Table 3.9-16 (Sheet 1 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
CAS-PL-V014	Instrument Air Supply Outside Containment Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Refueling Shutdown Operability Test/See Notes	18, 27, 30, 31
CAS-PL-V015	Instrument Air Supply Inside Containment Isolation	Check	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes) Check Exercise/Refueling Shutdown	18, 27
CAS-PL-V204	Service Air Supply Outside Containment Isolation	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test (See Notes)	27
CAS-PL-V205	Service Air Supply Inside Containment Isolation	Check	Maintain Close	Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes)	27
CCS-PL-V200	CCS Containment Isolation Valve - Inlet Line ORC	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Cold Shutdown Operability Test/See Notes	14, 27, 30, 31
CCS-PL-V201	CCS Containment Isolation Valve - Inlet Line IRC	Check	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes) Check Exercise/Cold Shutdown	14, 27
CCS-PL-V207	CCS Containment Isolation Valve - Outlet Line IRC	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Cold Shutdown Operability Test/See Notes	14, 27, 30, 31
CCS-PL-V208	CCS Containment Isolation Valve - Outlet Line ORC	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Cold Shutdown Operability Test/See Notes	14, 27, 30, 31
CVS-PL-V001	RCS Purification Stop	Remote	Maintain Close Transfer Close	Active Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years RCS Isolation Leak Test/Refueling Exercise Full Stroke/Cold Shutdown Operability Test/See Note	6, 31, 32
CVS-PL-V002	RCS Purification Stop	Remote	Maintain Close Transfer Close	Active Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years RCS Isolation Leak Test/Refueling Exercise Full Stroke/Cold Shutdown Operability Test/See Note	6, 31, 32
CVS-PL-V003	RCS Purification Stop	Remote	Maintain Close Transfer Close	Active Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	6, 31

Table 3.9-16 (Sheet 2 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
CVS-PL-V040	Resin Flush IRC Isolation	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test (See Notes)	27
CVS-PL-V041	Resin Flush ORC Isolation	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test (See Notes)	27
CVS-PL-V042	Flush Line Containment Isolation Relief	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes) Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	27
CVS-PL-V045	Letdown Containment Isolation IRC	Remote	Maintain Close Transfer Close	Active-to-Failed RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
CVS-PL-V047	Letdown Containment Isolation ORC	Remote	Maintain Close Transfer Close	Active-to-Failed RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
CVS-PL-V080	RCS Purification Return Line Check Valve	Check	Maintain Close Transfer Close	Active Safety Seat Leakage	AC	Check Exercise/Cold Shutdown RCS Isolation Leak Test/Refueling	6, 32
CVS-PL-V081	RCS Purification Return Line Stop Valve	Check	Maintain Close Transfer Close	Active Safety Seat Leakage	AC	Check Exercise/Cold Shutdown RCS Isolation Leak Test/Refueling	6, 8, 32
CVS-PL-V082	RCS Purification Return Line Check Valve	Check	Maintain Close Transfer Close	Active Safety Seat Leakage	AC	Check Exercise/Cold Shutdown RCS Isolation Leak Test/Refueling	6, 32
CVS-PL-V084	Auxiliary Pressurizer Spray Line Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years RCS Isolation Leak Test/Refueling Exercise Full Stroke/Cold Shutdown Operability Test/See Notes	22, 30, 31, 32
CVS-PL-V085	Auxiliary Pressurizer Spray Line	Check	Maintain Close Transfer Close	Active Safety Seat Leakage	AC	Check Exercise/Cold Shutdown RCS Isolation Leak Test/Refueling	22, 32
CVS-PL-V090	Makeup Line Containment Isolation	Remote	Maintain Close Transfer Close	Active RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31

Table 3.9-16 (Sheet 3 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
CVS-PL-V091	Makeup Line Containment Isolation	Remote	Maintain Close Transfer Close	Active RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
CVS-PL-V092	Hydrogen Addition Containment Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operation Operability Test/See Note	27, 31
CVS-PL-V094	Hydrogen Addition IRC Isolation	Check	Maintain Close Transfer Close	Active RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	AC	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Check Exercise/Quarterly Operation	27
CVS-PL-V100	Makeup Line Containment Isolation Relief	Check	Maintain Close Transfer Close Transfer Open	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test/2 Years Check Exercise/Refueling Shutdown	23, 27
CVS-PL-V136A	Demineralized Water System Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
CVS-PL-V136B	Demineralized Water System Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
DWS-PL-V244	Demineralized Water Supply Containment Isolation - Outside	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test (See Notes)	27
DWS-PL-V245	Demineralized Water Supply Containment Isolation - Inside	Check	Maintain Close	Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes)	27
FPS-PL-V050	Fire Water Containment Supply Isolation	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test (See Notes)	27
FPS-PL-V052	Fire Water Containment Supply Isolation -Inside	Check	Maintain Close	Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes)	27
FHS-PL-V001	Fuel Transfer Tube Isolation Valve	Manual	Transfer Close Maintain Open	Active	B	Exercise Full Stroke/Refueling Shutdown	33
MSS-PL-V001	Turbine Bypass Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	29, 31, 34

Table 3.9-16 (Sheet 4 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
MSS-PL-V002	Turbine Bypass Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	29, 31, 34
MSS-PL-V003	Turbine Bypass Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	29, 31, 34
MSS-PL-V004	Turbine Bypass Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	29, 31, 34
MSS-PL-V016	Moisture Separator Reheater Steam Supply Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Operation Exercise Full Stroke/Cold Shutdown Operability Test/See Note	25, 31, 34
MTS-PL-V001A	Turbine StopValve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	31, 34, 35, 36
MTS-PL-V001B	Turbine StopValve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	31, 34, 35, 36
MTS-PL-V002A	Turbine Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Operation Exercise Full Stroke/Cold Shutdown Operability Test/See Note	25, 31, 34, 36
MTS-PL-V002B	Turbine Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Operation Exercise Full Stroke/Cold Shutdown Operability Test/See Note	25, 31, 34, 36
MTS-PL-V003A	Turbine StopValve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	31, 34, 35, 36
MTS-PL-V003B	Turbine StopValve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	31, 34, 35, 36
MTS-PL-V004A	Turbine Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Operation Exercise Full Stroke/Cold Shutdown Operability Test/See Note	25, 31, 34, 36

Table 3.9-16 (Sheet 5 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
MTS-PL-V004B	Turbine Control Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Operation Exercise Full Stroke/Cold Shutdown Operability Test/See Note	25, 31, 34, 36
PCS-PL-V001A	PCCWST Isolation	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PCS-PL-V001B	PCCWST Isolation	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	
PCS-PL-V002A	PCCWST Series Isolation	Remote	Maintain Open Transfer Open	Active Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	
PCS-PL-V002B	PCCWST Series Isolation	Remote	Maintain Open Transfer Open	Active Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	
PCS-PL-V005	PCCWST Supply to Fire Protection Service Isolation	Manual	Maintain Close Transfer Close	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V009	Spent Fuel Pool Emergency Makeup Isolation	Manual	Maintain Close Transfer Open Maintain Open	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V014	Post-72 Hour Water Source Isolation	Manual/ Check	Transfer Open	Active	B	Exercise Full Stroke/Quarterly Check Exercise/Refueling	
PCS-PL-V015	Water Bucket Makeup Line Drain Valve	Manual	Maintain Close Transfer Close	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V020	Water Bucket Makeup Line Isolation Valve	Manual	Maintain Open Transfer Open	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V023	PCS Recirculation Return Isolation	Manual	Maintain Close Transfer Close	Active	B	Exercise Full Stroke/Quarterly	13
PCS-PL-V039	PCCWST Long-Term Makeup Check Valve	Check	Maintain Open Transfer Open	Active	B	Check Exercise/Refueling	21
PCS-PL-V042	PCCWST Long-Term Makeup Isolation Drain Valve	Manual	Maintain Close Transfer Close	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V044	PCCWST Long-Term Makeup Isolation Valve	Manual	Maintain Open Transfer Open	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V045	Emergency Makeup to the Spent Fuel Pool Isolation Valve	Manual	Maintain Open Transfer Open	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V046	PCCWST Recirculation Return Isolation Valve	Manual	Maintain Close Transfer Close	Active	B	Exercise Full Stroke/Quarterly	

Table 3.9-16 (Sheet 6 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
PCS-PL-V049	Emergency Makeup to the Spent Fuel Pool Drain Isolation Valve	Manual	Maintain Close Transfer Close	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V050	Spent Fuel Pool Long-Term Makeup Isolation Valve	Manual	Maintain Open Transfer Open	Active	B	Exercise Full Stroke/Quarterly	
PCS-PL-V051	Spent Fuel Pool Emergency Makeup Lower Isolation Valve	Manual	Maintain Close Transfer Close	Active	B	Exercise Full Stroke/Quarterly	
PSS-PL-V008	Containment Air Sample Containment Isolation IRC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
PSS-PL-V010A	Liquid Sample Line Containment Isolation IRC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
PSS-PL-V010B	Liquid Sample Line Containment Isolation IRC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
PSS-PL-V011	Liquid Sample Line Containment Isolation ORC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
PSS-PL-V023	Sample Return Line Containment Isolation ORC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
PSS-PL-V024	Sample Return Containment Isolation Check IRC	Check	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes) Check Exercise/Refueling Shutdown	19, 27
PSS-PL-V046	Air Sample Line Containment Isolation ORC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
PXS-PL-V002A	Core Makeup Tank A Cold Leg Inlet Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
PXS-PL-V002B	Core Makeup Tank B Cold Leg Inlet Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
PXS-PL-V014A	Core Makeup Tank A Discharge Isolation	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31

