		
1FCV63.071A	63	2	811.1	C.6	A.ACT	0.75	GL	DIA	C	QT.LT	AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV63.072A	63	2	811.1	H.6	B.ACT	18	GA	MOT	C	QT	CS.24	
1FCV63.073B	63	2	811.1	H.6	B.ACT	18	GA	MOT	C	QT	CS.24	
1FCV63.084B	63	2	811.1	C.6	A.ACT	0.75	GL	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV63.093A	63	2	811.1	G.7	B.ACT	8	GA	MOT	O	QT		
1FCV63.094B	63	2	811.1	G.7	B.ACT	8	GA	MOT	O	QT		
1FCV63.152A	63	2	811.1	E.7	B.ACT	4	GA	MOT	O	QT		
1FCV63.153B	63	2	811.1	D.7	B.ACT	4	GA	MOT	O	QT		
1FCV63.156A	63	2	811.1	E.6	B.ACT	4	GA	MOT	C	QT		
1FCV63.157B	63	2	811.1	D.6	B.ACT	4	GA	MOT	C	QT		
1FCV63.172B	63	2	811.1	F.6	B.ACT	12	GA	MOT	C	QT		
1FCV63.175B	63	2	811.1	D.8	B.ACT	2	GL	MOT	O	QT		
1FCV63.177A	63	2	811.1	F.10	B.ACT	4	GA	MOT	O	QT		
1RFV63.511A	63	2	811.1	D.10	C.ACT	0.75	REL	SLF	C	BT		
1RFV63.534A	63	2	811.1	E.7	C.ACT	0.75	REL	SLF	C	BT		
1RFV63.535S	63	2	811.1	D.7	C.ACT	0.75	REL	SLF	C	BT		
1RFV63.536B	63	2	811.1	D.7	C.ACT	0.75	REL	SLF	C	BT		
1RFV63.577S	63	2	811.1	A.8	C.ACT	0.75	REL	SLF	C	BT		
1RFV63.602S	63	2	811.1	A.1	C.ACT	1	REL	SLF	C	BT		
1RFV63.603S	63	2	811.1	A.3	C.ACT	1	REL	SLF	C	BT		
1RFV63.604S	63	2	811.1	A.4	C.ACT	1	REL	SLF	C	BT		
1RFV63.605S	63	2	811.1	A.5	C.ACT	1	REL	SLF	C	BT		
1RFV63.626A	63	2	811.1	G.7	C.ACT	2	REL	SLF	C	BT		
1RFV63.627B	63	2	811.1	G.7	C.ACT	2	REL	SLF	C	BT		
1RFV63.637S	63	2	811.1	F.7	C.ACT	0.75	REL	SLF	C	BT		
1FCV63.064A	63	2	830.6	B.5	A.ACT	1	GL	DIA	C	QT.LT	AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
0CKV67.503A.A	67	3	845.1	E.9	C.ACT	20	CK	SLF	C	CV		RR.27
0CKV67.503B.A	67	3	345.1	E.8	C.ACT	20	CK	SLF	C	CV		RR.27
0CKV67.503C.A	67	3	845.1	F.8	C.ACT	20	CK	SLF	C	CV		RR.27
0CKV67.503D.A	67	3	845.1	F.9	C.ACT	20	CK	SLF	C	CV		RR.27
0CKV67.503E.B	67	3	845.1	F.6	C.ACT	20	CK	SLF	C	CV		RR.27
0CKV67.503F.B	67	3	845.1	F.7	C.ACT	20	CK	SLF	C	CV		RR.27
0CKV67.503G.B	67	3	845.1	E.7	C.ACT	20	CK	SLF	C	CV		RR.27
0CKV67.503H.B	67	3	845.1	E.6	C.ACT	20	CK	SLF	C	CV		RR.27
1CKV67.508A.A	67	3	845.1	C.10	C.ACT	8	CK	SLF	C	CV		
1CKV67.508B.B	67	3	845.1	C.6	C.ACT	8	CK	SLF	C	CV		
1CKV67.513A.A	67	3	845.1	C.10	C.ACT	8	CK	SLF	C	CV		
1CKV67.513B.B	67	3	845.1	C.6	C.ACT	8	CK	SLF	C	CV		
1FCV67.022	67	3	845.1	G.9	B.ACT	24	BUT	MOT	O	QT	CS.25	
1FCV67.024	67	3	845.1	F.6	B.ACT	24	BUT	MOT	O	QT	CS.25	
1FCV67.065B	67	3	845.1	C.6	B.ACT	8	BUT	MOT	C	QT		
1FCV67.066A	67	3	845.1	C.10	B.ACT	8	BUT	MOT	C	QT		
1FCV67.067B	67	3	845.1	C.6	B.ACT	8	BUT	MOT	C	QT		
1FCV67.068A	67	3	845.1	C.10	B.ACT	8	BUT	MOT	C	QT		
2CKV67.508A.A	67	3	845.1	C.8	C.ACT	8	CK	SLF	C	CV		
2CKV67.508B.B	67	3	845.1	C.4	C.ACT	8	CK	SLF	C	CV		
2CKV67.513A.A	67	3	845.1	C.8	C.ACT	8	CK	SLF	C	CV		
2CKV67.513B.B	67	3	845.1	C.4	C.ACT	8	CK	SLF	C	CV		
2FCV67.022	67	3	845.1	F.9	B.ACT	24	BUT	MOT	O	QT	CS.25	
2FCV67.024	67	3	845.1	G.6	B.ACT	24	BUT	MOT	O	QT	CS.25	
2FCV67.065B	67	3	845.1	C.4	B.ACT	8	BUT	MOT	C	QT		

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
2FCV67.066A	67	3	845.1	C.8	B.ACT	8	BUT	MOT	C	QT		
2FCV67.067B	67	3	845.1	C.4	B.ACT	8	BUT	MOT	C	QT		
2FCV67.065A	67	3	845.1	C.8	B.ACT	8	BUT	MOT	C	QT		
0FCV67.152B	67	3	345.2	B.7	B.ACT	24	BUT	MOT	C	QT		
1FCV67.081A	67	3	845.2	H.9	B.ACT	24	BUT	MOT	O	QT	CS.25	
1FCV67.082B	67	3	845.2	H.9	B.ACT	24	BUT	MOT	O	QT	CS.25	
1FCV67.123B	67	3	845.2	C.9	B.ACT	18	BUT	MOT	C	QT		
1FCV67.124B	67	3	845.2	D.8	B.ACT	18	BUT	MOT	C	QT		
1FCV67.125A	67	3	845.2	C.8	B.ACT	18	BUT	MOT	C	QT		
1FCV67.126A	67	3	845.2	C.7	B.ACT	18	BUT	MOT	C	QT		
1FCV67.146	67	3	845.2	C.7	B.ACT	24	BUT	MOT	O	QT	CS.26	
1FCV67.223A	67	3	845.2	A.6	B.ACT	24	BUT	MOT	C	QT		
1FCV67.458A	67	3	845.2	A.9	B.ACT	24	BUT	MOT	O	QT		
1FCV67.478B	67	3	845.2	B.7	B.ACT	24	BUT	MOT	O	QT	CS.26	
2FCV67.081A	67	3	845.2	H.2	B.ACT	24	BUT	MOT	O	QT	CS.25	
2FCV67.082B	67	3	845.2	H.2	B.ACT	24	BUT	MOT	O	QT	CS.25	
2FCV67.146	67	3	845.2	C.5	B.ACT	24	BUT	MOT		QT	CS.26	
1CKV67.562A.A	67	2	345.3	G.4	AC.ACT	6	CK	SLF	C	CV.LT	CS.27 AJ	RR.12 RR.13
1CKV67.562B.B	67	2	645.3	E.4	AC.ACT	6	CK	SLF	C	CV.LT	CS.27 AJ	RR.12 RR.13
1CKV67.562C.A	67	2	845.3	F.4	AC.ACT	6	CK	SLF	C	CV.LT	CS.27 AJ	RR.12 RR.13
1CKV67.562D.B	67	2	345.3	D.4	AC.ACT	6	CK	SLF	C	CV.LT	CS.27 AJ	RR.12 RR.13
1CKV67.575A.A	67	2	845.3	G.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV67.575B.B	67	2	845.3	E.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1CKV67.575C.A	67	2	845.3	F.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV67.575D.B	67	2	845.3	D.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV67.580A.A	67	2	845.3	C.3	AC.ACT	2	CK	SLF	O	CV.LT	AJ	RR.12 RR.13
1CKV67.580B.B	67	2	845.3	B.3	AC.ACT	2	CK	SLF	O	CV.LT	AJ	RR.12 RR.13
1CKV67.580C.A	67	2	845.3	B.3	AC.ACT	2	CK	SLF	O	CV.LT	AJ	RR.12 RR.13
1CKV67.580D.B	67	2	845.3	A.3	AC.ACT	2	CK	SLF	O	CV.LT	AJ	RR.12 RR.13
1CKV67.585A.A	67	2	845.3	C.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV67.585B.B	67	2	845.3	B.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV67.585C.A	67	2	845.3	C.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV67.585D.B	67	2	845.3	A.4	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1FCV67.083A	67	2	845.3	G.4	A.ACT	6	BUT	MOT	O	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.087A	67	2	845.3	G.4	A.ACT	6	BUT	MOT	O	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.088B	67	2	845.3	G.4	A.ACT	6	BUT	MOT	O	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.091A	67	2	845.3	F.4	A.ACT	6	BUT	MOT	O	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.095A	67	2	845.3	F.4	A.ACT	6	BUT	MOT	O	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.096B	67	2	845.3	F.4	A.ACT	6	BUT	MOT	O	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.099B	67	2	845.3	E.4	A.ACT	6	BUT	MOT	O	QT.LT	CS.27 AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV67.103B	67	2	845.3	E.4	A.ACT	6	BUT	MOT	0	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.104A	67	2	845.3	E.4	A.ACT	6	BUT	MOT	0	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.107B	67	2	845.3	D.4	A.ACT	6	BUT	MOT	0	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.111B	67	2	845.3	D.4	A.ACT	6	BUT	MOT	0	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.112A	67	2	845.3	D.4	A.ACT	6	BUT	MOT	0	QT.LT	CS.27 AJ	RR.12 RR.13
1FCV67.130A	67	2	845.3	C.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.131B	67	2	845.3	C.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.133A	67	2	845.3	B.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.134B	67	2	845.3	C.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.138B	67	2	845.3	B.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.139A	67	2	845.3	B.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.141B	67	2	845.3	A.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.142A	67	2	845.3	A.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.295A	67	2	845.3	C.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.296A	67	2	845.3	C.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.297B	67	2	845.3	B.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13
1FCV67.298B	67	2	845.3	A.4	A.ACT	2	PLUG	MOT	0	QT.LT	AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV67.162	67	3	845.4	B.7	B.ACT	2	GA	DIA	O	QT		
1FCV67.164	67	3	845.4	B.9	B.ACT	2	GA	DIA	C	QT		
1FCV67.176	67	3	845.4	D.7	B.ACT	1.5	GA	DIA	C	QT		
1FCV67.182	67	3	845.4	D.9	B.ACT	1.5	GA	DIA	C	QT		
1FCV67.184	67	3	845.4	D.8	B.ACT	1.5	GA	DIA	C	QT		
1FCV67.186	67	3	845.4	D.9	B.ACT	1.5	GA	DIA	C	QT		
1FCV67.213	67	3	845.4	B.7	B.ACT	1.5	GA	DIA	O	QT		
1FCV67.215	67	3	845.4	B.9	B.ACT	1.5	GA	DIA	C	QT		
1FCV67.342	67	3	845.4	G.7	B.ACT	2	GA	DIA	O	QT		
1FCV67.344	67	3	845.4	G.8	B.ACT	2	GA	DIA	C	QT		
1FCV67.346	67	3	845.4	E.8	B.ACT	1.5	GA	DIA	O	QT		
1FCV67.348	67	3	845.4	E.9	B.ACT	1.5	GA	DIA	C	QT		
1FCV67.350	67	3	845.4	F.8	B.ACT	1.5	GA	DIA	O	QT		
1FCV67.352	67	3	845.4	F.9	B.ACT	1.5	GA	DIA	C	QT		
1FCV67.354	67	3	845.4	F.8	B.ACT	1.5	GA	DIA	O	QT		
1FCV67.356	67	3	845.4	F.9	B.ACT	1.5	GA	DIA	C	QT		
2FCV67.217	67	3	845.4	B.2	B.ACT	2	GA	DIA	C	QT		
2FCV67.219	67	3	845.4	C.4	B.ACT	2	GA	DIA	O	QT		
2FCV67.336	67	3	845.4	A.2	B.ACT	1	GA	DIA	C	QT		
2FCV67.338	67	3	845.4	A.4	B.ACT	1	GA	DIA	C	QT		
OFCV67.205A	67	3	845.5	G.2	B.ACT	4	BUT	MOT	O	QT		
OFCV67.208B	67	3	845.5	G.2	B.ACT	4	BUT	MOT	O	QT		
OSFV67.671	67	3	845.5	E.6	C.ACT	.75	REL	SLF	C	BT		
OSFV67.672	67	3	845.5	G.7	C.ACT	.75	REL	SLF	C	BT		
1FCV68.307A	68	2	625.8	G.2	A.ACT	.375	GA	DIA	C	QT.LT	AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV68.308B	68	2	625.8	F.1	A.ACT	.375	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1CKV68.559	68	2	813.1	E.7	B.ACT	4	CK	SLF	C	CV		RR.32
1FCV68.332B	68	1	813.1	E.2	B.ACT	3	GA	MOT	O	QT		
1FCV68.333A	68	1	313.1	B.1	B.ACT	3	GA	MOT	O	QT		
1FSV68.394	68	2	813.1	F.7	B.ACT	1	PLUG	SOL	C	QT	CS.36	RR.21
1FSV68.395	68	2	813.1	F.7	B.ACT	1	PLUG	SOL	C	QT	CS.36	RR.21
1FSV68.396	68	2	813.1	F.5	B.ACT	1	PLUG	SOL	C	QT	CS.36	RR.21
1FSV68.397	68	2	813.1	F.6	B.ACT	1	PLUG	SOL	C	QT	CS.36	RR.21
1PCV68.334	68	1	313.1	B.1	B.ACT	3	GL	SOL	C	QT	CS.36	RR.21
1PCV68.340A.A	68	1	813.1	B.1	B.ACT	3	GL	SOL	C	QT	CS.36	RR.21
1RFV68.563S	68	1	813.1	A.3	C.ACT	6	REL	SLF	C	BT		
1RFV68.564S	68	1	813.1	A.2	C.ACT	6	REL	SLF	C	BT		
1RFV68.565S	68	1	813.1	A.1	C.ACT	6	REL	SLF	C	BT		
1PCV68.305A	68	2	830.6	G.6	A.ACT	0.75	GL	DIA	O	QT.LT	AJ	RR.12 RR.13
OCKV70.504B	70	3	859.1	E.8	C.ACT	16	CK	SLF	C	CV		
OCKV70.753	70	3	859.1	F.10	C.ACT	8	CK	SLF	O	CV		
OFCV70.194B	70	3	859.1	B.4	B.ACT	20	BUT	MOT	O	QT		
OFCV70.206B	70	3	859.1	G.10	B.ACT	10	BUT	MOT	O	QT		
OFCV70.208A	70	3	859.1	B.1	B.ACT	10	BUT	MOT	O	QT		
1CKV70.504A.A	70	3	859.1	C.8	C.ACT	16	CK	SLF	C	CV		RR.27
1CKV70.504B.A	70	3	859.1	D.8	C.ACT	16	CK	SLF	C	CV		RR.27
1FCV70.066	70	3	859.1	E.3	B.ACT	2	ANG	DIA	O	QT		
1FCV70.207B	70	3	859.1	A.2	B.ACT	10	BUT	MOT	O	QT		
1RFV70.538	70	3	859.1	E.3	C.ACT	3	REL	SLF	C	BT		

