SUSQUEHANNA STEAM ELECTRIC STATION

UNIT 1

INSERVICE INSPECTION PROGRAM PLAN

FOR

PUMP AND VALVE OPERATIONAL TESTING

Revision 5
01/89

SUSQUEHANNA STEAM ELECTRIC STATION UNIT 1
PUMP AND VALVE INSERVICE INSPECTION
TESTING PROGRAM

The pump and valve ISI testing program at the Susquehanna SES Unit 1 will be conducted in accordance with the 1980 Edition of Section XI of the ASME Boiler and Pressure Vessel Code incorporating through the Winter 1980 Addenda. Specific exceptions from these requirements are included here as Relief Requests. The inservice portion of the program commences at the receipt of the Operating License. Requirements for specific components commence concurrent with Technical Specification operability requirements.

For valves so equipped, remote position indicators will be utilized to demonstrate valve operability. Proper functioning of these position indicators will be demonstrated at least once every 24 months. Pressure relief valve testing will be conducted using test procedures which incorporate the testing methods of Section 4.09 of ANSI/ASME PTC 25.3-1976. The provisions of Paragraph IWV-3511 shall begin at the receipt of the operating license. Thermal relief devices are excluded from the program. With the exception of valves providing a high pressure to low pressure boundary (pressure isolation function), valve leakage rate testing and acceptance criteria will be based on 10CFR50 Appendix J requirements as discussed in FSAR Subsection 6.2.6 and Susquehanna SES Technical Specification 3/4.6.1.2. Pressure isolation function testing is discussed below.

Excess flow check valves are installed on instrument lines penetrating containment in accordance with Regulatory Guide 1.11. As such, the lines are sized and/or orificed such that off-site doses will be substantially below 10CFR100 limits in the event of a rupture. Therefore, individual leak rate testing of these valves is not required for conformance with 10CFR50, Appendix J requirements. Functional testing of valves to verify closure can be accomplished by the process of venting the instrument side of the valve while the process side is under pressure. Such testing is required by Technical Specification 4.6.3.4 at least once per 18 months. Testing on a more frequent basis is not feasible for several reasons. Instruments serviced by these valves frequently have interlock or actuation functions that would be interfered with should testing be performed during plant operation. Also, process liquid will be contaminated to some degree, requiring special measures to collect flow from the vented instrument side. Functional testing with verification that flow is checked will be performed at least once per 18 months per Technical Specification 4.6.3 via SI-199-206, 207, 208, 209, 210, and 211. A listing of excess flow check valves can be found in Technical Specification Table 3.6.3-1.

Check valves whose safety function is to open will be full-stroke tested. Since disc position is not always observable, verification of the safety analysis design flowrate through the valve is considered an adequate demonstration of the full-stroke requirement.

Valve stroke times listed herein reflect current values. In the event of a repair, replacement, or system redesign; stroke times may be changed in accordance with IWV-3413. In addition, changes in FSAR or Technical Specification stroke times may require program plan changes. Any changes to valve stroke times will be documented in the Valve Record and incorporated in the next program plan revision.

Where devices monitoring appropriate parameters exist, permanently installed instrumentation will be used during pump performance testing. Both permanent plant instrumentation and measuring and test equipment will be maintained by the Instrumentation and Controls Section in accordance with their administrative procedures.

LEGEND FOR VALVE TABLES

Valve Number: Unique system designated valve identification
- HV - hand switch-operated valve
- SV - solenoid-operated valve
- PSV - pressure safety/relief valve
- XV- excess flow check valve
- FV - flow control valve
- PSE - rupture disks

ASME Class: ASME Code Classes 1, 2, and 3
- S - non-code valve which performs a safety-related function

P&ID Coordinates: Location of valve on P&ID drawing

Section XI Valve Category:
- A - valves with specified maximum leakage rate
- B - valves with no specified maximum leakage rate
- C - self-actuating (check, relief valves)
- D - actuated by energy source capable of only one operation (rupture disks, explosive valves)

Active: Valves required to change position to accomplish specified safety function

Passive: Valves not required to change position to accomplish specified safety function

Size: Nominal valve size in inches

Valve Type:
- C - Check valve
- B - Butterfly valve
- G - Gate valve
- GL - Globe valve
- RV - Pressure relief valve
- XFC - Excess Flow Check valve
- RD - Rupture Disk
- BA - Ball valve
- X - Shear (explosive valve)
- SC - Stop Check valve

Actuator Type:
- M - Motor
- A - Air
- S - Solenoid
- H - Hand (manual)

-- - None (self-actuated)
E/H - Electro-hydraulic

Remote Position Indicator: X - valve is equipped with an RPI
(RPI) - - valve is not equipped with an RPI

Stroke Time: Time required for valve movement (in seconds)

Normal Position: C - closed
O - open

Test Requirements: Q - quarterly exercise test
MT - stroke time measurement concurrent with quarterly exercise test
LT - leakage rate test once per 24 months
CV - quarterly check valve exercise test
SRV - safety/relief valve lift setpoint test in accordance with ASME PTC 25.3-1976, Section 4.09 (testing schedule per Table IWV-3510-1)
DT - category D test requirement

Relief Request: Yes/No and number(s) of applicable relief request(s)

Testing Alternative: CS - Testing shall commence no later than 48 hours after the plant enters Cold Shutdown (Operational Condition 4) from Power Operation. Valves in this category are subject to testing if they have not been tested in the previous 92 days. Testing shall continue until all subject valves are tested or the plant begins startup. Testing at subsequent cold shutdowns will commence with those valves having the longest interval (if greater than 92 days) since previous tests. This definition applies to all relief requests with cold shutdown alternative testing.

RR - every 18 or 24 months as specified in relief request

See relief request - specific guidance in individual relief request

Remarks: Notes on any special methods of testing. If identified as a pressure isolation valve, additional leak rate testing will be performed (water as test medium) at 1000 ±10 psig with an acceptance criterion of 1 gpm. Valve testing configurations will be similar to that utilized for containment local leak rate testing.

LEGEND FOR PUMP TABLE

Pump Number: Unique designated pump identification number

Pump Name: Commonly recognized pump name

ASME Class: ASME Code Classes 1, 2, and 3
S - non-code pump which performs a safety-related function

Parameters Measured: Required test measurements in accordance with Section XI, Subsection IWP
X - Parameter will be required to be measured
Specific code exemptions listed

Test Frequency: Scheduled test implementation frequency

Relief Request Number: Reference to individual relief requests from code requirements

Remarks: Notes on methods of testing.

VALVE TABLES

SERVICE WATER M-109

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category				Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
			A	B	C	D													
HV-10943A2	3	E-5		X			X		4	B	A	X	60	O	Q,MT	No			
HV-10943B2	3	C-5		X			X		4	B	A	X	60	O	Q,MT	No			

SERVICE WATER M-110

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-10-109	3	F-5			X		X		1	C	-	-	-	O	CV	Yes	24	See Relief Request.	
1-10-112	3	E-5			X		X		1	C	-	-	-	O	CV	Yes	24	See Relief Request.	
HV-11024A1	3	F-5		X			X		10	B	A	X	60	C	Q,MT	No			
HV-11024B1	3	E-5		X			X		10	B	A	X	60	C	Q,MT	No			
HV-11024A2	3	F-5		X			X		10	B	A	X	60	C	Q,MT	No			
HV-11024B2	3	E-5		X			X		10	B	A	X	60	C	Q,MT	No			

EMERGENCY SERVICE WATER M-111 Sheet 1

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
0-11-001	3	B-6			X		X		18	C	-	-	-	C	CV	Yes	51	See Relief Request.	Open check only
0-11-002	3	B-5			X		X		18	C	-	-	-	C	CV	Yes	51	See Relief Request.	Open check only
0-11-003	3	B-3			X		X		18	C	-	-	-	C	CV	Yes	51	See Relief Request.	Open check only
0-11-004	3	B-3			X		X		18	C	-	-	-	C	CV	Yes	51	See Relief Request.	Open check only
0-11-033	3	D-7			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-034	3	D-7			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-035	3	D-5			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-036	3	D-5			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-037	3	D-3			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-038	3	D-3			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-039	3	D-2			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-040	3	D-1			X		X		8	C	-	-	-	C	CV	Yes	27	See Relief Request.	

EMERGENCY SERVICE WATER M-111 Sheet 1 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.) Valve Type	Actuator Type Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-01110 A	3	D-7		X			X		8 B	M X	37	C	Q,MT	Yes	57	See Relief Request.	*
HV-01110 B	3	D-3		X			X		8 B	M X	37	C	Q,MT	Yes	57	See Relief Request.	*
HV-01110 C	3	D-5		X			X		8 B	M X	36	C	Q,MT	Yes	57	See Relief Request.	*
HV-01110 D	3	D-2		X			X		8 B	M X	38	C	Q,MT	Yes	57	See Relief Request.	*
HV-01112 A	3	D-7		X			X		8 B	M X	39	C	Q,MT	Yes	57	See Relief Request.	*
HV-01112 B	3	D-3		X			X		8 B	M X	36	C	Q,MT	Yes	57	See Relief Request.	*
HV-01112 C	3	D-5		X			X		8 B	M X	37	C	Q,MT	Yes	57	See Relief Request.	*
HV-01112 D	3	D-2		X			X		8 B	M X	37	C	Q,MT	Yes	57	See Relief Request.	*
HV-01120 A	3	D-6		X			X		8 B	M X	37	C	Q,MT	Yes	57	See Relief Request.	*
HV-01120 B	3	D-3		X			X		8 B	M X	34	C	Q,MT	Yes	57	See Relief Request.	*
HV-01120 C	3	E-4		X			X		8 B	M X	36	C	Q,MT	Yes	57	See Relief Request.	*
HV-01120 D	3	E-1		X			X		8 B	M X	38	C	Q,MT	Yes	57	See Relief Request.	*
HV-01122 A	3	E-7		X			X		8 B	M X	38	C	Q,MT	Yes	57	See Relief Request.	*

* For a diesel generator, one switch controls operation of both supply and both return valves, placing either ESW loop A or loop B in service for that diesel.

EMERGENCY SERVICE WATER M-111 Sheet 1 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-01122 B	3	E-3		X			X		8	B	M	X	36	C	Q,MT	Yes	57	See Relief Request.	*
HV-01122 C	3	E-5		X			X		8	B	M	X	37	C	Q,MT	Yes	57	See Relief Request.	*
HV-01122 D	3	E-1		X			X		8	B	M	X	38	C	Q,MT	Yes	57	See Relief Request.	*

* For a diesel generator, one switch controls operation of both supply and both return valves, placing either ESW loop A or loop B in service for that diesel.

EMERGENCY SERVICE WATER M-111 Sheet 2

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-11143 A	3	F-5		X			X		4	B	A	X	60	C	Q,MT	No			
HV-11143 B	3	G-2		X			X		4	B	A	X	60	C	Q,MT	No			

EMERGENCY SERVICE WATER M-111 Sheet 3

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
0-11-513	3	C-3			X		X		10	C	-	-	-	C	CV	Yes	27	See Relief Request.	
0-11-514	3	C-4			X		X		10	C	-	-	-	C	CV	Yes	27	See Relief Request.	
HV-01110E	3	B-3		X			X		10	B	M	X	39	C	Q,MT	Yes	57	See Relief Request.	
HV-01112E	3	B-4		X			X		10	B	M	X	39	C	Q,MT	Yes	57	See Relief Request.	
HV-01120E	3	B-7		X			X		10	B	M	X	39	C	Q,MT	Yes	57	See Relief Request.	
HV-01122E	3	B-6		X			X		10	B	M	X	39	C	Q,MT	Yes	57	See Relief Request.	

RHR SERVICE WATER M-112 Sheet 1

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-12-001	3	D-3			X		X		20	C	-	-	-	C	CV	No			Open check only, verify operation during pump test.
1-12-003	3	B-3			X		X		20	C	-	-	-	C	CV	No			Open check only, verify operation during pump test.
1-12-009	3	E-7			X		X		20	C	-	-	-	C	CV	No			Open check only, verify operation during pump test.
1-12-010	3	B-7			X		X		20	C	-	-	-	C	CV	No			Open check only, verify operation during pump test.
HV-11210 A	3	E-6		X			X		20	B	M	X	40	C	Q,MT	No			
HV-11210 B	3	B-6		X			X		20	B	M	X	40	C	Q,MT	No			
PSV-11212 A	3	E-7			X		X		4	RV	-	-	-	C	SRV	No			
PSV-11212 B	3	B-7			X		X		4	RV	-	-	-	C	SRV	No			
HV-11215 A	3	E-7		X			X		20	B	M	X	40	C	Q,MT	No			
HV-11215 B	3	B-7		X			X		20	B	M	X	40	C	Q,MT	No			

RHR SERVICE WATER M-112 Sheet 1 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F073 A	3	F-6		X			X		6	G	M	X	40	C	Q,MT	No			
HV-1F073 B	3	D-6		X			X		6	G	M	X	40	C	Q,MT	No			
HV-1F074 A	S	F-6		X			X		1	GL	M	-	20	O	Q,MT	No			
HV-1F074 B	S	D-6		X			X		1	GL	M	-	20	O	Q,MT	No			
HV-1F075 A	2	G-6		X			X		6	G	M	X	40	C	Q,MT	No			
HV-1F075 B	2	F-6		X			X		6	G	M	X	40	C	Q,MT	No			
1F078 A	2	G-5			X		X		6	C	-	-	-	C	CV	No			Open check only.
1F078 B	2	D-5			X		X		6	C	-	-	-	C	CV	No			Open check only.