Table 3.9-16 (Sheet 7 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
PXS-PL-V014B	Core Makeup Tank B Discharge Isolation	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V015A	Core Makeup Tank A Discharge Isolation	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V015B	Core Makeup Tank B Discharge Isolation	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V016A	Core Makeup Tank A Discharge Check	Check	Maintain Open Transfer Open Transfer Close	Active Remote Position	BC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown	10
PXS-PL-V016B	Core Makeup Tank B Discharge Check	Check	Maintain Open Transfer Open Transfer Close	Active Remote Position	BC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown	10
PXS-PL-V017A	Core Makeup Tank A Discharge Check	Check	Maintain Open Transfer Open Transfer Close	Active Remote Position	BC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown	10
PXS-PL-V017B	Core Makeup Tank B Discharge Check	Check	Maintain Open Transfer Open Transfer Close	Active Remote Position	BC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown	10
PXS-PL-V022A	Accumulator A Pressure Relief	Relief	Maintain Close Transfer Open Transfer Close	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
PXS-PL-V022B	Accumulator B Pressure Relief	Relief	Maintain Close Transfer Open Transfer Close	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
PXS-PL-V027A	Accumulator A Discharge Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
PXS-PL-V027B	Accumulator B Discharge Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
PXS-PL-V028A	Accumulator A Discharge Check	Check	Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position Safety Seat Leakage	AC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	9
PXS-PL-V028B	Accumulator B Discharge Check	Check	Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position Safety Seat Leakage	AC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	9

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VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
PXS-PL-V029A	Accumulator A Discharge Check	Check	Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position Safety Seat Leakage	AC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	9
PXS-PL-V029B	Accumulator B Discharge Check	Check	Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position Safety Seat Leakage	AC	Remote Position Indication, Exercise/2 Years Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	9
PXS-PL-V042	Nitrogen Supply Containment Isolation ORC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
PXS-PL-V043	Nitrogen Supply Containment Isolation IRC	Check	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	AC	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Check Exercise/Quarterly	27
PXS-PL-V101	PRHR HX Inlet Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
PXS-PL-V108A	PRHR HX Control	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V108B	PRHR HX Control	Remote	Maintain Open Transfer Open	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V117A	Containment Recirculation A Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V117B	Containment Recirculation B Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V118A	Containment Recirculation A Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-V118B	Containment Recirculation B Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-V119A	Containment Recirculation A Check	Check	Maintain Open Maintain Close Transfer Open	Active Remote Position	BC	Remote Position Indication, Exercise/2 Years Check-Initial Open Differential Pressure/2 Years Check Exercise/Refueling Shutdown	11
PXS-PL-V119B	Containment Recirculation B Check	Check	Maintain Open Maintain Close Transfer Open	Active Remote Position	BC	Remote Position Indication, Exercise/2 Years Check-Initial Open Differential Pressure/2 Years Check Exercise/Refueling Shutdown	11

Table 3.9-16 (Sheet 9 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
PXS-PL-V120A	Containment Recirculation A Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-V120B	Containment Recirculation B Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-V121A	IRWST Line A Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
PXS-PL-V121B	IRWST Line B Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
PXS-PL-V122A	IRWST Injection A Check	Check	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	BC	Remote Position Indication, Exercise/2 Years Check-Initial Open Differential Pressure/2 Years Check Exercise/Refueling Shutdown	12
PXS-PL-V122B	IRWST Injection B Check	Check	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	BC	Remote Position Indication, Exercise/2 Years Check-Initial Open Differential Pressure/2 Years Check Exercise/Refueling Shutdown	12
PXS-PL-V123A	IRWST Injection A Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-V123B	IRWST Injection B Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-V124A	IRWST Injection A Check	Check	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	BC	Remote Position Indication, Exercise/2 Years Check-Initial Open Differential Pressure/2 Years Check Exercise/Refueling Shutdown	12
PXS-PL-V124B	IRWST Injection B Check	Check	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	BC	Remote Position Indication, Exercise/2 Years Check-Initial Open Differential Pressure/2 Years Check Exercise/Refueling Shutdown	12
PXS-PL-V125A	IRWST Injection A Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-V125B	IRWST Injection B Isolation	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
PXS-PL-130A	IRWST Gutter Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-130B	IRWST Gutter Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Notes	30, 31
PXS-PL-V208A	RNS Suction Leak Test	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test/2 Years	

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VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
RCS-PL-V001A	First Stage Automatic Depressurization System	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V001B	First Stage Automatic Depressurization System	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V002A	Second Stage Automatic Depressurization System	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V002B	Second Stage Automatic Depressurization System	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V003A	Third Stage Automatic Depressurization System	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V003B	Third Stage Automatic Depressurization System	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V004A	Fourth Stage Automatic Depressurization System	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
RCS-PL-V004B	Fourth Stage Automatic Depressurization System	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
RCS-PL-V004C	Fourth Stage Automatic Depressurization System	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
RCS-PL-V004D	Fourth Stage Automatic Depressurization System	Squib	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	D	Remote Position Indication, Alternate/2 Years Charge Test Fire/20% in 2 Years	5
RCS-PL-V005A	Pressurizer Safety Valve	Relief	Maintain Close Transfer Open Transfer Close	Active RCS Pressure Boundary Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 1 Relief Valve Tests/5 Years and 20% in 2 Years	7
RCS-PL-V005B	Pressurizer Safety Valve	Relief	Maintain Close Transfer Open Transfer Close	Active RCS Pressure Boundary Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 1 Relief Valve Tests/5 Years and 20% in 2 Years	7
RCS-PL-V010A	Automatic Depressurization System Discharge Header A Vacuum Relief	Relief	Transfer Open	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
RCS-PL-V010B	Automatic Depressurization System Discharge Header B Vacuum Relief	Relief	Transfer Open	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	

Table 3.9-16 (Sheet 11 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
RCS-PL-V011A	First Stage Automatic Depressurization System Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V011B	First Stage Automatic Depressurization System Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V012A	Second Stage Automatic Depressurization System Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V012B	Second Stage Automatic Depressurization System Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V013A	Third Stage Automatic Depressurization System Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V013B	Third Stage Automatic Depressurization System Isolation	Remote	Maintain Open Maintain Close Transfer Open	Active RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	3, 31
RCS-PL-V014A	Fourth Stage Automatic Depressurization System Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
RCS-PL-V014B	Fourth Stage Automatic Depressurization System Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
RCS-PL-V014C	Fourth Stage Automatic Depressurization System Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
RCS-PL-V014D	Fourth Stage Automatic Depressurization System Isolation	Remote	Maintain Open	Remote Position	B	Remote Position Indication, Exercise/2 Years	
RCS-PL-V150A	Reactor Vessel Head Vent	Remote	Maintain Open Maintain Close Transfer Open	Active-to-Failed RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	4, 31
RCS-PL-V150B	Reactor Vessel Head Vent	Remote	Maintain Open Maintain Close Transfer Open	Active-to-Failed RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	4, 31
RCS-PL-V150C	Reactor Vessel Head Vent	Remote	Maintain Open Maintain Close Transfer Open	Active-to-Failed RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	4, 31
RCS-PL-V150D	Reactor Vessel Head Vent	Remote	Maintain Open Maintain Close Transfer Open	Active-to-Failed RCS Pressure Boundary Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Operability Test/See Note	4, 31
RCS-K03	Safety Valve Discharge Chamber Rupture Disk	Relief	Transfer Open	Active	BC	Inspect and Replace/5 Years	
RCS-K04	Safety Valve Discharge Chamber Rupture Disk	Relief	Transfer Open	Active	BC	Inspect and Replace/5 Years	
RNS-PL-V001A	RNS Hot Leg Suction Isolation - Inner	Remote	Maintain Close Transfer Close	Active RCS Pressure Boundary Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Pressure Isolation Leak Test/Refueling Shutdown Operability Test/See Notes	15, 30, 31

Table 3.9-16 (Sheet 12 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
RNS-PL-V001B	RNS Hot Leg Suction Isolation - Inner	Remote	Maintain Close Transfer Close	Active RCS Pressure Boundary Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Pressure Isolation Leak Test/Refueling Shutdown Operability Test/See Notes	15, 30, 31
RNS-PL-V002A	RNS Hot Leg Suction and Containment Isolation - Outer	Remote	Maintain Close Transfer Close	Active RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Pressure Isolation Leak Test/Refueling Shutdown Operability Test/See Notes	15, 16, 30, 31
RNS-PL-V002B	RNS Hot Leg Suction and Containment Isolation - Outer	Remote	Maintain Close Transfer Close	Active RCS Pressure Boundary Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Cold Shutdown Pressure Isolation Leak Test/Refueling Shutdown Operability Test/See Notes	15, 16, 30, 31
RNS-PL-V003A	RCS Pressure Boundary Valve Thermal Relief	Check	Maintain Close Transfer Open Transfer Close	Active RCS Pressure Boundary	BC	Check Exercise/Refueling Shutdown	23
RNS-PL-V003B	RCS Pressure Boundary Valve Thermal Relief	Check	Maintain Close Transfer Open Transfer Close	Active RCS Pressure Boundary	BC	Check Exercise/Refueling Shutdown	23
RNS-PL-V011	RNS Discharge Containment Isolation Valve - ORC	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
RNS-PL-V013	RNS Discharge Containment Isolation - IRC	Check	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes) Check Exercise/Quarterly	27
RNS-PL-V015A	RNS Discharge RCS Pressure Boundary	Check	Maintain Close Transfer Close	Active RCS Pressure Boundary Safety Seat Leakage	AC	Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	24
RNS-PL-V015B	RNS Discharge RCS Pressure Boundary	Check	Maintain Close Transfer Close	Active RCS Pressure Boundary Safety Seat Leakage	AC	Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	24
RNS-PL-V017A	RNS Discharge RCS Pressure Boundary	Check	Maintain Close Transfer Open Transfer Close	Active RCS Pressure Boundary Safety Seat Leakage	AC	Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	24
RNS-PL-V017B	RNS Discharge RCS Pressure Boundary	Check	Maintain Close Transfer Open Transfer Close	Active RCS Pressure Boundary Safety Seat Leakage	AC	Check Exercise/Refueling Shutdown Pressure Isolation Leak Test/Refueling Shutdown	24

