COMANCHE PEAK STEAM ELECTRIC STATION UNIT 1 & 2
INSERVICE TESTING PLAN FOR PUMPS AND VALVES
FIRST INTERVAL

REVISION 4

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INSERVICE VALVE TESTING PLAN
TABLE 13 - SAFETY INJECTION
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	Valve Number	Flow Diagram (Coord.)	Valve/ Actuator Type	Size	Code Class	Category	Function	Safety Func. Pos.	Test Parameters/Schedule: Leak Test	Exercise Test	Fail Safe Test	Position Indicator Test	Remarks
	8814B	M1-0263-A (D-4) M2-0262 (D-4)	GL/MO	1-1/2	2	B	A	C	N/A	MT/Q	N/A	PIT/ 2YR	ECCS Recirculation Flowpath Boundary
	8815	M1-0261 (B-2) M2-0261 (E-4)	CK/SA	3	1	A/C	A	O/C	LT/TS (1)	CV/RF (6)	N/A	N/A	ECCS to Cold Legs Flowpath & Boration Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation
4	8818A	M1-0263 (E-4) M2-0263 (C-4)	CK/SA	6	1	A/C	A	O C	LT/TS (1)	PS/CS CV/RF (9) CV/CS (9)	N/A	N/A	ECCS to Cold Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation
	8818B	M1-0263 (D-5) M2-0263 (C-5)	CK/SA	6	1	A/C	A	O C	LT/TS (1)	PS/CS CV/RF (9) CV/CS (9)	N/A	N/A	ECCS to Cold Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation
	8818C	M1-0263 (C-6) M2-0263 (E-6)	CK/SA	6	1	A/C	A	O C	LT/TS (1)	PS/CS CV/RF (9) CV/CS (9)	N/A	N/A	ECCS to Cold Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation
	8818D	M1-0263 (C-6) M2-0263 (E-6)	CK/SA	6	1	A/C	A	O C	LT/TS (1)	PS/CS CV/RF (9) CV/CS (9)	N/A	N/A	ECCS to Cold Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation
	SI-8819A	M1-0263 (D-4) M2-0263 (D-4)	CK/SA	2	1	A/C	A	O/C	LT/TS (1)	CV/RF (6)	N/A	N/A	ECCS to Cold Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation

Rev. 4
October 7, 1994

	Valve Number	Flow Diagram (Coord.)	Valve/ Actuator Type	Size	Code Class	Category	Function	Safety Func. Pos.	Test Parameters/Schedule: Leak Test	Exercise Test	Fail Safe Test	Position Indicator Test	Remarks
	8923A	M1-0263-A (F-2) M2-0262 (A-2)	GA/MO	6	2	B	A	C	N/A	MT/Q	N/A	PIT/ 2YR	Passive Pipe Break Isolation
	8923B	M1-0263-A (F-3) M2-0262 (A-5)	GA/MO	6	2	B	A	C	N/A	MT/Q	N/A	PIT/ 2YR	Passive Pipe Break Isolation
	8924	M1-0261 (E-4) M2-0261 (B-5)	GA/MO	6	2	B	A	C	N/A	MT/Q	N/A	PIT/ 2YR	Passive Pipe Break Isolation
	8926	M1-0263-A (G-2) M2-0262 (A-2)	CK/SA	8	2	C	A	O	N/A	PS/Q CV/RF (6)	N/A	N/A	ECCS Injection Flowpath/ ECCS Recirculation Flowpath Boundary
								C	N/A	CV/RF (6)	N/A	N/A	
4	8948A	M1-0262 (A-2) M2-0263-B (G-2)	CK/SA	10	1	A/C	A	O	LT/TS (1)	PS/CS CV/RF (9)	N/A	N/A	ECCS to Cold Legs Flowpath/ Reactor Coolant Pressure Boundary
								C		CV/CS (9)			
	8948B	M1-0262 (A-3) M2-0263-B (G-3)	CK/SA	10	1	A/C	A	O	LT/TS (1)	PS/CS CV/RF (9)	N/A	N/A	ECCS to Cold Legs Flowpath/ Reactor Coolant Pressure Boundary
								C		CV/CS (9)			