RHR SERVICE WATER M-112 Sheet 2

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-01201A1	3	C-4		X			X		3	Plug	M	X	9	C	Q,MT	No			
HV-01201A2	3	C-3		X			X		3	Plug	M	X	9	C	Q,MT	No			
HV-01201B1	3	C-7		X			X		3	Plug	M	X	9	C	Q,MT	No			
HV-01201B2	3	C-8		X			X		3	Plug	M	X	9	C	Q,MT	No			
HV-01222A	3	B-5		X			X		36	B	M	X	40	C	Q,MT	No			
HV-01222B	3	A-9		X			X		36	B	M	X	40	C	Q,MT	No			
HV-01224A1	3	B-4		X			X		30	B	M	X	40	C	Q,MT	No			
HV-01224A2	3	B-2		X			X		24	B	M	X	40	C	Q,MT	No			
HV-01224B1	3	A-6		X			X		30	B	M	X	40	C	Q,MT	No			
HV-01224B2	3	A-9		X			X		24	B	M	X	40	C	Q,MT	No			

REACTOR BUILDING CLOSED COOLING WATER M-113

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-11313	2	E-7	X				X		4	G	M	X	30	O	Q,MT,LT	Yes	1	CS	
HV-11314	2	E-5	X				X		4	G	M	X	30	O	Q,MT,LT	Yes	1	CS	
HV-11345	2	E-7	X				X		4	G	M	X	30	O	Q,MT,LT	Yes	1	CS	
HV-11346	2	E-5	X				X		4	G	M	X	30	O	Q,MT,LT	Yes	1	CS	

DIESEL OIL STORAGE AND TRANSFER M-120

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
0-20-007	3	E-7			X		X		2	C	-	-	-	C	CV	Yes	47	See Relief Request	
0-20-009	3	D-7			X		X		2	C	-	-	-	C	CV	Yes	47	See Relief Request	
0-20-012	3	C-7			X		X		2	C	-	-	-	C	CV	Yes	47	See Relief Request	
0-20-015	3	B-7			X		X		2	C	-	-	-	C	CV	Yes	47	See Relief Request	
0-20-300	3	F-5			X		X		2	C	-	-	-	C	CV	Yes	47	See Relief Request	

CONTAINMENT INSTRUMENT GAS M-126

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-26-072	2	D-2	X		X		X		1	C	-	-	-	C	CV,LT	Yes	2	RR	Closure test only, verify operation during leak test.
1-26-074	2	E-2	X		X		X		3	C	-	-	-	C	CV,LT	Yes	2	RR	Closure test only, verify operation during leak test.
1-26-152	2	F-2	X		X		X		1	C	-	-	-	C	CV,LT	Yes	2	RR	Verify operation during leak test.
1-26-154	2	F-2	X		X		X		1	C	-	-	-	C	CV,LT	Yes	2	RR	Verify operation during leak test.
1-26-164	2	B-2	X		X		X		1	C	-	-	-	C	CV,LT	Yes	2	RR	Closure test only, verify operation during leak test.
HV-12603	2	D-2	X				X		2	GL	M	X	20	O	Q,MT,LT	No			
SV-12605	2	D-2	X				X		2	GL	S	X	3	O	Q,MT,LT	Yes	38,58	See Relief Request.	Rapid acting valve.
PSV-12643	2	F-6			X		X		1	RV	-	-	-	C	SRV	No			
SV-12643	3	F-6		X			X		1	GL	S	X	3	C	Q,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-12644	2	F-5		X			X		1	GL	S	X	3	O	Q,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
PSV-12648	3	E-3			X		X		1	RV	-	-	-	C	SRV	No			
SV-12648	3	E-3		X			X		1	GL	S	X	3	C	Q,MT	Yes	38,58	See Relief Request.	Rapid acting valve.

CONTAINMENT INSTRUMENT GAS M-126 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
SV-12649	2	F-2		X			X		1	GL	S	X	3	O	Q,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-12651	2	E-2	X				X		3	GL	S	X	3	O	Q,MT,LT	Yes	3,38 58	CS	Rapid acting valve.
SV-12654 A	2	F-2	X				X		1	GL	S	X	3	O	Q,MT,LT	Yes	4,38 58	CS	Rapid acting valve.
SV-12654 B	2	F-2	X				X		1	GL	S	X	3	O	Q,MT,LT	Yes	4,38 58	CS	Rapid acting valve.
SV-12661	2	D-2	X				X		1	GL	S	X	3	O	Q,MT,LT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-12671	2	B-2	X				X		1	Gl	S	X	3	C	Q,MT,LT	Yes	38,58	See Relief Request.	Rapid acting valve.

MSIV LEAKAGE CONTROL SYSTEM M-139

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F001 B	1	E-6	X				X		2	G	M	X	13	C	Q,MT,LT	Yes	5	CS	Reduced Pressure Leak Test.
HV-1F001 F	1	B-6	X				X		2	G	M	X	13	C	Q,MT,LT	Yes	5	CS	Reduced Pressure Leak Test.
HV-1F001 K	1	B-6	X				X		2	G	M	X	13	C	Q,MT,LT	Yes	5	CS	Reduced Pressure Leak Test.
HV-1F001 P	1	B-6	X				X		2	G	M	X	13	C	Q,MT,LT	Yes	5	CS	Reduced Pressure Leak Test.
HV-1F002 B	2	D-6		X			X		2	G	M	X	13	C	Q,MT	Yes	5	CS	
HV-1F002 F	2	B-6		X			X		2	G	M	X	13	C	Q,MT	Yes	5	CS	
HV-1F002 K	2	B-6		X			X		2	G	M	X	13	C	Q,MT	Yes	5	CS	
HV-1F002 P	2	B-6		X			X		2	G	M	X	13	C	Q,MT	Yes	5	CS	
HV-1F003 B	2	D-5		X			X		2	G	M	X	13	C	Q,MT	No			
HV-1F003 F	2	B-5		X			X		2	G	M	X	13	C	Q,MT	No			
HV-1F003 K	2	B-5		X			X		2	G	M	X	13	C	Q,MT	No			
HV-1F003 P	2	B-5		X			X		2	G	M	X	13	C	Q,MT	No			
HV-1F006	2	D-3		X			X		2	G	M	X	25	C	Q,MT	Yes	6	CS	
HV-1F007	2	D-3		X			X		2	G	M	X	25	C	Q,MT	Yes	6	CS	

MSIV LEAKAGE CONTROL SYSTEM M-139 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F008	2	E-3		X			X		2	G	M	X	25	C	Q,MT	Yes	6	CS	
HV-1F009	2	E-3		X			X		2	G	M	X	25	C	Q,MT	Yes	6	CS	

NUCLEAR BOILER M-141

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-41-017	2	B-7	X					X	1	GL	H	-	-	C	LT	No			
1-41-018	2	B-7	X					X	1	GL	H	-	-	C	LT	No			
HV-14107 B	1	B-7			X		X		24	C	-	-	-	O	CV	No			Open check only.
PSV-14137 A	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 B	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 C	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 D	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 E	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 F	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 G	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 H	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 J	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 K	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 L	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 M	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 N	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	

NUCLEAR BOILER M-141 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
PSV-14137 P	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 R	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-14137 S	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
HV-14182 A	2	D-7	X				X		3	G	M	X	80	O	Q,M,LT	No			
HV-14182 B	2	B-7	X				X		3	G	M	X	80	O	Q,M,LT	No			
1F010 A	1	D-6	X		X		X		24	C	-	-	-	O	CV,LT	Yes	7	See Relief Request.	Closure check only.
1F010 B	1	C-6	X		X		X		24	C	-	-	-	O	CV,LT	Yes	7	See Relief Request.	
PSV-1F013 A	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 B	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 C	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 D	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 E	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 F	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 G	1	E-5		X	X		X		6	RV	A	-	N/A	C	SRV,Q	Yes	10	RR	ADS Valve.
PSV-1F013 H	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 J	1	E-5		X	X		X		6	RV	A	-	N/A	C	SRV,Q	Yes	10	RR	ADS Valve.
PSV-1F013 K	1	E-5		X	X		X		6	RV	A	-	N/A	C	SRV,Q	Yes	10	RR	ADS Valve.

NUCLEAR BOILER M-141 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
PSV-1F013 L	1	E-5		X	X		X		6	RV	A	-	N/A	C	SRV,Q	Yes	10	RR	ADS Valve.
PSV-1F013 M	1	E-5		X	X		X		6	RV	A	-	N/A	C	SRV,Q	Yes	10	RR	ADS Valve.
PSV-1F013 N	1	E-5		X	X		X		6	RV	A	-	N/A	C	SRV,Q	Yes	10	RR	ADS Valve.
PSV-1F013 P	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 R	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
PSV-1F013 S	1	E-5			X		X		6	RV	-	-	-	C	SRV	No			
HV-1F016	1	D-3	X				X		3	G	M	X	10	O	Q,MT,LT	No			
HV-1F019	1	D-3	X				X		3	G	M	X	10	O	Q,MT,LT	No			
HV-1F020	2	D-2		X			X		3	GL	M	X	30	O	Q,MT	No			
HV-1F022 A	1	E-3	X				X		26	GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test in reverse direction.
HV-1F022 B	1	C-3	X				X		26	GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test in reverse direction.
HV-1F022 C	1	C-3	X				X		26	GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test in reverse direction.

NUCLEAR BOILER M-141 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.) Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F022 D	1	C-3	X				X		26 GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test in reverse direction.
HV-1F028 A	1	E-2	X				X		26 GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test.
HV-1F028 B	1	C-2	X				X		26 GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test.
HV-1F028 C	1	C-2	X				X		26 GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test.
HV-1F028 D	1	C-2	X				X		26 GL	A	X	35	O	Q,MT,LT	Yes	11	See Relief Request.	Reduced pressure leak test.
HV-1F032 A	2	D-8	X				X		24 SC	M	X	120	O	Q,MT,LT	Yes	12	CS	Closure test only.
HV-1F032 B	2	C-8	X		X		X		24 SC	M	X	120	O	Q,CV,MT, LT	Yes	12	CS	Closure test only.
PSV-1F037 A	3	B-4			X		X		6 RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 B	3	B-4			X		X		6 RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 C	3	B-4			X		X		6 RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 D	3	B-4			X		X		6 RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 E	3	B-4			X		X		6 RV	-	-	-	C	SRV	Yes	8	See Relief Request.	

NUCLEAR BOILER M-141 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
PSV-1F037 F	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 G	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 H	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 J	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 K	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 L	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 M	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 N	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 P	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 R	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	
PSV-1F037 S	3	B-4			X		X		6	RV	-	-	-	C	SRV	Yes	8	See Relief Request.	

REACTOR RECIRCULATION M-143

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1F013 A	2	B-6	X		X		X		1	C	-	-	-	O	CV,LT	Yes	15	RR	Closure test only.
1F013 B	2	A-6	X		X		X		1	C	-	-	-	O	CV,LT	Yes	15	RR	Closure test only.
XV-1F017 A	2	B-7	X		X		X		1	XFC	-	X	-	O	CV,LT	Yes	14	RR	Closure test only.
XV-1F017 B	2	A-7	X		X		X		1	XFC	-	X	-	O	CV,LT	Yes	14	RR	Closure test only.
HV-1F019	1	G-4	X				X		3/4	GL	A	X	2	C	Q,MT,LT	Yes	38	See Relief Request.	Rapid acting valve.
HV-1F020	1	G-3	X				X		1	GL	A	X	2	C	Q,MT,LT	Yes	38	See Relief Request.	Rapid acting valve.
HV-1F031 A	1	B-4		X			X		28	G	M	X	33	O	Q,MT	Yes	16	CS	
HV-1F031 B	1	A-4		X			X		28	G	M	X	33	O	Q,MT	Yes	16	CS	
HV-1F032 A	1	B-4		X			X		4	G	M	X	30	O	Q,MT	No			
HV-1F032 B	1	A-4		X			X		4	G	M	X	30	O	Q,MT	No			

REACTOR WATER CLEANUP M-144

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F001	1	F-7	X				X		6	G	M	X	30	O	Q,MT,LT	No			
HV-1F004	1	F-7	X				X		6	G	M	X	30	O	Q,MT,LT	No			

CONTROL ROD DRIVE M-147

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.) Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
114*	2	D-5			X		X		3/4 C	-	-	-	C	CV	Yes	17	See Relief Request.	Open test only.
115*	2	B-4			X		X		1/2 C	-	-	-	C	CV	Yes	17	See Relief Request.	Closure test only.
XV-126*	2	B-5		X			X		1/2 GL	A	-	N/A	C	Q	Yes	17	See Relief Request.	Open test only.
XV-127*	2	D-5		X			X		1/2 GL	A	-	N/A	C	Q	Yes	17	See Relief Request.	Open test only.
138*	2	B-6			X		X		1/2 C	-	-	-	O	CV	Yes	17	See Relief Request.	Closure test only.
XV-1F010	S	G-2		X			X		1 GL	A	X	30	O	Q,MT	No			
XV-1F180	S	G-2		X			X		1 GL	A	X	30	O	Q,MT	No			
XV-1F011	S	D-4		X			X		2 GL	A	X	30	O	Q,MT	No			
XV-1F181	S	D-4		X			X		2 GL	A	X	30	O	Q,MT	No			

*There are a total of 185 sets of these valves, one for each of the 185 CRD Hydraulic Control Units.

STANDBY LIQUID CONTROL M-148

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.) Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1F004 A	2	D-7				X	X		1½ X	-	-	-	C	DT	No			Explosive Valve.
1F004 B	2	D-7				X	X		1½ X	-	-	-	C	DT	No			Explosive Valve.
HV-1F006	1	D-7	X		X		X		1½ SC	M	X	34	C	Q,MT, LT,CV	Yes	18	RR	Closure test with motor operator, open test during reactor vessel injection test.
1F007	1	D-8	X		X		X		1½ C	-	-	-	C	CV,LT	Yes	19	RR	Closure test during leak test, open test during reactor vessel injection test.
PSV-1F029 A	2	D-5			X		X		1½ RV	-	-	-	C	SRV	No			
PSV-1F029 B	2	C-5			X		X		1½ RV	-	-	-	C	SRV	No			
1F033 A	2	B-5			X		X		1½ C	-	-	-	C	CV	No			Verify operation during pump test.
1F033 B	2	C-5			X		X		1½ C	-	-	-	C	CV	No			Verify operation during pump test.