Table 3.9-16 (Sheet 13 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
RNS-PL-V021	RNS Hot Leg Suction Pressure Relief	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test/2 Years Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	17, 27
RNS-PL-V022	RNS Suction Header Containment Isolation - ORC	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
RNS-PL-V023	RNS Suction from IRWST - Containment Isolation	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	17, 27, 30, 31
RNS-PL-V045	RNS Pump Discharge Relief	Relief	Maintain Close Transfer Open Transfer Close	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
RNS-PL-V046	RNS Heat Exchanger A Channel Head Drain Isolation	Manual	Maintain Open Transfer Open	Active	B	Exercise Full Stroke/Quarterly	
RNS-PL-V061	RNS Return from CVS - Containment Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Note	27, 31
SFS-PL-V034	SFS Suction Line Containment Isolation	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
SFS-PL-V035	SFS Suction Line Containment Isolation	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
SFS-PL-V037	SFS Discharge Line Containment Isolation	Check	Maintain Close Transfer Close Transfer Open	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes) Check Exercise/Quarterly	27
SFS-PL-V038	SFS Discharge Line Containment Isolation	Remote	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
SGS-PL-V027A	Power-Operated Relief Valve Block Valve Steam Generator 01	Remote	Maintain Close Transfer Close	Active Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31

Table 3.9-16 (Sheet 14 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
SGS-PL-V027B	Power-Operated Relief Valve Block Valve Steam Generator 02	Remote	Maintain Close Transfer Close	Active Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V030A	Main Steam Safety Valve Steam Generator 01	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 2/3 Relief Valve Tests/5 Years and 20% in 2 Years	7
SGS-PL-V030B	Main Steam Safety Valve Steam Generator 02	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 2/3 Relief Valve Tests/5 Years and 20% in 2 Years	7
SGS-PL-V031A	Main Steam Safety Valve Steam Generator 01	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 2/3 Relief Valve Tests/5 Years and 20% in 2 Years	7
SGS-PL-V031B	Main Steam Safety Valve Steam Generator 02	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 2/3 Relief Valve Tests/5 Years and 20% in 2 Years	7
SGS-PL-V032A	Main Steam Safety Valve Steam Generator 01	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 2/3 Relief Valve Tests/5 Years and 20% in 2 Years	7
SGS-PL-V032B	Main Steam Safety Valve Steam Generator 02	Relief	Maintain Close Transfer Open Transfer Close	Active Containment Isolation Remote Position	BC	Remote Position Indication, Alternate/2 Years Class 2/3 Relief Valve Tests/5 Years and 20% in 2 Years	7
SGS-PL-V036A	Steam Line Condensate Drain Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V036B	Steam Line Condensate Drain Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V040A	Main Steam Line Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Quarterly Exercise Full Stroke/Cold Shutdown Operability Test/See Note	20, 31
SGS-PL-V040B	Main Steam Line Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Quarterly Exercise Full Stroke/Cold Shutdown Operability Test/See Note	20, 31
SGS-PL-V057A	Main Feedwater Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Quarterly Exercise Full Stroke/Cold Shutdown Operability Test/See Note	20, 31

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VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
SGS-PL-V057B	Main Feedwater Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Quarterly Exercise Full Stroke/Cold Shutdown Operability Test/See Note	20, 31
SGS-PL-V067A	Startup Feedwater Isolation	Remote	Maintain Close Transfer Close	Active Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V067B	Startup Feedwater Isolation	Remote	Maintain Close Transfer Close	Active Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V074A	Steam Generator Blowdown Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V074B	Steam Generator Blowdown Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V075A	Steam Generator Series Blowdown Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V075B	Steam Generator Series Blowdown Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V086A	Steam Line Condensate Drain Control	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operation Operability Test/See Note	31
SGS-PL-V086B	Steam Line Condensate Drain Control	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V233A	Power-Operated Relief Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V233B	Power-Operated Relief Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V240A	Main Steam Isolation Valve Bypass Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V240B	Main Steam Isolation Valve Bypass Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31

Table 3.9-16 (Sheet 16 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
SGS-PL-V250A	Main Feedwater Control	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Quarterly Operation Exercise Full Stroke/Cold Shutdown Operability Test/See Note	25, 31
SGS-PL-V250B	Main Feedwater Control	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Part Stroke/Quarterly Operation Exercise Full Stroke/Cold Shutdown Operability Test/See Note	25, 31
SGS-PL-V255A	Startup Feedwater Control	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
SGS-PL-V255B	Startup Feedwater Control	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
VBS-PL-V186	MCR Supply Air Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	30, 31
VBS-PL-V187	MCR Supply Air Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	30, 31
VBS-PL-V188	MCR Return Air Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	30, 31
VBS-PL-V189	MCR Return Air Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	30, 31
VBS-PL-V190	MCR Exhaust Air Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	30, 31
VBS-PL-V191	MCR Exhaust Air Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	30, 31
VES-PL-V001	Air Delivery Isolation Valve	Manual	Maintain Close Transfer Open Maintain Open	Active	B	Exercise Full Stroke/Quarterly	
VES-PL-V002A	Pressure Regulating Valve A	Press. Reg.	Throttle Flow	Active	B	Exercise Full Stroke/Quarterly Operability Test/See Note	31

Table 3.9-16 (Sheet 17 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
VES-PL-V002B	Pressure Regulating Valve B	Press. Reg.	Throttle Flow	Active	B	Exercise Full Stroke/Quarterly Operability Test/See Note	31
VES-PL-V005A	Air Delivery Isolation Valve A	Remote	Maintain Open Transfer Open	Active-to-Failed	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
VES-PL-V005B	Air Delivery Isolation Valve B	Remote	Maintain Open Transfer Open	Active-to-Failed	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
VES-PL-V022A	Pressure Relief Isolation Valve A	Remote	Maintain Open Transfer Open	Active-to-Failed	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
VES-PL-V022B	Pressure Relief Isolation Valve B	Remote	Maintain Open Transfer Open	Active-to-Failed	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test/See Note	31
VES-PL-V040A	Air Tank Safety Relief Valve A	Relief	Maintain Close Transfer Open	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
VES-PL-V040B	Air Tank Safety Relief Valve B	Relief	Maintain Close Transfer Open	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
VES-PL-V041A	Air Tank Safety Relief Valve A	Relief	Maintain Close Transfer Open	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
VES-PL-V041B	Air Tank Safety Relief Valve B	Relief	Maintain Close Transfer Open	Active	BC	Class 2/3 Relief Valve Tests/10 Years and 20% in 4 Years	
VES-PL-V044	Main Air Flowpath Isolation Valve	Manual	Maintain Close Transfer Open	Active	B	Exercise Full Stroke/Quarterly	
VFS-PL-V003	Containment Purge Inlet Containment Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
VFS-PL-V004	Containment Purge Inlet Containment Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31

Table 3.9-16 (Sheet 18 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
VFS-PL-V009	Containment Purge Discharge Containment Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
VFS-PL-V010	Containment Purge Discharge Containment Isolation Valve	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operability Test/See Notes	27, 30, 31
VWS-PL-V058	Fan Coolers Supply Containment Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly (See Notes) Operability Test/See Notes	27, 28, 30, 31
VWS-PL-V062	Fan Coolers Supply Containment Isolation	Check	Maintain Close Transfer Close	Active Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test (See Notes) Check Exercise/Quarterly (See Notes)	27, 28
VWS-PL-V082	Fan Coolers Return Containment Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly (See Notes) Operability Test/See Notes	27, 28, 30, 31
VWS-PL-V086	Fan Coolers Return Containment Isolation	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly (See Notes) Operability Test/See Notes	27, 28, 30, 31
WLS-PL-V055	Sump Discharge Containment Isolation IRC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operation Operability Test/See Notes	27, 30, 31
WLS-PL-V057	Sump Discharge Containment Isolation ORC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operation Operability Test/See Notes	27, 30, 31

Table 3.9-16 (Sheet 19 of 19)

VALVE INSERVICE TEST REQUIREMENTS

Valve Tag Number	Description[1]	Valve Type	Safety-Related Missions	Safety Functions[2]	ASME IST Category	Inservice Testing Type and Frequency	IST Notes
WLS-PL-V067	Reactor Coolant Drain Tank Gas Outlet Containment Isolation IRC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operation Operability Test/See Notes	27, 30, 31
WLS-PL-V068	Reactor Coolant Drain Tank Gas Outlet Containment Isolation ORC	Remote	Maintain Close Transfer Close	Active-to-Failed Containment Isolation Safety Seat Leakage Remote Position	A	Remote Position Indication, Exercise/2 Years Containment Isolation Leak Test (See Notes) Exercise Full Stroke/Quarterly Operation Operability Test/See Notes	27, 30, 31
WLS-PL-V071A	CVS Compartment to Sump	Check	Maintain Close Transfer Close	Active	BC	Check Exercise/Refueling Shutdown	26
WLS-PL-V071B	PXS A Compartment to Sump	Check	Maintain Close Transfer Close	Active	BC	Check Exercise/Refueling Shutdown	26
WLS-PL-V071C	PXS B Compartment to Sump	Check	Maintain Close Transfer Close	Active	BC	Check Exercise/Refueling Shutdown	26
WLS-PL-V072A	CVS Compartment to Sump	Check	Maintain Close Transfer Close	Active	BC	Check Exercise/Refueling Shutdown	26
WLS-PL-V072B	PXS A Compartment to Sump	Check	Maintain Close Transfer Close	Active	BC	Check Exercise/Refueling Shutdown	26
WLS-PL-V072C	PXS B Compartment to Sump	Check	Maintain Close Transfer Close	Active	BC	Check Exercise/Refueling Shutdown	26