	Valve Number	Flow Diagram (Coord.)	Valve/ Actuator Type	Size	Code Class	Category	Function	Safety Func. Pos.	Test Parameters/Schedule: Leak Test	Exercise Test	Fail Safe Test	Position Indicator Test	Remarks
4	8948C	M1-0262 (A-5) M2-0263-B (G-5)	CK/SA	10	1	A/C	A	O C	LT/TS (1)	PS/CS CV/RF (9) CV/CS (9)	N/A	N/A	ECCS to Cold Legs Flowpath/ Reactor Coolant Pressure Boundary
	8948D	M1-0262 (A-6) M2-0263-B (G-6)	CK/SA	10	1	A/C	A	O C	LT/TS (1)	PS/CS CV/RF (9) CV/CS (9)	N/A	N/A	ECCS to Cold Legs Flowpath/ Reactor Coolant Pressure Boundary
	8949A	M1-0263 (A-2) M2-0263 (F-2)	CK/SA	6	1	A/C	A	O/C	LT/TS (1)	CV/RF (6)	N/A	N/A	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary
1	8949B	M1-0263 (A-1) M2-0263 (G-1)	CK/SA	6	1	A/C	A	O/C	LT/TS (1)	CV/RF (6)	N/A	N/A	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary
	8949C	M1-0263 (A-1) M2-0263 (G-2)	CK/SA	6	1	A/C	A	O/C	LT/TS (1)	CV/RF (6)	N/A	N/A	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary
	8949D	M1-0263 (A-3) M2-0263 (F-3)	CK/SA	6	1	A/C	A	O/C	LT/TS (1)	CV/RF (6)	N/A	N/A	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary
	8956A	M1-0262 (B-2) M2-0263-B (E-2)	CK/SA	10	1	A/C	A	O/C	LT/TS (1)	CVD/RF (8) RR V7	N/A	N/A	ECCS to Cold Legs Flowpath/ Reactor Coolant Pressure Boundary

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TABLE 13 - SAFETY INJECTION

NOTES

The subject check valves are full-stroke close exercised at refueling outages at the same frequency as the full-stroke open exercise for the reasons described above. (Close exercising of valve 8926 is not practicable following its quarterly part-stroke open exercise. To do so would defeat both trains of the intermediate head subsystem. Therefore valve 8926 is also full-stroke close exercised at refueling outages coincident with its full-stroke open exercise.)

4 | 7. 8958A & B, Low Head Safety Injection Flowpath Check Valves, are full-stroke exercised at cold shutdowns. These valves cannot be full or part-stroke open exercised during plant operation because the relatively higher pressure of the Reactor Coolant System will not allow forward flow through these paths. The flowpath through the RHR to RWST return line can be used at times to full-stroke exercise these valves; however, this path cannot be used during plant operation since opening this line defeats both trains of the Low Pressure Safety Injection System. Part-stroke exercising certain of these check valves during plant operation via the SI test header is not practicable because this path yields flowrates too small (approx. 5 gpm) to be meaningful for assessing the operational readiness of these valves.

The subject check valves are full-stroke close exercised at cold shutdowns at the same frequency as the full-stroke open exercise for the reasons described above.

8. 8956A, B, C, D, Safety Injection Accumulators Flowpath Check Valves, are disassembled at refueling outages to verify operability. These valves cannot be full or part-stroke open exercised during plant operation because the relatively higher pressure of the Reactor Coolant System will not allow forward flow through the valves. Part-stroke exercising during plant operation via the SI test header is not practicable because this path yields flowrates too small (approx. 5 gpm) to be meaningful for assessing the operational readiness of these valves. The check valves cannot be full-stroke exercised at cold shutdowns because the resulting high flowrates could challenge the RCS Cold Overpressure Mitigation System. Part-stroke exercising these valves at cold shutdowns is not practicable because the flowpaths are not designed for throttled operation. Full-stroke exercising these valves with flow during refueling outages is not practicable because rapid blowdown of the Safety Injection Accumulators causes a cooling transient to occur in the gas space of the accumulators for which they are not designed.

The subject check valves are not close exercised during plant operation or cold shutdowns for the reasons described above.

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4 9. 8818A, B, C, D, 8948A, B, C, D, Low Head Safety Injection Flowpath Check Valves, are full-stroke exercised at refueling outages to verify operability. These valves cannot be full or part-stroke open exercised during plant operation because the relatively higher pressure of the Reactor Coolant System will not allow forward flow through these paths. Part-stroke exercising of these check valves during plant operation via the SI test header is not practicable because this path yields flowrates too small (approximately 5 gpm) to be meaningful for assessing the operational readiness of these valves. It is not practicable to full stroke exercise these valves at cold shutdowns because the acoustic emission testing needed to verify the valves go full-open requires both Residual Heat Removal Pumps running and all Reactor Coolant Pumps secured to perform a satisfactory test. Both Residual Heat Removal Pumps are required to flow through a single SI header to achieve the hydraulic transient necessary to create the acoustic signature. During the test Residual Heat Removal flow must be secured. The Reactor Coolant Pumps must be secured to lower background noise sufficiently to record the acoustic signature. A partial stroke of these valves could be performed at cold shutdown using the same test lineup with only one Residual Heat Removal Pump running.