REACTOR CORE ISOLATION COOLING M-149

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-49-020	2	C-4	X					X	1	GL	H	-	-	C	LT	No			
HV-1F007	1	D-5	X				X		4	G	M	X	20	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F008	2	D-5	X				X		4	G	M	X	20	O	Q,MT,LT	No			
HV-1F013	2	C-4	X				X		6	G	M	X	15	C	Q,MT,LT	No			
FV-1F019	2	C-5	X				X		2	GL	M	X	5	O	Q,MT,LT	Yes	38	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
1F021	2	C-3	X		X		X		2	C	-	-	-	C	CV,LT	Yes	21	RR	Closures Test Only.
1F028	2	B-4	X		X		X		2	C	-	-	-	C	CV,LT	Yes	21	RR	Closure test only.
HV-1F031	2	B-6	X				X		6	G	M	X	35	C	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
1F040	2	C-4	X		X		X		10	C	-	-	-	C	CV,LT	Yes	21	RR	Closure test only.
HV-1F059	2	C-5	X				X		10	G	M	X	60	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F060	2	B-5	X				X		2	GL	M	X	25	O	Q,MT,LT	No			Leak test in reverse direction.
HV-1F062	2	C-4	X				X		2	G	M	X	10	O	Q,MT,LT	No			

REACTOR CORE ISOLATION COOLING M-149 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F084	2	C-5	X				X		2	G	M	X	10	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F088	1	D-5	X				X		1	GL	A	X	3	C	Q,MT,LT	Yes	38	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
1F063	2	C-5			X		X		2	C	-	-	-	C	CV	Yes	22	RR	Open check only.
1F064	2	C-5			X		X		2	C	-	-	-	C	CV	Yes	22	RR	Open check only.

RESIDUAL HEAT REMOVAL M-151 Sheet 1

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.) Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F003 A	2	D-6		X			X		20 G	M	X	110	O	Q,MT	No			
HV-1F004 A	2	C-3	X				X		24 G	M	X	123	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F004 C	2	C-2	X				X		24 G	M	X	123	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F006 A	2	C-3		X			X		20 G	M	X	120	C	Q,MT	No			
HV-1F006 C	2	C-2		X			X		20 G	M	X	120	C	Q,MT	No			
HV-1F007 A	2	D-3	X				X		6 G	M	X	38	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F011 A	2	C-8	X				X		4 G	M	X	23	C	Q,MT,LT	No			
HV-1F015 A	1	E-3	X				X		24 G	M	X	24	C	Q,MT,LT	Yes	26	CS	Pressure isolation valve.
HV-1F016 A	2	G-4	X				X		12 GL	M	X	90	C	Q,MT,LT	No			
HV-1F017 A	2	E-5		X			X		24 GL	M	X	24	O	Q,MT	No			
HV-1F021 A	2	G-3		X			X		12 G	M	X	75	C	Q,MT	No			
HV-1F022	1	G-3	X				X		6 G	M	X	30	C	Q,MT,LT	Yes	20,26	CS	Leak test in reverse direction.
HV-1F023	1	G-3	X				X		6 G	M	X	20	C	Q,MT,LT	Yes	26	CS	
HV-1F024 A	2	D-3		X			X		18 GL	M	X	194	C	Q,MT	No			

RESIDUAL HEAT REMOVAL M-151 Sheet 1(Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F027 A	2	D-3		X			X		6	GL	M	X	46	C	Q,MT	No			
HV-1F028 A	2	D-5	X				X		18	G	M	X	90	C	Q,MT,LT	No			
1F031 A	2	A-4			X		X		20	C	-	-	-	C	CV	No			
1F031 C	2	C-4			X		X		20	C	-	-	-	C	CV	No			
1F046 A	2	B-4			X		X		4	C	-	-	-	C	CV	No			Open test only.
1F046 C	2	C-4			X		X		4	C	-	-	-	C	CV	No			Open test only.
HV-1F047 A	2	C-5		X			X		20	G	M	X	110	O	Q,MT	No			
HV-1F048 A	2	D-5		X			X		24	GL	M	X	147	O	Q,MT	No			
HV-1F050 A	1	E-3	X		X		X		24	C	-	-	-	C	CV,LT	Yes	26	CS	Pressure isolation valve.
PV-1F051 A	2	C-8		X			X		6	GL	A	-	N/A	C	Q,MT	Yes	25	CS	
HV-1F053 A	2	C-7		X			X		4	GL	A	-	N/A	C	Q,MT	Yes	25	CS	
PSV-1F055 A	2	C-5	X		X		X		8	RV	-	-	-	C	LT	No			
SV-1F079 A	2	B-6		X			X		1	GL	S	X	3	C	Q,MT	Yes	38	See Relief Request.	Rapid acting valve.
HV-1F103 A	2	C-4	X					X	1	GL	M	X	N/A	C	LT	No			Leak test in reverse direction.

RESIDUAL HEAT REMOVAL M-151 Sheet 1 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
PSV-15106 A	2	B-5	X		X			X	1	RV	-	-	-	C	LT	No			
HV-1F122 A	1	E-3	X				X		1	GL	A	X	3	C	Q,MT,LT	Yes	26,38	CS	Pressure isolation valve. Rapid acting valve.
1F090 A	2	F-5			X		X		2	C	-	-	-	O	CV	Yes	24	See Relief Request.	Closure test only.

RESIDUAL HEAT REMOVAL M-151 Sheet 2

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.) Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F003 B	2	D-3		X			X		20 G	M	X	104	O	Q,MT	No			
HV-1F004 B	2	C-7	X				X		24 G	M	X	123	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F004 D	2	C-6	X				X		24 G	M	X	123	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F006 B	2	C-7		X			X		20 G	M	X	115	C	Q,MT	No			
HV-1F006 D	2	C-7		X			X		20 G	M	X	120	C	Q,MT	No			
HV-1F007 B	2	D-6	X				X		6 G	M	X	38	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F008	1	E-6	X				X		20 G	M	X	52	C	Q,MT,LT	Yes	23	CS	Pressure isolation valve.
HV-1F009	1	E-7	X				X		20 G	M	X	52	C	Q,MT,LT	Yes	23	CS	Pressure isolation valve.

RESIDUAL HEAT REMOVAL M-151 Sheet 2 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F011 B	2	D-5	X				X		4	G	M	X	23	C	Q,MT,LT	No			
HV-1F015 B	1	F-6	X				X		24	G	M	X	24	C	Q,MT,LT	Yes	26	CS	Pressure isolation valve.
HV-1F016 B	2	G-6	X				X		12	GL	M	X	90	C	Q,MT,LT	No			
HV-1F017 B	2	E-5		X			X		24	GL	M	X	24	O	Q,MT	No			
HV-1F021 B	2	G-7		X			X		12	G	M	X	73	C	Q,MT	No			
HV-1F024 B	2	D-6		X			X		18	GL	M	X	188	C	Q,MT	No			
HV-1F027 B	2	D-6		X			X		6	GL	M	X	41	C	Q,MT	No			
HV-1F028 B	2	E-5	X				X		18	G	M	X	90	C	Q,MT,LT	No			
1F031 B	2	B-6			X		X		20	C	-	-	-	C	CV	No			
1F031 D	2	A-5			X		X		20	C	-	-	-	C	CV	No			
1F046 B	2	C-6			X		X		4	C	-	-	-	C	CV	No			Open test only.
1F046 D	2	B-6			X		X		4	C	-	-	-	C	CV	No			Open test only.
HV-1F047 B	2	C-4		X			X		20	G	M	X	115	O	Q,MT	No			
HV-1F048 B	2	E-4		X			X		24	GL	M	X	147	O	Q,MT	No			

RESIDUAL HEAT REMOVAL M-151 Sheet 2 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F050 B	1	E-7	X		X		X		24	C	-	-	-	C	CV,LT	Yes	26	CS	Pressure isolation valve.
PV-1F051 B	2	C-5		X			X		6	GL	A	-	N/A	C	Q,MT	Yes	25	CS	
HV-1F053 B	2	D-4		X			X		4	GL	A	-	N/A	C	Q,MT	Yes	25	CS	
PSV-1F055 B	2	D-4	X		X		X		8	RV	-	-	-	C	LT	No			
SV-1F079 B	2	C-2		X			X		1	GL	S	X	3	C	Q,MT	Yes	38	See Relief Request.	Rapid acting valve.
HV-1F103 B	2	C-3	X					X	1	GL	M	X	N/A	C	LT	No			Leak test in reverse
PSV-15106 B	2	C-3	X		X			X	1	RV	-	-	-	C	LT	No			
PSV-1F097	2	A-5	X		X		X		4	RV	-	-	-	C	LT,SRV	No			
HV-1F122 B	1	E-7	X				X		1	GL	A	X	3	C	Q,MT,LT	Yes	26,38	CS	Pressure isolation valve. Rapid acting valve.
PSV-1F126	1	E-7	X		X		X		1	RV	-	-	-	C	LT	No			
1F090 B	2	F-5			X		X		2	C	-	-	-	O	CV	Yes	24	See Relief Request.	Closure test only.

CORE SPRAY M-152

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.) Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F001 A	2	B-6	X				X		16 G	M	X	80	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F001 B	2	B-7	X				X		16 G	M	X	80	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
1F003 A	2	D-4			X		X		12 C	-	-	-	C	CV	No			
1F003 B	2	D-2			X		X		12 C	-	-	-	C	CV	No			
1F003 C	2	D-4			X		X		12 C	-	-	-	C	CV	No			
1F003 D	2	D-2			X		X		12 C	-	-	-	C	CV	No			
HV-1F004 A	2	E-5		X			X		12 G	M	X	12	O	Q,MT	No			
HV-1F004 B	2	E-5		X			X		12 G	M	X	12	O	Q,MT	No			
HV-1F005 A	1	E-5	X				X		12 G	M	X	12	C	Q,MT,LT	Yes	45	CS	Pressure isolation valve.
HV-1F005 B	1	E-5	X				X		12 G	M	X	12	C	Q,MT,LT	Yes	45	CS	Pressure isolation valve.
HV-1F006 A	1	E-6	X		X		X		12 C	-	X	-	C	CV,LT	Yes	45	CS	Pressure isolation valve.
HV-1F006 B	1	E-6	X		X		X		12 C	-	X	-	C	CV,LT	Yes	45	CS	Pressure isolation valve.
PSV-1F012 A	2	D-3			X		X		1½ RV	-	-	-	C	SRV	No			
PSV-1F012 B	2	E-3			X		X		1½ RV	-	-	-	C	SRV	No			

CORE SPRAY M-152 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F015 A	2	C-5	X				X		10	GL	M	X	60	C	Q,MT,LT	No			Leak test in reverse direction.
HV-1F015 B	2	C-5	X				X		10	GL	M	X	60	C	Q,MT,LT	No			Leak test in reverse direction.
1F029 A	2	F-4			X		X		2	C	-	-	-	O	CV	Yes	24	See Relief Request.	
1F029 B	2	F-4			X		X		2	C	-	-	-	O	CV	Yes	24	See Relief Request.	
1F030 A	2	F-4			X		X		2	C	-	-	-	O	CV	Yes	24	See Relief Request.	
1F030 B	2	F-4			X		X		2	C	-	-	-	O	CV	Yes	24	See Relief Request.	
HV-1F031 A	2	C-5	X				X		3	G	M	X	19	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F031 B	2	C-5	X				X		3	G	M	X	19	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
PSV-1F032 A	2	A-5			X		X		1	RV	-	-	-	C	SRV	No			
PSV-1F032 B	2	A-2			X		X		1	RV	-	-	-	C	SRV	No			
1F036 A	2	C-4			X		X		3	C	-	-	-	C	CV	No			Check during pump test.
1F036 B	2	D-2			X		X		3	C	-	-	-	C	CV	No			Check during pump test.
1F036 C	2	C-4			X		X		3	C	-	-	-	C	CV	No			Check during pump test.
1F036 D	2	D-2			X		X		3	C	-	-	-	C	CV	No			Check during pump test.

CORE SPRAY M-152 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-1F037 A	1	E-6	X				X		1	GL	A	X	3	C	Q,MT,LT	Yes	45,38	CS	Pressure isolation valve. Rapid acting valve.
HV-1F037 B	1	E-6	X				X		1	GL	A	X	3	C	Q,MT,LT	Yes	45,38	CS	Pressure isolation valve. Rapid acting valve.

FUEL POOL COOLING & CLEANUP M-153

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-53-071 A	S	F-2			X		X		8	C	-	-	-	C	CV	Yes	13		Open check only.
1-53-071 B	S	F-3			X		X		8	C	-	-	-	C	CV	Yes	13		Open check only.

HIGH PRESSURE COOLANT INJECTION M-155

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-55-012	2	C-5			X		X		2	C	-	-	-	O	CV	Yes	24	See Relief Request.	
1-55-038	2	C-5	X					X	1	GL	H	-	-	C	LT	No			
HV-1F001	2	D-2		X			X		10	G	M	X	20	C	Q,MT	No			
HV-1F002	1	E-6	X				X		10	G	M	X	50	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F003	1	E-5	X				X		10	G	M	X	50	O	Q,MT,LT	No			
HV-1F004	2	E-3		X			X		16	G	M	X	81	O	Q,MT	No			
1F005	2	C-4			X		X		14	C	-	-	-	C	CV	No			Open check only during pump test.
HV-1F006	2	C-5	X				X		14	G	M	X	20	C	Q,MT	Yes	29	CS	
HV-1F007	2	C-4		X			X		14	G	M	X	20	O	Q,MT	No			
HV-1F008	2	D-5		X			X		10	GL	M	X	58	C	Q,MT	No			
HV-1F012	2	C-5	X				X		4	G	M	X	10	C	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction. Verify stroke during pump test.
1F019	2	E-3			X		X		16	C	-	-	-	C	CV	Yes	32	RR	Closure test only.
HV-1F042	2	B-7	X				X		16	G	M	X	90	C	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
1F045	2	B-6			X		X		16	C	-	-	-	C	CV	Yes	31	See Relief Request.	Open test only.
1F046	2	C-4	X				X		4	C	-	-	-	C	CV,LT	Yes	28	See Relief Request.	Open test only during pump test.

HIGH PRESSURE COOLANT INJECTION M-155 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1F049	2	B-4	X		X		X		20	C	-	-	-	C	CV,LT	Yes	28	See Relief Request.	Open test only during pump test.
HV-1F066	2	B-5	X				X		20	G	M	X	100	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
1F076	2	C-5			X		X		3	C	-	-	-	C	CV	Yes	34	RR	Open test only.
1F077	2	C-5			X		X		3	C	-	-	-	C	CV	Yes	34	RR	Open test only.
HV-1F075	2	C-4	X				X		3	G	M	X	15	O	Q,MT,LT	No			
HV-1F079	2	C-5	X				X		3	G	M	X	15	O	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
HV-1F100	1	E-6	X				X		1	GL	A	X	3	C	Q,MT,LT	Yes	38	See Relief Request.	Rapid acting valve.