Notes:

1. Acronyms:

ADS	automatic depressurization system
CAS	compressed and instrument air system
CCS	component cooling water system
CVS	chemical and volume control system
DWS	demineralized water transfer and storage system
FPS	fire protection system
IRC	inside reactor containment
IRWST	in-containment refueling water storage tank
ORC	outside reactor containment
PCCWST	passive containment cooling water storage tank
PCS	passive containment cooling system
PSS	primary sampling system
PXS	passive core cooling system
RCS	reactor coolant system
RNS	normal residual heat removal system
SFS	spent fuel pool cooling system
SGS	steam generator system
VES	main control room emergency habitability system
VFS	containment air filtration system
VWS	central chilled water system
WLS	liquid radwaste system

2. Valves listed as having an active or an active-to-failed safety-related function provide the safety-related valve transfer capabilities identified in the safety-related mission column. Valves having an active-to-failed function will transfer to the position identified in the safety-related mission column on loss of motive power.

3. This note applies to the ADS stage 1/2/3 valves (RCS-V001A/B, V002A/B, V003A/B, V011A/B, V012A/B, V013A/B). These valves are normally closed to maintain the RCS pressure boundary. These valves have a safety-related function to open following LOCAs to allow safety injection from lower pressure water supplies (accumulators and IRWST). These valves also have beyond design basis functions to depressurize the RCS. These valves have the same design pressure as the RCS and are AP600 equipment class A. Downstream of the second valve is a lower design pressure and is equipment class C. The discharge of these valves is open to the containment through the IRWST.

   Both ADS valves in each line are normally closed during normal reactor operation in accordance with 10CFR50.2 and ANS/ANSI 51.1. If one of these valves is opened, for example for testing, the RCS pressure boundary is not maintained in accordance with the criteria contained in these two documents. In addition, the ADS valve configuration is similar to the normal residual heat removal system suction valve configuration. Even though the RNS suction valve configuration includes a third valve in the high pressure portion of the line, and the first two RNS valves have safety related functions to transfer closed, they are not stroke tested during normal reactor operation to avoid a plant configuration where the mispositioning of one valve would cause a LOCA. Note 15 describes the justification for testing the RNS valves during cold shutdown.

   These ADS valves are tested during cold shutdowns when the RCS pressure is reduced to atmospheric pressure so that mispositioning of a single valve during this IST will not cause a LOCA. Testing these valves every cold shutdown is consistent with the AP600 PRA which assumes more than 2 cold or refueling shutdowns per year.

4. This note applies to the reactor vessel head vent solenoid valves (RCS-V150A/B/C/D). Exercise testing of these valves at power represents a risk of loss of reactor coolant and depressurization of the RCS if the proper test sequence is not followed. Such testing may also result in the valves developing through seal leaks. Exercise testing of these valves will be performed at cold shutdown.

5. This note applies to squib valves in the RCS and the PXS. The squib valve charge is removed and test fired outside of valve. Squib valves are not exercised for inservice testing. Their position indication sensors will be tested by local inspection.

6. This note applies to the CVS isolation valves (CVS-V001, V002, V003, V080, V081, V082). Closing these valves at power will result in an undesirable temperature transient on the RCS due to the interruption of purification flow. Therefore, quarterly exercise testing will not be performed. Exercise testing will be performed at cold shutdown.

7. This note applies to the pressurizer safety valves (RCS-V005A/B) and to the main steam safety valves (SGS-V030A/B, V031A/B, V032A/B). Since these valves are not exercised for inservice testing, their position indication sensors are tested by local inspection without valve exercise.

8. This note applies to CVS valve (CVS-V081). The safety functions are satisfied by the check valve function of the valve.

9. This note applies to the PXS accumulator check valves (PXS-V028A/B, V029A/B). To exercise these valves, flow must be provided through these valves to the RCS. These valves are not exercised during power operations because the accumulators cannot provide flow to the RCS since they are at a lower pressure. In addition, providing flow to the RCS during power operation would cause undesirable thermal transients on the RCS. During cold shutdowns, a full flow stroke test is impractical because of the potential of adding significant water to the RCS, and lifting the RNS relief valve. There is also a risk of injecting nitrogen into the RCS. A partial stroke test is practical during longer cold shutdowns (≥48 hours in Mode 5). In this test, flow is provided from test connections, through the check valves and into the RCS. Sufficient flow in not available to provide a detectable obturator movement. Full stroke exercise testing of these valves is conducted during refueling shutdowns.

10. This note applies to the PXS CMT check valves (PXS-V016A/B, V017A/B). These check valves are biased open valves and are fully open during normal operation. These valves will be verified to be open quarterly. In order to exercise these check valves, significant reverse flow must be provided from the DVI line to the CMT. These valves are not tested during power operations because the test would cause undesirable thermal transients on the portion of the line at ambient temperatures and change the CMT boron concentration These valves are not exercised during cold shutdowns because of changes that would result in the CMT boron concentration. Because this parameter is controlled by Technical Specifications, this testing is impractical. These valves are exercised during refueling when the RCS boron concentration is nearly equal to the CMT concentration and the plant is in a mode where the CMTs are not required to be available by the Technical Specifications.

11. This note applies to the PXS containment recirculation check valves (PXS-V119A/B). Squib valves in line with the check valves prevent the use of IRWST water to test the valves. To exercise these check valves an operator must enter the containment, remove a cover from the recirculation screens, and insert a test device into the recirculation pipe to push open the check valve. The test device is made to interface with the valve without causing valve damage. The test device incorporates loads measuring sensors to measure the initial opening and full open force. These valves are not exercised during power operations because of the need to enter highly radioactive areas and because during this test the recirculation screen is bypassed. These valves are not exercised during cold shutdown operations for the same reasons. These valves are exercised during refueling conditions when the recirculation lines are not required to be available by Technical Specifications LCOs 3.5.7 and 3.5.8 and the radiation levels are reduced.

12. This note applies to the PXS IRWST injection check valves (PXS-V122A/B, V124A/B). To exercise these check valves a test cart must be moved into containment and temporary connections made to these check valves. In addition, the IRWST injection line isolation valves must have power restored and be closed. These valves are not exercised during power operations because closing the IRWST injection valve is not permitted by the Technical Specifications and the need to perform significant work inside containment. Testing is not performed during cold shutdown for the same reasons. These valves are exercised during refueling conditions when the IRWST injection lines are not required to be available by Technical Specifications and the radiation levels are reduced.

13. Deleted.

14. Component cooling water system containment isolation motor-operated valves CCS-V200, V207, V208 and check valve CCS-V201 are not exercised during power operation. Exercising these valves would stop cooling water flow to the reactor coolant pumps and letdown heat exchanger. Loss of cooling water may result in damage to equipment or reactor trip. These valves are exercised during cold shutdowns when these components do not require cooling water.

15. Normal residual heat removal system reactor coolant isolation motor-operated valves (RNS-V001A/B, V002A/B) are not exercised during power operation. These valves isolate the high pressure RCS from the low pressure RNS and passive core cooling system (PXS). Opening during normal operation may result in damage to equipment or reactor trip. These valves are exercised during cold shutdowns when the RNS is aligned to remove the core decay heat.

16. Normal residual heat removal system containment isolation motor-operated valves (RNS-V002A/B) are not containment isolation leak tested. The basis for the exception is:

    - The valve is submerged during post-accident operations which prevents the release of the containment atmosphere radiogas or aerosol.
    - The RNS is a closed, seismically-designed safety class 3 system outside containment
    - The valves are closed when the plant is in modes above hot shutdown

17. Normal residual heat removal system containment penetration relief valve (RNS-V021) and containment isolation motor-operated valve (RNS-V023) are subjected to containment leak testing by pressurizing the lines in the reverse direction to the flow which accompanies a containment leak in this path.

18. This note applies to the CAS instrument air containment isolation valves (CAS-V014, V015). It is not practical to exercise these valves during power operation or cold shutdowns. Exercising the valves during these conditions may result in some air-operated valves inadvertently opening or closing, resulting in plant or system transients. These valves are exercised during refueling conditions when system and plant transients would not occur.

19. Primary sampling system containment isolation check valve (PSS-V024) is located inside containment and considerable effort is required to install test equipment and cap the discharge line. Exercise testing is not performed during cold shutdown operations for the same reasons. These valves are exercised during refueling conditions when the radiation levels are reduced.

20. This note applies to the main steam isolation valves and main feedwater isolation valves (SGS-V040A/B, V057A/B). The valves are not full stroke tested quarterly at power since full valve stroking will result in a plant transient during normal power operation. Therefore, these valves will be partially stroked on a quarterly basis and will be full stroke tested on a cold shutdown frequency basis. The full stroke testing will be a full "slow" closure operation. The large size and fast stroking nature of the valve makes it advantageous to limit the number of fast closure operations which the valve experiences. The timed slow closure verifies the valves operability status and that the valve is not mechanically bound.

