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Your ref: Project Number 740
Our ref: DCP/NRC1842

March 9, 2007

Subject: AP1000 COL Standard Technical Report Submittal of APP-GW-GLN-020, Revision 0

In support of Combined License application pre-application activities, Westinghouse is submitting AP1000 Standard Combined License Technical Report Number 100. This report identifies and justifies standard changes to the AP1000 Design Control Document (DCD). These changes impact DCD Chapter 3.9 and are related to changes to the AP1000 Valve Inservice Testing Requirement Update. The changes to the DCD identified in Technical Report 100 are intended to be incorporated into FSARs referencing the AP1000 Design Certification or incorporated into the design certification by an amendment to the design certification. This report is submitted as part of the NuStart Bellefonte COL Project (NRC Project Number 740). The information included in this report is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification.

The purpose for submittal of this report was explained in a March 8, 2006 letter from NuStart to the NRC.

Pursuant to 10 CFR 50.30(b), APP-GW-GLN-020, Revision 0, "AP1000 Valve Inservice Testing Requirement Update," (Technical Report Number 100), is submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the NRC review of Technical Report Number 100 is complete, the changes to the DCD identified in Technical Report 100 will be considered approved generically for COL applicants referencing the AP1000 Design Certification.

Westinghouse is hereby requesting review and approval of the design changes associated with the Reactor Internals.

Questions or requests for additional information related to content and preparation of this report should be directed to Westinghouse. Please send copies of such questions or requests for additional information to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

D079

Very truly yours,

A. Sterdis, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated March 9, 2007

/Enclosures

1. APP-GW-GLN-020, Revision 0, "AP1000 Valve Inservice Testing Requirement Update," Technical Report Number 100

cc:	S. Bloom	- U.S. NRC	1E	1A
	S. Coffin	- U.S. NRC	1E	1A
	G. Curtis	- TVA	1E	1A
	P. Grendys	- Westinghouse	1E	1A
	P. Hastings	- Duke Power	1E	1A
	C. Ionescu	- Progress Energy	1E	1A
	D. Lindgren	- Westinghouse	1E	1A
	A. Monroe	- SCANA	1E	1A
	M. Moran	- Florida Power & Light	1E	1A
	C. Pierce	- Southern Company	1E	1A
	E. Schmiech	- Westinghouse	1E	1A
	G. Zinke	- NuStart/Entergy	1E	1A

ATTACHMENT 1

"Oath of Affirmation"

ATTACHMENT 1

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:)

NuStart Bellefonte COL Project)

NRC Project Number 740)

APPLICATION FOR REVIEW OF
"AP1000 GENERAL COMBINED LICENSE INFORMATION"
FOR COL APPLICATION PRE-APPLICATION REVIEW

W. E. Cummins, being duly sworn, states that he is Vice President, Regulatory Affairs & Standardization, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this 9th day
of March 2007.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Debra McCarthy, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Aug. 31, 2009
Member, Pennsylvania Association of Notaries

Notary

ENCLOSURE 1

APP-GW-GLN-020, Revision 0

"AP1000 Valve Inservice Testing Requirement Update"

Technical Report 100

AP1000 DOCUMENT COVER SHEET

TDC: _____ Permanent File: _____ APY: _____

RFS#: _____ RFS ITEM #: _____

AP1000 DOCUMENT NO.	REVISION NO.		ASSIGNED TO
APP-GW-GLN-020	0	Page 1 of 33	W-Winters

ALTERNATE DOCUMENT NUMBER: TR-100 WORK BREAKDOWN #:

ORIGINATING ORGANIZATION:

TITLE: **AP1000 Valve Inservice Testing Requirement Update**

ATTACHMENTS:	DCP #/REV. INCORPORATED IN THIS DOCUMENT REVISION:
CALCULATION/ANALYSIS REFERENCE:	

ELECTRONIC FILENAME	ELECTRONIC FILE FORMAT	ELECTRONIC FILE DESCRIPTION

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☒ WESTINGHOUSE CLASS 3 (NON PROPRIETARY)

Class 3 Documents being transmitted to the NRC require the following two review signatures in lieu of a Form 36.