HPCI TURBINE - PUMP M-156

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
1-56-012	2	B-2			X		X		1½	C	-	-	-	C	CV	No			Test during HPCI pump test, open check only.
FV-15612	2	E-2		X			X		10	GL	E/H	X	-	C	Q,MT	Yes	53	See Relief Request.	Test during HPCI pump test.
1F048	2	B-4			X		X		2	C	-	-	-	C	CV	No			Test during HPCI pump test, open check only.
1F052	2	B-3			X		X		2	C	-	-	-	C	CV	No			Test during HPCI pump test, open check only.
1F057	2	B-3			X		X		2	C	-	-	-	C	CV	No			Test during HPCI pump test, open check only.
HV-1F059	2	C-5		X			X		2	GL	M	X	35	C	Q,MT	No			Test during HPCI pump test.
PSE-1D003	2	E-3				X	X		16	RD	-	-	-	C	DT	No			No testing required.
PSE-1D004	S	E-3				X	X		16	RD	-	-	-	C	DT	No			No testing required.

CONTAINMENT ATMOSPHERE CONTROL M-157 Sheet 1

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-15703	2	C-6	X				X		18	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only Leak test in reverse direction.
HV-15704	2	C-7	X				X		18	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only.
PSV-15704A1	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704A2	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704B1	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704B2	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704C1	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704C2	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704D1	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704D2	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704E1	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
PSV-15704E2	2	B-5			X		X		24	RV	A	X	-	C	SRV	No			
HV-15705	2	C-6	X				X		2	GL	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only.
HV-15711	2	E-6	X				X		2	GL	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only.
HV-15713	2	E-5	X				X		24	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only. Leak test in reverse direction.

CONTAINMENT ATMOSPHERE CONTROL M-157 Sheet 1 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-15714	2	E-7	X				X		24	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only.
HV-15721	2	D-3	X				X		6	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only.
HV-15722	2	D-4	X				X		24	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only. Leak test in reverse direction.
HV-15723	2	D-2	X				X		24	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only.
HV-15724	2	C-2	X				X		18	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only.
HV-15725	2	C-4	X				X		18	B	A	X	15	C	Q,MT,LT	Yes	37	CS	Closure test only. Leak test in reverse direction.
SV-15734 A	2	B-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15734 B	2	B-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15736 A	2	B-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15736 B	2	B-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15737	2	B-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.

CONTAINMENT ATMOSPHERE CONTROL M-157 Sheet 1 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
SV-15738	2	B-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15740 A	2	D-5	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15740 B	2	D-6	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15742 A	2	D-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15742 B	2	D-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15750 A	2	D-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15750 B	2	D-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15752 A	2	D-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15752 B	2	D-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
HV-15766	2	A-4	X				X		6	G	M	X	30	C	Q,MT,LT	Yes	20	See Relief Request.	Leak test in reverse direction.
SV-15767	2	D-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
HV-15768	2	A-4	X				X		6	G	M	X	30	C	Q,MT,LT	No			

CONTAINMENT ATMOSPHERE CONTROL M-157 Sheet 1 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
SV-15774 A	2	D-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15774 B	2	C-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15776 A	2	D-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15776 B	2	C-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15780 A	2	B-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15780 B	2	B-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Leak test in reverse direction. Rapid acting valve.
SV-15782 A	2	B-6	X				X		1	GL	S	X	3	O	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15782 B	2	B-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.
SV-15789	2	C-4	X				X		1	GL	S	X	3	C	Q,LT,MT	Yes	38,58	See Relief Request.	Rapid acting valve.

LIQUID RADWASTE COLLECTION M-161 Sheet 1

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-16108 A1	2	F-6	X				X		3	G	A	X	15	C	Q,MT,LT	No			
HV-16108 A2	2	F-5	X				X		3	G	A	X	15	C	Q,MT,LT	No			
HV-16116 A1	2	B-5	X				X		3	G	A	X	15	C	Q,MT,LT	No			
HV-16116 A2	2	A-5	X				X		3	G	A	X	15	C	Q,MT,LT	No			

CONTROL STRUCTURE CHILLED WATER M-186

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
0-86-018	3	E-5			X		X		6	C	-	-	-	C	CV	Yes	40	See Relief Request.	
0-86-118	3	A-7			X		X		6	C	-	-	-	C	CV	Yes	40	See Relief Request.	
0-86-039	3	C-5			X		X		6	C	-	-	-	O	CV	Yes	40	See Relief Request.	
0-86-139	3	A-7			X		X		6	C	-	-	-	C	CV	Yes	40	See Relief Request.	
SV-08621 A	S	D-6		X			X		1	GL	S	-	N/A	O	Q	Yes	40	See Relief Request.	
SV-08621 B	S	A-7		X			X		1	GL	S	-	N/A	C	Q	Yes	40	See Relief Request.	
HV-08601 A	3	A-5		X			X		2	G	M	X	13	C	Q,MT	No			
HV-08601 B	3	A-7		X			X		2	G	M	X	13	C	Q,MT	No			
HV-08602 A	3	A-4		X			X		2	G	M	X	13	O	Q,MT	No			
HV-08602 B	3	A-7		X			X		2	G	M	X	14	O	Q,MT	No			
HV-08603 A	3	A-5		X			X		2	G	M	X	14	C	Q,MT	No			
HV-08603 B	3	A-7		X			X		2	G	M	X	12	C	Q,MT	No			
HV-08693A	3	G-5		X			X		8	B	M	-	N/A	C	Q	Yes	40	See Relief Request.	
HV-08693B	3	A-7		X			X		8	B	M	-	N/A	C	Q	Yes	40	See Relief Request.	

REACTOR BUILDING CHILLED WATER M-187 Sheet 2

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-18781 A1	2	C-2	X				X		8	G	A	X	40	0	Q,MT,LT	No			
HV-18781 A2	2	D-2	X				X		8	G	A	X	40	0	Q,MT,LT	No			
HV-18781 B1	2	E-2	X				X		8	G	A	X	40	0	Q,MT,LT	No			
HV-18781 B2	2	F-2	X				X		8	G	A	X	40	0	Q,MT,LT	No			
HV-18782 A1	2	E-3	X				X		8	B	A	X	6	0	Q,MT,LT	No			
HV-18782 A2	2	F-3	X				X		8	B	A	X	6	0	Q,MT,LT	No			
HV-18782 B1	2	C-3	X				X		8	B	A	X	6	0	Q,MT,LT	No			
HV-18782 B2	2	D-3	X				X		8	B	A	X	6	0	Q,MT,LT	No			
HV-18791 A1	2	F-2	X				X		3	G	A	X	15	0	Q,MT,LT	Yes	39	CS	
HV-18791 A2	2	G-2	X				X		3	G	A	X	15	0	Q,MT,LT	Yes	39	CS	
HV-18791 B1	2	D-2	X				X		3	G	A	X	15	0	Q,MT,LT	Yes	39	CS	
HV-18791 B2	2	E-2	X				X		3	G	A	X	15	0	Q,MT,LT	Yes	39	CS	
HV-18792 A1	2	D-3	X				X		3	B	A	X	4	0	Q,MT,LT	Yes	39	CS	
HV-18792 A2	2	E-3	X				X		3	B	A	X	4	0	Q,MT,LT	Yes	39	CS	

REACTOR BUILDING CHILLED WATER M-187 Sheet 2 (Continued)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
HV-18792 B1	2	F-3	X				X		3	B	A	X	4	O	Q,MT,LT	Yes	39	CS	
HV-18792 B2	2	G-3	X				X		3	B	A	X	4	O	Q,MT,LT	Yes	39	CS	

TRAVERSING INCORE PROBE (TIP)

Valve Number	ASME Class	P&ID Coordinates	Section XI Valve Category A	B	C	D	Active	Passive	Size (in.)	Valve Type	Actuator Type	Remote Position Indicator	Stroke Time (sec.)	Normal Position	Test Requirements	Relief Request Req'd	#	Testing Alternative	Remarks
TIP Chan A Man Valve*	2	N/A	X				X		3/8	BA	S	X	5	C	Q,MT,LT	No			
TIP Chan A Squib Valve**	2	N/A				X	X		3/8	X	-	-	-	O	DT	No			
TIP Chan B Man Valve	2	N/A	X				X		3/8	BA	S	X	5	C	Q,MT,LT	No			
TIP Chan B Squib Valve	2	N/A				X	X		3/8	X	-	-	-	O	DT	No			
TIP Chan C Man Valve	2	N/A	X				X		3/8	BA	S	X	5	C	Q,MT,LT	No			
TIP Chan C Squib Valve	2	N/A				X	X		3/8	X	-	-	-	O	DT	No			
TIP Chan D Man Valve	2	N/A	X				X		3/8	BA	S	X	5	C	Q,MT,LT	No			
TIP Chan D Squib Valve	2	N/A				X	X		3/8	X	-	-	-	O	DT	No			
TIP Chan E Man Valve	2	N/A	X				X		3/8	BA	S	X	5	C	Q,MT,LT	No			
TIP Chan E Squib Valve	2	N/A				X	X		3/8	X	-	-	-	O	DT	No			

* TIP Channel manual (ball) isolation valve.

** TIP Channel Squib (explosive/shear) isolation valve.

PUMP TABLE

Pump Number	Pump Name	ASME Class	Speed	Parameter Measured: Inlet Pressure	Pump - P	Flow Rate	Vibration	Bearing Temp.	Lubricant Level or Pressure	Test Frequency	Relief Request Numbers	Remarks
1P202A	Residual Heat Removal-A	2	Exempt IWP-4400	X	X	X	X	**	**	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.
1P202B	Residual Heat Removal-B	2	Exempt IWP-4400	X	X	X	X	**	**	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.
1P202C	Residual Heat Removal-C	2	Exempt IWP-4400	X	X	X	X	**	**	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.
1P202D	Residual Heat Removal-D	2	Exempt IWP-4400	X	X	X	X	**	**	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.
1P204A,B	High Pressure Coolant Injection Main & Booster	2	X	X	X	X	X	*	X	Q	44	Bypass loop, main and booster pumps operate in tandem - measurements taken as one pump.
1P206A	Core Spray-A	2	Exempt IWP-4400	X	X	X	X	**	**	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.
1P206B	Core Spray-B	2	Exempt IWP-4400	X	X	X	X	**	**	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.

*See Relief Request 48.
**See Relief Request 54.

Parameter Measured (Continued)

Pump Number	Pump Name	ASME Class	Speed	Inlet Pressure	Pump - P	Flow Rate	Vibration	Bearing Temp.	Lubricant Level or Pressure	Test Frequency	Relief Request Numbers	Remarks
1P206C	Core Spray-C	2	Exempt IWP-4400	X	X	X	X	*	*	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.
1P206D	Core Spray-D	2	Exempt IWP-4400	X	X	X	X	*	*	Q		Bypass loop, bearings in main flow path lubricated by pumped liquid.
1P208A	Standby Liquid Control-A	2	Exempt IWP-4400	See Relief Request 43.		X	X	**	X	Q	43	Bypass loop.
1P208B	Standby Liquid Control-B	2	Exempt IWP-4400	See Relief Request 43.		X	X	**	X	Q	43	Bypass loop.
0P504A	Emergency Service Water-A	3	Exempt IWP-4400	X	X	X	X	*	*	Q		Bearings in main flow path lubricated by pumped liquid inlet pressure derived from spray pond level.
0P504B	Emergency Service Water-B	3	Exempt IWP-4400	X	X	X	X	*	*	Q		Bearings in main flow path lubricated by pumped liquid inlet pressure derived from spray pond level.
0P504C	Emergency Service Water-C	3	Exempt IWP-4400	X	X	X	X	*	*	Q		Bearings in main flow path lubricated by pumped liquid inlet pressure derived from spray pond level.

*See Relief Request 54.
**See Relief Request 49.

Parameter Measured (Continued)

Pump Number	Pump Name	ASME Class	Speed	Inlet Pressure	Pump - P	Flow Rate	Vibration	Bearing Temp.	Lubricant Level or Pressure	Test Frequency	Relief Request Numbers	Remarks
0P504D	Emergency Service Water-D	3	Exempt IWP-4400	X	X	X	X	*	*	Q		Bearings in main flow path lubricated by pumped liquid inlet pressure derived from spray pond level.
1P506A	RHR Service Water-A (Unit 1)	3	Exempt IWP-4400	X	X	X	X	*	*	Q		Bearings in main flow path lubricated by pumped liquid inlet pressure derived from spray pond level.
1P506B	RHR Service Water-B (Unit 1)	3	Exempt IWP-4400	X	X	X	X	*	*	Q		Bearings in main flow path lubricated by pumped liquid inlet pressure derived from spray pond level.
0P162A	C. S. Chilled Water Loop Circ. Pump-A	S	Exempt IWP-4400	See Relief Request Number 50.						Q	50	
0P162B	C. S. Chilled Water Loop Circ. Pump-B	S	Exempt IWP-4400	See Relief Request Number 50.						Q	50	
0P171A	Emergency Condenser Water Cir. Pump-A	3	Exempt IWP-4400	See Relief Request Number 50.						Q	50	
0P171B	Emergency Condenser Water Cir. Pump-B	3	Exempt IWP-4400	See Relief Request Number 50.						Q	50	

*See Relief Request 54.

Parameter Measured (Continued)

Pump Number	Pump Name	ASME Class	Speed	Inlet Pressure	Pump - P	Flow Rate	Vibration	Bearing Temp.	Lubricant Level or Pressure	Test Frequency	Relief Request Numbers	Remarks
OP514A	Diesel Oil Transfer Pump A	3	Exempt IWP-4400	See Relief Request Number 47.						-	47	*
OP514B	Diesel Oil Transfer Pump B	3	Exempt IWP-4400	See Relief Request Number 47.						-	47	*
OP514C	Diesel Oil Transfer Pump C	3	Exempt IWP-4400	See Relief Request Number 47.						-	47	*
OP514D	Diesel Oil Transfer Pump D	3	Exempt IWP-4400	See Relief Request Number 47.						-	47	*
OP514E	Diesel Oil Transfer Pump E	3	Exempt IWP-4400	See Relief Request Number 47.						-	47	*

*Monthly test per Tech. Specs.