21. Post-72 hour check valves that require temporary connections for inservice-testing are exercised every refueling outage. These valves require transport and installation of temporary test equipment and pressure/fluid supplies. Since the valves are normally used very infrequently, constructed of stainless steel, maintained in controlled environments, and of a simple design, there is little benefit in testing them more frequently. For example, valve PCS-V039 is a simple valve that is opened to provide the addition of water to the PCS post-72 hour from a temporary water supply. To exercise the valve, a temporary pump and water supply is connected using temporary pipe and fittings, and the flow rate is observed using a temporary flow measuring device to confirm valve operation.

22. Exercise testing of the auxiliary spray isolation valve (CVS-V084, V085) will result in an undesirable temperature transient on the pressurizer due to the actuation of auxiliary spray flow. Therefore, quarterly exercise testing will not be performed. Exercise testing will be performed during cold shutdowns.

23. Thermal relief check valves in the normal residual heat removal suction line (RNS-V003A/B) and the Chemical and Volume Control System makeup line (CVS-V100) are located inside containment. To exercise test these valves, entry to the containment is required and temporary connections made to gas supplies. Because of the radiation exposure and effort required, this test is not conducted during power operation or during cold shutdowns. Exercise testing is performed during refueling shutdowns.

24. Normal residual heat removal system reactor coolant isolation check valves (RNS-V015A/B, V017A/B) are not exercise tested quarterly. During normal power operation these valves isolate the high pressure RCS from the low pressure RNS. Opening during normal operation would require a pressure greater than the RCS normal pressure, which is not available. It would also subject the RCS connection to undesirable transients. These valves will be exercised during cold shutdowns.

25. This note applies to the main feedwater control valves (SGS-V250A/B), moisture separator reheater steam control valve (MSS-V016), turbine control valves (MTS-V002A/B, V004A/B). The valves are not quarterly stroke tested since full stroke testing would result in a plant transient during power operation. Normal feedwater and turbine control operation provides a partial stroke confirmation of valve operability. The valves will be full stroke tested during cold shutdowns.

26. This note applies to containment compartment drain line check valves (WLS-V071A/B/C, V072A/B/C). These check valves are located inside containment and require temporary connections for exercise testing. Because of the radiation exposure and effort required, these valves are not exercised during power operation or during cold shutdowns. The valves will be exercised during refuelings.

27. Containment isolation valves leakage test frequency will be conducted in accordance with the "Primary Containment Leakage Rate Test Program" in accordance with 10 CFR 50 Appendix J. Refer to SSAR subsection 6.2.5.

28. This note applies to the chilled water system containment isolation valves (VWS-V058,V062, V082 and V086). Closing any of these valves stops the water flow to the containment fan coolers. This water flow may be necessary to maintain the containment air temperature within Technical Specification limits. As a result, quarterly exercise testing will be deferred when plant operating conditions and site climatic conditions would cause the containment air temperature to exceed this limit during testing.

29. Exercise testing of the turbine bypass control valves (MSS-V001, V002, V003, V004) will result in an undesirable temperature transient on the turbine, condenser and other portions of the turbine bypass due to the actuation of bypass flow. Therefore, quarterly exercise testing will not be performed. Exercise testing will be performed during cold shutdowns.

30. These valves are required to operate with low differential pressure. The Combined License applicant will provide an evaluation based on test data to verify that the valves have adequate margin and operability testing is not required. The test data may include data from type tests. See subsection 3.9.8.4 for the Combined License applicant information item.

31 These valves may be subject to operability testing. See subsection 3.9.6.2.2 for the factors to be considered in the evaluation of operability testing and subsection 3.9.8.4 for the Combined License information item. The specified frequency for operability testing is a maximum of once every 10 years. The test frequency is the longer of every 3 refueling cycles or 5 years until sufficient data exists to determine a longer test frequency is appropriate in accordance with Generic Letter 96-05. Some of the valves will be tested the first time after a shorter period to provide for trending information.

32. These valves are subject to leak testing to support the nonsafety-related classification of the CVS purification subsystem inside containment. These valves are not included in the PIV integrity Technical Specification 3.4.16. The leakage through valves CVS-V001, CVS-V002, and CVS-V080 will be tested separately with a leakage limit of 1.5 gpm for each valve. The leakage through valves CVS-V081, V082, V084, and V085 will be tested at the same time as a group with a leakage limit of 1 gpm for the group. The leak tests will be performed at reduced RCS pressures. The observed leakage at lower pressures can be assumed to be the leakage at the maximum pressure as long as the valve leakage is verified to diminish with increasing pressure differential. Verification that the valves have the characteristic of decreasing leakage with pressure may be provided with two tests at different test pressures. The test requirements including the minimum test pressure and the difference between the test pressures will be defined by the Combined License applicant in the inservice test program.

33. This note applies to valve FHS-V001. This valve closes one end of the fuel transfer tube. The fuel transfer tube is normally closed by a flange except during refuelings. This valve has an active safety function to close when the fuel transfer tube flange is removed and normal shutdown cooling is lost. Closing this valve, along with other actions, provides containment closure which allows long term core cooling to be provided by the PXS. As a result this valve is only required to be operable during refueling operations. The exercise testing of this valves will be performed during refueling shutdowns prior to removing the fuel transfer tube flange.

34. This note applies to the moisture separator reheater steam control valve (MSS-V016), turbine control valves (MTS-V002A/B, V004A/B), main turbine stop valves (MTS-V001A/B, V003A/B), the turbine bypass control valves (MSS-V001, V002, V003, V004) . These valves are not safety-related. These valves are relied on in the safety analyses for those cases in which the rupture of the main steam or feedwater piping inside containment is the postulated initiating event. These valves are credited in single failure analysis to mitigate the event.

35. This note applies to the turbine stop valves (MTS-V001A/B, V003A/B). The valves are not quarterly stroke tested since full stroke testing would result in a plant transient during power operation. The valves will be full stroke tested during cold shutdowns.

36. In each of the four turbine inlet lines, there is a turbine stop valve and turbine control valve. Only one of the valves in each of the four lines is required by Technical Specification 3.7.2 to be operable.

Table 3.9-17

SYSTEM LEVEL OPERABILITY TEST REQUIREMENTS

System/Feature	Test Purpose	Test Method	Tech Spec[a]
PCS			
PCCWST drain lines	Flow capability and water coverage	Note 1	SR 3.6.6.6
PXS			
Accumulator injection lines	Flow capability	Note 2	SR 3.5.1.6
CMT injection lines	Flow capability	Note 3	SR 3.5.2.7
PRHR HX	Heat transfer capability	Note 4	SR 3.5.4.5
IRWST injection lines	Flow capability	Note 5	SR 3.5.6.9
Containment recirculation lines	Flow capability	Note 6	SR 3.5.6.9
VES			
MCR isolation/makeup	MCR pressurization capability	Note 7	SR 3.7.6.9

Alpha Note:

a. Refer to the Technical Specification surveillance identified in this column for the test frequency.

Notes:

1. The flow capability of each PCS water drain line is demonstrated by conducting a test where water is drained from the PCS water storage tank onto the containment shell by opening one isolation valve. During this flow test the water coverage is also demonstrated. The test is terminated when the flow measurement is obtained and the water coverage is observed. The minimum allowable flow rate is 442 gpm with the passive containment cooling water storage tank level 23.75 ± 0.25 feet above the lowest standpipe. Water coverage is demonstrated by a report that concludes that the amount of the containment shell covered (as measured as a linear percentage of the containment shell circumference wetted at the upper spring line) is equal to or greater than the coverage used to calculate peak containment pressure in the safety analysis.

2. The flow capability of each accumulator is demonstrated by conducting a test during cold shutdown conditions. The initial conditions of the test include reduced accumulator pressure. Flow from the accumulator to the RCS is initiated by opening the accumulator isolation valve. Sufficient flow is provided to fully open the check valves. The test is terminated when the flow measurement is obtained. The allowable calculated flow resistance between each accumulator and the reactor vessel is $\geq 1.49 \times 10^{-5}$ ft/gpm^2 and $\leq 1.86 \times 10^{-5}$ ft/gpm^2.

3. The flow capability of each CMT is demonstrated by conducting a test during cold shutdown conditions. The initial conditions of the test include the RCS loops drained to a level below the top of the RCS hot leg. Flow from the CMT to the RCS is initiated by opening one CMT isolation valve. The test is terminated when the flow measurement is obtained. The allowable calculated flow resistance between each CMT and the reactor vessel is $\geq 3.07 \times 10^{-5}$ ft/gpm^2 and $\leq 3.84 \times 10^{-5}$ ft/gpm^2.

4. The heat transfer capability of the passive residual heat exchanger is demonstrated by conducting a test during cold shutdown conditions. The test is conducted with the RCPs in operation and the RCS at a reduced temperature. Flow through the heat exchanger is initiated by opening one outlet isolation valve. The test is terminated when the flow and temperature measurements are obtained. The allowable calculated heat transfer

is $\geq 3.07 \times 10^5$ Btu/hr with an inlet temperature of 250°F and an IRWST temperature of 120°F and the design basis number of tubes plugged.

5. The flow capability of each IRWST injection line is demonstrated by conducting flow tests and inspections. A flow test is conducted to demonstrate the flow capability of the injection line from the IRWST through the IRWST injection check valves. Water flow from the IRWST through the IRWST injection check valve demonstrates the flow capability of this portion of the line. Sufficient flow is provided to fully open the check valves. The test is terminated when the flow measurement is obtained. The allowable calculated flow resistance from the IRWST to each injection line check is $\geq 5.68 \times 10^{-6}$ ft/gpm^2 and $\leq 1.14 \times 10^{-5}$ ft/gpm^2.