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1CKV70.679A	70	2	859.2	H.4	AC.ACT	3	CK	SLF	O	CV.LT	CS.28 AJ	RR.12 RR.13
1CKV70.687A	70	2	859.2	G.9	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV70.692A	70	2	859.2	G.3	AC.ACT	6	CK	SLF	O	CV LT	CS.29 AJ	RR.12 RR.13
1CKV70.698A	70	2	359.2	E.9	AC.PAS	0.5	CK	SLF	C	LT	AJ	RR.12 RR.13
1FCV70.085B	70	2	859.2	D.10	A.ACT	6	BUT	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV70.087B	70	2	859.2	G.9	A.ACT	3	GA	MOT	O	QT.LT	CS.28 AJ	RR.12 RR.13
1FCV70.089B	70	2	859.2	E.9	A.ACT	6	BUT	MOT	O	QT.LT	CS.29 AJ	RR.12 RR.13
1FCV70.090A	70	2	859.2	E.10	A.ACT	3	GA	MOT	O	QT.LT	CS.28 AJ	RR.12 RR.13
1FCV70.092A	70	2	359.2	D.10	A.ACT	6	BUT	MOT	O	QT.LT	CS.29 AJ	RR.12 RR.13
1FCV70.134B	70	2	859.2	H.3	A.ACT	3	GA	MOT	O	QT.LT	CS.28 AJ	RR.12 RR.13
1FCV70.140B	70	2	359.2	G.3	A.ACT	6	BUT	MOT	O	QT.LT	CS.29 AJ	RR.12 RR.13
1FCV70.143A	70	2	859.2	E.3	A.ACT	6	BUT	MOT	O	QT.LT	AJ	RR.12 RR.13
1RFV70.703	70	2	359.2	D.3	AC.ACT	3	REL	SLF	C	BT.LT	AJ	RR.12 RR.13
1FCV70.153B	70	3	859.4	F.3	B.ACT	18	BUT	MOT	C	QT		
1FCV70.156A	70	3	859.4	F.4	B.ACT	18	BUT	MOT	C	QT		
1CKV72.506A	72	2	812.1	B.11	C.ACT	12	CK	SLF	C	CV		
1CKV72.507B	72	2	812.1	D.11	C.ACT	12	CK	SLF	C	CV		
1CKV72.524A	72	2	812.1	D.7	C.ACT	10	CK	SLF	C	CV		
1CKV72.525B	72	2	812.1	B.7	C.ACT	10	CK	SLF	C	CV		

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1CKV72.548A	72	2	812.1	D.3	C.ACT	10	CK	SLF	C	CV	PS.RR	RR.22
1CKV72.549B	72	2	812.1	B.3	C.ACT	10	CK	SLF	C	CV	PS.RR	RR.22
1CKV72.562A	72	2	812.1	F.3	C.ACT	8	CK	SLF	C	CV	PS.RR	RR.22
1CKV72.563B	72	2	812.1	E.3	C.ACT	8	CK	SLF	C	CV	PS.RR	RR.22
1FCV72.002B	72	2	812.1	B.4	A.ACT	10	GA	MOT	C	QT.LT	AJ	RR.12 RR.13
1FCV72.013B	72	2	812.1	B.6	B.ACT	3	GA	MOT	C	QT		
1FCV72.021B	72	2	812.1	B.10	B.ACT	12	GA	MOT	O	QT		
1FCV72.022A	72	2	812.1	C.10	B.ACT	12	GA	MOT	O	QT		
1FCV72.034A	72	2	812.1	C.6	B.ACT	3	GA	MOT	C	QT		
1FCV72.039A	72	2	812.1	D.4	A.ACT	10	GA	MOT	C	QT.LT	AJ	RR.12 RR.13
1FCV72.040A	72	2	812.1	F.5	B.ACT	8	GA	MOT	C	QT	CS.30	
1FCV72.041B	72	2	812.1	E.5	B.ACT	8	GA	MOT	C	QT	CS.30	
1FCV72.044A	72	2	812.1	G.4	B.ACT	12	GA	MOT	C	QT	CS.24	
1FCV72.045B	72	2	812.1	H.4	B.ACT	12	GA	MOT	C	QT	CS.24	
1RFV72.508	72	2	812.1	C.9	C.ACT	0.75	REL	SLF	C	DT		
1RFV72.509	72	2	814.1	A.9	C.ACT	0.75	REL	SLF	C	DT		
1CKV74.514A	74	2	810.1	E.7	C.ACT	8	CK	SLF	C	CV	CS.31 PS	RR.27
1CKV74.515B	74	2	810.1	C.7	C.ACT	8	CK	SLF	C	CV	CS.31 PS	RR.27
1FCV74.001A	74	1	810.1	G.3	A.ACT	14	GA	MOT	C	QT.LT	CS.32	RR.23
1FCV74.002B	74	1	810.1	G.3	A.ACT	14	GA	MOT	C	QT.LT	CS.32	RR.23
1FCV74.003A	74	2	810.1	E.9	B.ACT	14	GA	MOT	O	QT		
1FCV74.009A	74	1	810.1	F.3	A.ACT	10	GA	MOT	C	QT.LT	CS.32	RR.23
1FCV74.009B	74	1	810.1	G.3	A.ACT	10	GA	MOT	C	QT.LT	CS.32	RR.23
1FCV74.012A	74	2	810.1	F.5	B.ACT	2	GA	MOT	O	QT		

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1FCV74.016	74	2	810.1	E.4	B.ACT	8	BUT	DIA	O	QT		
1FCV74.021B	74	2	810.1	C.9	B.ACT	14	GA	MOT	O	QT		
1FCV74.024B	74	2	810.1	B.5	B.ACT	2	GA	MOT	O	QT		
1FCV74.028	74	2	810.1	C.4	B.ACT	8	BUT	DIA	O	QT		
1FCV74.033A	74	2	810.1	E.4	B.ACT	8	GA	MOT	O	QT	CS.35	
1FCV74.035B	74	2	810.1	C.4	B.ACT	8	GA	MOT	O	QT	CS.35	
1RFV74.505S	74	2	810.1	G.3	C.ACT	3	REL	SLF	C	BT		
1FCV77.009B	77	2	830.1	D.1	A.ACT	3	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV77.010A	77	2	830.1	E.1	A.ACT	3	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV77.016B	77	2	830.1	B.5	A.ACT	0.75	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV77.017A	77	2	830.1	B.6	A.ACT	0.75	DIA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV77.018B	77	2	830.1	B.5	A.ACT	1	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV77.019A	77	2	830.1	B.6	A.ACT	1	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV77.020A	77	2	830.1	C.6	A.ACT	1	DIA	DIA	C	QT.LT	AJ	RR.12 RR.13
1CKV77.849	77	2	830.6	G.6	AC.ACT	0.75	CK	SLF	C	CV.LT	CS.33 AJ	RR.12 RR.13
1CKV77.868	77	2	830.6	B.6	AC.ACT	1	CK	SLF	C	CV.LT	CS.33 AJ	RR.12 RR.13
1FCV77.127B	77	2	851.1	F.7	A.ACT	2	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV77.128A	77	2	851.1	F.7	A.ACT	2	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1ISV78.557	78	2	655.1	G.8	A.PAS	4	DIA	MAN	C	LT	AJ	RR.12 RR.13

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1ISV78.558	78	2	855.1	G.8	A.PAS	4	DIA	MAN	C	LT	AJ	RR.12 RR.13
1ISV78.560	78	2	855.1	G.8	A.PAS	6	DIA	MAN	C	LT	AJ	RR.12 RR.13
1ISV78.561	78	2	855.1	G.8	A.PAS	6	DIA	MAN	C	LT	AJ	RR.12 RR.13
1CKV81.502	81	2	819.1	F.4	AC.ACT	3	CK	SLF	C	CV.LT	CS.34 AJ	RR.12 RR.13
1FCV81.012A	81	2	819.1	F.4	A.ACT	3	DIA	DIA	O	QT.LT	AJ	RR.12 RR.13
1CKV82.502A.A	82	3	839.1	E.2	C.ACT	1.5	CK	SLF	C	CV		
1CKV82.502A.B	82	3	839.1	E.2	C.ACT	1.5	CK	SLF	C	CV		
1CKV82.505A.A	82	3	839.1	B.2	C.ACT	1.5	CK	SLF	C	CV		
1CKV82.505A.B	82	3	839.1	B.2	C.ACT	1.5	CK	SLF	C	CV		
1CKV82.536B.A	82	3	839.1	B.11	C.ACT	1.5	CK	SLF	C	CV		
1CKV82.536B.B	82	3	839.1	B.11	C.ACT	1.5	CK	SLF	C	CV		
1CKV82.539B.A	82	3	839.1	E.11	C.ACT	1.5	CK	SLF	C	CV		
1CKV82.539B.B	82	3	839.1	E.11	C.ACT	1.5	CK	SLF	C	CV		
1FCV82.160A.A	82	3	839.1	E.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
1FCV82.161B.A	82	3	839.1	E.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
1FCV82.170A.A	82	3	839.1	C.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
1FCV82.171B.A	82	3	839.1	C.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
1FCV82.190A.B	82	3	839.1	E.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
1FCV82.191B.B	82	3	839.1	E.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
1FCV82.200A.B	82	3	839.1	C.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
1FCV82.201B.B	82	3	839.1	C.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2CKV82.502A.A	82	3	839.1	E.2	C.ACT	1.5	CK	SLF	C	CV		
2CKV82.502A.B	82	3	839.1	E.2	C.ACT	1.5	CK	SLF	C	CV		

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
2CKV82.505A.A	82	3	839.1	B.2	C.ACT	1.5	CK	SLF	C	CV		
2CKV82.505A.B	82	3	839.1	B.2	C.ACT	1.5	CK	SLF	C	CV		
2CKV82.536B.A	82	3	839.1	B.11	C.ACT	1.5	CK	SLF	C	CV		
2CKV82.536B.B	82	3	839.1	B.11	C.ACT	1.5	CK	SLF	C	CV		
2CKV82.539B.A	82	3	839.1	E.11	C.ACT	1.5	CK	SLF	C	CV		
2CKV82.539B.B	82	3	839.1	E.11	C.ACT	1.5	CK	SLF	C	CV		
2FCV82.220A.A	82	3	839.1	E.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2FCV82.221B.A	82	3	839.1	E.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2FCV82.230A.A	82	3	839.1	C.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2FCV82.231B.A	82	3	839.1	C.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2FCV82.250A.B	82	3	839.1	E.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2FCV82.251B.B	82	3	839.1	E.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2FCV82.260A.B	82	3	839.1	C.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
2FCV82.261B.B	82	3	839.1	C.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
0CKV82.561	82	3	839.2	E.2	C.ACT	1.5	CK	SLF	C	CV		
0CKV82.562	82	3	839.2	B.11	C.ACT	1.5	CK	SLF	C	CV		
0CKV82.567	82	3	839.2	B.2	C.ACT	1.5	CK	SLF	C	CV		
0CKV82.570	82	3	839.2	E.11	C.ACT	1.5	CK	SLF	C	CV		
0FCV82.300	82	3	839.2	E.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
0FCV82.301	82	3	839.2	E.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
0FCV82.310	82	3	839.2	C.4	B.ACT	1.5	DIA	PNU	C	QT		RR.31
0FCV82.311	82	3	839.2	C.9	B.ACT	1.5	DIA	PNU	C	QT		RR.31
11SV84.530S	84	2	809.7	F.3	A.PAS	1	GA	MAN	C	LT	AJ	RR.12 RR.13
1CKV87.558S	87	1	811.2	E.1	AC.ACT	8	CK	SLF	C	CV.LT		RR.20 RR.23
1CKV87.559S	87	1	811.2	F.2	AC.ACT	8	CK	SLF	C	CV.LT		RR.20

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
												RR.23
1CKV87.560S	87	1	811.2	F.2	AC.ACT	8	CK	SLF	C	CV.LT		RR.20 RR.23
1CKV87.561S	87	1	811.2	G.2	AC.ACT	8	CK	SLF	C	CV.LT		RR.20 RR.23
1CKV87.562S	87	1	811.2	E.4	AC.ACT	12	CK	SLF	C	CV.LT		RR.20 RR.23
1CKV87.563S	87	1	811.2	F.3	AC.ACT	12	CK	SLF	C	CV.LT		RR.20 RR.23
1FCV87.007A	87	1	811.2	E.3	A.ACT	2	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV87.008A	87	1	811.2	E.3	A.ACT	2	GL	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV87.009B	87	2	811.2	E.4	A.ACT	2	GA	DIA	C	QT.LT	AJ	RR.12 RR.13
1FCV87.010B	87	2	811.2	F.5	B.ACT	0.75	GA	DIA	C	QT		
1FCV87.011B	87	2	811.2	F.5	B.ACT	2	GA	DIA	C	QT		
1FCV87.021D	87	2	811.2	E.6	B.ACT	12	GA	CYL	O	QT		RR.24
1FCV87.022E	87	2	811.2	E.7	B.ACT	12	GA	CYL	O	QT		RR.24
1FCV87.023F	87	2	811.2	F.6	B.ACT	12	GA	CYL	O	QT		RR.24
1FCV87.024G	87	2	811.2	F.7	B.ACT	12	GA	CYL	O	QT		RR.24
1RFV87.556S	87	2	811.2	C.10	C.ACT	1.5	REL	SLF	C	BT		
1RFV87.557S	87	2	311.2	C.8	C.ACT	1.5	REL	SLF	C	BT		
RUPTURE DISK	87	2	811.2	B.7	D.ACT	12	RD	SLF	C	RD		
1FCV90.107A	90	2	610.90.3	A.9	A.ACT	1.5	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV90.108B	90	2	610.90.3	C.9	A.ACT	1.5	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV90.109B	90	2	610.90.3	C.9	A.ACT	1.5	GA	DIA	O	QT.LT	AJ	RR.12 RR.13
1FCV90.110B	90	2	610.90.3	C.9	A.ACT	1.5	GA	DIA	O	QT.LT	AJ	RR.12

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
												RR.13
1FCV90.111A	90	2	610.90.3	C.9	A.ACT	1.5	GA	DIA	0	QT.LT	AJ	RR.12 RR.13
1FCV90.113A	90	2	610.90.3	A.6	A.ACT	1.5	GA	DIA	0	QT.LT	AJ	RR.12 RR.13
1FCV90.114B	90	2	610.90.3	C.5	A.ACT	1.5	GA	DIA	0	QT.LT	AJ	RR.12 RR.13
1FCV90.115B	90	2	610.90.3	C.5	A.ACT	1.5	GA	DIA	0	QT.LT	AJ	RR.12 RR.13
1FCV90.116B	90	2	610.90.3	C.5	A.ACT	1.5	GA	DIA	0	QT.LT	AJ	RR.12 RR.13
1FCV90.117A	90	2	610.90.3	D.6	A.ACT	1.5	GA	DIA	0	QT.LT	AJ	RR.12 RR.13

601 RECORDS LISTED.

"0.0000" NOT FOUND.

APPENDIX-C

RELIEF REQUESTS

SUMMARY

REQUEST..[redacted]RR.01
SYSTEM..... VARIOUS
COMPONENT.... ALL PUMPS INCLUDED IN THE INSERVICE TEST PROGRAM.
CLASS..... 2 AND 3
CATEGORY..... ACTIVE
FUNCTION..... VARIOUS
IMP.REQUIRE.. ANNUAL BEARING TEMPERATURE MEASUREMENT FOR PUMP BEARINGS IN ACCORDANCE WITH IWP 3300.
BASIS..... PUMP BEARING TEMPERATURES ARE NOT A GOOD METHOD FOR DETERMINING THE MECHANICAL CONDITION OF A PUMP. BY THE TIME A BEARING IS RUNNING HOT IT IS ALREADY AT THE POINT OF FAILURE. ONLY CHECKING FOR MECHANICAL DEGRADATION ONCE PER YEAR IS NOT GOOD ENGINEERING PRACTICE.
ALTERNATIVE.. USE OF VELOCITY AS A MEASUREMENT MODE AND OF VIBRATION ANALYSIS ALLOWS TEST PERSONNEL TO NOT ONLY DETECT BAD BEARINGS BUT ALSO TO DETECT MISALIGNMENT, BENT SHAFTS, FAULTY COUPLINGS, UNBALANCE, RESONANCE AND MANY OTHER TYPES OF MECHANICAL FAULTS. WATTS BAR PROPOSES USE OF VIBRATION ANALYSIS TO OBSERVE PUMP MECHANICAL CONDITION ANY TIME THE VIBRATION EXCEEDS THE ALERT LEVEL AND USE OF VIBRATION VELOCITY AS A MEASUREMENT MODE SINCE VELOCITY IS MORE SENSITIVE TO BEARING NOISE THAN DISPLACEMENT OR BEARING TEMPERATURES ARE.
FREQUENCY.... ONCE PER QUARTER PLUS ANY TIME A PUMP VIBRATION READING EXCEEDS THE ALERT LEVEL.