RELIEF REQUESTS

RELIEF REQUEST NUMBER 1

System: Reactor Building Closed Cooling Water

P&ID: M-113

Valves: HV-11313
HV-11314
HV-11345
HV-11346

Category: A

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These valves are in the cooling water supply and return lines for the reactor recirculation pump bearing and seal coolers. Cycling of these valves during power operation would interrupt this cooling water flow, possibly causing pump bearing damage or seal failure.

Alternative Testing: Exercise valves during Cold Shutdowns (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 2

System: Containment Instrument Gas

P&ID: M-126

Valves: 1-26-070
1-26-072
1-26-074
1-26-152
1-26-154
1-26-164

Category: A, C

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These check valves serve the containment isolation function inside containment and are not equipped with remote position indicators. Downstream of the valves (inside containment) there are no pressure measurement devices or other means of remotely verifying valve position. The only practical method of closure testing involves pressurizing the downstream side and measuring pressures with temporary instrumentation. With the inerted containment, such testing can only be performed during a major outage which requires containment purging. This testing, which requires significant effort in the installation and removal of temporary equipment in the high radiation area of the containment drywell, is already performed during Category A leak rate testing.

Two valves, 1-26-152 and 1-26-154, serve a safety function on opening as well as their containment isolation function. The open test cannot be performed as there would be no positive indication (flow measurements) of function. Operation of the equipment serviced by these valves (ADS function of the safety/relief valves) will not verify their proper opening since the accumulators at the SRV operators provide capacity for several lifts.

RELIEF REQUEST NUMBER 2 (Cont'd)

Performing continued lifts in an attempt to verify check valve opening will increase the potential for SRV leakage or failure to reseat, will impact proper maintenance of reactor pressure control, and has the potential for degradation of the ADS function.

Alternative Testing: Valve closure is demonstrated by completion of leak rate testing performed once per 24 months. Commencing with the first refueling outage, verification of the opening capability of valves 1-26-152 and 1-26-154 will also be performed at that time with an air pressure applied through the outboard test valves (1-26-021, 1-26-031), opening the inboard test valves (1-26-155, 1-26-153), and observing essentially unrestricted flow.

RELIEF REQUEST NUMBER 3

System: Containment Instrument Gas

P&ID: M-126

Valves: SV-12651

Category: A

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: Closing this valve interrupts instrument gas supply to several important valves inside containment such as the Safety/Relief Valves (non-ADS function) and the MSIVs. This could compromise the ability of the SRV's to operate in the relief mode which, while not an ECCS function, is important to safety. Loss of instrument gas could also cause the MSIVs to close, resulting in a severe reactor transient.

Alternative Testing: Exercise valve during cold shutdowns (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 4

System: Containment Instrument Gas

P&ID: M-126

Valves: SV-12654A
SV-12654B

Category: A

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: Closing these valves will interrupt instrument gas supply to the ADS solenoids of the Safety/Relief Valves, compromising their ability to provide the opening motive force for the ADS valves in support of the long-term cooling ECCS function.

Alternative Testing: Exercise valves during cold shutdown (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 5

System: MSIV-Leakage Control

P&ID: M-139

Valves	Category	Class
HV-1F001 B,F,K,P	A	1
HV-1F002 B,F,K,P	B	2

Function: Containment Isolation; System Initiation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: The MSIV-LCS inboard bleed lines are directly connected to the main steam lines at the outboard MSIV. During power operations, these lines are pressurized with main steam up to the first isolation valve (HV-1F001 B,F,K,P). Double valve isolation is provided by HV-1F002 B,F,K,P. Opening any of these valves during power operations will leave only one barrier against the release of main steam to occupied plant areas through the system piping. Maintenance of double valve isolation is desired for personnel safety considerations and for prevention of inadvertent leakage paths from the main steam lines.

Alternative Testing: Exercise during cold shutdowns (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 6

System: MSIV-Leakage Control

P&ID: M-139

Valves: HV-1F006
HV-1F007
HV-1F008
HV-1F009

Category: B

Class: 2

Function: System Initiation

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: The MSIV-LCS outboard bleed and blowdown lines are directly connected to the main steam system at the steam line drain. During power operations these lines are pressurized with main steam up to the first isolation valve (HV-1F006, HV-1F008). Double valve isolation is provided by HV-1F007 and HV-1F009. Opening any of these valves will leave only one barrier against the release of main steam to occupied plant areas through system piping. Maintenance of double valve isolation is desired for personnel safety considerations and for prevention of inadvertent leakage paths from the main steam lines.

Alternative Testing: Exercise during cold shutdowns (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 7

System: Nuclear Boiler

P&ID: M-141

Valves: 1F010 A,B

Category: A, C

Class: 1

Function: Containment Isolation

Impractical Test Requirement: Exercise valves closed once per 92 days.

Basis for Relief: These check valves remain open maintaining the flowpath to the vessel whenever the feedwater/condensate, HPCI or RCIC systems are providing makeup to the vessel or when Reactor Water Cleanup is returning flow to the vessel. Due to the necessity of maintaining this flowpath in virtually all modes of operation, closure testing is only practical during extended outages such as refuelings during which these systems are shutdown. Also, plant design does not provide a practical means of demonstrating closure other than by upstream pressurization performed during leak rate testing. This testing involves significant effort for installation of temporary equipment, and requires complete purging of the inerted reactor containment.

Alternative Testing: Proper valve closure will be verified in by completion of leak rate testing performed once per 24 months.

RELIEF REQUEST NUMBER 8

System: Nuclear Boiler

P&ID: M-141

Valves: PSV-14137 A,B,C,D,E,F,G,H,J,K,L,M,N,P,R,S
PSV-1F037 A,B,C,D,E,F,G,H,J,K,L,M,N,P,R,S

Category: C

Class: 3

Function: SRV Discharge Pipe Vacuum Breaker

Impractical Test Requirement: Setpoint test per PTC 25.3-1976.

Basis for Relief: The ASME performance test code does not provide the most practical method for testing these vacuum relief devices.

Alternative Testing: Commencing with the first refueling outage, the setpoint will be checked once per refueling outage by pouring water into the valve inlet and measuring the height of water column necessary to activate the valve.

RELIEF REQUEST NUMBER 9

System: General

P&ID: General

Valves: General

Category: General

Class: General

Function: As applicable to specific valves.

Impractical Test Requirement: Paragraphs IWV-3417(b) and IWV-3523 of Section XI require that when corrective action is required as a result of tests made during cold shutdown, the condition shall be corrected before startup.

Basis for Relief: For those valves specified therein, the Limiting Conditions for Operation presently contained within the Susquehanna Steam Electric Station Technical Specifications provide the control by which valves and/or systems are declared inoperable. They also control entry into the various operational conditions. Further controls are not necessary for these valves. Valves which are not under the control of the Technical Specifications will be declared inoperable should they fail ISI testing.

Alternative Testing: The requirements contained within Susquehanna SES Technical Specifications will control plant operations and testing with regard to out-of-service valves. For valves which are not addressed in the Technical Specifications, any failures will cause the affected valve(s) to be declared inoperable and corrective action to be initiated as appropriate.

RELIEF REQUEST NUMBER 10

System: Nuclear Boiler

P&ID: M-141

Valves: PSV-1F013 G,J,K,L,M,N

Category: B, C

Class: 1

Function: ADS Valve, Code Safety/Relief Valve

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: The six safety relief valves assigned to the ADS system perform an essential safety function when operated by the pneumatic actuator with gas supplied through the ADS solenoid valves. Operation of these valves is not practical during power operations because this action will vent main steam to the suppression pool, inducing a transient condition and increasing the potentiality for an open failure of a safety relief valve. Also, no stroke timing is practical as these are pneumatic assisted SRVs. Since "position indication" of the SRVs is provided by acoustic monitors attached to the valve discharge piping, exercising during cold shutdown cannot be accomplished because of lack of steam flow (and attendant noise).

Alternative Testing: The ADS valves will be exercised once per 18 months in accordance with Technical Specification 4.5.1.d.2.b, which provides manual opening of each ADS valve with reactor dome pressure greater than or equal to 100 psig and observing either control valve or bypass valve response or corresponding change in measured steam flow. No stroke timing will be done.

RELIEF REQUEST NUMBER 11

System: Nuclear Boiler

P&ID: M-141

Valves: HV-1F022 A,B,C,D
HV-1F028 A,B,C,D

Category: A

Class: 1

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: During full power operation, it is impractical to full stroke cycle these valves, since the interruption in steam flow would induce a reactor pressure transient with increased probability of reactor scram, main steam line isolation and SRV actuation. Trending of valve stroke times is not necessary due to Technical Specification limits on minimum as well as maximum allowable stroke times with a tolerance of 2 seconds.

Alternative Testing: Full stroke testing will be performed in Operational Condition 1, 2, or 3 when power level is low enough to prevent the above mentioned transients (no more frequently than once per 92 days). No reduction from high power levels will be made specifically to accomplish this testing. No trending of valve stroke times will be done.

RELIEF REQUEST NUMBER 12

System: Nuclear Boiler

P&ID: M-141

Valves: HV-1F032 A,B

Category: A, C (HV-1F032B only)

Class: 2

Function: Containment isolation; HPCI flowpath (HV-1F032B only).

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief:

a. These check valves remain open maintaining the flowpath to the vessel whenever the feedwater/condensate systems are providing makeup to the vessel. Interruption of the feedwater flowpath by motor operator closure of these valves can only be practically accomplished during cold shutdowns.

b. No practical means other than upstream pressurization similar to leak rate testing is available to demonstrate valve closure of HV-1F032B as a check valve.

Alternative Testing:

a. Cycle valves shut using stop-check motor operators during cold shutdowns (no more frequent than once per 92 days).

b. Closure testing of HV-1F032B as a check valve will be demonstrated by completion of leak rate testing to be performed once per 24 months.

RELIEF REQUEST NUMBER 13

System: Fuel Pool Cooling and Clean-Up

P&ID: M-153

Valves: 1-53-071 A,B

Category: C

Class: Non-Code safety function

Function: Admit flow to fuel storage pool.

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: In an alternative flowpath to the fuel storage pool, exercising of these valves utilizing flow can only be accomplished utilizing ESW or RHR water. Use of ESW would introduce "raw" water from the ESSW spray pond, undesirable for chemistry and fuel integrity considerations. While use of the RHR flowpath is possible, the difficulty of operating the RHR system in an abnormal lineup for supplying the fuel pool creates a dynamic control situation that is best minimized.

Alternative Testing: Verify valve operability by a pneumatic open flow path test during periodic pressure test. A pneumatic open flow path test (SE-135-301) is performed once per Inspection Period (as specified by ASME Code Section XI paragraph IWD-2400).

RELIEF REQUEST NUMBER 14

System: Reactor Recirculation

P&ID: M-143

Valves: XV-1F017 A,B

Category: A, C

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: Closure testing of these excess flow check valves involves depressurization of the CRD system side of the valves and verification that the valve will close and stop excess flow. Such actions require interruption of seal water to the recirculation pumps, which creates a potential for pump seal damage; disruption of CRD Hydraulic System flow; and installation of temporary equipment.

Alternative Testing: Closure testing will be demonstrated by completion of leak rate testing to be performed once per 24 months.

RELIEF REQUEST NUMBER 15

System: Reactor Recirculation

P&ID: M-143

Valves: 1F013 A,B

Category: A, C

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These simple check valves serve as containment isolation valves inside containment. The valves are not equipped with remote indication and there is no pressure indication downstream of the valves. For these valves, closure testing is only practical through pressurization downstream of the valve with the upstream piping vented, and verification of the absence of flow upstream. Interruption of the CRD flow (seal purge) during Reactor Recirculation Pump operation to perform this testing could result in seal damage. This type of testing can only be performed during a period when the containment is accessible. The deinerting of the containment will only be performed during major outages and the testing will be performed during Category A leak rate testing.

Alternative Testing: Valve closure is demonstrated by completion of leak rate testing performed once per 24 months.

RELIEF REQUEST NUMBER 16

System: Reactor Recirculation

P&ID: M-143

Valves: HV-1F031 A,B

Category: B

Class: 1

Function: Reactor Recirculation Pump Discharge Isolation, LPCI flowpath.

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: The recirculation pump discharge isolation valves are in the main flowpath of the reactor recirculation system which is necessary to maintain reactivity control of the reactor. Cycling of these valves during power operations would interrupt the driving core flow, possibly resulting in severe changes in core power level.

Alternative Testing: Technical Specification 4.4.1.1.1 provides for and controls the exercising of these valves prior to exceeding 25% power during each startup.

RELIEF REQUEST NUMBER 17

System: Control Rod Drive

P&ID: M-147

Valves	Category
114-001 through 114-185	C
115-001 through 115-185	C
XV-126-001 through XV-126-185	B
XV-127-001 through XV-127-185	B
138-001 through 138-185	C

Class: 2

Function: Control Rod Scram

Impractical Test Requirement: Exercise valves once per 92 days and measure stroke times.

Basis for Relief: These valves, located on the hydraulic control units for the 185 control rod drives, function on a reactor scram signal from the reactor protection system to insert the control rods rapidly into the reactor core. Their proper functioning is most practically verified by an actual scram test.

Alternative Testing: Scram testing and rod insertion timing will be performed in accordance with Technical Specifications Section 4.1.3.2 (at reactor coolant pressure 950 psig for:

a. All control rods prior to THERMAL POWER exceeding 40% or after a shutdown longer than 120 days.

b. Following maintenance or modification.

c. 10% on a rotating basis at least once per 120 days).

This will verify proper functioning of valves 114, XV-126, and XV-127. Closure of check valve 115 is assured for each accumulator by demonstration of the ability to maintain required pressure in the accumulator for 10 minutes with the CRD Pumps secured.

RELIEF REQUEST NUMBER 17 (Cont'd)

This testing is performed once per 18 months in accordance with Technical Specification 4.1.3.5.b.2. Closure of check valve 138 will be confirmed by venting of the cooling water header during Integrated Leakage Testing per 10CFR50, Appendix J.