   The flow capability of the portion of the line from the IRWST check valves to the DVI line is demonstrated by conducting an inspection of the inside of the line. The inspection shows that the lines are not obstructed. It is not necessary to operate the IRWST injection squib valves for this inspection.

6. The flow capability of each containment recirculation line is demonstrated by conducting an inspection. The line from the containment to the containment recirculation squib valve is inspected from the containment side. The line from the squib valve to the IRWST injection line is inspected from the IRWST side. The inspection shows that the lines are not obstructed. It is not necessary to operate the containment recirculation squib valves for this inspection.

7. The MCR pressurization capability is demonstrated by conducting a test. The test is conducted with the normal HVAC lines connected to the MCR isolated using the dampers in VBS designated for this purpose in subsection 9.4.1. Pressurization of the MCR is initiated by opening one of the emergency MCR habitability air supply lines. The air supply lines are alternated for subsequent tests. The test is a limited duration test and is terminated when the MCR pressurization is measured. The minimum allowable MCR pressurization is 1/8 inch gauge pressure relative to the surrounding areas, with 65 ± 5 scfm air flow supplied by the emergency MCR habitability air supply line.

Table 3.9-18

AP600 PRESSURE ISOLATION VALVES

Valve Number	Description
PXS-V028A PXS-V028B PXS-V029A PXS-V029B	Accumulator Discharge Check Valves
RNS-V001A RNS-V001B RNS-V002A RNS-V002B	RNS Hot Leg Suction Isolation Valves
RNS-V015A RNS-V015B RNS-V017A RNS-V017B	RNS Discharge RCS Pressure Boundary