REQUEST..... RR.02
SYSTEM..... VARIOUS
COMPONENT.... ALL PUMPS INCLUDED IN THE INSERVICE TEST PROGRAM.
CLASS..... 2 AND 3
CATEGORY..... ACT
FUNCTION..... VARIOUS.
IMP.REQUIRE.. MEASURE PUMP VIBRATION IN DISPLACEMENT.
BASIS..... USE OF DISPLACEMENT AS A MEASUREMENT MODE TENDS TO DOWN GRADE THE IMPORTANCE OF THE FREQUENCY OF VIBRATION. THIS IS CAUSED BY THE FACT THAT DISPLACEMENT IS NOT READILY AFFECTED BY MECHANICAL PROBLEMS WHICH CAUSE HIGH FREQUENCY VIBRATION SUCH AS BAD ANTIFRICTION BEARINGS. VIBRATION VELOCITY GIVES A MUCH MORE COMPLETE VIEW OF THE MECHANICAL CONDITION OF THE PUMP BECAUSE IT REFLECTS CHANGES IN THE VIBRATION FREQUENCY AS WELL AS THE VIBRATION MAGNITUDE.
ALTERNATIVE.. MEASURE PUMP VIBRATION IN INCHES PER SECOND VELOCITY.
FREQUENCY.... QUARTERLY

REQUEST..... RR.03
SYSTEM..... ESSENTIAL RAW COOLING WATER
COMPONENT.... ERCW PUMPS
CLASS..... 3
CATEGORY..... ACT
FUNCTION..... PROVIDE COOLING WATER TO ESSENTIAL COMPONENTS UNDER NORMAL AND ACCIDENT CONDITIONS
IMP.REQUIRE.. MEASUREMENT OF PUMP VIBRATIONS
BASIS..... BEARINGS ARE INACCESSIBLE. PUMPS ARE TWO STAGE VERTICAL TURBINE TYPE WITH APPROXIMATELY AN 88 FOOT SHAFT BETWEEN THE MOTOR AND THE PUMP. THE SHAFT RIDES IN A CASING WHICH IS IN TURN INSERTED IN A 35 1/2 INCH DIAMETER PUMP WELL THAT IS AN INTEGRAL PART OF THE PUMPING STATION AND APPROXIMATELY 80 FEET DEEP WITH ONLY THE PUMP BELL END OF THE ASSEMBLY EXPOSED IN THE SUMP BELOW THE WATER LINE.
ALTERNATIVE.. VIBRATION READINGS WILL BE TAKEN ON THE MOTOR.
FREQUENCY.... MONTHLY

REQUEST..... RR.04
SYSTEM..... ESSENTIAL RAW COOLING WATER
COMPONENT.... ERCW PUMPS
CLASS..... 3
CATEGORY..... ACTIVE
FUNCTION..... PROVIDE COOLING WATER TO BOTH ESSENTIAL AND NONESSENTIAL PLANT EQUIPMENT DURING ALL NORMAL AND

ACCIDENT CONDITIONS.
IMP.REQUIRE.. MEASURE PUMP SUCTION PRESSURE BOTH BEFORE AND AFTER PUMP START DURING THE INSERVICE TEST.
BASIS..... THESE ARE VERTICAL TURBINE PUMPS WHICH SIT IN AN OPEN PUMP PIT. THEY ARE SEPARATED FROM THE RIVER ONLY BY A TRAVELING SCREEN.
ALTERNATIVE.. DETERMINE RIVER LEVEL BEFORE THE TEST BEGINS TO ENSURE ADEQUATE SUBMERGENCE AND MEASURE THE DIFFERENTIAL PRESSURE ACROSS THE TRAVELING SCREENS DURING PUMP OPERATION TO ENSURE THAT THE SCREENS ARE NOT BLOCKED TO A DEGREE WHICH WOULD DEPRIVE THE PUMPS OF ADEQUATE SUBMERGENCE.
FREQUENCY.... QUARTERLY

REQUEST..... RR.05
SYSTEM..... ESSENTIAL RAW COOLING WATER AND COMPONENT COOLING SYSTEMS
COMPONENT.... ERCW AND CCS PUMPS
CLASS..... 3
CATEGORY..... ACT
FUNCTION..... PROVIDE COOLING WATER TO ESSENTIAL PLANT EQUIPMENT DURING NORMAL AND ACCIDENT CONDITIONS.
IMP.REQUIRE.. PROVIDE A FIXED POINT OF OPERATION FOR FLOW AND DIFFERENTIAL PRESSURE MEASUREMENT.
BASIS..... THESE PUMPS ARE NOT EQUIPPED WITH RECIRCULATION TEST LINES. THE NATURE OF THE SYSTEM THEY FEED MAKES IT IMPOSSIBLE TO SPECIFY A PARTICULAR FLOW PATH THAT CAN ALWAYS BE REPEATED. VARIOUS COMPONENTS WHICH THEY FEED WILL SOMETIMES REQUIRE COOLING WATER AND SOMETIMES NOT.
ALTERNATIVE.. INITIALLY ESTABLISH AN INSITU PUMP CURVE WHICH ESTABLISHES THE RELATIONSHIP BETWEEN FLOW AND DIFFERENTIAL PRESSURE IN A BAND COVERING THE SYSTEM OPERATING CONDITIONS. SUBSEQUENT INSERVICE TESTS WOULD THEN COMPARE TEST DATA TO THIS CURVE.
FREQUENCY.... QUARTERLY

REQUEST..... RR.06
SYSTEM..... COMPONENT COOLING WATER SYSTEM
COMPONENT.... COMPONENT COOLING PUMPS FOR TRAIN A ONLY
CLASS..... 3
CATEGORY..... ACT
FUNCTION..... PROVIDE COOLING WATER TO ESSENTIAL PLANT EQUIPMENT DURING NORMAL AND ACCIDENT CONDITIONS
IMP.REQUIRE.. MEASURE STATIC PUMP SUCTION PRESSURE PRIOR TO STARTING PUMP
BASIS..... TO OBTAIN TRUE STATIC PRESSURE WOULD REQUIRE STOPPING BOTH TRAIN A PUMPS SINCE THEY SHARE A COMMON SUCTION HEADER. THIS IS IMPRACTICAL FROM AN OPERATIONAL STANDPOINT DUE TO THE SUBSEQUENT LOSS OF COOLING TO EQUIPMENT SERVED BY THESE PUMPS. NORMAL OPERATION INCLUDING PLANT SHUTDOWN REQUIRES AT LEAST ONE TRAIN A PUMP IN SERVICE.
ALTERNATIVE.. MEASURE SUCTION PRESSURE WITH ONLY ONE PUMP RUNNING, NOT THE PUMP TO BE TESTED, START THE PUMP TO BE TESTED AND MEASURE SUCTION PRESSURE, STOP THE PUMP NOT BEING TESTED AND CONTINUE TESTING BY FIPST MEASURING THE SUCTION PRESSURE FOR THE PUMP UNDER TEST. THIS WILL PROVIDE REFERENCE TO BOTH NORMAL AND ACCIDENT CONDITIONS.
FREQUENCY.... QUARTERLY

REQUEST..... RR.07
SYSTEM..... COMPONENT COOLING SYSTEM
COMPONENT.... COMPONENT COOLING PUMPS FOR TRAIN B ONLY
CLASS..... 3
CATEGORY..... ACT
FUNCTION..... PROVIDE COOLING WATER TO ESSENTIAL PLANT EQUIPMENT DURING NORMAL AND ACCIDENT CONDITIONS
IMP.REQUIRE.. MEASURE STATIC PUMP SUCTION PRESSURE PRIOR TO STARTING PUMP.
BASIS..... THIS IS THE ONLY PUMP ON B TRAIN AND CONSEQUENTLY IS IN NEAR CONTINUOUS SERVICE. STOPPING THE PUMP WOULD REQUIRE REMOVING AN ENTIRE TRAIN FROM SERVICE AND FAILURE OF THE PUMP TO RESTART WOULD LEAVE BOTH UNITS WITH ONLY ONE TRAIN OF COMPONENT COOLING WATER.
ALTERNATIVE.. MEASURE STATIC SUCTION PRESSURE ONLY WHEN THE PUMP IS NOT ALREADY IN SERVICE AND IS ONLY BEING STARTED FOR TESTING PURPOSES.

FREQUENCY..... QUARTERLY

REQUEST..... RR.08
SYSTEM..... BORIC ACID
COMPONENT.... BORIC ACID TRANSFER (BAT) PUMPS
CLASS..... 3
CATEGORY..... ACT
FUNCTION..... SUPPLIES BORIC ACID FOR EMERGENCY BORATION.
IMP.REQUIRE.. MEASURE PUMP FLOW RATE
BASIS..... THE BORON INJECTION TANK (BIT) IS NO LONGER REQUIRED TO BE MAINTAINED AT 20,000 PPM BORON CONCENTRATION. IN ORDER TO INCORPORATE THIS CHANGE AT WATTS BAR, THE BIT ISOLATION VALVES ARE TO BE MAINTAINED IN A CLOSED AND DEENERGIZED CONDITION WHICH ISOLATES THE ONLY FLOW ELEMENT AVAILABLE TO MEASURE BAT PUMP FLOW. THERE IS NOT SUFFICIENT TIME TO PROCURE AND INSTALL A FLOW ELEMENT PRIOR TO LICENSING.
ALTERNATIVE.. TEST THE BAT PUMPS ON A FIXED RESISTANCE FLOW LOOP MEASURING THE DEVELOPED DIFFERENTIAL PRESSURE ONLY.
FREQUENCY.... QUARTERLY

REQUEST..... RR.09
SYSTEM..... DIESEL FUEL OIL
COMPONENT.... FUEL OIL TRANSFER PUMPS
CLASS..... 3
CATEGORY..... ACTIVE
FUNCTION..... TRANSFER FUEL OIL FROM THE SEVEN DAY STORAGE TANK TO THE DIESEL ENGINE SKID MOUNTED DAY TANK
IMP.REQUIRE.. MEASURE SUCTION PRESSURE BOTH BEFORE AND AFTER PUMP START.
BASIS..... NO PRESSURE INSTRUMENTATION EXISTS BETWEEN THE PUMP AND THE TANK FROM WHICH IT TAKES SUCTION.
ALTERNATIVE.. DETERMINE PRIOR TO PUMP START THAT THE SEVEN DAY STORAGE TANK HAS A LEVEL WHICH IS SUFFICIENT TO PROVIDE ADEQUATE SUCTION TO THE FUEL OIL TRANSFER PUMPS.
FREQUENCY.... QUARTERLY

REQUEST..... RR.10
SYSTEM..... DIESEL FUEL OIL
COMPONENT.... FUEL OIL TRANSFER PUMPS
CLASS..... 3
CATEGORY..... ACT
FUNCTION..... TRANSFER FUEL OIL FROM THE SEVEN DAY STORAGE TANK TO THE DIESEL ENGINE SKID MOUNTED DAY TANK.
IMP.REQUIRE.. MEASURE DIFFERENTIAL PRESSURE AND FLOW.
BASIS..... NO INSTRUMENTATION EXISTS FOR EITHER PRESSURE OR FLOW. THE TANK TO WHICH THE PUMPS DELIVER FUEL OIL IS NOT INSTRUMENTED TO ALLOW MEASUREMENT OF LEVEL CHANGE WITH SUFFICIENT ACCURACY TO OBTAIN FLOW WITHIN 2%.
ALTERNATIVE.. DETERMINE FLOW BY MEASUREMENT OF LEVEL CHANGE TO BE AT LEAST 10 GALLONS PER MINUTE. THIS IS APPROXIMATELY TWICE THE RATE AT WHICH THE DIESELS CONSUME FUEL AND IS SUFFICIENT TO DEMONSTRATE OPERABILITY OF THE PUMP. THE ABILITY OF THE PUMP TO DELIVER FUEL OIL TO THE DAY TANK DEMONSTRATES SUFFICIENT DIFFERENTIAL PRESSURE TO FULFILL ITS FUNCTION. THE WATTS BAR DIESEL FUEL OIL TRANSFER PUMPS ARE SCREW TYPE POSITIVE DISPLACEMENT PUMPS. MEASURING DIFFERENTIAL PRESSURE ON A POSITIVE DISPLACEMENT PUMP DOES NOT PROVIDE MEANINGFUL INFORMATION AS INTENDED BY IWP-1500.
FREQUENCY.... QUARTERLY

REQUEST..... RR.11
SYSTEM..... DIESEL FUEL OIL
COMPONENT.... FUEL OIL TRANSFER PUMPS
CLASS..... 3
CATEGORY..... ACTIVE

FUNCTION.. TRANSFER FUEL OIL FROM THE SEVEN DAY STORAGE TAN[redacted] THE DIESEL ENGINE SKID MOUNTED DAY TANK.
IMP.REQUIRE.. OBSERVE OR VERIFY LUBE OIL LEVEL OR PRESSURE.
BASIS..... BOTH THE PUMP AND THE MOTOR HAVE SELF CONTAINED BEARINGS WHICH DO NOT REQUIRE EXTERNAL LUBRICATION AND ARE NOT EQUIPPED WITH ANY MEANS TO SUPPLY EXTERNAL LUBRICATION.
ALTERNATIVE.. USE OF VIBRATION VELOCITY AS A MEASUREMENT MODE FOR VIBRATION WILL ALLOW ANY LACK OF LUBRICATION TO BE IMMEDIATELY DETECTED.
FREQUENCY.... QUARTERLY

REQUEST..... RR.12
SYSTEM..... VARIOUS
COMPONENT.... VARIOUS. INDIVIDUAL VALVES FOR WHICH THIS RELIEF REQUEST APPLIES ARE IDENTIFIED IN THE VALVES PRINTOUT BY RR.12 IN THE RELIEF COLUMN.
CLASS..... 1 AND 2
CATEGORY..... A
FUNCTION..... CONTAINMENT ISOLATION VALVES (CIV'S).
IMP.REQUIRE.. CATEGORY A LEAK RATE TESTING.
BASIS..... MAINTAINING TWO SEPERATE LEAK TEST PROGRAMS FOR THE SAME VALVES IS NOT ECONOMICALLY JUSTIFIED NOR DOES IT ADD TO THE SAFETY OF THE PLANT. THE SECTION XI CATEGORY A LEAK TESTS ARE INTENDED FOR VALVES WHICH PERFORM A PRESSURE ISOLATION TYPE FUNCTION AND NOT FOR APPENDIX J TYPE TESTS WHICH ARE INTENDED TO DEMONSTRATE CONTAINMENT LEAK TIGHTNESS. SINCE THESE VALVES ARE CATEGORY A BECAUSE OF THEIR CONTAINMENT ISOLATION FUNCTION, THE APPROPRIATE LEAK TEST METHOD IS ONE WHICH COMPLIES WITH 10CFR50 APPENDIX J.
ALTERNATIVE.. ALL CIV SEAT LEAK TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF 10CFR50 APPENDIX J TYPE C IN LIEU OF THE CATEGORY A REQUIREMENTS OF SECTION XI. THE SEAT LEAKAGE TESTING OF THESE VALVES MEETS THE INTENT OF SECTION XI BUT THE ACTUAL TEST PROCEDURES SHALL BE IN ACCORDANCE WITH THE 10CFR50 APPENDIX J TYPE C CIV TEST PROGRAM.
FREQUENCY.... ONCE PER REFUELING.

REQUEST..... RR.13
SYSTEM..... VARIOUS. CONTAINMENT ISOLATION
COMPONENT.... ALL CONTAINMENT ISOLATION VALVES (CIV)
CLASS..... 2
CATEGORY..... A AND AC
FUNCTION..... CONTAINMENT ISOLATION
IMP.REQUIRE.. ANALYSIS OF LEAKAGE RATES PER IWV-3426
BASIS..... THE REQUIREMENTS OF APPENDIX J WHICH ALSO GOVERN ANALYSIS OF LEAKAGE RATES OF CIV'S DO NOT MATCH THE REQUIREMENTS OF SECTION XI. IN THIS CASE, THE REQUIREMENTS OF APPENDIX J, APPLIED IN ACCORDANCE WITH THE BELOW LISTED ALTERNATIVE, ARE MORE CONSERVATIVE.
ALTERNATIVE.. CIV'S WHICH ARE LEAK TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF 10CFR50, APPENDIX J, ARE ASSIGNED CONSERVATIVE REFERENCE LEAK RATES BASED UPON THE VALVE SIZE AND THE TOTAL ALLOWABLE CONTAINMENT PENETRATION LEAKAGE, 0.6 LA. THE TOTAL OF ALL OF THE REFERENCE LEAK RATES IS SET EQUAL TO APPROXIMATELY 40% OF THE TOTAL ALLOWABLE CONTAINMENT LEAKAGE, I.E., 40% OF (0.6 LA); THIS PROVIDES A COMFORTABLE MARGIN EVEN IF ALL VALVES ARE LEAKING THEIR RESPECTIVE REFERENCE LEAK RATES. IF A MAXIMUM PERMISSIBLE LEAK RATE IS NOT SPECIFIED BY THE OWNER (LICENSEE), IWV-3426, AS A GUIDELINE, RECOMMENDS A PERMISSIBLE LEAK RATE EQUIVALENT TO 0.3125 SCFH PER INCH VALVE SIZE; THE REFERENCE LEAK RATE ASSIGNED TO CIV'S FROM THE PRECEDING METHODOLOGY CORRESPONDS TO 0.06 SCFH PER INCH VALVE SIZE, LESS THAN ONE FIFTH THE CODE GUIDELINE. DURING REFUELING OUTAGES MAINTENANCE IS PERFORMED, IF REQUIRED, IN AN ATTEMPT TO RESTORE ALL CIV'S TO BELOW THEIR REFERENCE LEAK RATES AND AS CLOSE TO ZERO LEAKAGE AS REASONABLY ACHIEVABLE; THIS ENSURES THE ABILITY OF THE CONTAINMENT SYSTEM TO SATISFY THE INTEGRATED LEAK RATE TESTING CRITERIA AND TO PROVIDE ADEQUATE MARGIN FOR VALVE DEGRADATION OVER THE NEXT FUEL CYCLE. WHILE EVERY ATTEMPT IS MADE TO MAINTAIN CIV'S AT ZERO LEAKAGE OR BELOW THEIR REFERENCE LEAK RATES AT ALL TIMES, A VALVE LEAKING IN EXCESS OF ITS REFERENCE VALUE MAY REMAIN OPERABLE AND LEFT "AS IS" IN CERTAIN SITUATIONS, PROVIDED THAT AN