RELIEF REQUEST NUMBER 18

System: Standby Liquid Control

P&ID: M-148

Valves: HV-1F006

Category: A, C

Class: 1

Function: Containment Isolation

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: To verify proper opening of this stop-check valve, it is necessary to pass fluid through the valve. This action would result in an injection into the reactor vessel and would require actuation of an explosive valve. Both actions are undesirable during power operations. Closure testing as a motor-operated stop-check valve during power operations presents the danger of having the disc stick in the closed position, blocking the only SLC injection flowpath, with no means of detecting the failure.

Alternative Testing: The proper functioning of the Standby Liquid Control System injection flowpath, including opening of HV-1F006, will be demonstrated once per 18 months in accordance with Technical Specification Section 4.1.5.d. Closure testing of the valve by motor operator will be performed just prior to the injection testing once per 18 months.

RELIEF REQUEST NUMBER 19

System: Standby Liquid Control

P&ID: M-148

Valves: 1F007

Category: A, C

Class: 1

Function: Containment Isolation

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: To verify proper opening of this check valve, it is necessary to pass fluid through the valve. This action would result in an injection into the vessel and would require actuation of an explosive valve, both undesirable during power operations. Closure testing is only practical by pressurizing downstream of the valve (the upstream side being vented) and verifying absence of flow in the upstream side. This requires installation of temporary equipment and access to the containment which is inerted during power operation.

Alternative Testing: The proper functioning of the Standby Liquid Control System injection flowpath, including opening of 1F007, will be demonstrated once per 18 months in accordance with Technical Specification Section 4.1.5.d. Valve closure is demonstrated by completion of leak rate testing performed once per 24 months. See Relief Request Number 18.

RELIEF REQUEST NUMBER 20

System	P&ID	Valve	Class
RCIC	M-149	HV-1F007	1
RCIC	M-149	HV-1F031	2
RCIC	M-149	HV-1F059	2
RCIC	M-149	HV-1F084	2
RHR	M-151	HV-1F004A,B,C,D	2
RHR	M-151	HV-1F007A,B	2
RHR	M-151	HV-1F022	1
Core Spray	M-152	HV-1F001A,B	2
Core Spray	M-152	HV-1F031A,B	2
HPCI	M-155	HV-1F002	1
HPCI	M-155	HV-1F012	2
HPCI	M-155	HV-1F042	2
HPCI	M-155	HV-1F066	2
HPCI	M-155	HV-1F079	2
Containment Atmosphere Control	M-157	HV-15766	2

Category: A

Function: Containment Isolation

Impractical Test Requirement: Leak test gate valve with pressure differential in same direction as safety function.

Basis for Relief: These valves are configured such that there is no practical means of pressurizing in the direction of safety function (lack of proper isolation valves, test connections, etc.).

RELIEF REQUEST NUMBER 20 (Cont'd)

Pressurization in the direction of safety function would require actions such as pressurizing the containment (equivalent to an ILRT) or precisely controlling the entire RCS at the valve test pressure.

Alternative Testing: Leak test each valve in the reverse direction. Penetration will be subjected to test pressures in the correct direction during containment integrated leak rate tests.

RELIEF REQUEST NUMBER 21

System: Reactor Core Isolation Cooling

P&ID: M-149

Valves: 1F028, 1F040, 1F021

Category: A, C

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: These check valves are not equipped with position indication and system design does not provide any practical method of verifying closure other than pressurization similar to leak rate testing. Such testing requires installation of temporary equipment which is impractical on a quarterly basis, and it would render the RCIC system inoperable during the testing period. While RCIC is not an ECCS system, it is important to safety and can provide an additional margin for prevention or mitigation of reactor transients. Normally, testing of this type is accomplished by required containment local leak rate testing in accordance with 10CFR50, Appendix J. More frequent performance represents an unnecessary burden on the licensee.

Alternative Testing: Demonstrate closure by completion of leak rate testing performed once per 24 months.

RELIEF REQUEST NUMBER 22

System: Reactor Core Isolation Cooling

P&ID: M-149

Valves: 1F063, 1F064

Category: C

Class: 2

Function: Vacuum Breaker

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: These vacuum breakers installed on the RCIC turbine exhaust line are not provided with position indication equipment nor is there pressure indication installed that would provide positive verification of valve operation. A practical method of testing involves supplying low pressure air upstream of the valve and verifying that flow can be detected downstream of the valve. This test method involves installation of temporary equipment and is not practical except during major outages, and it would render the RCIC system inoperable during the testing period. While RCIC is not an ECCS system, it is important to safety and can provide an additional margin for prevention or mitigation of reactor transients. More frequent performance represents an unnecessary burden on the licensee.

Alternative Testing: Commencing with the first refueling outage, verify opening once per 24 months in conjunction with leak rate testing.

RELIEF REQUEST NUMBER 23

System: Residual Heat Removal

P&ID: M-151 Sh. 2

Valves: HV-1F008, HV-1F009

Category: A

Class: 1

Function: Containment Isolation (Shutdown Cooling)

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These normally closed isolation valves are only required to open when bringing the unit to a cold shutdown condition, providing the flowpath for the shutdown cooling mode of RHR. In accordance with guidance presented in IE Information Notice 84-74, draft R.G. 901-4, and previous NRC concerns regarding intersystem LOCAs, cycling these valves every 92 days during power operation increases the probability of exposing the downstream low pressure piping to reactor coolant pressure (since only one valve would have to be ruptured or failed open to expose the low pressure system to reactor coolant pressure). During reactor operations above aproximately 100 psig, interlocks inhibit cycling of these valves for the express purpose of protecting low pressure piping.

Alternative Testing: Exercise valves during cold shutdown (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 24

System	P&ID	Valve	Class
ESW (on Service Water P&ID)	M-110	1-10-109	3
ESW (on Service Water P&ID)	M-110	1-10-112	3
Core Spray	M-152	1F029A	2
Core Spray	M-152	1F029B	2
Core Spray	M-152	1F030A	2
Core Spray	M-152	1F030B	2
HPCI	M-155	1-55-012	2
RHR	M-151	1F090A	2
RHR	M-151	1F090B	2

Category: C

Function: Prevent backflow down "keep fill" line.

Impractical Test Requirement: Exercise valves closed once per 92 days.

RELIEF REQUEST NUMBER 24 (Cont'd)

Basis for Relief: 1) HPCI, RHR, & ESW

The check valves, located in "keep fill" lines for the HPCI, RHR, & ESW systems, serve an identical function as those associated with Core Spray. The different feature in these systems is that there are test connections between the two check valves in each line. Using these test connections in HPCI & RHR to monitor essentially restricted flow will involve collecting potentially contaminated seepage while performing a "full flow" test of the systems. This creates the potential for spillage and further contamination.

The increased water hammer potential in ESW & HPCI and the burden on the licensee of handling contaminated seepage dictates that testing be performed less frequently. The fact that two check valves are in series lessens the probability of failure to retard backflow. The small line size involved minimizes the impact of such a failure. These circumstances warrant testing on the frequency requested.

2) Core Spray

These check valves, located in keep fill lines for the Core Spray System, permit Condensate Storage and Transfer water flow into the respective headers while preventing process flow in the reverse direction during CS system operation. The two check valves in each line are located in series within several inches of each other. There are no vent, drain or test valves located between or upstream of the check valves. Therefore, no practical method exists to verify closure of either valve upon cessation or reversal of flow. A relief valve located upstream of the check valves is set to actuate at approximately 150 psig, while Core Spray System pressure is greater than 250 psig.

RELIEF REQUEST NUMBER 24 (Cont'd)

Alternative Testing:

1) Commencing with the first refueling outage, test the RHR, HPCI, & ESW "keep fill" line check valves by monitoring essentially restricted flow through the test connections once per refueling outage during a "full flow" test of the respective system.

2) During refueling outage full flow tests of the Core Spray System, closure of at least one of the two check valves in each pair will be demonstrated by manual lifting of the upstream relief valve to provide a more positive means of valve seating and to preclude the possibility of the check valve not properly reseating during Plant Conditions 1, 2, or 3. This test will be performed when in modes 4 or 5.

RELIEF REQUEST NUMBER 25

System: Residual Heat Removal

P&ID: M-151 Sh. 1 and Sh. 2

Valves:
a) PV-1F051A,B
b) HV-1F053A,B

Category: B

Class: 2

Function:
a) Steam Condensing Mode Pressure Control
b) Isolation from RCIC suction

Impractical Test Requirement: Exercise valves once per 92 days and measure stroke times.

Basis for Relief: PV-1F051A(B), HV-1F053A(B), and PV-1F052A(B) are all controlled through the same handswitch (HS-15151A(B)). Attempting to cycle either PV-1F051A(B) or HV-1F053A(B) would result in a cycling of all three valves. This would cause steam to be introduced into the RHR heat exchanger thereby degrading the functions of suppression pool cooling and spray. It is also possible, if this line is overpressurized, to actuate relief valve PSV-1F055A(B) which will deposit heat in the suppression pool with the possible result of exceeding the limit of 90°F required by Technical Specification 3.6.2.1. These valves, when performing their function, are set at some variable intermediate position. It is not practical to monitor stroke time of such a valve as it will change dependent upon the set position.

Alternative Testing: Exercise valves during cold shutdowns (no more frequently than once per 92 days) with no stroke time measurement, only verification of proper movement to its "fail-safe" position.

RELIEF REQUEST NUMBER 26

System: Residual Heat Removal

P&ID: M-151 Sh. 1 and Sh. 2

Valve	Category
HV-1F015A	A
HV-1F015B	A
HV-1F022	A
HV-1F023	A
HV-1F050A	A,C
HV-1F050B	A,C
HV-1F122A	A
HV-1F122B	A

Class: 1

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These normally closed isolation valves serve as the pressure isolation between RHR system piping and reactor coolant pressure. In accordance with guidance presented in IE Information Notice 84-74, draft R.G. 901-4, and previous NRC concerns regarding intersystem LOCAs, cycling these valves every 92 days during power operation increases the probability of exposing the downstream low pressure piping to reactor coolant pressure (since only one valve would have to be ruptured or stuck open to expose the low pressure system to reactor coolant pressure). Maintenance history on these valves has shown that excessive cycling at pressure will reduce the leak tightness of the valves. In addition, failure of these valves during testing to positively re-seat could cause loss of RHR system function.

Alternative Testing: Exercise valves during cold shutdowns (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 27

System: Emergency Service Water

P&ID: M-111 Sheets 1,3

Valves:

0-11-033	0-11-037	0-11-513
0-11-034	0-11-038	0-11-514
0-11-035	0-11-039	
0-11-036	0-11-040	

Category: C

Class: 3

Function: Diesel generator cooling flowpath alignment.

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: Individual pressure or flow indication is not provided on ESW cooling lines to the diesel generators, nor is position indication installed. This configuration provides no direct evidence of valve position during system operation. A level of assurance of proper valve operation is provided by observation of appropriate system flows during ESW pump testing and adequate cooling during diesel generator operation.

Due to the sharing of diesel generators between two units, removal of a diesel generator from service to accomplish the alternative inspections will normally occur with one unit in operation. Minimization of these inspections is indicated.

Alternative Testing: Verify proper valve functioning by valve disassembly. Commencing with the first refueling outage, four valves will be inspected at least once per 18 months (± 3 months), such that all valves are inspected once per 36 months (± 6 months).

RELIEF REQUEST NUMBER 28

System: High Pressure Coolant Injection

P&ID: M-155

Valves: 1F049, 1F046

Category: A, C

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valve closed once per 92 days.

Basis for Relief: This valve is not equipped with position indication. Its configuration with an open discharge into the suppression pool prevents usage of reverse flow to demonstrate closure. No practical method exists to perform closure testing other than the downstream pressurization of leak rate testing. Such testing requires installation of temporary equipment and closure of valves which renders the system inoperable.

Alternative Testing: Demonstrate closure once per 24 months by completion of leak rate testing.

RELIEF REQUEST NUMBER 29

System: High Pressure Coolant Injection

P&ID: M-155

Valve: HV-1F006

Category: A

Class: 2

Function: Containment Isolation, HPCI Injection

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: This valve is in the HPCI injection flowpath. The interlocks on this valve prevent its being open unless the Steam Admission and Turbine Stop Valves are open. This is only possible during pump flow testing. Cycling this valve during normal plant operation or HPCI testing may lead to HPCI injection into the vessel. This would affect reactor operations and introduce a thermal transient in the vessel nozzle.

Alternative Testing: Exercise valve during cold shutdowns (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 30

System: General

P&ID: General

Valves: All valves specified as tested on a cold shutdown or refueling frequency.

Category: As applicable

Class: As applicable

Function: As applicable

Impractical Test Requirement: Paragraph IWV-3417(a) of Section XI requires that should an unacceptable increase in stroke time be observed, the valve test frequency shall be increased to once per month until corrective action is taken.

Basis for Relief: Valves are tested on a cold shutdown or refueling frequency because there is a defined basis for exemption from quarterly testing frequency during power operation (e.g., the plant is put into an unsafe condition, system design does not permit testing). This same reasoning would, therefore, provide the basis for exemption from the monthly testing as well.

Alternative Testing: The testing frequency will remain unchanged. The requirements contained in the Susquehanna Steam Electric Station Technical Specifications will control plant operations with regard to out-of-service valves.

RELIEF REQUEST NUMBER 31

System: High Pressure Coolant Injection

P&ID: M-155

Valves: 1F045

Category: C

Class: 2

Function: Backflow Prevention

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: To verify proper opening of this valve, it is necessary to initiate HPCI flow while taking suction from the suppression pool. Since the water quality in the suppression pool is not maintained at reactor coolant standards, it is not advisable to initiate this flow at any time during normal operations. The resulting contamination of the HPCI system from such flow testing would affect the condensate storage tank purity and ultimately affect the chemistry control of the reactor coolant system. There exists no other practical method of verifying proper valve operation.

Alternative Testing: Verify operability by inspection during valve disassembly. Commencing with the second refueling outage, the valve will be disassembled at least once every other refueling outage on an alternating basis.