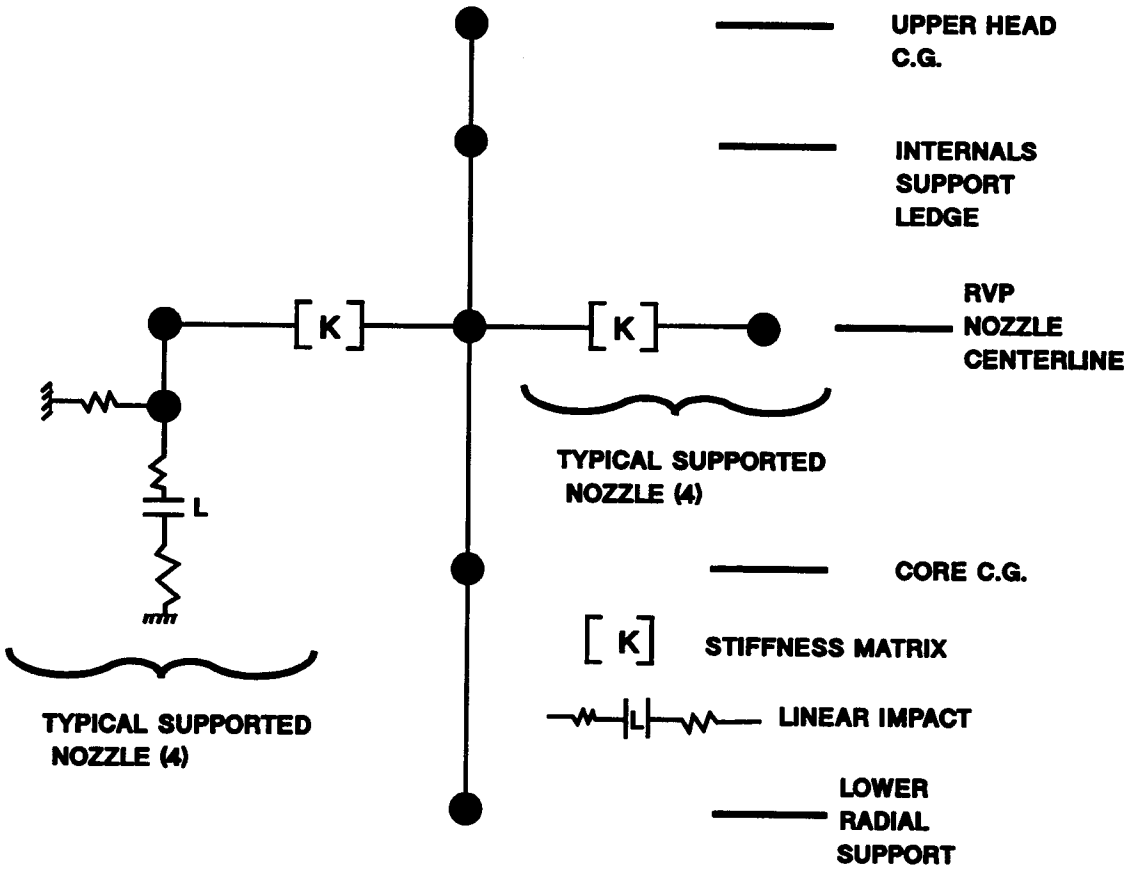

Figure 3.9-1

Reactor Vessel Submodel

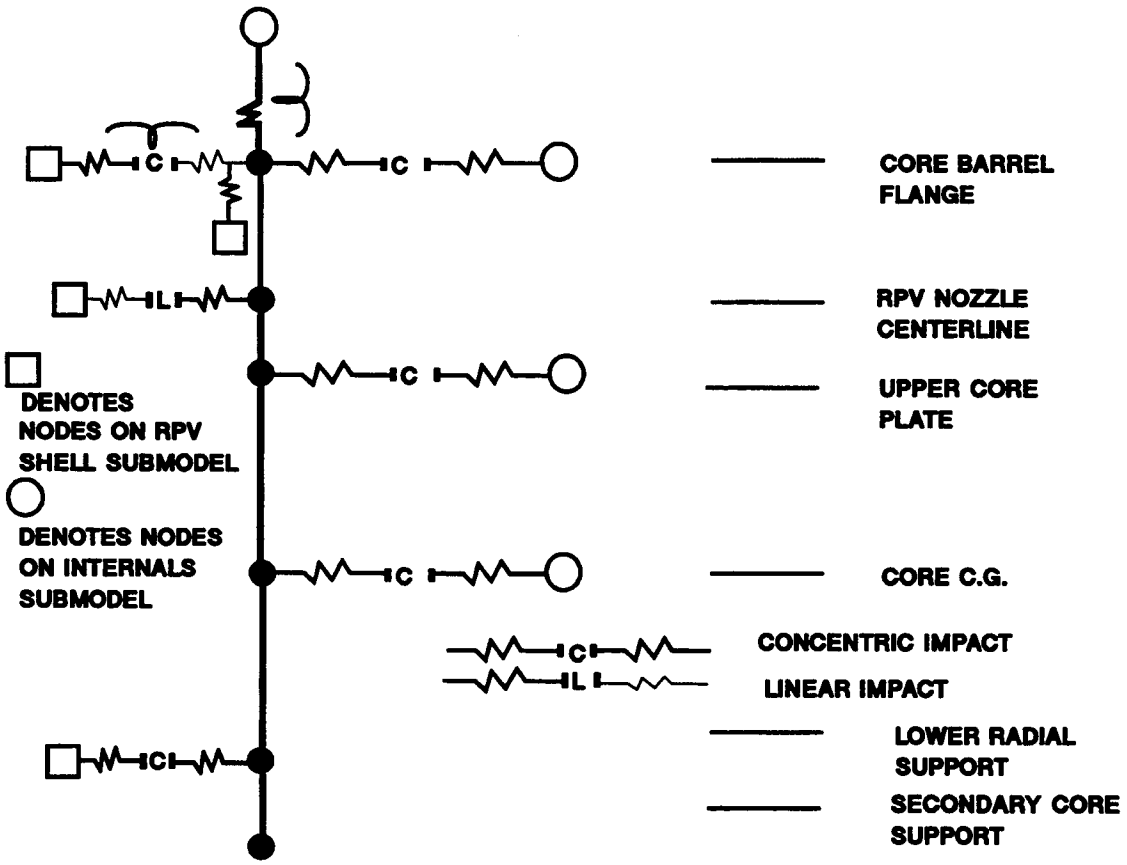

Figure 3.9-2

Reactor Vessel Lower Internals Submodel

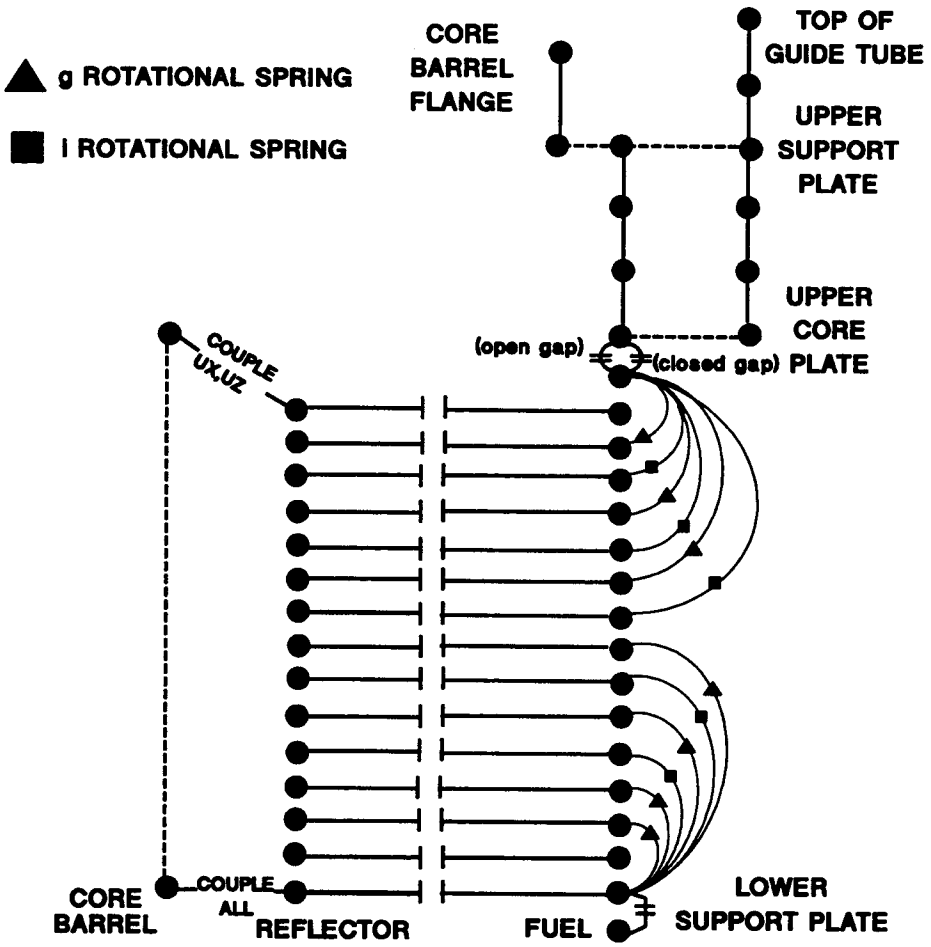

Figure 3.9-3

Reactor Vessel Upper Internals and Fuel Submodel

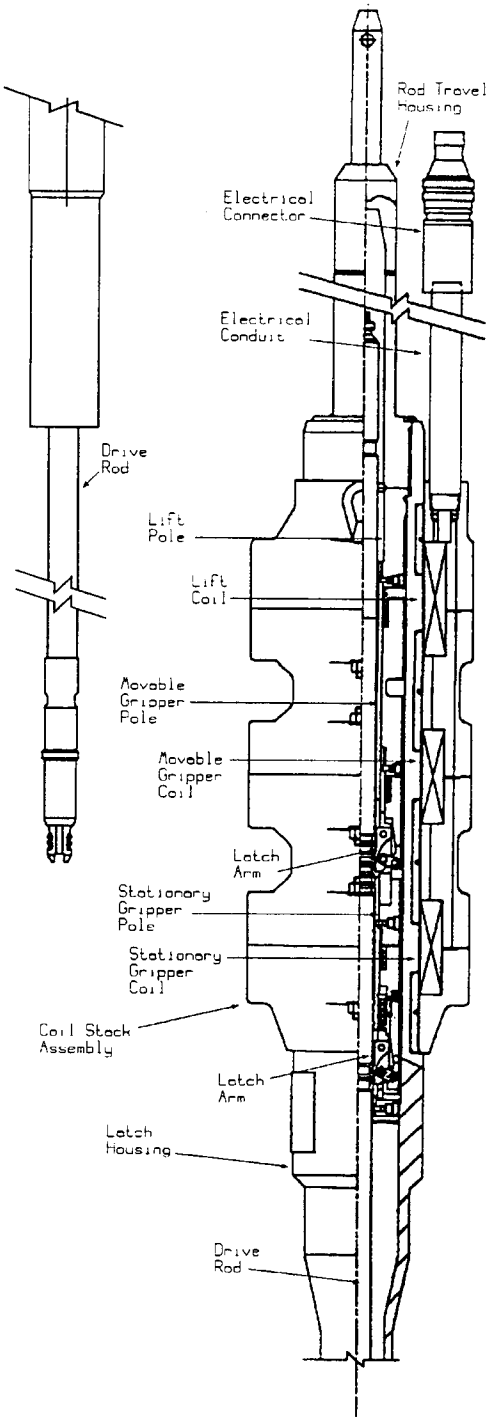

Figure 3.9-4

Control Rod Drive Mechanism