LEGAL REVIEW J. C. VALENTINE	SIGNATURE/DATE J. C. Valentine 3-8-2007
PATENT REVIEW M CORLETTI	SIGNATURE/DATE M M Corletti 3-5-07

☐ WESTINGHOUSE PROPRIETARY CLASS 2

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REVIEWERS T. L. SCHULZ	SIGNATURE/DATE Ty L. Schulz	3/5/07	
VERIFIER L. I. EZEKOYE	SIGNATURE/DATE L. I. Ezekoye	3/05/07	VERIFICATION METHOD Page by page
AP1000 RESPONSIBLE MANAGER J. W. WINTERS	SIGNATURE* J W Winters JW		APPROVAL DATE 03/07/07

* Approval of the responsible manager signifies that document is complete, all required reviews are complete, electronic file is attached and document is released for use.

AP1000 Standard Combined License Technical Report

AP1000 Valve Inservice Testing Requirement Update

Westinghouse Electric Company LLC
P.O. Box 355
Pittsburgh, PA 15230-0355

Document Number: APP-GW-GLN-020 **Revision Number:** 0

Title: AP1000 Valve Inservice Testing Requirement Update

Brief Description of the change (what is being changed and why):

The proposed changes address (a) the treatment of low differential pressure valves in the DCD is inconsistent with industry position, and (b) the test frequency in the DCD is inconsistent with industry position. To resolve these inconsistencies, the sub-paragraph of subsection 3.9.6.2.2 titled "Power-Operated Valve Operability Tests" together with Table 3.9.16 and subsection 3.9.8.4 will be changed to align the operability testing with the latest industry position. The DCD information contained in the subsections and table listed above were based on the interim test program developed by the Joint Owners' Group (JOG) in response to GL 96-05, "Periodic Verification of Design-Basis Capability of Safety Related Motor-Operated Valve". This test program has subsequently been completed and the resulting SER titled "Final Safety Evaluation on Joint Owners' Group Program on Motor Operated Valve Periodic Verification (TAC NOS. MC2346, MC2347, and MC2348)" has been issued. Therefore the proposed changes will conform the valve testing requirements to the industry test position approved by the NRC.

I. APPLICABILITY DETERMINATION

This evaluation is prepared to document that the change described above is a departure from Tier 2 information of the AP1000 Design Control Document (DCD) (Reference 1) that may be included in plant specific FSARs without prior NRC approval.

A.	Does the proposed change include a change to:		
	1. Tier 1 of the AP1000 Design Control Document APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare a report for NRC review of the changes)
	2. Tier 2* of the AP1000 Design Control Document, APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare a report for NRC review of the changes)
	3. Technical Specification in Chapter 16 of the AP1000 Design Control Document, APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare a report for NRC review of the changes)
B.	Does the proposed change involve:		
	1. Closure of a Combined License Information Item identified in the AP1000 Design Control Document, APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare a COL item closure report for NRC review.)
	2. Completion of an ITAAC item identified in Tier 1 of the AP1000 Design Control Document, APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare an ITAAC completion report for NRC review.)

☒ The questions above are answered no, therefore the departure from the DCD in a COL application does not require prior NRC review unless review is required by the criteria of 10 CFR Part 52 Appendix D Section VIII B.5.b. or B.5c

II. TECHNICAL DESCRIPTION AND JUSTIFICATION

On June 28, 1989, the NRC issued GL 89-10, "Safety Related Motor-Operated Valve Testing and Surveillance" requiring licensees to establish a program to provide for testing, inspection and maintenance of safety-related motor operated valves (MOVs). As a result of GL 89-10 plants verified the design basis capability of the safety- related valves using in-situ dynamic testing and analysis. On September 18, 1996, the NRC issued GL 96-05, "Periodic Verification of Design-Basis Capability of Safety Related Motor-Operated Valves" requiring licensees to develop a program that assures long-term capability of safety-related valves to perform their design functions. In GL 96-05 the NRC requested the plants establish a program, or ensure the effectiveness of their current program, to verify on a periodic basis that the safety-related MOVs continue to perform their safety-related functions. GL 96-05 superseded the long-term aspects of GL 89-10. In response to GL-96-05 a Joint-Owners' Group (JOG) developed the JOG Program document on Motor-Operated Valve (MOV) Periodic Verification. The program included three elements: (1) an "interim" MOV periodic verification program for plants to use in response to GL 96-05 during the development of a long-term program, (2) a 5-year MOV dynamic diagnostic test program; and 3) a long-term periodic diagnostic test program to be based on information from the dynamic testing program. The interim MOV test program consisted of a continuation of the IST provisions in the ASME Boiler and Pressure Vessel Code, and performance of static diagnostic testing on a frequency based on functional margin and risk significance. The static testing of MOVs ranged from one to six refueling operating cycles, but not exceeding 10 years. The dynamic test program was to be performed over a 5-year period and each participating plant was to test two MOVs three times each, with repeat tests separated by at least one year.