EVALUATION BY AN ENGINEER CERTIFIED TO LEVEL II[redacted] CONTAINMENT LEAKAGE RATE TESTING IN ACCORDANCE WITH ASNT-TC-1A FINDS IT ACCEPTABLE. AN EXAMPLE OF SUCH A SITUATION WOULD BE A VALVE FOUND TO BE LEAKING IN EXCESS OF ITS REFERENCE LEAK RATE IN MID FUEL CYCLE, AND FOR WHICH ALL REASONABLE ON-LINE MAINTENANCE EFFORTS HAVE BEEN MADE. SUCH EVALUATION SHALL BE BASED UPON CONSIDERATION OF THE EFFECTS ON OVERALL CONTAINMENT LEAKAGE AND POSSIBLE EFFECTS ON ADJACENT PIPING AND COMPONENTS, AS WELL AS CONSIDERATION OF TIME, COST, UNIT OPERATIONS, AND RADIOLOGICAL EXPOSURE REQUIRED FOR CORRECTIVE MEASURES. WHILE THE MAXIMUM PERMISSIBLE LEAK RATE AT THIS TIME WOULD, BY PLANT TECHNICAL SPECIFICATIONS, BE LIMITED TO THE CURRENT MARGIN BETWEEN OVERALL CONTAINMENT LEAKAGE AND 0.6 LA, MAXIMUM SINGLE PENETRATION LEAKAGE IS AT ALL TIMES ADMINISTRATIVELY LIMITED TO A VALUE THAT IS AS LOW AS REASONABLY ACHIEVABLE AND CONSISTENT WITH THE EVALUATION BY THE LEVEL III TESTER. ANY SUCH VALVE, WOULD BE REPAIRED OR REPLACED NO LATER THAN THE NEXT REFUELING OUTAGE OR EVEN DURING THE NEXT COLD SHUTDOWN OF SUFFICIENT DURATION IF PRACTICAL. THE ABOVE DESCRIBED METHODOLOGY FOR SETTING AND MAINTAINING ULTRA CONSERVATIVE MAXIMUM LEAK RATES ENSURES SYSTEM OPERABILITY AND PROVIDES REASONABLE ASSURANCE OF VALVE LEAK-TIGHT INTEGRITY INTENDED BY THE CODE. AT THE SAME TIME FLEXIBILITY IS PROVIDED TO PRUDENTLY OPERATE UNTIL THE NEXT REFUELING OUTAGE (OR LENGTHY COLD SHUTDOWN). FOR THESE REASONS RELIEF AS REQUESTED WILL NOT ENDANGER LIFE OR PROPERTY OR THE COMMON DEFENSE AND SECURITY OF THE PUELIC.

FREQUENCY.... AS REQUIRED BY IWV-3422 AND APPENDIX J, WHICHEVER IS MORE RESTRICTIVE.

REQUEST..... RR.14
SYSTEM..... CHEMICAL AND VOLUME CONTROL
COMPONENT.... 1CKV62.504S
CLASS..... 2
CATEGORY..... C,ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM REFUELING WATER STORAGE TANK TO THE CENTRIFUGAL CHARGING PUMPS. CLOSES TO PREVENT REVERSE FLOW TO RWST
IMP.REQUIRE.. EXERCISE QUARTERLY.
BASIS..... CHARGING PUMPS CANNOT BE RUN TAKING SUCTION FROM THE RWST WITHOUT CAUSING UNDESIRABLE RCS TEMPERATURE AND OR BORON CONCENTRATION CHANGES RESULTING IN CHANGES IN REACTIVITY DURING OPERATION WHICH COULD RESULT IN A PLANT TRIP. LETDOWN CAPACITY WILL NOT ALLOW FULL FLOW TESTING DURING MODE 5.
ALTERNATIVE.. EXCERCISE AT FULL FLOW AT REFUELING AND AT PART FLOW DURING COLD SHUTDOWN. VERIFY VALVE IS BACKSEATED QUARTERLY.
FREQUENCY.... FULL STROKE AT REFUELING AND PART STROKE ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS. VERIFY VALVE IS BACKSEATED QUARTERLY

REQUEST..... RR.15
SYSTEM..... CHEMICAL AND VOLUME CONTROL
COMPONENT.... 1CKV62.525A 1CKV62.532B
CLASS..... 2
CATEGORY..... C,ACT
FUNCTION..... OPENS TO ADMIT CHARGING PUMP FLOW TO THE REACTOR VESSEL DURING SAFETY INJECTION.
IMP.REQUIRE.. EXERCISE VALVE AT FULL FLOW DURING OPERATION.
BASIS..... THE CENTRIFUGAL CHARGING PUMPS CANNOT BE RUN AT FULL FLOW DURING OPERATION FOR CHARGING OR THROUGH THE COLD LEG INJECTION LINES DUE TO UNDESIRABLE TEMPERATURE AND OR BORON CONCENTRATION TRANSIENTS AND INSUFFICIENT LETDOWN CAPACITY. INSUFFICIENT LETDOWN CAPACITY PRECLUDES FULL FLOW TESTING IN COLD SHUTDOWNS.
ALTERNATIVE.. TEST VALVE AT NORMAL CHARGING FLOW QUARTERLY AND VERIFY THAT IT WILL OPEN TO PASS AT LEAST THE MINIMUM REQUIRED FLOW DURING EACH REFUELING.
FREQUENCY.... PART STROKE QUARTERLY AND FULL STROKE AT REFUELING.

REQUEST..... RR.16
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1CKV63.502S

CLASS.... [redacted]2
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM RWST TO THE RHR PUMPS DURING SAFETY INJECTION. CLOSES TO PREVENT FLOW TO THE RWST DURING ECCS RECIRCULATION.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... THE RHR PUMPS DO NOT DEVELOP SUFFICIENT HEAD TO PUMP TO THE REACTOR AT NORMAL OPERATING PRESSURES. THE PUMP RECIRCULATION FLOW PATH DOES NOT INCLUDE THIS CHECK VALVE. CAPABILITIES OF THE LETDOWN SYSTEM PRECLUDE TESTING DURING COLD SHUTDOWN. BACKSEATING DURING OPERATION WOULD REQUIRE CLOSURE OF 1FCV63.001A WHICH WOULD CAUSE INOPERABILITY OF BOTH TRAINS OF RESIDUAL HEAT REMOVAL.
ALTERNATIVE.. EXERCISE AT REFUELING OUTAGES AT FULL FLOW. VERIFY THE VALVE HAS BACKSEATED DURING COLD SHUTDOWN.
FREQUENCY.... FULL STROKE AT REFUELING AND VERIFY THE VALVE HAS BACKSEATED EACH COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... RR.17
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1CKV63.510S
CLASS..... 2
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM RWST TO THE REACTOR THROUGH THE SIS PUMPS DURING SAFETY INJECTION. CLOSES TO PROVIDE DOUBLE ISOLATION DURING RECIRCULATION MODE.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION AT FULL FLOW.
BASIS..... SIS PUMPS DO NOT DEVELOP SUFFICIENT HEAD TO PUMP TO THE RCS AT NORMAL OPERATING PRESSURES AND THE PUMP RECIRCULATION LINE WILL NOT PASS FULL FLOW. CAPABILITIES OF THE LETDOWN SYSTEM PRECLUDE FULL FLOW TESTING DURING COLD SHUTDOWN.
ALTERNATIVE.. CYCLE VALVE AT REDUCED FLOW ONCE PER QUARTER DURING SIS PUMP TEST AND AT FULL FLOW ONCE PER REFUELING. VERIFY VALVE HAS BACKSEATED ONCE PER COLD SHUTDOWN.
FREQUENCY.... PART STROKE QUARTERLY. FULL STROKE ONCE PER REFUELING. VERIFY VALVE HAS BACKSEATED ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER COLD SHUTDOWN IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... RR.18
SYSTEM..... SAFETY INJECTION SYSTEM
COMPONENT.... 1CKV63.543A 1CKV63.545A 1CKV63.547B 1CKV63.549B 1CKV63.551S 1CKV63.553S 1CKV63.555S 1CKV63.557S 1CKV63.558B 1CKV63.559B 1CKV63.641S 1CKV63.644S
CLASS..... 1
CATEGORY..... AC.ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM SIS PUMPS TO RCS DURING LOCA.
IMP.REQUIRE.. EXERCISE QUARTERLY AT FULL FLOW
BASIS..... SIS PUMPS DO NOT DEVELOP SUFFICIENT HEAD TO OVERCOME NORMAL RCS PRESSURE. VALVES ARE NOT IN RECIRCULATION FLOW PATH. CAPABILITIES OF THE LETDOWN SYSTEM PRECLUDES FULL FLOW TESTING DURING COLD SHUTDOWN. TECH SPEC 4.4.6.2.2 REQUIRES THESE VALVES TO BE LEAK TESTED FOLLOWING VALVE ACTUATION AND DURING COLD SHUTDOWN IF THEY HAVE NOT BEEN LEAK TESTED IN THE LAST NINE MONTHS. THEREFORE, RELIEF IS REQUESTED TO ALLOW PARTIAL STROKING OF THESE VALVES DURING COLD SHUTDOWN NOT TO EXCEED ONCE PER NINE MONTHS AND FULL STROKE EXERCISING DURING REFUELING OUTAGES. VALVE CLOSURE WILL BE VERIFIED DURING COLD SHUTDOWN, NOT TO EXCEED ONCE PER NINE MONTHS WHEN THE PRESSURE ISOLATION BOUNDARY LEAK TEST REQUIRED BY SR 4.4.6.2.2 IS PERFORMED.
ALTERNATIVE.. EXERCISE VALVE AT REFUELING AT FULL FLOW AND AT PART FLOW DURING COLD SHUTDOWN. LEAK TEST AS REQUIRED BY SR 4.4.6.2.2.
FREQUENCY.... PART STROKE EVERY COLD SHUTDOWN NOT TO EXCEED ONCE PER NINE MONTHS AND FULL STROKE EACH REFUELING OUTAGE. LEAK TEST AT THE FREQUENCIES REQUIRED BY SR 4.4.6.2.2.

REQUEST..... RR.19
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1CKV63.531S 1CKV63.586S 1CKV63.587S 1CKV63.588S 1CKV63.589S

CLASS.....
CATEGORY..... C.ACT
FUNCTION..... OPEN TO ADMIT FLOW FROM BORON INJECTION TANK TO THE RCS DURING SAFETY INJECTION.
IMP.REQUIRE.. EXERCISE VALVE ON A QUARTERLY BASIS.
BASIS..... CYCLING THE VALVES WOULD CAUSE AN UNDESIRAELE TEMPERATURE AND OR BORON CONCENTRATICN CHANGES AND UNSTABLE CHARGING AND LETDOWN CONDITIONS WHICH COULD RESULT IN A SAFETY INJECTION CR UNIT TRIP. CAPABILITIES OF THE LETDOWN SYSTEM PRECLUDE FULL FLOW TESTING DURING COLD SHUTDOWNS.
ALTERNATIVE.. EXERCISE VALVE AT FULL FLOW DURING REFUELING AND AT PART FLOW DURING COLD SHUTDOWN.
FREQUENCY.... FULL STROKE AT REFUELING AND PART STROKE EACH COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... RR.20
SYSTEM..... SAFETY INJECTION AND UPPER HEAD INJECTION
COMPONENT.... 1CKV63.622S 1CKV63.623S 1CKV63.624S 1CKV63.625S 1CKV87.558S 1CKV87.559S 1CKV87.560S 1CKV87.561S 1CKV87.562S 1CKV87.563S 1CKV63.560S 1CKV63.561S 1CKV63.562S 1CKV63.563S
CLASS..... 1
CATEGORY..... AC.ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM ACCUMULATORS TO THE RCS DURING DEPRESSURIZATION.
IMP.REQUIRE.. EXERCISE AT FULL FLOW AND DURING OPERATION.
BASIS..... THE ACCUMULATORS ARE PASSIVE AND OF THEMSELVES DO NOT HAVE SUFFICIENT PRESSURE TO OVERCOME RCS PRESSURE. THE SIS PUMPS DC NOT DEVELOP SUFFICIENT HEAD TO OPEN THE CCLD LEG ACCUMULATOR VALVES AT NORMAL PRESSURE BY USING THE CHECK VALVE TEST LINE. THE RECIPROCATING CHARGING PUMP COULD BE USED TO OPEN THE UPPER HEAD INJECTION CHECKS BUT THIS WOULD CREATE AN UNDESIRABLE REACTIVITY EXCURSION DUE TO THE ADDITION OF COLD WATER INTO THE VESSEL HEAD. NEITHER OF THE TWO METHODS OF OPENING THE CHECKS WILL REACH FULL FLOW DUE TO THE HIGH RESISTANCE OF THE CHECK VALVE TEST LINE. THE CHECK VALVE TEST LINE IS THE ONLY MEANS AVAILABLE TO OPEN THESE VALVES AND IT WILL NOT PASS FULL FLOW. THE ONLY WAY TO REACH FULL FLOW ON THESE LINES IS TO COMPLETELY UNLOAD THE CORE, REMOVE THE INTERNALS PACKAGES, INSTALL TEMPORARY IMPINGEMENT PLATES AND DRAIN THE REACTOR COOLANT SYSTEM. THE RESULTANT EXTENDED DOWN TIME DUE TO THE ADDITIONAL FUEL MOVEMENT AND STORAGE PROBLEMS AND WATER CHEMISTRY CLEAN UP AND REFILL OPERATIONS PRESENT AN UNUSUALLY LARGE FINANCIAL BURDEN WITHOUT A CORRESPONDING INCREASE IN THE LEVEL OF SAFETY. TECHNICAL SPECIFICATION 4.4.6.2.2 REQUIRES THESE VALVES TO BE LEAK TESTED FOLLOWING VALVE ACTUATION AND DURING COLD SHUTDOWN IF THEY HAVE NCT BEEN LEAK TESTED IN THE LAST NINE MONTHS. THEREFORE, RELIEF IS REQUESTED TO ALLOW PARTIAL STROKING OF THESE VALVES DURING COLD SHUTDOWN NOT TO EXCEED ONCE PER NINE MONTHS. VALVE CLOSURE WILL BE VERIFIED DURING COLD SHUTDOWN, NOT TO EXCEED ONCE PER NINE MONTHS WHEN THE PRESSURE ISOLATION BOUNDARY LEAK TEST REQUIRED BY SR 4.4.6.2.2 IS PERFORMED.
ALTERNATIVE.. EXERCISE AT THE MAXIMUM FLOW AVAILABLE THROUGH THE CHECK VALVE TEST LINE DURING COLD SHUTDCWNS. LEAK TEST AS REQUIRED BY SR 4.4.6.2.2.

FREQUENCY.... PART STROKE EVERY COLD SHUTDOWN NOT TO EXCEED ONCE PER NINE MONTHS. LEAK TEST AT THE FREQUENCIES REQUIRED BY SR4.4.6.2.2.

REQUEST..... RR.21
SYSTEM..... MAIN STEAM, SAMPLING, REACTOR COOLANT, VENTILATION
COMPONENT.... 1FCV01.007B 1FCV01.014A 1FCV01.025B 1FCV01.032A 1FCV01.181A 1FCV01.182B 1FCV01.183A 1FCV01.184B 1FSV43.250 1FSV43.251 1FSV43.287 1FSV43.288 1FSV43.307 1FSV43.309 1FSV43.310 1FSV43.318 1FSV43.319 1FSV43.325 1FSV43.341 1FSV43.342 1FCV68.334 1FCV68.340A,A 1FSV68.394 1FSV68.395 1FSV68.396 1FSV68.397 1FSV30.134 1FSV30.135
CLASS..... 2 FOR ALL EXCEPT THE SYSTEM 68 VALVES WHICH ARE CLASS 1
CATEGORY..... A.ACT FOR ALL EXCEPT THE SYSTEM 68 VALVES WHICH ARE B.ACT
FUNCTION..... CONTAINMENT ISOLATION, EXCEPT FOR THE SYSTEM 68 VALVES. THE SYSTEM 68 PCV'S ARE POWER OPERATED RELIEF VALVES LOCATED ON THE PRESSURIZER. THE SYSTEM 68 FSV'S ARE REACTOR COOLANT HEAD VENT VALVES.