Non-intrusive testing techniques, such as the acoustic emission method applied here is considered "other positive means" as defined in ASME/ANSI OM-1987 Part 10, Paragraph 4.3.2.4(a). During the initial acoustic emission testing for these valves, the system flow conditions were established to cause the valves to fully stroke. During subsequent testing, all valves shall be fully stroked at repeatable system conditions. The acoustic emission monitoring of the valves, however, will only be performed on one valve per group per outage on a rotating schedule each time testing is performed (a sampling program). The groups will be four valves each, 8818A, B, C, D, and 8948A, B, C, D. If problems are found with the sample valve, all valves in the affected group must be tested using acoustic emission monitoring during the same outage.

The subject check valves are full-stroke close exercised at cold shutdowns because acoustic emission monitoring is not required for these tests.

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TABLE 14 - SERVICE WATER
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	Valve Number	Flow Diagram (Coord.)	Valve/ Actuator Type	Size	Code Class	Category	Function	Safety Func. Pos.	Test Parameters/Schedule: Leak Test	Exercise Test	Fail Safe Test	Position Indicator Test	Remarks
4	SW-0016	M1-0233-A (C-3) M2-0233-A (C-3)	CK/SA	10	3	C	A	O	N/A	CV/Q (3)	N/A	N/A	Service Water Flowpath
4	SW-0017	M1-0233-A (C-5) M2-0233-A (C-5)	CK/SA	10	3	C	A	O	N/A	CV/Q (3)	N/A	N/A	Service Water Flowpath
4	2SW-0084	M2-0233 (F-4)	CK/SA	1	3	C	A	O	N/A	CV/Q (3)	N/A	N/A	Service Water Flowpath
	2SW-0085	M2-0233 (F-3)	CK/SA	1	3	C	A	O	N/A	CV/Q (3)	N/A	N/A	Service Water Flowpath
	SW-0373	M1-0233 (D-3) M2-0233 (B-4)	CK/SA	24	3	C	A	O/C	N/A	CV/Q	N/A	N/A	Service Water Flowpath/ Backflow Prevention (to facilitate pump restart) & Service Water Flowpath Boundary (following pump failure)
	SW-0374	M1-0233 (E-3) M2-0233 (D-4)	CK/SA	24	3	C	A	O/C	N/A	CV/Q	N/A	N/A	Service Water Flowpath/ Backflow Prevention (to facilitate pump restart) & Service Water Flowpath Boundary (following pump failure)
3	2SW-0388	M2-0234 (F-1)	CK/SA	10	3	C	A	O	N/A	CVD/RF (1)	N/A	N/A	AFW Pump Emergency Supply Flowpath

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3 | 1. 2SW-0388 and 2SW-0389, Emergency AFW Supply Check Valves, are disassembled every refueling outage to verify operability. At least one of the two valves is required to open to supply the AFW pumps in the unlikely event that the Class 3 Condensate Storage Tank supply is depleted. Full or part-stroke exercising these valves with flow is not practicable because such testing would necessarily introduce lakewater into the normally
4 | dry emergency crosstie line to the Auxiliary Feedwater System and ultimately could contaminate the steam generators. The check valve internals for 2SW-0388 and 2SW-0389 are scheduled for removal during the first refueling outage for Unit 2. After Minor Modification 93-497 has been accepted by operations, testing is no longer required. The test requirements remain valid until the valve internals are removed.

2. HV-4395 and HV-4396, Emergency AFW Supply Valves, are full-stroke exercised at refueling outages. These valves provide isolation at the Service Water end of the normally dry emergency crosstie line to the Auxiliary Feedwater System. At least one of the two valves is required to be opened to supply the AFW pumps in the unlikely event that the Class 3 Condensate Storage Tank supply is depleted. The valves are provided with motor operators for convenience only and do not respond automatically to any plant condition. In the event that the valves are required to be opened, ample time exists to reposition the valves manually, if required. Full or part-stroke exercising of these valves during plant operation and cold shutdown is not practicable due to the precautions necessary to prevent introducing lakewater into the normally dry emergency AFW crosstie line and possibly into the steam generators. The exercise test for the valves is a lengthy process requiring draining of the respective Service Water train and subsequent refilling. During this time the Service Water train is unavailable to perform its normal safety functions.

4 | 3. The check valve internals for 2SW-0016, 2SW,0017, 2SW-0084, and 2SW-0085 are scheduled for removal during the first refueling outage for Unit 2. After Minor Modifications 93-567 and 93-568 have been accepted by operations, testing is no longer required. The test requirements remain valid until the valve internals are removed.

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