RELIEF REQUEST NUMBER 32

System: High Pressure Coolant Injection

P&ID: M-155

Valves: 1F019

Category: C

Class: 2

Function: Backflow Prevention

Impractical Test Requirement: Exercise valve closed once per 92 days.

Basis for Relief: This check valve in the HPCI pump suction line is not installed in a configuration permitting positive verification of valve closure. As stated in Relief Request Number 31, alignment of the HPCI pump to the suppression pool is not desirable. Attempting to verify closure during leak rate testing of 1F045 will not provide positive verification, since there is no appropriate pressure instrumentation provided on the CST side of 1F019, and level changes in the CST would not be readily detected due to the large tank volume.

Alternative Testing: Verify operability by inspection during valve disassembly. Commencing with the second refueling outage, the valve will be disassembled at least once every other refueling outage on an alternating basis.

RELIEF REQUEST NUMBER 33

Relief Request Deleted.

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RELIEF REQUEST NUMBER 34

System: High Pressure Coolant Injection

P&ID: M-155

Valves: 1F076, 1F077

Category: C

Class: 2

Function: Vacuum Breaker

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: These vacuum breakers installed on the HPCI turbine exhaust line are not provided with position indication equipment nor is there pressure indication installed that would provide positive verification of valve operation. A practical method of testing involves supplying low pressure air upstream of the valves and verifying that flow can be detected downstream of the valve. This test method involves installation of temporary equipment and is not practical except during major outages. Its implementation would also require temporary removal of the HPCI System from service.

Alternative Testing: Commencing with the first refueling outage, verify opening once per 24 months in conjunction with leak rate testing.

RELIEF REQUEST NUMBER 35

System: General

P&ID: General

Valves: All containment isolation valves.

Category: A

Class: As applicable to specific valves.

Function: Containment Isolation

Impractical Test Requirement: Category A valves shall be tested in accordance with Section XI, Paragraph IWV-3420.

Basis for Relief: Containment leakage rate testing is governed by 10CFR50 Appendix J and Susquehanna SES Technical Specification 3/4.6.1.2. Compliance with these requirements is described in FSAR Section 6.2.6 and in FSAR Tables 6.2-19 through 6.2-22. Leak rates for individual valves are not specified but rather leak rate criteria are determined in Susquehanna Steam Electric Station Technical Specifications. This testing adequately assures the isolation capabilities of these valves.

Alternative Testing: Containment isolation valve leak testing (with the exception of identified pressure isolation) will be performed in accordance with FSAR Section 6.2.6 and FSAR Tables 6.2-19 through 6.2-22. Evaluation of containment isolation valve leak test results will be conducted in accordance with the requirements of 10CFR50 Appendix J and Susquehanna SES Technical Specification 3/4.6.1.2.

RELIEF REQUEST NUMBER 36

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RELIEF REQUEST NUMBER 37

System: Containment Atmosphere Control

P&ID: M-157 Sht. 1

Valves:

HV-15703	HV-15713	HV-15723
HV-15704	HV-15714	HV-15724
HV-15705	HV-15721	HV-15725
HV-15711	HV-15722	

Category: A

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valve once per 92 days.

Basis for Relief: These normally closed containment isolation valves on the containment purge inlet and exhaust lines are not opened during power operations except during startup for inerting purposes and during shutdown procedure to de-inert. It is not good practice to cycle a normally closed containment isolation valve, as this increases the possibility of failure in the open position. Technical Specification 3.6.1.8 controls and limits the amount of time these valves can be open in a one-year period.

Alternative Testing: Exercise valves at cold shutdown (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 38

System: Various

P&ID: Various

Valves: Those designated "Rapid-Acting" in the REMARKS column.

Category: A or B

Class: 1 or 2

Function: Various (sample, containment isolation, etc.)

Impractical Test Requirement: Trend valve stroke times per IWV-3417(a).

Basis for Relief: The listed valves, designated as "rapid acting valves," have stroke times of such short duration that comparison of measurements with previous data for specified percentage increases is not indicative of degrading valve performance. With measurement of stroke times to the nearest second per IWV-3413(b), a very small increase in stroke time will result in an extremely large percentage change. Verification that valves meet a specified maximum stroke time of short duration provides adequate assurance of operability.

Alternative Testing: The maximum stroke time will be verified for all these valves when tested.

RELIEF REQUEST NUMBER 39

System: Reactor Building Chilled Water

P&ID: M-187 Sh. 2

Valves:

HV-18791A1	HV-18792A1
HV-18791A2	HV-18792A2
HV-18791B1	HV-18792B1
HV-18791B2	HV-18792B2

Category: A

Class: 2

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These containment isolation valves are located in the Reactor Building Chilled Water supply and return lines serving the Reactor Recirculation pump motor coolers. The closure of these valves during power operation will interrupt cooling water flow to the Reactor Recirculation motor coolers, which creates the possibility of overheating and damage.

Alternative Testing: Exercise valves during cold shutdowns (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 40

System: Control Structure Chilled Water

P&ID: M-186

Valves	Category	Class
0-86-018	C	3
0-86-118	C	3
0-86-039	C	Non-Code; Safety Function
0-86-139	C	Non-Code; Safety Function
HV-08693A	B	3
HV-08693B	B	3
SV-08621A	B	Non-Code; Safety Function
SV-08621B	B	Non-Code; Safety Function

Function: Condenser and Chilled Water Flowpath

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: The ultimate function of these valves is providing chilled water to the cooling coils of the Control Structure HVAC system. Rather than individually testing each valve for proper functioning, operation of the chilled water loop with cooling supplied by the emergency condenser loop provides a functional system test which is indicative of proper operation of all system components. As this is an auxiliary support system rather than a water-supply system, this testing provides more meaningful results than individual valve testing.

Individual stroke testing (including stroke time measurement) of power operated valves in these subsystems is not feasible. System interlocks require initiation and startup of circulating pumps and/or chiller, after which the valves automatically actuate. Time delays and equipment actuation times render any attempts at stroke time measurement meaningless. No provision is made for

RELIEF REQUEST NUMBER 40 (Cont'd)

individual stroking of power operated valves in the circuitry.

Alternative Testing: In conjunction with the chiller pump tests, monitor the chilled water loop chiller discharge temperature and verify that the specified discharge temperatures are maintained.

RELIEF REQUEST NUMBER 41

System: General

P&ID: General

Valves: All Fail-Safe Valves

Category: As applicable

Class: As applicable

Function: As applicable

Impractical Test Requirement: Paragraph IWV-3415, Section XI

Basis for Relief: Valves which have a "fail-safe" requirement at Susquehanna Steam Electric Station will normally be cycled once every 92 days, unless otherwise relieved. This test will accomplish the intent of the "fail-safe" test because normal valve movement is achieved by means of interrupting motive force to the valve.

Alternative Testing: No additional testing of "fail-safe" provisions will be done because normal valve testing will achieve the same results.

RELIEF REQUEST NUMBER 42

System: General

P&ID: General

Valves: All pressure relief valves.

Category: As applicable

Class: As applicable

Function: System Overpressure Protection

Impractical Test Requirement: Paragraph IWV-3100, all valves shall be pressure tested after installation and prior to service.

Basis for Relief: Pressure relief valves used at Susquehanna SES have been purchased in accordance with specifications which require performance testing at the manufacturer's shop. Records of these tests are part of the Quality Assurance records. In addition, a technical procedure requires inspection of the sealing mechanism as part of the preoperational/acceptance test program.

Alternative Testing: No additional testing beyond that which was performed as part of the purchase and installation will be performed. The records will remain part of either the purchase or preoperational records and not part of the ISI files.

RELIEF REQUEST NUMBER 43

System: Standby Liquid Control

P&ID: M-148

Pumps: 1P208 A,B

Class: 2

Function: Standby Liquid Control Pumps

Impractical Test Requirement: Measure inlet pressure prior to and during pump test and measure pump delta-p during pump test.

Basis for Relief: System configuration does not provide a pressure indicator on the pump suctions. It is possible to determine suction pressure by calculation from tank level (elevation difference) when the pumps are in normal alignment to the SLC Storage Tank. However, when pump testing is being performed, the tank is valved out and the suctions are aligned to a demineralized water header. While some estimation of the pressure in this alignment is available by the setting of the pressure control valve on the demineralized water header, no direct pressure indication is available. Since the SLC pumps are positive displacement type pumps, suction pressure will not affect developed discharge pressure.

Alternative Testing: Do not measure inlet pressure prior to or during pump tests. Utilize pump discharge pressure reading in lieu of Pump delta-p reading.

RELIEF REQUEST NUMBER 44

System: High Pressure Coolant Injection

P&ID: M-156

Pumps: 1P204 A,B

Class: 2

Function: HPCI Main and Booster Pumps

Impractical Test Requirement: If not tested during plant shutdown, the pump shall be tested within one week after the plant is returned to normal operation.

Basis for Relief: The required steam supply pressure for HPCI surveillance flow verification testing is specified in the Technical Specifications. This pressure may not be attained within the above prescribed time interval.

Alternative Testing: Perform HPCI flow verification test in accordance with quarterly schedule. After a shutdown which has exceeded the quarterly limit, recommence quarterly schedule in accordance with Technical Specification 4.5.1.b.3.

RELIEF REQUEST NUMBER 45

System: Core Spray

P&ID: M-152

Valves	Category
HV-1F005A	A
HV-1F005B	A
HV-1F006A	A,C
HV-1F006B	A,C
HV-1F037A	A
HV-1F037B	A

Class: 1

Function: Containment Isolation

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These normally closed Isolation valves serve as the pressure isolation between CS system piping and reactor vessel pressure. In accordance with guidance presented in IE Information Notice 84-74, draft R.G. 901-4, and previous NRC concerns regarding intersystem LOCAs, cycling these valves every 92 days during power operation increases the probability of exposing the downstream low pressure piping to reactor coolant pressure (since only one valve would have to be ruptured or failed open to expose the low pressure system to reactor coolant pressure). In addition, failure of these valves after testing to positively reseat could cause loss of Core Spray system function.

Alternative Testing: Exercise valves during cold shutdown (no more frequently than once per 92 days).

RELIEF REQUEST NUMBER 46

System: General

P&ID: General

Valves/Pumps: General

Category: As applicable

Class: As applicable

Function: As applicable

Impractical Test Requirement: Test equipment in accordance with Section XI frequency requirements.

Basis for Relief: With one loop out-of-service in a system, it is not desirable to test the redundant loop per ISI requirements as such testing may increase the chance of failure in a condition where backup equipment is not available. Also, these situations will be governed by the Susquehanna Steam Electric Station Technical Specifications.

Alternative Testing: Testing will be suspended on equipment in operable loop when there is a redundant loop out-of-service.

RELIEF REQUEST NUMBER 47

System: Diesel Fuel Oil Transfer

P&ID: M-120

Pumps: OP514 A thru E

Valves: O-20-007/009/012/015/300

Class: Non-Code; Safety Function

Function: Fuel Oil Transfer from Storage Tank to Day Tank

Impractical Test Requirement: Test in accordance with IWP/IWV.

Basis for Relief: These pumps are a sealed-unit submersible type with the entire unit submerged in the Diesel Oil Storage Tanks. The Susquehanna Steam Electric Station Technical Specifications presently require at least a monthly functional test of these pumps. This test verifies fuel oil flow from the storage tank to each diesels skid-mounted day tank. Similarly, the diesel oil firing pumps are tested during the diesel functional tests. These pumps take suction from the day tank and supply the diesel cylinders. SSES considers all these pumps an extension of the diesel engine equipment skid, and therefore all are adequately tested per Technical Specifications along with the diesel itself. In addition the actual flowrate for the diesel fuel oil transfer pumps is over five times the required diesel engine fuel usage at rated conditions. Thus, even a large reduction in pump flow will not affect system operability. The pump discharge check valves are similarly tested monthly via plant Technical Specifications.

Alternative Testing: Each pump will continue to be functionally tested at least monthly via Technical Specification 4.8.1.1.2. No other testing need be performed.

RELIEF REQUEST NUMBER 48

System: High Pressure Coolant Injection

P&ID: M-156

Pumps: 1P204 A,B

Class: 2

Function: HPCI main and booster pumps

Impractical Test Requirement: Paragraph IWP-4310, Bearing Temperature Measurement.

Basis for Relief: These pumps are driven by a steam turbine which exhausts steam into the suppression pool. Extended run times necessary to achieve stabilized bearing temperatures could heat the suppression pool water to a temperature exceeding the Technical Specification limit of 105°F.

Alternative Testing: Eliminate bearing temperature measurement. Vibration measurements will give adequate information concerning potential bearing temperature problems.

RELIEF REQUEST NUMBER 49

System: Standby Liquid Control

P&ID: M-148

Pumps: 1P208 A,B

Class: 2

Function: Injection of sodium pentaborate into Rx vessel.

Impractical Test Requirement:

a) IWP-3500(b), bearing temperature stabilization.

b) IWP-3500(a), five minute minimum run time.

Basis for Relief: One characteristic of positive displacement pumps is that there is essentially no lag time between starting the pumps and reaching equilibrium conditions. To measure pump flow rate, the measured rate of drainage from the test tank (IT-203) is measured. No installed instrumentation is available to measure flow rate. This testing configuration prevents recirculation of the pump discharge flow through the test tank during the test. Since the capacity of the test tank is 210 gallons and the pumps rated flow is 43 gpm, the tank will overflow before bearing temperature is stabilized. The pump bearings are located in a motor gearbox and no direct measurement of gearbox oil temperature is possible. The gearbox casing is not a reproducible measurement point. In addition, the test tank would be very close to overflow if a five minute run time test is performed.

Alternative Testing: Vibration measurements will give information concerning potential bearing problems. The pump flow rate will be measured and changes in pump flow rate provide an early indication of degradation in pump performance. The pumps will be run for a period of time which will not cause the capacity of the test tank to be exceeded.

RELIEF REQUEST NUMBER 50

System: Control Structure Chilled Water

P&ID: M-186

Pump	Class	Function
OP162A	S	Chilled water loop circulating pump
OP162B	S	Chilled water loop circulating pump
OP171A	3	Emergency condenser water circulating pump
OP171B	3	Emergency condenser water circulating pump

Impractical Test Requirement: Test pumps once per 92 days per requirements of Section XI, Subsection IWP.