IMP.REQUIR[redacted] PERFORM REMOTE POSITION INDICATION VERIFICATION [redacted] AS REQUIRED BY IWV-3300.
BASIS..... VALVES ARE TOTALLY ENCLOSED SOLENOID OPERATED VALVES WHICH HAVE NO EXTERNAL MOVING PARTS CAPABLE OF BEING USED TO VERIFY VALVE POSITION.
ALTERNATIVE.. VERIFY VALVE POSITION BY BEST AVAILABLE MEANS. WHERE A SIGNIFICANT TEMPERATURE OR PRESSURE GRADIENT EXISTS ACROSS THE VALVE, A CHANGE IN DOWNSTREAM TEMPERATURE OR PRESSURE MAY BE USED. WHERE THE CAPABILITY TO VERIFY FLOW EXISTS, THE PRESENCE AND ABSENCE OF FLOW MAY BE USED. WHERE NO BETTER METHOD IS AVAILABLE, ACOUSTIC MONITORING OF VALVE OPERATION MAY BE USED.
FREQUENCY.... NOT LESS OFTEN THAN ONCE EVERY TWO YEARS.

REQUEST..... RR.22
SYSTEM..... CONTAINMENT SPRAY
COMPONENT.... 1CKV72.548A 1CKV72.549B 1CKV72.562A 1CKV72.563B
CLASS..... 2
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ALLOW FLOW FROM THE CONTAINMENT SPRAY PUMPS OR RHR TO THE SPRAY HEADERS.
IMP.REQUIRE.. EXERCISE VALVE OPEN AT FULL FLOW WITH THE FLOWING FLUID.
BASIS..... EXERCISING THE VALVE WITH WATER WILL RESULT IN DELUGING THE CONTAINMENT AREA WITH BORATED WATER INTRODUCING AN UNNECESSARILY HAZARDOUS PROBLEM WITH PHYSICAL DAMAGE TO AUXILIARY EQUIPMENT AND UNREASONABLY PROLONGED CLEANUP EFFORTS. EXERCISING WITH AIR DURING OPERATION INTRODUCES THE POTENTIAL OF INADVERTENTLY CAUSING A UNIT TRIP, SAFETY SYSTEM ACTUATION, PHASE B CONTAINMENT ISOLATION AND CONTAINMENT SPRAY ACTUATION BY EXCEEDING THE HIGH HIGH CONTAINMENT PRESSURE SET POINT DUE TO THE VOLUME OF AIR BLOWN INTO CONTAINMENT DURING TESTING OF THE CHECK VALVES. EXERCISING AT COLD SHUTDOWNS IS IMPRACTICAL DUE TO THE LENGTH OF TIME REQUIRED TO DRAIN AND REFILL THE PIPING FROM THE TEST POINT TO THE CHECK VALVES.
ALTERNATIVE.. EXERCISE VALVE BY PRESSURIZING BEHIND IT WITH AIR PRESSURE AND VERIFYING THAT IT IS NOT STUCK CLOSED.
FREQUENCY.... ONCE PER REFUELING.

REQUEST..... RR.23
SYSTEM..... SAFETY INJECTION AND RESIDUAL HEAT REMOVAL.
COMPONENT.... VARIOUS. INDIVIDUAL VALVES FOR WHICH THIS REQUEST IS APPLICABLE ARE IDENTIFIED BY RR.23 IN THE RELIEF COLUMN OF THE VALVES PRINTOUT.
CLASS..... 1
CATEGORY..... A.ACT AND AC.ACT
FUNCTION..... REACTOR COOLANT PRESSURE ISOLATION.
IMP.REQUIRE.. LEAK TEST INDIVIDUAL VALVES IN ACCORDANCE WITH CATEGORY A.
BASIS..... PLANT NOT DESIGNED TO PERFORM INDIVIDUAL LEAK RATE TEST ON ALL VALVES ADDRESSED BY THIS RELIEF REQUEST.
ALTERNATIVE.. WHERE SYSTEM DESIGN ALLOWS, INDIVIDUAL SEAT LEAKAGE MEASUREMENTS WILL BE MADE. THERE ARE SOME CONFIGURATIONS WHERE AS MANY AS FOUR VALVES WILL HAVE TO BE TESTED IN PARALLEL. TESTING OF VALVES IN PARALLEL WILL BE HELD TO THE MINIMUM POSSIBLE WITH THE INSTALLED SYSTEM. WHERE TWO OR MORE VALVES MUST BE TESTED IN PARALLEL ALL MEASURED LEAKAGE WILL BE ASSUMED TO BE COMING FROM ONE VALVE.
FREQUENCY.... AS REQUIRED BY SURVEILLANCE REQUIREMENT 4.4.6.2.2.

REQUEST..... RR.24
SYSTEM..... UPPER HEAD INJECTION
COMPONENT.... 1FCV87.C21D 1FCV87.022E 1FCV87.C23F 1FCV87.C24G
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSES TO TERMINATE DELIVERY OF WATER THROUGH THE UHI PIPING DURING A LOCA.
IMP.REQUIRE.. EXERCISE THE VALVES USING THEIR NORMAL OPERATOR DURING OPERATION.
BASIS..... THE NORMAL OPERATOR FOR THESE VALVES IS AN EXTREMELY POWERFUL, HIGH PRESSURE CYLINDER WHICH IS DESIGNED TO CLOSE A 12 INCH VALVE AGAINST EXTREMELY HIGH FLOW RATES AND PRESSURES IN 3.5 SECONDS.

THE INCREASED DENSITY OF WATER AT UHI OPERATING [redacted]SURES COMBINED WITH THE VELOCITY AT WHICH THESE VALVES CLOSE CREATE AN ENORMOUSLY HIGH ENERGY WATER STREAM TO BE EJECTED FROM BETWEEN THE VALVE DISK AND SEAT. THIS IN TURN CREATES A HIGH POTENTIAL FOR EROSION OF SEAT AND DISK TO THE EXTENT THAT THE VALVES COULD EVENTUALLY LOSE THEIR PHYSICAL INTEGRITY.

ALTERNATIVE.. TEST THE VALVES USING THE MAINTENANCE OPERATOR, WHICH FUNCTIONS AT A SLOWER SPEED, ON A QUARTERLY BASIS AND WITH THE NORMAL OPERATOR DURING REFUELING OUTAGES.

FREQUENCY.... PART SPEED STROKE QUARTERLY AND FULL SPEED STROKE AT REFUELINGS.

REQUEST..... RR.25
SYSTEM..... VARIOUS
COMPONENT.... VARIOUS
CLASS..... 1, 2, AND 3
CATEGORY..... A.ACT AND B.ACT
FUNCTION..... VARIOUS
IMP.REQUIRE.. EVALUATING IN QUANTITATIVE TERMS THE STROKE TIMES OF FAST ACTING CATEGORY A AND B VALVES.
BASIS..... IT IS IMPRACTICAL TO ATTEMPT TO QUANTIFY STROKE TIMES OF VALVES WITH VERY SHORT STROKE TIMES (I.E. < 2 SECONDS). SOLENOID OPERATED VALVES, FOR EXAMPLE, TYPICALLY HAVE FULL STROKE TIMES OF MUCH LESS THAN ONE SECOND. FOR THESE SHORT STROKE TIMES, VARIANCES OF 50% OR MORE CAN OCCUR IN THE MEASURED STROKE TIME FOR REASONS THAT ARE IN NO WAY RELATED TO VALVE PERFORMANCE, FOR EXAMPLE, OPERATOR REACTION TIMES. IN THESE CASES, VERIFYING THAT THE VALVE'S STROKE TIME DOES NOT EXCEED 2 SECONDS WOULD BE SUFFICIENT TO EVALUATE VALVE CONDITION.
ALTERNATIVE.. VERIFY VALVES STROKE IS NOT GREATER THAN 2 SECONDS.
FREQUENCY.... EACH VALVE TEST.

REQUEST..... RR.26 W
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SYSTEM.....
COMPONENT....
CLASS.....
CATEGORY.....
FUNCTION.....
IMP.REQUIRE..
BASIS.....
ALTERNATIVE..
FREQUENCY....

REQUEST..... RR.27
SYSTEM..... VARIOUS, INCLUDES ALL ACTIVE PUMPS WHICH DELIVER TO A COMMON DISCHARGE HEADER
COMPONENT.... VARIOUS. SPECIFIC COMPONENT IDENTIFIED BY RR.27 IN THE RELIEF COLUMN.
CLASS..... 2 AND 3
CATEGORY..... C.ACT
FUNCTION..... VALVES MUST OPEN TO DELIVER FLOW AND RECLOSE TO PREVENT RECIRCULATION THROUGH THE SHUTDOWN PUMP.
IMP.REQUIRE.. HAVE VALVE OPEN WITH FLOW THROUGH IT PRIOR TO DEMONSTRATING SEAT INTEGRITY
BASIS..... OPENING THE VALVES WITH PUMP FLOW AT THE TIME THE SEAT INTEGRITY OF THE VALVE IS VERIFIED WOULD REQUIRE EXCESSIVE PUMP STARTS, WOULD FREQUENTLY REQUIRE REMOVING SAFETY RELATED PUMPS FROM SERVICE, AND IN THE CASE OF THE CHARGING PUMPS AND SIS PUMPS IT WOULD REQUIRE VIOLATION OF MODE 4, 5 OR 6 TECHNICAL SPECIFICATIONS REGARDING THE NUMBER OF PUMPS WHICH MAY BE OPERABLE AT A GIVEN TIME.
ALTERNATIVE.. EXERCISE VALVE OPEN DURING THE PUMP TEST FOR THE PUMP WITH WHICH THE VALVE IS ASSOCIATED. VERIFY THE VALVE HAS CLOSED SUFFICIENTLY TIGHT TO PRECLUDE EXCESS LEAKAGE DURING THE PUMP TEST OF EACH OF THE OTHER PUMPS WHICH FEED THE SAME HEADER.
FREQUENCY.... QUARTERLY

REQUEST... [redacted]RR.28
SYSTEM..... MAIN FEEDWATER
COMPONENT.... 1CKV03.508 1CKV03.509 1CKV03.510 1CKV03.511
CLASS..... 2
CATEGORY..... C.ACT
FUNCTION..... CLOSES TO PREVENT A LOSS OF STEAM GENERATOR WATER INVENTORY IN THE EVENT OF A MAIN FEEDWATER LINE BREAK.
IMP.REQUIRE.. HAVE VALVE OPEN WITH FLOW THROUGH IT PRIOR TO DEMONSTRATING SEAT INTEGRITY
BASIS..... ESTABLISHING FLOW THROUGH THESE VALVES REQUIRES HAVING THE STEAM GENERATORS AT A HIGH ENOUGH TEMPERATURE TO REMOVE THE EXCESS INVENTORY THROUGH THE MAIN STEAM SYSTEM. ISOLATING THE VALVES UNDER THESE CONDITIONS WILL CAUSE A LOSS OF FEEDWATER TO THE LOOP THEY SUPPLY CAUSING A STEAM FLOW FEEDFLOW MISMATCH AND STEAM GENERATOR LEVEL TRANSIENT WHICH COULD RESULT IN A UNIT TRIP AND UNNECESSARY SAFETY INJECTION SYSTEM ACTIVATION.
ALTERNATIVE.. VERIFY DURING SHUTDOWN CONDITIONS THAT THE VALVES ARE ON THEIR SEATS
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... RR.29
SYSTEM..... VARIOUS
COMPONENT.... ALL CHECK VALVES
CLASS..... 1, 2, AND 3
CATEGORY..... C AND AC
FUNCTION..... PREVENT REVERSE FLOW
IMP.REQUIRE.. PERFORM A POST MAINTENANCE TEST AS REQUIRED BY IWV-3200 USING THE EXERCISING PROCEDURE OF IWV-3522.
BASIS..... PERFORMING POST MAINTENANCE TESTS IN ACCORDANCE WITH IWV-3412 FREQUENTLY REQUIRES OPERATION OF AN ENTIRE SYSTEM AT MAXIMUM FLOW OR PRESSURE CONDITIONS IN ORDER TO TEST A SINGLE VALVE. MANY OF THESE TESTS CAN ONLY BE PERFORMED DURING COLD SHUTDOWN CONDITIONS ALTHOUGH VALVE MAINTENANCE CAN IN SOME CASES BE PERFORMED DURING OPERATION. FOR EXAMPLE, THE SIS PUMP DISCHARGE CHECK VALVE MAY HAVE MAINTENANCE PERFORMED ON IT DURING OPERATION AS LONG AS THE APPROPRIATE LCO'S ARE OBSERVED. HOWEVER, IT CANNOT BE FULL FLOW TESTED EXCEPT AT COLD SHUTDOWN CONDITIONS.
ALTERNATIVE.. INCLUDE IN ALL CHECK VALVE MAINTENANCE REQUEST (MR) INSTRUCTIONS WHICH REQUIRE DISASSEMBLY OF THE VALVE, EITHER DIRECTLY OR BY INCORPORATION OF AN APPROPRIATE MAINTENANCE INSTRUCTION THE FOLLOWING REQUIREMENTS. 1. CRAFTSMEN TO INSPECT VALVE INTERNALS AND VERIFY NO VISIBLE DAMAGE EXISTS. 2. CRAFTSMEN TO VERIFY THAT VALVE DISC MOVES FREELY INSIDE THE BODY.
FREQUENCY.... AS REQUIRED BY MR'S

REQUEST..... RR.30
SYSTEM..... VARIOUS
COMPONENT.... ALL CATEGORY A AND AC VALVES
CLASS..... 1, 2 AND 3
CATEGORY..... A AND AC
FUNCTION..... CONTAINMENT ISOLATION AND PRIMARY PRESSURE BOUNDARY
IMP.REQUIRE.. CORRECTIVE ACTION PER IWV-3427(B)
BASIS..... THE USE OF TREND ANALYSIS IS A VALUABLE ANALYTIC TOOL AND ITS VALUE FOR GENERAL USE CANNOT BE ARGUED. HOWEVER, ITS VALUE LIES SOLELY IN THE ABILITY TO DETECT PENDING FAILURES WHICH ARE CAUSED BY WEAR OR AGING OF THE COMPONENT BEING ANALYZED. IF THE PRIMARY FAILURE MODE OF THE COMPONENT IS RANDOM FAILURES CAUSED BY OCCURRENCES WHICH ARE NOT PART OF THE ROUTINE OPERATION OF THE COMPONENT, THEN NO CONCLUSIONS MAY BE DRAWN FROM TREND ANALYSIS. IN THE CASE OF VALVE SEAT LEAKAGE, TREND ANALYSIS WOULD BE VALUABLE TO DETECT FAILURES WHICH WERE CAUSED BY WEAR OF THE SEALING SURFACES. THIS TYPE OF WEAR IS CAUSED BY CONSTANT USE OF THE VALVE TO THROTTLE OR CONTROL FLOW WHICH RESULTS IN HIGH FLOW VELOCITIES BETWEEN THE DISK AND SEAT. HOWEVER, NONE OF THE VALVES AFFECTED BY THIS RELIEF REQUEST EXPERIENCE THIS TYPE USE. THESE VALVES ARE NOT PROCESS CONTROL VALVES BUT SINGLE PURPOSE ISOLATION VALVES. THEIR NORMAL CONDITION IS TO SIT PASSIVELY AND WAIT TO BE CALLED UPON TO

PERFORM THEIR ISOLATION FUNCTION. THEREFORE, IT IS NOT ANTICIPATED THAT SEAT AND DISK WEAR WILL BE A SIGNIFICANT CONTRIBUTOR TO VALVE LEAK RATE FAILURES. WE ANTICIPATE AND IT HAS BEEN OUR EXPERIENCE, THAT THE PRIMARY CAUSE OF EXCESSIVE LEAKAGE IN CIV'S AND PRESSURE BOUNDARY VALVES IS INCLUSION OF FOREIGN PARTICLES BETWEEN THE DISK AND SEAT CAUSING THE SEATING SURFACE TO EITHER BE HELD APART OR SUSTAIN A SCRATCH WHICH PENETRATES FROM SEAT LIP TO SEAT LIP. OTHER MAJOR CONTRIBUTORS TO VALVE LEAKAGE FAILURES ARE FAILURE OF THE VALVE OPERATOR OR EXCESSIVE TIGHTNESS OF PACKING. NONE OF THESE FAILURE MODES CAN BE DETECTED OR PREDICTED BY TREND ANALYSIS. ADDITIONALLY, TREND ANALYSIS REQUIRES THAT THE UPPER LIMIT BE SET SUFFICIENTLY HIGH THAT RANDOM DATA SCATTER DOES NOT CAUSE PREMATURE FAILURE OF THE MONITORED CRITERIA. IT HAS BEEN OUR EXPERIENCE THAT WITH THE UPPER LIMITS OF LEAKAGE SET AS LOW AS WE HAVE THEM, RANDOM DATA SCATTER CONSUMES ALL THE AVAILABLE CEILING BETWEEN THE TREND AND THE UPPER LIMIT AND CAUSES TREND ANALYSIS TO ERRONEOUSLY PREDICT EARLY FAILURES CAUSING EXCESSIVE MAINTENANCE AND TESTING TO BE PERFORMED WITH A RESULTANT INCREASE IN COST OF DOLLARS AND MAN/REM WITHOUT A CORRESPONDING INCREASE IN THE LEVEL OF SAFETY. ADDITIONALLY THE LEAK TESTING SYSTEMS FOR PRIMARY PRESSURE BOUNDARY VALVES IS SUCH THAT IN MOST CASES IT IS IMPOSSIBLE TO AVOID MORE THAN ONE VALVE BEING TESTED AT A TIME. FURTHERMORE, THE LEAK TEST SYSTEM IS SUCH THAT MANY LEAK TEST LINES MAY FEED INTO THE LEAKAGE PATH. THEREFORE A LEAKING TEST SYSTEM VALVE COULD ADD TO THE MEASURED LEAKAGE; THAT IS, THE LEAK RATE COULD BE COMING FROM THE TESTED VALVE, FROM TEST LINE VALVES OR BOTH. IF THE COMBINED LEAKAGE IS LESS THAN 1 GPM THEN TECHNICAL SPECIFICATIONS ARE GUARANTEED SATISFIED FOR THE INDIVIDUAL VALVES; A LEAK RATE FOR EACH VALVE, HOWEVER, CANNOT BE DETERMINED. FOR THESE REASONS, TRENDING OF LEAKRATES IS MEANINGLESS FOR THE PURPOSE OF MONITORING FOR VALVE DEGRADATION. SEE RELIEF REQUEST RR.13 FOR ADDITIONAL INFORMATION REGARDING CONTAINMENT ISOLATION VALVES.