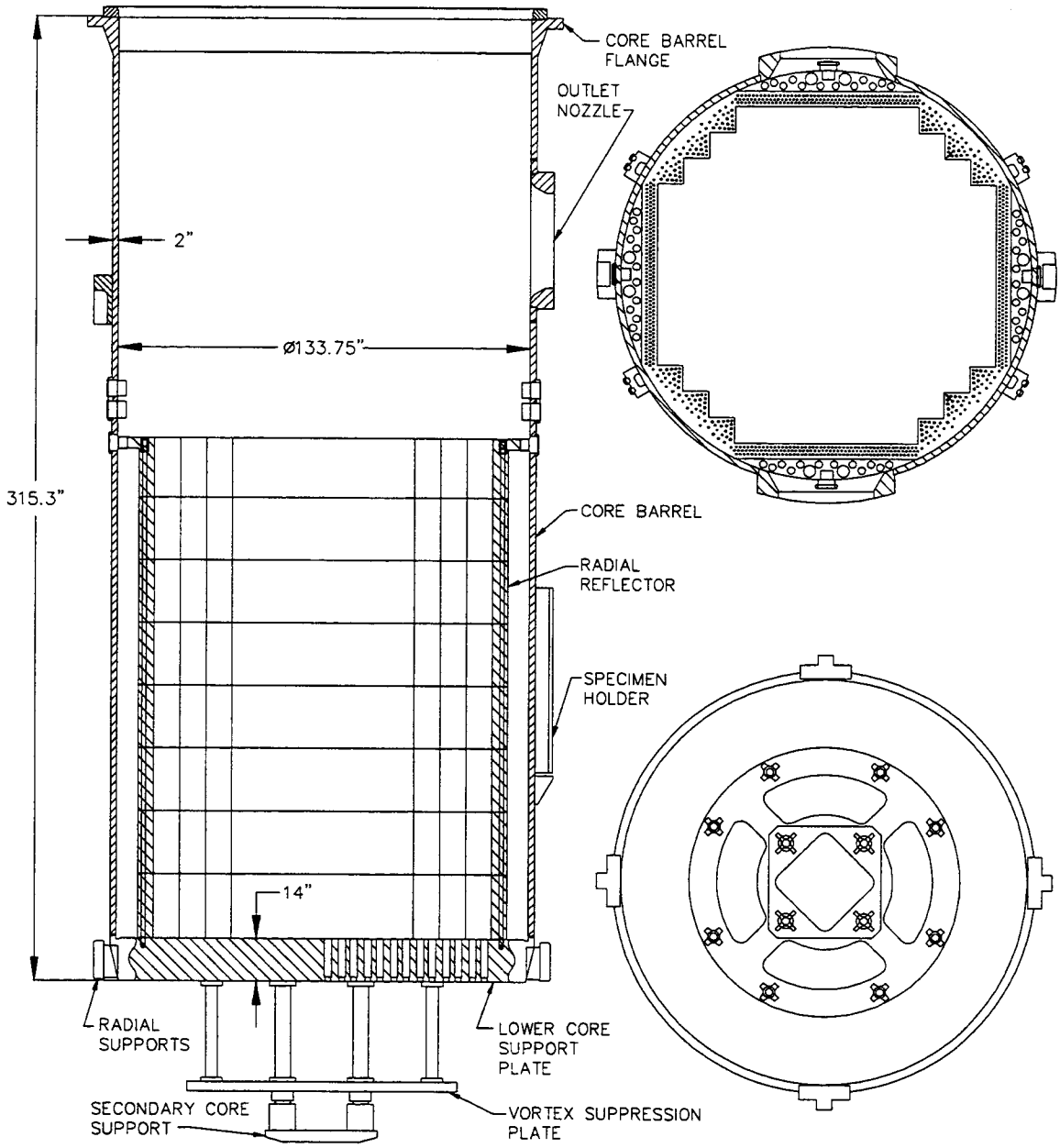

Figure 3.9-5

Lower Reactor Internals

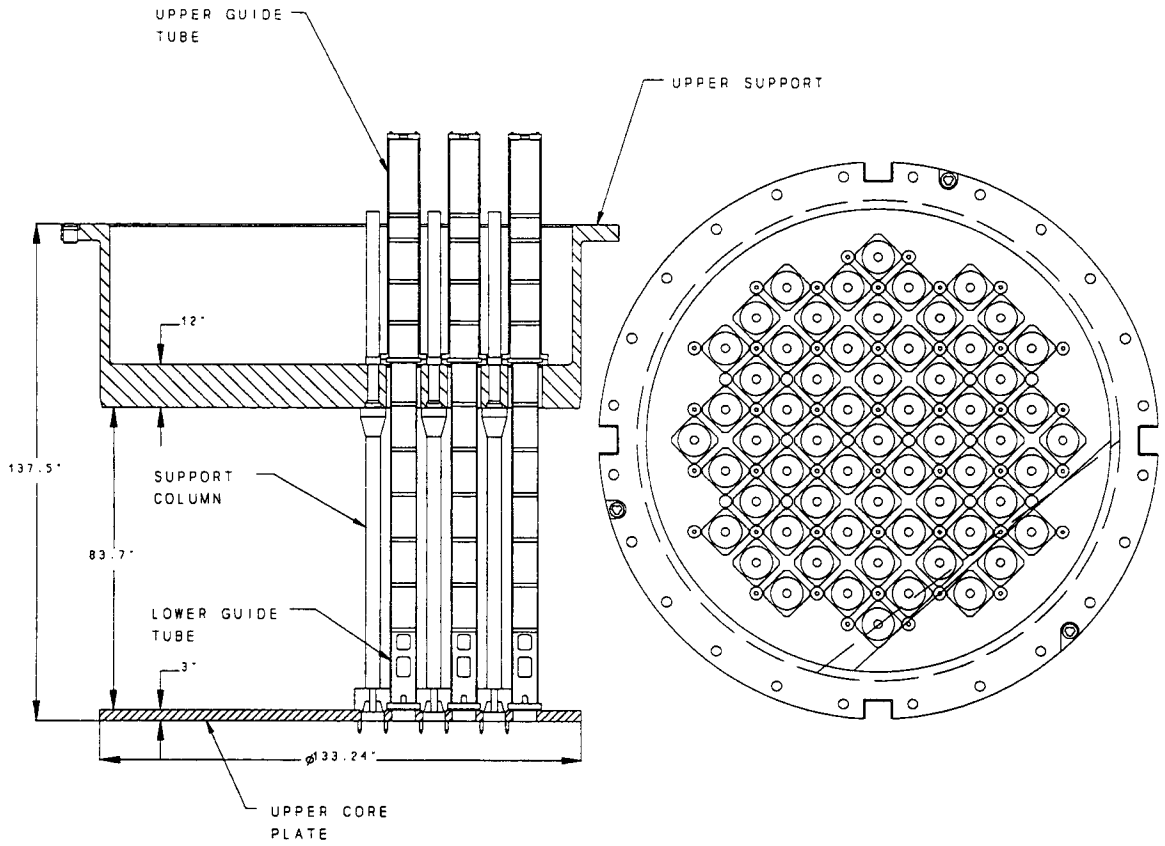

Figure 3.9-6

Upper Core Support Structure

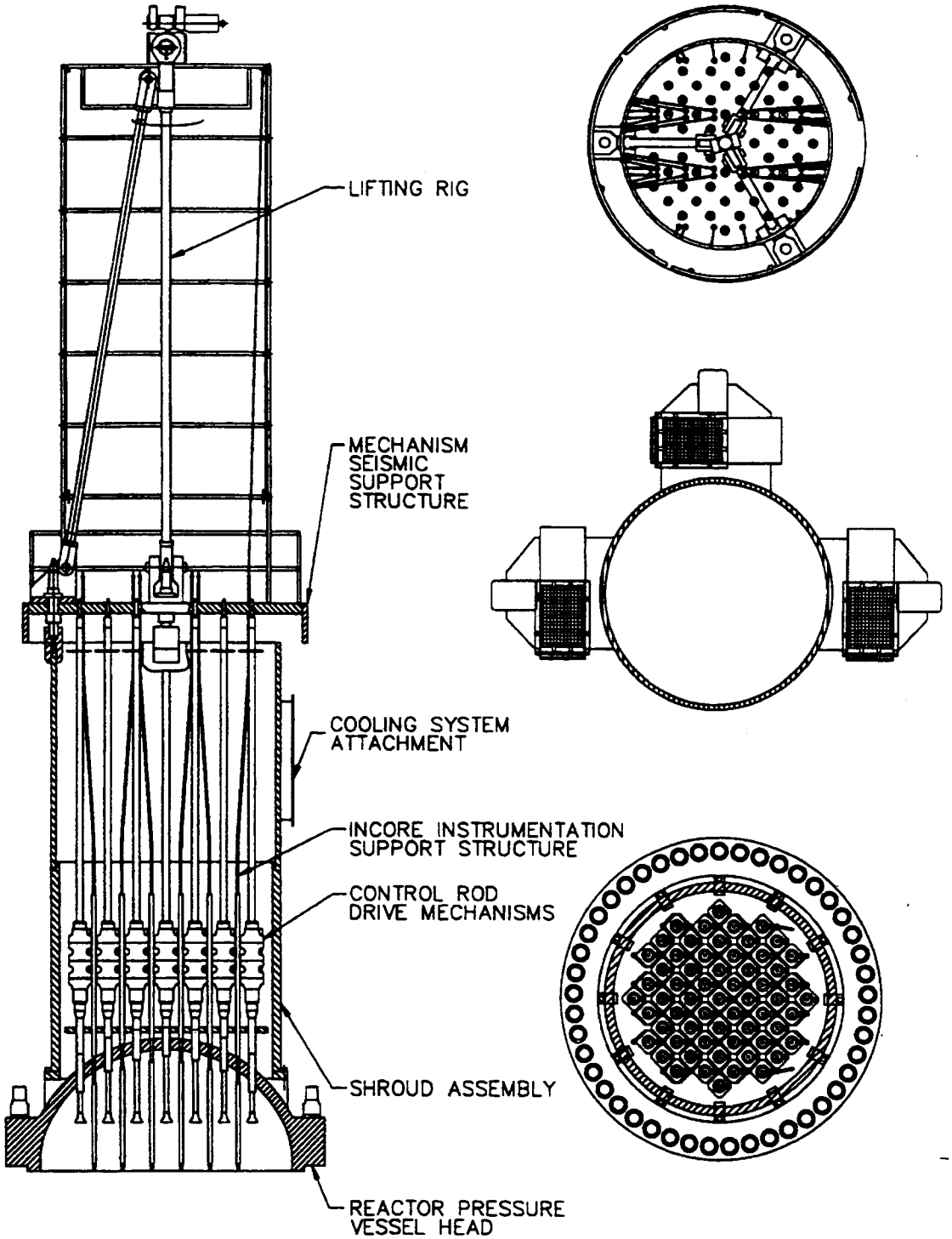

Figure 3.9-7

Integrated Head Package

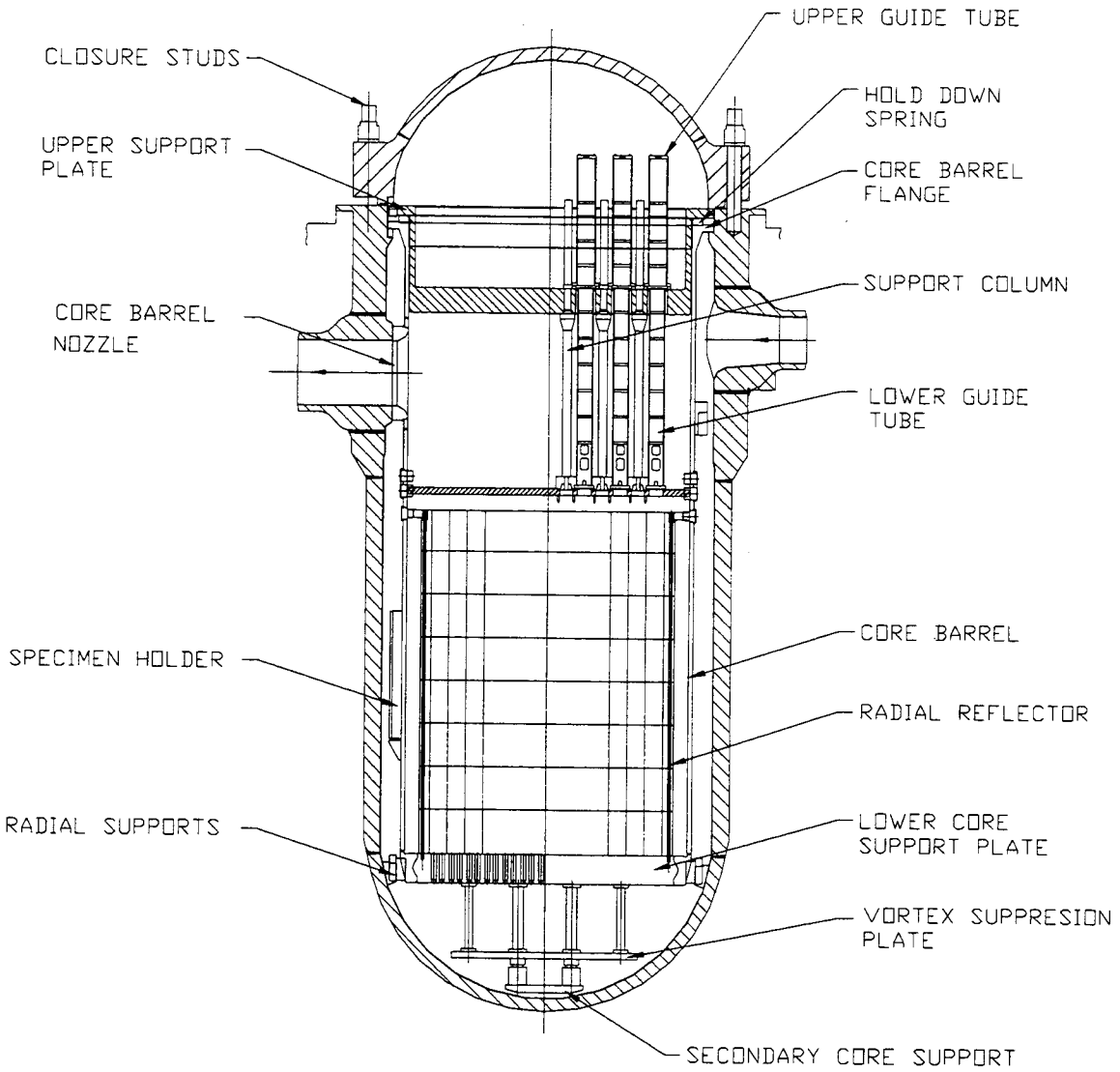

Figure 3.9-8

Reactor Internals Interface Arrangement