Basis for Relief: The ultimate function of these pumps is to provide chilled water to the cooling coils of the Control Structure HVAC system. Rather than individually testing each pump for proper functioning based on the prescribed measurements required by IWP, operation of the chilled water loop with cooling supplied by the emergency condenser loop provides a functional system test which is indicative of proper operation of all system components. This testing is more practical and provides a method of pump testing which does not require the removal of this safety system from operation. See Relief Request Number 40.

Alternative Testing: Monitor the chilled water loop chiller discharge temperature and verify that the specified discharge temperature is maintained.

RELIEF REQUEST NUMBER 51

System: Emergency Service Water

P&ID: M-111, Sheet 1

Valves: 0-11-001, 0-11-002, 0-11-003, 0-11-004

Category: C

Class: 3

Function: Pump Discharge Check

Impractical Test Requirement: Exercise valves once per 92 days.

Basis for Relief: These check valves, located in the pump discharge, are required to open during system operation to permit cooling water flow to system loads. Due to the presence of automatic motor-operated valves in series with the check valves, closure is not a safety function. During quarterly pump tests, the valves are in fact cycled open and design flow passed through, indicating operability. However, as discussed in IE Bulletin 83-03, such testing in raw water cooling systems may be inadequate to ensure valve mechanical integrity.

Alternative Testing: In addition to quarterly exercising in conjunction with pump tests, verify valve mechanical integrity by visual inspection during disassembly. Commencing with the first refueling outage, 1 valve from each loop will be disassembled at least once per 18 months (± 3 months), such that all valves are inspected at least once per 36 months (± 6 months).

RELIEF REQUEST NUMBER 52

System: RHR, Core Spray, ESW, RHRSW, HPCI, SBLC

P&ID: Various

Pumps: All in above systems

Class: Various

Function: Process flow for above systems

Impractical Test Requirement: Section XI, Paragraph IWP-3210, Allowable Ranges of Inservice Test Quantities

Basis for Relief: Ranges of acceptable instrument accuracies, as established by ASME Section XI paragraph IWP-4110 and Table IWP-4110-1 allow up to 6% error in pump pressure and flow readings due to acceptable instrument accuracy of 6% (2% of full scale range times full scale range 3 times reference value).

In contrast, the acceptable pump pressure and flow values required to result from pump tests, as established by ASME Section XI paragraph IWP-3100 and Table IWP-3100-2, are limited to a range extending only 2% above the corresponding reference value and only 6% flow or 7% pressure below the reference value.

Alternative Testing: Actual instrument accuracies shall be applied to indicated values of pump flow and pressure. The values of pump flow and pressure, so corrected for the effects of instrument accuracy, shall be compared to the allowable ranges for the corresponding test quantities, from Table IWP-3100-2, for determination of acceptability.

Instrument accuracies for use in these corrections shall be determined, as needed, by calibration of the flow and/or pressure instruments utilized for the pump test.

Actual instrument accuracies for use in these corrections shall conform to the acceptable instrument accuracies established for flow instruments and for pressure instruments by Table IWP-4110-1.

RELIEF REQUEST NUMBER 53

System: HPCI

P&ID M-156

Valves: FV-15612

Category: B

Class: 2

Function: Opens to admit steam to HPCI turbine, closes to isolate steam in the event of a turbine trip.

Impractical Test Requirements: Stroke time valves when exercised, once per 92 days.

Basis for Relief: The HPCI Turbine Stop Valve, FV-15612, has a design stroke time of 0.5 seconds. In keeping with current philosophy regarding other rapid-acting valves, this valve cannot be timed accurately and thus cannot be trended from test-to-test. Minor variations in each test could cause needless additional testing, which would require rendering the HPCI system inoperable.

Alternative Testing: Valve will be tested functionally each time the HPCI turbine is tested (quarterly). No stroke timing or trending will be performed. In addition, response time testing for the HPCI system will be performed in accordance with Technical Specifications once per 18 months.

RELIEF REQUEST NUMBER 54

System: RHR, Core Spray, ESW, RHRSW

P&ID: Various

Pumps: All in above systems

Class: Various

Function: Process flow for above systems

Impractical Test Requirement: Measure bearing temperature and lubricant level or pressure during test.

Basis for Relief: The bearings for the pumps listed above are lubricated by the flowing fluid and therefore require no verification of adequate lubrication. Similarly, the bearing temperatures cannot be accurately measured due to the flowing fluid.

Alternative Testing: None; component vibration readings will serve as indications of pump mechanical condition.

RELIEF REQUEST NUMBER 55

System: RHR, Core Spray, HPCI

P&ID: Various

Pumps: All in above systems

Class: Various

Function: Process suction pressure for above systems

Impractical Test Requirement: Section XI Paragraph IWP-4120, required range of test instruments

Basis for Relief: Full scale ranges of test instruments, as established by ASME Code Section XI paragraph IWP-4120, are limited to three times the reference value or less. In contrast, the four RHR System Pumps 1P202A/B/C/D have suction pressure reference values as low as 5 PSIG, but have suction pressure gages PI-1R002A/B/C/D permanently installed with full scale ranges 0-200 PSIG. Similarly, the four Core Spray System Pumps 1P206A/B/C/D have suction pressure reference values as low as 7 PSIG, but have suction pressure gages PI-1R001A/B/C/D permanently installed with full scale ranges 0-60 PSIG. Similarly, HPCI System Pump 1P204 has a suction pressure reference value of 18 PSIG, but has suction pressure gauge PI-1R606 permanently installed with a full scale range of 0-85 PSIG.

These permanent plant instruments require the full scale ranges for which they have been designed and installed to be able to cover the full spectrum of operating conditions and configurations of their respective systems. These permanent plant instruments have greater reliability than temporary or permanent test instruments would have. The permanent plant instruments used for these tests have had the accuracy of their calibration specially enhanced at the nominal values of the test parameters; their accuracy within the range of test values is adequate for test purposes. The use of the permanent plant instruments for ISI pump testing ensures that pump suction pressures are being measured in the same way as they would if the pump were operated to fulfill its design safety function. Repeated temporary installation and removal of suction pressure gages is impractical due to high potential for damage to the gages through the transport and work processes.

RELIEF REQUEST NUMBER 55 (Cont'd)

Alternate Testing: Utilize permanent plant pump suction pressure instruments for ISI pump test suction pressure measurements in RHR, Core Spray, and HPCI Systems.

RELIEF REQUEST NUMBER 56

System: Emergency Service Water

P&ID: M - 111

Pumps: OP504A, OP504B, OP504C, OP504D

Class: 3

Function: Process flow for Emergency Service Water System

Impractical Test Requirement: The resistance of the system shall be varied until either the measured differential pressure or the measured flow rate equals the corresponding reference value. (Paragraph IWP - 3100)

Basis For Relief: Current design of the ESW System does not include provision for variation of system resistance by any positive means. Neither measured flow rate nor measured differential pressure can be set equal to the corresponding reference value by any positive means. The flow rates and the differential pressures produced by non-variable hydraulic resistance factors within the system control the measured values for flowrate and differential pressure obtained during each test.

Alternative Testing: Run the ESW System as designed and measure pump flow rates and differential pressures produced by the system. Evaluate both test quantities independently by the criteria of Table IWP-3100-2.

RELIEF REQUEST NUMBER 57

System: Emergency Service Water (ESW)

O&ID: M - 111

Valves: HV-01110A HV-01120A HV-01112A HV-01122A
HV-01110B HV-01120B HV-01112B HV-01122B
HV-01110C HV-01120C HV-01112C HV-01122C
HV-01110D HV-01120D HV-01112D HV-01122D
HV-01110E HV-01120E HV-01112E HV-01122E

Class: 3

Function: Emergency Diesel Generator (EDG) 0G501E A/B/C/D/E Cooling Flowpath Alignment

Impractical Test Requirement: Exercise valves once per 92 days.

Basis For Relief: Current design of the ESW System does not include provision for actuating ESW emergency diesel generator supply and discharge valves of any diesel generator except when it is aligned as one of the four emergency diesel generators on standby service. Only EDG E Loop B valves HV-01110E and HV-01120E are presently provided with control independent of the standby alignment transfer circuitry. Because such control transfer process is a complex and lengthy activity, it is impractical to effect for the sole purpose of exercising the four valves of the diesel not in service (fifth standby diesel not aligned as one of the four standby EDGs). Additionally, through the period that an emergency diesel generator realignment is in progress, neither of the two diesel generators undergoing the transfer are available for standby or emergency service. Existence of this condition (i.e., for this testing) any more frequently than absolutely necessary for support of plant operations and maintenance would unnecessarily jeopardize the operating units.

Alternative Testing: Exercise the valves for the diesel being transferred, whenever EDG 0G501A/B/C/D/E is being transferred to one of the four standby emergency diesel generator positions. Additionally exercise theses valves for the four emergency diesel generators aligned on standby service once per 92 days.

RELIEF REQUEST NUMBER 58

System	P&ID	Valve	Category	Class	Function
CIG	M-126	SV-12605	A	2	Containment Isolation
CIG	M-126	SV-12643	B	3	Instrument Gas Storage
CIG	M-126	SV-12644	B	2	Instrument Gas Storage
CIG	M-126	SV-12648	B	3	Instrument Gas Storage
CIG	M-126	SV-12649	B	2	Instrument Gas Storage
CIG	M-126	SV-12651	A	2	Containment Isolation
CIG	M-126	SV-12654A	A	2	Containment Isolation
CIG	M-126	SV-12654B	A	2	Containment Isolation
CIG	M-126	SV-12661	A	2	Containment Isolation
CIG	M-126	SV-12671	A	2	Containment Isolation
CAC	M-157	SV-15734A	A	2	Containment Isolation
CAC	M-157	SV-15734B	A	2	Containment Isolation
CAC	M-157	SV-15736A	A	2	Containment Isolation
CAC	M-157	SV-15736B	A	2	Containment Isolation
CAC	M-157	SV-15737	A	2	Containment Isolation
CAC	M-157	SV-15738	A	2	Containment Isolation
CAC	M-157	SV-15740A	A	2	Containment Isolation
CAC	M-157	SV-15740B	A	2	Containment Isolation
CAC	M-157	SV-15742A	A	2	Containment Isolation
CAC	M-157	SV-15742B	A	2	Containment Isolation
CAC	M-157	SV-15750A	A	2	Containment Isolation
CAC	M-157	SV-15750B	A	2	Containment Isolation
CAC	M-157	SV-15752A	A	2	Containment Isolation
CAC	M-157	SV-15752B	A	2	Containment Isolation
CAC	M-157	SV-15767	A	2	Containment Isolation
CAC	M-157	SV-15774A	A	2	Containment Isolation
CAC	M-157	SV-15774B	A	2	Containment Isolation
CAC	M-157	SV-15776A	A	2	Containment Isolation
CAC	M-157	SV-15776B	A	2	Containment Isolation
CAC	M-157	SV-15780A	A	2	Containment Isolation
CAC	M-157	SV-15780B	A	2	Containment Isolation
CAC	M-157	SV-15782A	A	2	Containment Isolation
CAC	M-157	SV-15782B	A	2	Containment Isolation
CAC	M-157	SV-15789	A	2	Containment Isolation

Impractical Test Requirement: Valves with Remote Position Indicators shall be observed at least once every 2 years to verify that valve operation is accurately indicated.

RELIEF REQUEST NUMBER 58 (Con't.)

Basis For Relief: The subject solenoid valves, all of which are manufactured by the Target Rock Corporation, all are constructed in a manner that precludes local verification of valve operation by direct observation. All movements and positions of valve parts are obscured by the valve structure within which they travel and within which they are sealed. A method for indirect observation of valve movement, utilizing ferritic steel objects (steel shot) moved along the surface of each valve's indicating tube by the permanent magnet attached to the valve stem inside, was devised, used for 18 months, and subsequently abandoned because its employment necessitated partial disassembly of the solenoid valve for the test. This disassembly and reassembly, consisting of removal and reinstallation of the reed switch housing assembly, or cover, has been found to cause damage to the wiring and its connections to the reed switches.

Alternative Testing: Confirmation of coincident valve movement and remote indication is accomplished by listening to the valve with a stethoscope, for the audible signal of the valve disk arriving at a new position. Accuracy of remote indication of valve operation is essentially verified for these solenoid valves at least once every 2 years by the combination of containment isolation valve leak testing (LLRT) (or instrument gas storage leakdown testing) with accomplishment of General Operating Procedures (GO-100-002) for plant startup and heatup. These activities are completed at least once each refueling shutdown, as follows:

RELIEF REQUEST NUMBER 58 (Con't.)

System	Valve	Refueling Shutdown Testing Procedure	Verified Valve Position	Startup Procedures(s)	Verified Valve Position
CIG	SV-12605	SE-159-067	Closed	OP-125-001/GO-100-002	Open
CIG	SV-12643	TP-125-007	Open	OP-125-001/GO-100-002	Open
CIG	SV-12644	TP-125-007	Closed	OP-125-001/GO-100-002	Open
CIG	SV-12648	TP-125-009	Open	OP-125-001/GO-100-002	Open
CIG	SV-12649	TP-125-009	Closed	OP-125-001/GO-100-002	Open
CIG	SV-12651	SE-159-037	Closed	OP-125-001/GO-100-002	Open
CIG	SV-12654A	SE-159-046	Closed	OP-125-001/GO-100-002	Open
CIG	SV-12654B	SE-159-038	Closed	OP-125-001/GO-100-002	Open
CIG	SV-12661	SE-159-069	Closed	OP-125-001/GO-100-002	Open
CIG	SV-12671	SE-159-090	Closed	OP-125-001/GO-100-002	Open
CAC	SV-15734A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15734B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15736A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15736B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15737	SE-159-103	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15738	SE-159-103	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15740A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15740B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15742A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15742B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15750A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15750B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15752A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15752B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15767	SE-159-102	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15774A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15774B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15776A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15776B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15780A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15780B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15782A	SE-159-019	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15782B	SE-159-020	Closed	OP-173-001/GO-100-002	Open
CAC	SV-15789	SE-159-102	Closed	OP-173-001/GO-100-002	Open

RELIEF REQUEST NUMBER 59

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