ALTERNATIVE.. APPLY CORRECTIVE ACTION PER IWV-3427(A) AND RR.13
FREQUENCY.... AS REQUIRED BY IWV-3422 OR APPENDIX J , WHICH EVER IS THE MORE FREQUENT.

REQUEST..... RR.31
SYSTEM..... DIESEL GENERATOR AIR START SYSTEM
COMPONENT.... DIESEL ENGINE AIR START VALVES
CLASS..... 3
CATEGORY..... B.ACT
FUNCTION..... OPENS TO APPLY AIR PRESSURE TO THE DIESEL ENGINE AIR START MOTORS.
IMP.REQUIRE.. MEASURING STROKE TIME IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION XI.
BASIS..... THE STROKE TIME OF THE AIR START VALVES CANNOT BE MEASURED AS THERE IS NO VISIBLE STEM MOVEMENT OR INDICATION. VALVES ARE AIR OPERATED STEMLESS DIAPHRAGM VALVES. THE ONLY MOVING PART IS THE DIAPHRAGM ITSELF WHICH IS TOTALLY ENCLOSED WITHIN THE VALVE.
ALTERNATIVE.. VERIFY THAT THE ASSOCIATED DIESEL COMES UP TO SPEED IN LESS THAN OR EQUAL TO 10 SECONDS. THIS DEMONSTRATES THAT THE VALVE HAS FUNCTIONED ADEQUATELY.
FREQUENCY.... AS REQUIRED BY TABLE 4.8-1 OF THE WATTS BAR TECHNICAL SPECIFICATIONS WHICH LISTS A MAXIMUM NOMINAL TEST FREQUENCY OF ONCE PER 31 DAYS.

REQUEST..... RR.32
SYSTEM..... REACTOR COOLANT
COMPONENT.... 1CKV68.559
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... OPENS TO ALLOW FLOW FROM RELIEF VALVE VENT HEADER TO ENTER THE PRESSURIZER RELIEF TANK. CLOSES TO PROVIDE CONTAINMENT BOUNDARY.
IMP.REQUIRE.. EXERCISE THE VALVE.
BASIS..... SIGNIFICANT PROBLEMS EXIST FOR FULL FLOW EXERCISING THIS CV IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION XI. FULL FLOW EXERCISING, IS NOT POSSIBLE DUE TO THE NATURE OF THE SYSTEM, I.E., CANNOT LIFT ALL RELIEF VALVES AT SETPOINT PRESSURES. PARTIAL STROKE EXERCISING WOULD PRESENT UNACCEPTABLE PERSONNEL HAZARDS UNLESS ALL INTERACTING SYSTEMS WERE REMOVED FROM SERVICE; THESE SYSTEMS INCLUDE RCS, CVCS CHARGING/SEAL FLOW/LETDOWN, RHR, SIS, AND CS SYSTEMS. REMOVAL FROM SERVICE OF THE

AFFECTED SYSTEMS WOULD REQUIRE ENTRY INTO LCOS [redacted]N OVERALL DEGRADED PLANT CONDITION REGARDLESS OF OPERATING MODE. FOR THESE REASONS THE LICENSEE IS REQUESTING RELIEF FROM VALVE EXERCISING REQUIREMENTS OF PARAGRAPH IWV-3520 OF SECTION XI. THIS CV IS A CIV BUT IS NOT APPENDIX J TESTED BECAUSE: 1) ANY LEAKAGE WOULD BE INTO A CLOSED, QUALIFIED SYSTEM, 2) THE INJECTED PRESSURE WOULD ALWAYS EXCEED 1.1 PA, AND 3) A GUARANTEED 30-DAY WATER SUPPLY IS PROVIDED FOR SIS, CCP AND CS PUMPS. ACCORDINGLY, THIS VALVE IS NOT REQUIRED TO BE LEAK TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION XI.

ALTERNATIVE.. NONE
FREQUENCY.... NONE

REQUEST..... RR.33
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1CKV63.586S 1CKV63.587S 1CKV63.588S 1CKV63.589S 1CKV63.547B 1CKV63.549B 1CKV63.543A 1CKV63.545A 1CKV63.643S 1CKV63.640S
CLASS..... 1
CATEGORY..... A.ACT AND B.ACT
FUNCTION..... OPENS TO PERMIT FLOW TO THE REACTOR VESSEL FROM VARIOUS PUMPS IN THE SAFETY INJECTION SYSTEM. VALVES CATEGORIZED AS A.ACT ALSO CLOSE TO PROVIDE PRIMARY PRESSURE BOUNDARY.
IMP.REQUIRE.. VERIFY INDIVIDUAL VALVE STROKE DURING PART STOKE IN LIEU OF FULL STROKE TESTING.
BASIS..... THESE VALVES ARE INSTALLED IN PARALLEL HEADERS WITH FROM TWO TO FOUR VALVES BEING FED FROM THE SAME SOURCE. WHEN PERFORMING THE PART STROKE TEST AT A MUCH REDUCED FROM FULL FLOW, IT IS IMPOSSIBLE TO DETERMINE WHETHER BOTH VALVES HAVE IN FACT LEFT THEIR SEAT.
ALTERNATIVE.. VERIFY THAT AT LEAST ONE VALVE IN EACH PARALLEL FLOW PATH OPENS DURING EACH PART STROKE TEST.
FREQUENCY.... AS STATED IN RR.18, RR.19, AND RR.20

REQUEST..... RR.34
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1CKV63.524A 1CKV63.526B
CLASS..... 2
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ALLOW FLOW FROM THE RESPECTIVE SAFETY INJECTION PUMP TO ENTER THE REACTOR COOLANT SYSTEM DURING VARIOUS ACCIDENT SITUATIONS.
IMP.REQUIRE.. STROKE TEST VALVE ON A QUARTERLY BASIS.'
BASIS..... SAFETY INJECTION PUMPS DO NOT PROVIDE SUFFICIENT HEAD TO OPEN THE VALVES DURING OPERATION. INSUFFICIENT LET DOWN CAPACITY PRECLUDES FULL FLOW TESTING DURING COLD SHUTDOWN. VALVES ARE NOT IN THE PUMP RECIRCULATION LINE.
ALTERNATIVE.. PART STROKE VALVES AT REDUCED FLOW AT EACH COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER THREE MONTHS IN THE EVENT OF FREQUENT COLD SHUTDOWNS. FULL STROKE VALVE AT EACH REFUELING.
FREQUENCY.... PART STROKE AT EACH COLD SHUTDOWN, BUT NOT MORE OFTEN THAN ONCE PER THREE MONTHS IN THE EVENT OF FREQUENT COLD SHUTDOWNS. FULL STROKE AT EACH REFUELING.

REQUEST..... RR.35
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1CKV63.640S 1CKV63.643S
CLASS..... 1
CATEGORY..... AC.ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM THE RHR PUMPS TO THE REACTOR COOLANT SYSTEM DURING THE HOT LEG RECIRCULATION PORTION OF ACCIDENT RECOVERY. PRIMARY PRESSURE BOUNDARY ISOLATION.
IMP.REQUIRE.. FULL STROKE EXERCISE VALVE ON A QUARTERLY BASIS.
BASIS..... RHR PUMPS DO NOT DEVELOP SUFFICIENT PRESSURE TO INJECT TO THE VESSEL DURING OPERATION. TESTING EACH COLD SHUTDOWN NOT ONLY UNNECESSARILY CHALLENGES THE ABILITY OF THE VALVE TO SEAT AND PROVIDE ITS ISOLATION FUNCTION BUT ALSO CAUSES OTHER VALVES IN THE SAFETY INJECTION SYSTEM TO BE CHALLENGED WITH THE RESULTANT NECESSITY TO LEAK TEST ALL OF THE CHALLENGED VALVES IN ACCORDANCE WITH SR

4.4.6.2.2.

ALTERNATIVE.. FULL STROKE TEST AT EACH COLD SHUTDOWN AT WHICH SR 4.4.6.2.2 REQUIRES LEAK TESTING OF THE PRIMARY PRESSURE BOUNDARY ISOLATION VALVES. MAXIMUM FREQUENCY FOR SR 4.4.6.2.2 IS ONCE PER COLD SHUTDOWN PROVIDING 9 MONTHS HAS PASSED SINCE THE LAST LEAK TEST.

FREQUENCY.... SAME FREQUENCY AS SPECIFIED IN SR 4.4.6.2.2

35 RECORDS LISTED.

APPENDIX-D

COLD SHUTDOWN JUSTIFICATIONS SUMMARY

REQUEST..... [illegible]S.01
SYSTEM..... MAIN STEAM
COMPONENT.... 1FCV01.004T 1FCV01.011T 1FCV01.022T 1FCV01.029T
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSES DURING MAIN STEAM LINE BREAK DOWNSTREAM OF VALVE TO PREVENT UNCONTROLLED STEAM GENERATOR BLOWDOWN.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... VALVES CANNOT BE FULL STROKE TESTED DURING POWER OPERATION DUE TO LOSS OF MAIN STEAM FLOW TO ONE STEAM GENERATOR CAUSING HIGH STEAM LINE DIFFERENTIAL, STEAM FLOW FEED FLOW MISMATCH, AND STEAM GENERATOR LEVEL TRANSIENTS, ANY OF WHICH COULD CAUSE A UNIT TRIP AND SAFETY INJECTION. VALVES CAN ONLY BE PART STROKED DURING OPERATION.
ALTERNATIVE.. FULL STROKE DURING COLD SHUTDOWNS AND PART STROKE DURING OPERATION.
FREQUENCY.... PART STROKE QUARTERLY AND FULL STROKE AT COLD SHUTDOWNS BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.02
SYSTEM..... MAIN STEAM
COMPONENT.... 1PCV01.005T 1PCV01.012T 1PCV01.023T 1PCV01.030T
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... OPENS TO PREVENT SEVERE OVERPRESSURE TRANSIENTS IN THE STEAM GENERATOR IN THE EVENT OF MAIN STEAM PRESSURE TRANSIENTS.
IMP.REQUIRE.. EXERCISE VALVES DURING OPERATION.
BASIS..... OPENING THESE VALVES DURING POWER OPERATION MAY CAUSE A STEAM GENERATOR LEVEL TRANSIENT OR MAIN STEAM LINE DIFFERENTIAL PRESSURE TRANSIENT OR STEAM FLOW FEED FLOW MISMATCH. EITHER OF THESE COULD RESULT IN A UNIT TRIP AND UNNECESSARY INITIATION OF THE SAFETY INJECTION SYSTEM.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.03
SYSTEM..... MAIN STEAM
COMPONENT.... 1FCV01.017A 1FCV01.018B
CLASS..... 2 AND 3
CATEGORY..... B.ACT
FUNCTION..... CLOSES TO PREVENT BLOWDOWN OF MAIN STEAM IN THE EVENT OF FAILURE OF THE STEAM DRIVEN AUXILIARY FEEDWATER PUMP OR OF THE MAIN STEAM PIPING TO THE PUMP.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... TESTING THESE VALVES TO CLOSE COMPLETELY ISOLATES THE STEAM DRIVEN AUXILIARY FEEDWATER PUMP FROM ITS SOURCE OF STEAM. FAILURE OF EITHER VALVE IN THE CLOSED POSITION WILL CAUSE A LOSS OF HEAT SINK FOR THE LOSS OF ALL AC POWER ACCIDENT.
ALTERNATIVE.. TEST AT COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.04
SYSTEM..... FEEDWATER
COMPONENT.... 1FCV03.033A 1FCV03.047B 1FCV03.087A 1FCV03.100B 1CKV03.508 1CKV03.509 1CKV03.510 1CKV03.511
CLASS..... 2
CATEGORY..... B.ACT AND C.ACT
FUNCTION..... CLOSES TO INTERRUPT MAIN FEEDWATER TO PREVENT A RAPID PRIMARY SIDE COOLDOWN IN THE EVENT OF A MAIN STEAM LINE BREAK AND OR TO PREVENT LOSS OF STEAM GENERATOR WATER INVENTORY IN THE EVENT OF A BREAK

[redacted]N THE MAIN FEEDWATER LINE BEFORE THE ISOLATION [redacted].

IMP.REQUIRE.. EXERCISE VALVES DURING OPERATION.
BASIS..... EXERCISING THESE VALVES DUFING POWER OPERATION CAUSES A LOSS OF FEEDWATER TO THE LOOP THEY SUPPLY CAUSING A STEAM FLOW FEED FLOW MISMATCH AND STEAM GENERATOR LEVEL TRANSIENTS WHICH COULD RESULT IN UNIT TRIP AND UNNECESSARY SAFETY INJECTION SYSTEM ACTUATION. VALVES ARE NOT DESIGNED WITH PART STROKE CAPABILITY.
ALTERNATIVE.. EXERCISE VALVES DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.05
SYSTEM..... AUXILIARY FEEDWATER
COMPONENT.... 1CKV03.638 1CKV03.652 1CKVC3.669 1CKV03.678
CLASS..... 2
CATEGORY..... C.ACT
FUNCTION..... BACKSEATS TO PREVENT AUXILIARY FEEDWATER FROM FLOWING DOWN THE FEEDWATER BYPASS LINE AWAY FROM THE STEAM GENERATORS.
IMP.REQUIRE.. EXERCISE VALVE DUFING OPERATION AND HAVE FLOW THROUGH VALVE AT TIME OF DEMONSTRATING SEAT INTEGRITY..
BASIS..... THE ONLY WAY TO BACKSEAT THESE VALVES IS TC RUN THE AUXILIARY FEEDWATER PUMPS AT FULL FLOW TO THE STEAM GENERATORS. TO DO THIS REQUIRES MANUALLY OVERRIDING THE STEAM GENERATOR AUXILIARY LEVEL CONTROL VALVES. OVERPIDING THESE VALVES TO ALLOW FULL FLOW AUXILIARY FEEDWATER PUMP OPERATION RESULTS IN BYPASSING THE NORMAL STEAM GENERATOR LEVEL CONTROL SYSTEM. ESTABLISHING FLOW THROUGH THESE VALVES REQUIRES HAVING THE STEAM GENERATORS AT A HIGH ENOUGH TEMPERATURE TO REMOVE THE EXCESS INVENTORY THROUGH THE MAIN STEAM SYSTEM. BACKSEATING THE LISTED CHECK VALVES RESULTS IN A LOSS OF FLOW IN THE FEEDWATER BYPASS LINE WHICH WILL FUPTHER UPSET THE NORMAL STEAM GENERATOR LEVEL AND FEEDWATER FLOW CONTROLS. THIS COULD RESULT IN A UNIT TRIP AND UNNECESSARY ACTUATICN OF THE SAFETY INJECTION SYSTEM.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWNS BY VERIFYING THAT DURING AFW PUMP OPERATION THE VALVES ARE CN THEIR SEATS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MOPE OFTEN THAN CNCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.06
SYSTEM..... FEEDWATER
COMPONENT.... 1FCV03.185 1FCV03.186 1FCVC3.187 1FCV03.188
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSES TO PREVENT LOSS OF STEAM GENERATOR WATER INVENTORY IN THE EVENT OF A MAIN FEEDWATER LINE BREAK DURING STARTUP.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... THESE VALVES ARE CLOSED DURING POWER OPERATION SINCE THE ONLY TIME THEY ARE USED IS DURING STARTUP. OPENING THE VALVES TO TEST THEM DURING OPERATION WOULD REQUIRE REMOVING FROM ITS ACCIDENT POSITION A VALVE WHICH WOULD NOT NORMALLY BE OPENED DUPING OPERATION. TESTING DURING COLD SHUTDOWN WILL ALLOW THE VALVES TO BE TESTED BEFORE THE POINT IN OPERATION AT WHICH THEY MAY BE REQUIRED TO AUTO CLOSE
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE EACH COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.07
SYSTEM..... FEEDWATER
COMPONENT.... 1FCV03.236 1FCV03.239 1FCVC3.242 1FCV03.245

CLASS.....
CATEGORY..... B.ACT
FUNCTION..... CLOSES TO PREVENT LOSS OF STEAM GENERATOR WATER INVENTORY IN THE EVENT OF A FEEDWATER BYPASS LINE BREAK.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION WILL CAUSE A PARTIAL LOSS OF FEEDWATER FLOW RESULTING IN PROBABLE STEAM GENERATOR LEVEL TRANSIENTS AND SUBSEQUENT UNIT TRIP AND SAFETY INJECTION SYSTEM ACTUATION.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.08
SYSTEM..... AUXILIARY FEEDWATER
COMPONENT.... 1CKV03.805A 1CKV03.806B 1CKV03.810S
CLASS..... 3
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ALLOW AUXILIARY FEEDWATER PUMPS TO TAKE SUCTION FROM THE CONDENSATE STORAGE TANK, CLOSES WHEN THE CST IS EXHAUSTED TO PROVIDE FLOW BOUNDRY FOR ERCW
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION AT FULL FLOW.
BASIS..... THE ONLY WAY TO GET THESE VALVES FULLY OPEN IS TO RUN THE AUXILIARY FEEDWATER PUMPS AT FULL FLOW TO THE STEAM GENERATORS. TO DO THIS REQUIRES MANUALLY OVERRIDING THE STEAM GENERATOR AUXILIARY LEVEL CONTROL VALVES. OVERRIDING THESE VALVES TO ALLOW FULL FLOW AUXILIARY FEEDWATER PUMP OPERATION RESULTS IN BYPASSING THE NORMAL STEAM GENERATOR LEVEL CONTROL SYSTEM. IT ALSO CAUSES A LOSS OF FLOW IN THE FEEDWATER BYPASS LINE WHICH WILL FURTHER UPSET THE NORMAL STEAM GENERATOR LEVEL AND FEEDWATER FLOW CONTROLS. THIS COULD RESULT IN A UNIT TRIP AND UNNECESSARY ACTUATION OF THE SAFETY INJECTION SYSTEM.
ALTERNATIVE.. EXERCISE VALVE AT REDUCED FLOW ONCE PER QUARTER DURING THE PUMP TEST AND EXERCISE AT FULL FLOW EACH COLD SHUTDOWN. TEST VALVE TO BACKSEAT QUARTERLY.
FREQUENCY.... PART STROKE QUARTERLY AND FULL STROKE AT COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS. TEST VALVE TO BACKSEAT QUARTERLY.

REQUEST..... CS.09
SYSTEM..... AUXILIARY FEEDWATER
COMPONENT.... 1CKV03.820A 1CKV03.821B 1CKV03.830B 1CKV03.831A 1CKV03.832A 1CKV03.833B 1CKV03.861S 1CKV03.862S 1CKV03.921S 1CKV03.922S
CLASS..... 2 EXCEPT FOR 1CKV03.861S 1CKV03.820A AND 1CKV03.821B WHICH ARE CLASS 3.
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ADMIT AUXILIARY FEEDWATER TO THE STEAM GENERATORS DURING LOSS OF MAIN FEEDWATER.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... THE ONLY WAY TO GET THESE VALVES FULLY OPEN IS TO RUN THE MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS AT FULL FLOW TO THE STEAM GENERATORS. TO DO THIS REQUIRES MANUALLY OVERRIDING THE STEAM GENERATOR AUXILIARY LEVEL CONTROL VALVES. OVERRIDING THESE VALVES TO ALLOW FULL FLOW AUXILIARY FEEDWATER PUMP OPERATION RESULTS IN BYPASSING THE NORMAL STEAM GENERATOR LEVEL CONTROL SYSTEM. IT ALSO CAUSES A LOSS OF FLOW IN THE FEEDWATER BYPASS LINE WHICH WILL FURTHER UPSET THE NORMAL STEAM GENERATOR LEVEL AND FEEDWATER FLOW CONTROLS. THIS COULD RESULT IN A UNIT TRIP AND UNNECESSARY ACTUATION OF THE SAFETY INJECTION SYSTEM.
ALTERNATIVE.. EXERCISE VALVES AT FULL FLOW ONCE PER COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.10
SYSTEM..... AUXILIARY FEEDWATER
COMPONENT.... 1CKV03.804S 1CKV03.871A 1CKV03.872B 1CKV03.873B 1CKV03.874A

CLASS.....
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ADMIT AUXILIARY FEEDWATER TO THE STEAM GENERATORS DURING LOSS OF MAIN FEEDWATER.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION
BASIS..... THE ONLY WAY TO GET THESE VALVES FULLY OPEN IS TO RUN THE STEAM DRIVEN AUXILIARY FEEDWATER PUMPS AT FULL FLOW TO THE STEAM GENERATORS. TO DO THIS REQUIRES MANUALLY OVERRIDING THE STEAM GENERATOR AUXILIARY LEVEL CONTROL VALVES. OVERRIDING THESE VALVES TO ALLOW FULL FLOW AUXILIARY FEEDWATER PUMP OPERATION RESULTS IN BYPASSING THE NORMAL STEAM GENERATOR LEVEL CONTROL SYSTEM. IT ALSO CAUSES A LOSS OF FLOW IN THE FEEDWATER BYPASS LINE WHICH WILL FURTHER UPSET THE NORMAL STEAM GENERATOR LEVEL AND FEEDWATER FLOW CONTROLS. THIS COULD RESULT IN A UNIT TRIP AND UNNECESSARY ACTUATION OF THE SAFETY INJECTION SYSTEM.
ALTERNATIVE.. EXERCISE VALVES AT FULL FLOW ONCE PER COLD SHUTDOWN DURING HOT STANDBY OPERATION.
FREQUENCY.... ONCE PER COLD SHUTDOWN DURING HOT STANDBY OPERATION BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.11
SYSTEM..... AUXILIARY FEEDWATER
COMPONENT.... 1CKV03.891S 1CKV03.892S
CLASS..... 2
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ADMIT STEAM FLOW TO THE TURBINE FOR AUXILIARY FEEDWATER PUMP A.S.
IMP.REQUIRE.. EXERCISE DURING OPERATION AT FULL FLOW.
BASIS..... THE ONLY WAY TO GET THESE VALVES FULLY OPEN IS TO RUN THE TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS AT FULL FLOW TO THE STEAM GENERATORS. TO DO THIS REQUIRES MANUALLY OVERRIDING THE STEAM GENERATOR AUXILIARY LEVEL CONTROL VALVES. OVERRIDING THESE VALVES TO ALLOW FULL FLOW OPERATION OF THE AUXILIARY FEEDWATER PUMP RESULTS IN BYPASSING THE NORMAL STEAM GENERATOR LEVEL CONTROL SYSTEM. IT ALSO CAUSES A LOSS OF FLOW IN THE FEEDWATER BYPASS LINE WHICH WILL FURTHER UPSET THE NORMAL STEAM GENERATOR LEVEL AND FEEDWATER FLOW CONTROLS. THIS COULD RESULT IN A UNIT TRIP AND UNNECESSARY ACTUATION OF THE SAFETY INJECTION SYSTEM.
ALTERNATIVE.. EXERCISE VALVE AT REDUCED FLOW DURING PUMP TEST ON A QUARTERLY BASIS AND AT FULL FLOW ONCE PER COLD SHUTDOWN DURING HOT STANDBY OPERATION.
FREQUENCY.... PART STROKE QUARTERLY AND FULL STROKE ONCE PER COLD SHUTDOWN DURING HOT STANDBY OPERATION BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.12
SYSTEM..... CONTROL AIR
COMPONENT.... 1CKV32.293A 1CKV32.303A 1CKV32.313B 1FCV32.080A 1FCV32.102B 1FCV32.110A
CLASS..... 2
CATEGORY..... A.ACT AND AC.ACT
FUNCTION..... CONTAINMENT ISOLATION
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING THESE VALVES INTERRUPTS THE AIR SUPPLY TO A NUMBER OF CRITICAL INSTRUMENTS AND VALVES INSIDE CONTAINMENT. FAILURE OF THESE VALVES TO REOPEN COULD CAUSE UNSTABLE OPERATION AND UNIT TRIP BY ALLOWING ALL OF THE VALVES AND INSTRUMENTS TO ASSUME THEIR FAILED CONDITION.
ALTERNATIVE.. EXERCISE VALVES DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.13
SYSTEM..... SAMPLING (POST ACCIDENT)
COMPONENT.... VARIOUS VALVES IN SYSTEM 43. INDIVIDUAL VALVES FOR WHICH THIS JUSTIFICATION APPLIES ARE IDENTIFIED IN THE PRINTOUT BY CS.13 IN THE ALTERNATIVE COLUMN.
CLASS..... 2

CATEGORY..[redacted].ACT AND AC.ACT
FUNCTION..... VALVES ARE NORMALLY CLOSED AND MAINTAINED IN THE CLOSED CONDITION FOR CONTAINMENT ISOLATION PURPOSES. VALVES ARE REQUIRED TO OPEN TO PASS SAMPLE FLOW FROM THE REACTOR BUILDING TO THE POST ACCIDENT SAMPLING FACILITY FOR ANALYSIS OF POST ACCIDENT WATER QUALITY AND CONTENT.
IMP.REQUIRE.. EXERCISE THE VALVES DURING OPERATION.
BASIS..... THESE VALVES ARE NOT EQUIPPED WITH A CONTAINMENT ISOLATION SIGNAL AND ARE NORMALLY MAINTAINED IN A DEENERGIZED AND CLOSED CONDITION. TESTING THE VALVES DURING OPERATION WOULD REQUIRE RESTORING POWER TO THEM AND COULD CONCEIVABLY RESULT IN A VALVE BEING LEFT OPEN CAUSING A BREACH OF CONTAINMENT INTEGRITY.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN NOT TO EXCEED ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.14
SYSTEM..... CHEMICAL AND VOLUME CONTROL
COMPONENT.... 1FCV62.061B 1FCV62.063A
CLASS..... 2
CATEGORY..... A.ACT
FUNCTION..... CLOSES TO ISOLATE SEAL WATER RETURN ON CONTAINMENT ISOLATION.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVES DURING OPERATION WOULD CAUSE LOSS OF SEAL WATER RETURN AND DAMAGE THE REACTOR COOLANT PUMP SEALS CAUSING HIGH SEAL LOSSES WITH CONTAMINATION AND CLEAN UP PROBLEMS.
ALTERNATIVE.. EXERCISE VALVES DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.15
SYSTEM..... CHEMICAL AND VOLUME CONTROL
COMPONENT.... 1FCV62.093A 1FCV62.093B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSED BY OPERATOR TO ESTABLISH DISCHARGE FLOW BOUNDARY FOR CENTRIFUGAL CHARGING PUMPS DURING ACCIDENT CONDITIONS ONCE IT HAS BEEN ESTABLISHED THAT THE RCS PRESSURE HAS DECAYED TO THE POINT THAT THE CHARGING PUMPS WILL NOT BE DEAD HEADED.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... FAILURE OF EITHER VALVE TO REOPEN WOULD AFFECT BOTH TRAINS OF A SAFETY SYSTEM BY ISOLATING THE RECIRCULATION FLOW PATH TO BOTH CHARGING PUMPS. DURING A SECONDARY SIDE HIGH ENERGY LINE BREAK CONCURRENT WITH FAILURE OF THE REACTOR COOLANT SYSTEM POWER OPERATED RELIEF VALVES PRIMARY SIDE PRESSURE MAY EXCEED SHUT OFF HEAD OF THE CHARGING PUMPS. IF NO FLOW PATH IS AVAILABLE BOTH PUMPS COULD SUFFER DAMAGE. REFERENCE NRC IE BULLETIN 80.18.
ALTERNATIVE.. EXERCISE VALVES DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.16
SYSTEM..... CHEMICAL AND VOLUME CONTROL
COMPONENT.... 1LCV62.132A 1LCV62.133B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSES TO ISOLATE VOLUME CONTROL TANK FROM CHARGING PUMP SUCTION DURING SAFETY INJECTION.
IMP.REQUIRE.. EXERCISE VALVES DURING OPERATION.
BASIS..... EXERCISING VALVES DURING OPERATION RESULTS IN MAKING UP LETDOWN FLOW FROM THE REACTOR COOLANT SYSTEM WITH EITHER CONCENTRATED BORIC ACID OR PRIMARY WATER. EITHER OF THESE MAY CHANGE THE BORON CONCENTRATION IN THE REACTOR CAUSING UNSTABLE UNIT OPERATION.

VALVES.....	SYS	CLASS	DWG.NO..	COORD	CATGRY	SIZE	TYPE	ACT	N.POS	TESTS	ALTER	RELIEF
1LCV03.156.A	03	3	803.2	D.8	B.ACT	4	GL	DIA	C	QT		
1LCV03.156A.A	03	3	803.2	D.8	B.ACT	2	ANG	DIA	C	QT		
1LCV03.164.A	03	3	803.2	C.8	B.ACT	4	GL	DIA	C	QT		
1LCV03.164A.A	C3	3	803.2	C.8	B.ACT	2	ANG	DIA	C	QT		
1LCV03.171.B	03	3	803.2	A.8	B.ACT	4	GL	DIA	C	QT		
1LCV03.171A.B	03	3	803.2	A.8	B.ACT	2	ANG	DIA	C	QT		
1LCV03.172A	03	3	803.2	F.8	B.ACT	3	GL	DIA	C	QT		
1LCV03.173B	03	3	803.2	D.8	B.ACT	3	GL	DIA	C	QT		
1LCV03.174B	03	3	803.2	C.8	B.ACT	3	GL	DIA	C	QT		
1LCV03.175A	C3	3	803.2	A.8	B.ACT	3	GL	DIA	C	QT		
1CKV18.556A.A	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
1CKV18.556A.B	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
1CKV18.557B.A	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
1CKV18.557B.B	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
2CKV18.556A.A	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
2CKV18.556A.B	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
2CKV18.557B.A	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
2CKV18.557B.B	18	3	840.1	C.2	C.ACT	1.5	CK	SLF	C	CV		RR.27
1CKV26.1260	26	2	850.9	A.9	AC.PAS	4	CK	SLF	C	LT	AJ	RR.12 RR.13
1CKV26.1296	26	2	850.9	B.3	AC.PAS	4	CK	SLF	C	LT	AJ	RR.12 RR.13
1FCV26.240A	26	2	850.9	A.9	A.ACT	4	GA	MOT	O	QT.LT	AJ	RR.12 RR.13
1FCV26.241B	26	3	850.9	D.7	B.ACT	4	GA	MOT	O	QT		
1FCV26.242A	26	3	850.9	D.7	B.ACT	4	GA	MOT	O	QT		
1FCV26.243A	26	2	850.9	B.3	A.ACT	4	GA	MOT	O	QT.LT	AJ	RR.12

ALTERNATIV[redacted] EXERCISE VALVES DURING COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.17
SYSTEM..... CHEMICAL AND VOLUME CONTROL
COMPONENT.... 1LCV62.135A 1LCV62.136B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... OPENS TO ALLOW CHARGING PUMPS TO TAKE SUCTION FROM RWST
IMP.REQUIRE.. EXERCISE DURING OPERATION
BASIS..... CYCLING THESE VALVES DURING OPERATION RESULTS IN ALLOWING THE CHARGING PUMPS TO TAKE SUCTION FROM THE RWST FOR NORMAL CHARGING REQUIREMENTS. THIS WILL RESULT IN ADDITION OF BORATED WATER WHICH HAS A DIFFERENT BORON CONCENTRATION THAN THAT IN THE REACTOR COOLANT SYSTEM SINCE THE LIKELYHOOD OF BOTH THE RWST AND THE RCS BEING AT THE SAME BORON CONCENTRATION AT THE SAME TIME IS VERY SMALL. THE CHANGE IN BORON CONCENTRATION IN THE RCS CAUSED BY MAKEUP FROM THE RWST DURING TESTING WOULD CAUSE UNSTABLE UNIT OPERATION, ESPECIALLY IF EITHER OF THE VALVES FAILED TO RECLOSE.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.18
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1CKV63.632A 1CKV63.633B 1CKV63.634A 1CKV63.635B
CLASS..... 1
CATEGORY..... AC.ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM RHR PUMPS TO REACTOR DURING LOCA OR POST LOCA RECOVERY.
IMP.REQUIRE.. EXERCISE DURING OPERATION.
BASIS..... THESE VALVES ARE IN THE RESIDUAL HEAT REMOVAL PUMP INJECTION LINES AND THE RHR PUMPS DO NOT DEVELOP SUFFICIENT HEAD TO OPEN THE VALVES DURING OPERATION.
ALTERNATIVE.. CYCLE VALVES DURING COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.19
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1FCV63.C01A
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSED WHEN RESIDUAL HEAT REMOVAL SYSTEM SUCTION IS TRANSFERRED TO THE CONTAINMENT SUMP FOLLOWING A LOCA.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION RESULTS IN LOSING SUCTION FROM RWST TO BOTH TRAINS OF RESIDUAL HEAT REMOVAL. IF VALVE FAILS TO REOPEN BOTH TRAINS OF A SAFETY SYSTEM WOULD BE MADE INOPERABLE.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.20
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1FCV63.C03A
CLASS..... 2
CATEGORY..... B.ACT

FUNCTION..... VALVE IS CLOSED TO PREVENT CONTAMINATION OF RWST [redacted]N SI PUMP SUCTION IS TRANSFERRED TO RHR PUMP DISCHARGE FOLLOWING A LOCA WITH RHR TAKING SUCTION FROM CONTAINMENT SUMP.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION RESULTS IN ISOLATING THE RECIRCULATION LINE TO BOTH TRAINS OF SAFETY INJECTION PUMPS. FAILURE OF THE VALVE TO REOPEN WOULD MAKE BOTH TRAINS OF A SAFETY SYSTEM INOPERABLE.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.21
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1FCV63.005B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSED WHEN THE SAFETY INJECTION PUMP SUCTION IS TRANSFERRED TO THE RESIDUAL HEAT REMOVAL PUMP DISCHARGE FOLLOWING A LOCA.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION EFFECTS BOTH TRAINS OF A SAFETY SYSTEM. FAILURE OF THE VALVE TO REOPEN COULD CAUSE A TOTAL LOSS OF SYSTEM FUNCTION.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.22
SYSTEM..... SAFETY INJECTION
COMPONENT.... 1FCV63.008A 1FCV63.011B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... OPENED TO ESTABLISH SUCTION FLOW PATH TO SAFETY INJECTION AND OR CENTRIFUGAL CHARGING PUMPS DURING THE RECIRCULATION FROM CONTAINMENT SUMP PHASE OF POST LOCA RECOVERY.
IMP.REQUIRE.. EXERCISE VALVES DURING OPERATION.
BASIS..... BOTH VALVES ARE ELECTRICALLY INTERLOCKED WITH THE SAFETY INJECTION PUMP RECIRCULATION ISOLATION VALVES 1FCV63.003A 1FCV63.004B AND 1FCV63.175B IN SUCH A MANNER THAT BOTH TRAINS OF SAFETY INJECTION PUMPS MUST HAVE THEIR RECIRCULATION FLOW PATH ISOLATED TO CYCLE 1FCV63.008A OR 1FCV63.011B. ISOLATION OF THESE RECIRCULATION PATHS ADVERSELY AFFECTS BOTH TRAINS OF A SAFETY SYSTEM AND COULD CAUSE FAILURE OF BOTH TRAINS. SEE ALSO CS.20.
ALTERNATIVE.. EXERCISE AT COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.23
SYSTEM..... SAFETY INJECTION SYSTEM
COMPONENT.... 1FCV63.022B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... CLOSED WHEN SAFETY INJECTION PUMPS ARE PLACED ON HOT LEG RECIRCULATION AFTER A LOCA.
IMP.REQUIRE.. EXERCISE VALVE DUEING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION ISOLATES BOTH TRAINS OF SAFETY INJECTION FROM THEIR NORMAL FLOW PATH TO THE COLD LEGS. FAILURE OF THE VALVE TO REOPEN RESULTS IN TOTAL LOSS OF SYSTEM FUNCTION.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.24
SYSTEM..... SAFETY INJECTION AND CONTAINMENT SPRAY
COMPONENT.... 1FCV63.072A 1FCV63.073B 1FCV72.044A 1FCV72.045B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... OPENS TO ALLOW SAFETY RELATED SYSTEMS TO TAKE SUCTION FROM CONTAINMENT SUMP.
IMP.REQUIRE.. EXERCISE DURING OPERATION
BASIS..... OPENING THESE VALVES MAY ALLOW WATER FROM SAFETY RELATED SYSTEMS TO GRAVITY FLOW INTO THE CONTAINMENT SUMP ADVERSELY AFFECTING MULTIPLE SAFETY RELATED SYSTEMS. ADDITIONALLY THIS WILL MASK THE LEVEL INSTRUMENTATION IN THE SUMP CAUSING A DECREASE IN THE ABILITY TO DETECT A LEVEL RISE UNTIL THE SUMP CAN BE PUMPED DOWN AND WILL CREATE AN UNREASONABLE NEED TO PLACE PERSONNEL IN THE SUMP TO CLEAN UP THE DRAINAGE.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWN
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.25
SYSTEM..... ESSENTIAL RAW COOLING WATER
COMPONENT.... 1FCV67.081A 1FCV67.082B 1FCV67.022 1FCV67.024 2FCV67.081A 2FCV67.082B 2FCV67.022 2FCV67.024
CLASS..... 3
CATEGORY..... B.ACT
FUNCTION..... CLOSED BY OPERATOR TO PREVENT FLOODING OF THE AUXILIARY BUILDING IN CASE OF A RUPTURE OF AN ERCW HEADER.
IMP.REQUIRE.. EXERCISE DURING OPERATION.
BASIS..... EXERCISING DURING OPERATION CAUSES A LOSS OF ONE TRAIN OF ALL SAFETY SYSTEMS WHICH ARE SUPPLIED OR COOLED BY ERCW. FAILURE OF THE VALVE TO REOPEN WOULD ADVERSELY AFFECT MULTIPLE SAFETY RELATED SYSTEMS AND WOULD LEAVE THE PLANT IN AN HIGHLY UNDESIRABLE CONDITION.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.26
SYSTEM..... ESSENTIAL RAW COOLING WATER
COMPONENT.... 1FCV67.146 1FCV67.478B 2FCV67.146
CLASS..... 3
CATEGORY..... B.ACT
FUNCTION..... CLOSED BY OPERATOR UPON LOSS OF TRAIN A ELECTRICAL POWER TO PREVENT EXCESSIVE LOSSES OF WATER FROM TRAIN B THROUGH ERCW HEAT EXCHANGER A FROM ADVERSELY AFFECTING BOTH TRAINS OF A SAFETY SYSTEM.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION WOULD RESULT IN LOSS OF ALL UNIT 1 TRAIN A SAFETY EQUIPMENT SUPPLIED WITH COMPONENT COOLING WATER AND CAUSE A COMPLETE LOSS OF FLOW TO THE RCP OIL COOLERS, THERMAL BARRIERS AND SEAL WATER HTX IF THE VALVE FAILED TO REOPEN.
ALTERNATIVE.. EXERCISE DUPING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.27
SYSTEM..... ESSENTIAL RAW COOLING WATER
COMPONENT.... 1CKV67.562A.A 1CKV67.562B.B 1CKV67.562C.A 1CKV67.562D.B 1FCV67.083A 1FCV67.087A 1FCV67.088B 1FCV67.091A 1FCV67.095A 1FCV67.096B 1FCV67.099B 1FCV67.103B 1FCV67.104A 1FCV67.107B 1FCV67.111B 1FCV67.112A
CLASS..... 2

CATEGORY... [illegible].ACT AND AC.ACT
FUNCTION..... CONTAINMENT ISOLATION
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION CAUSES A LOSS OF FLOW TO CONTROL ROD DRIVE COOLERS AND REACTOR COOLANT PUMP MOTOR COOLERS. FAILURE OF THESE VALVES TO REOPEN COULD RESULT IN DAMAGE TO THE CRD MECHANISMS OR THE REACTOR COOLANT PUMPS.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.28
SYSTEM..... COMPONENT COOLING
COMPONENT.... 1CKV70.679A 1FCV70.087B 1FCV70.090A 1FCV70.134B
CLASS..... 2
CATEGORY..... A.ACT AND AC.ACT
FUNCTION..... CONTAINMENT ISOLATION
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING VALVE DURING OPERATION RESULTS IN LOSS OF COOLING WATER FLOW TO ALL FOUR REACTOR COOLANT PUMP THERMAL BARRIER COOLERS. FAILURE OF THE VALVES TO REOPEN WOULD INTRODUCE THE POSSIBILITY OF EXTENSIVE DAMAGE TO ALL FOUR REACTOR COOLANT PUMPS.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.29
SYSTEM..... COMPONENT COOLING
COMPONENT.... 1CKV70.692A 1FCV70.089B 1FCV70.092A 1FCV70.140B
CLASS..... 2
CATEGORY..... A.ACT AND AC.ACT
FUNCTION..... CONTAINMENT ISOLATION.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... EXERCISING THESE VALVES DURING OPERATION WILL RESULT IN A LOSS OF COOLING WATER FLOW TO ALL EIGHT REACTOR COOLANT PUMP OIL COOLERS. IF THE VALVE FAILS TO REOPEN ALL FOUR REACTOR COOLANT PUMPS COULD SUFFER SEVERE DAMAGE RESULTING IN UNSTABLE UNIT OPERATION AND TRIP.
ALTERNATIVE.. EXERCISE VALVE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.30
SYSTEM..... CONTAINMENT SPRAY
COMPONENT.... 1FCV72.040A 1FCV72.041B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... OPENS TO ALLOW RHR FLOW TO THE RHR SPRAY HEADERS.
IMP.REQUIRE.. EXERCISE DURING OPERATION.
BASIS..... THESE VALVES ARE ELECTRICALLY INTERLOCKED WITH FCV.63.72 AND FCV.63.73 IN SUCH A MANNER THAT THE SUMP VALVES MUST BE OPENED TO OPEN THE SPRAY VALVES. THE SUMP VALVES CANNOT BE OPENED FOR TESTING DURING OPERATION. SEE ALSO CS.24.
ALTERNATIVE.. EXERCISE AT COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.31

SYSTEM..... RESIDUAL HEAT REMOVAL
COMPONENT.... 1CKV74.514A 1CKV74.515B
CLASS..... 2
CATEGORY..... C.ACT
FUNCTION..... OPENS TO ADMIT FLOW FROM RHR PUMPS TO THE REACTOR COLD LEGS DURING LOCA.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION AT FULL FLOW.
BASIS..... RHR PUMPS DO NOT DEVELOP SUFFICIENT HEAD TO INJECT TO VESSEL AT OPERATING PRESSURES. FULL FLOW CANNOT BE ACHIEVED ON PUMP RECIRCULATION LINES.
ALTERNATIVE.. PART STROKE VALVE QUARTERLY DURING PUMP TEST ON RECIRCULATION LINE. FULL STROKE AT COLD SHUTDOWN.
FREQUENCY.... PART STROKE ONCE PER QUARTER AND FULL STROKE ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.32
SYSTEM..... RESIDUAL HEAT REMOVAL
COMPONENT.... 1FCV74.001A 1FCV74.002B 1FCV74.008A 1FCV74.009B
CLASS..... 1
CATEGORY..... A.ACT
FUNCTION..... CLOSES TO ISOLATE LOW PRESSURE RHR PIPING FROM HIGH PRESSURE OF THE REACTOR COOLANT SYSTEM.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... VALVES HAVE INTERLOCKS TO PREVENT OPENING THEM WHEN RCS IS ABOVE THE RHR DESIGN PRESSURE. EXERCISING THE VALVES DURING OPERATION RESULTS IN OVERPRESSURIZING RHR CAUSING A LOSS OF BOTH TRAINS OF A SAFETY SYSTEM.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWNS.
FREQUENCY.... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.33
SYSTEM..... WASTE DISPOSAL
COMPONENT.... 1CKV77.549 1CKV77.568
CLASS..... 2
CATEGORY..... AC.ACT
FUNCTION..... CLOSES TO PREVENT OUTLEAKAGE FROM REACTOR BUILDING THROUGH THE PRESSURIZER RELIEF TANK OR STEAM GENERATOR LAYUP OR COLD LEG ACCUMULATOR NITROGEN SUPPLY LINES.
IMP.REQUIRE.. EXERCISE DURING OPERATION.
BASIS..... CYCLING THESE VALVES DURING POWER OPERATION INTERRUPTS THE NITROGEN SUPPLY INSIDE CONTAINMENT TO A NUMBER OF COMPONENTS AND SYSTEMS. ADDITIONALLY PERSONNEL RADIATION EXPOSURE AND VALVE INACCESSIBILITY ALSO PROHIBIT QUARTERLY EXERCISING OF THESE VALVES.
ALTERNATIVE.. EXERCISE AT COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN NOT TO EXCEED ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.34
SYSTEM..... PRIMARY WATER
COMPONENT.... 1CKV81.502
CLASS..... 2
CATEGORY..... AC.ACT
FUNCTION..... CLOSES TO PREVENT OUTLEAKAGE FROM REACTOR BUILDING THROUGH THE REACTOR COOLANT PUMP STANDPIPE AND PRESSURIZER RELIEF TANK SPRAY HEADER SUPPLY LINE.
IMP.REQUIRE.. EXERCISE DURING OPERATION.
BASIS..... EXERCISING THIS VALVE RESULTS IN LOSS OF PRIMARY WATER TO THE RCP STANDPIPES AND PRT. PERSONNEL RADIATION EXPOSURES AND VALVE INACCESSIBILITY ALSO PROHIBIT EXERCISING THIS VALVE QUARTERLY.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWN.
FREQUENCY.... ONCE PER COLD SHUTDOWN NOT TO EXCEED ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST.... CS.35
SYSTEM..... RESIDUAL HEAT REMOVAL
COMPONENT.... 1FCV74.033A 1FCV74.035B
CLASS..... 2
CATEGORY..... B.ACT
FUNCTION..... OPEN DURING ECCS INJECTION MODE TO ALLOW EITHER TRAIN RHR TO PROVIDE INJECTION FLOW TO ALL FOUR RHR INJECTION LINES. CLOSED DURING RECIRCULATION MODE AFTER ACCIDENT TO HAVE TRAIN SEPARABILITY TO ALLOW ONE TRAIN INJECTION AND OTHER TRAIN SUPPLYING ECCS SYSTEMS.
IMP.REQUIRE.. EXERCISE VALVE DURING OPERATION.
BASIS..... THE RESIDUAL HEAT REMOVAL SYSTEM WAS DESIGNED AND ANALYZED TO HAVE A SINGLE TRAIN INJECTING TO ALL FOUR COLD LEGS. CLOSURE OF EITHER OF THESE VALVES CAUSES OPERATION IN AN UNANALYZED CONDITION BY ISOLATING TWO OF THE FOUR COLD LEGS.
ALTERNATIVE.. EXERCISE DURING COLD SHUTDOWN.
FREQUENCY..... ONCE PER COLD SHUTDOWN BUT NOT MORE OFTEN THAN ONCE PER QUARTER IN THE EVENT OF FREQUENT COLD SHUTDOWNS.

REQUEST..... CS.36
SYSTEM..... REACTOR COOLANT SYSTEM
COMPONENT.... 1FSV68.394 1FSV68.395 1FSV68.396 1FSV68.397 1PCV68.340A.A 1PCV68.334
CLASS..... 1 FOR PCV'S, 2 FOR FSV'S
CATEGORY..... B.ACT
FUNCTION..... PCV'S ARE POWER OPERATED RELIEF VALVES ON THE PRESSURIZER WHICH FUNCTION TO CONTROL OVERPRESSURE CONDITIONS DURING START-UP AND SHUT DOWN.
IMP.REQUIRE.. EXERCISE VALVE QUARTERLY
BASIS..... THESE ARE TARGET ROCK SOLENOID OPERATED VALVES AND HAVE A REPUTATION FOR STICKING OPEN. THE CONSEQUENCES OF A VALVE STICKING OPEN ARE CONSIDERABLE. IF A PORV STICKS OPEN DURING OPERATION IT WOULD DEPRIVE THE PLANT OF ONE TRAIN OF OVERPRESSURIZATION PROTECTION WHICH WOULD BE REQUIRED DURING THE SUBSEQUENT SHUTDOWN FOR REPAIR. FAILURE OF A HEAD VENT VALVE TO RECLOSE WOULD SEVERELY DEGRADE THE ABILITY TO CONTROL RCS HEAD VENTING DURING POST ACCIDENT CONDITIONS.
ALTERNATIVE.. EXERCISE VALVES AT COLD SHUTDOWN IN LIEU OF DURING OPERATION.
FREQUENCY.... PORV'S TO BE TESTED AT EACH COLD SHUTDOWN PROVIDING THREE MONTHS HAVE PASSED SINCE THE PREVIOUS TEST. PORV'S WILL NOT BE SUBJECT TO THE SEQUENTIAL TESTING PROVISIONS OF PARAGRAPH 3.10 OF THE ACCOMPANYING NARRATIVE BUT WOULD BE TESTED AT EACH COLD SHUTDOWN PROVIDED THREE MONTHS HAD PASSED SINCE THE PREVIOUS TEST. HEAD VENT VALVES WOULD BE TESTED IN ACCORDANCE WITH PARAGRAPH 3.10 OF THE ACCOMPANYING NARRATIVE.

36 RECORDS LISTED.