The DCD subsection 3.9.6.2.2, "Valve Testing", the sub-paragraph titled "Power-Operated Valve Operability Tests" was written based on the Interim MOV and Dynamic Test Programs in the JOG Program on Motor-Operated Valve (MOV) Periodic Verification. The JOG Program on Motor-Operated Valve (MOV) Periodic Verification has subsequently been completed and the NRC has issued a SER endorsing the industry program titled "Final Safety Evaluation on Joint Owners' Group Program on Motor Operated Valve Periodic Verification (TAC NOS. MC2346, MC2347, and MC2348)"(Reference 3). This change to subsection 3.9.6.2.2 will modify the DCD testing requirements to correspond the to SER describing the valves require static or dynamic testing along with the test frequency of valves that are statically tested.

The exclusion of testing of low differential pressure valves currently presented in the DCD will be deleted. This exclusion is not contained in either the interim or final JOG Program on Motor-Operated Valve (MOV) Periodic Verification or in the NRC SER. All valves are required to be tested. The static test frequency would be determined based on risk significance and functional margin.

Subsection 3.9.8.4, "Valve Inservice Testing", of the DCD currently states that valves with low differential pressures did not have to have testing performed. This sentence conflicts with the JOG Program on Motor-Operated Valve (MOV) Periodic Verification and the endorsement of the NRC

SER. Neither document excluded testing of low differential pressure valves. Therefore the sentence is deleted.

Table 3.9.16,"Valve Inservice Test Requirement", currently contains a Note 30 that states "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". This note conflicts with the JOG Program on Motor-Operated Valve (MOV) Periodic Verification and in the endorsement of the NRC SER. Neither document exclude testing of low differential pressure valves. Therefore the note is deleted.

III. TECHNICAL DESCRIPTION AND JUSTIFICATION

1. APP-GW-GL-700, AP1000 Design Control Document, Revision 15.
2. NUREG 1793, U.S. Nuclear Regulator Commission "Final Safety Evaluation Report for AP1000 Design," September 2004.
3. SER "Final Safety Evaluation on Joint Owners' Group Program on Motor Operated Valve Periodic Verification (TAC NOS. MC2346, MC2347, and MC2348)", dated 9/25/2006

IV. DCD MARK-UP

3.9.6.2.2, the following sub-paragraph

Power-Operated Valve Operability Tests - The inservice operability testing of power-operated valves rely on non-intrusive diagnostic techniques to permit periodic assessment of valve operability at design basis conditions. Table 3.9-16 identifies valves that may require valve operability testing. The specified frequency for operability testing is a maximum of once every 10 years. The initial 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. ~~The Combined License applicant is responsible for developing the inservice test program. Evaluation of the factors below by the Combined License applicant will determine which of the valves identified for operability testing in Table 3.9-16 will require operability testing and whether the operability testing will be static with diagnostic measurements or dynamic (flow and differential pressure).~~

~~• AP1000 PRA importance measures~~

~~• Design reliability assurance program contained in DCD Section 16.2~~

~~• Historical performance of power-operated valves (identify valve types which experience operating problems related to flow and differential pressure during opening and closing)~~

~~• Basic design of power-operated valves (identify valve types where flow affects the capability of power-operated valves to achieve their safety-related valve operation)~~

~~• Power-operated valves that operate under low differential pressures to perform their safety-related missions and incorporate adequate margin. Low differential pressure valves are identified in Table 3.9-16 with a note that indicates that the Combined License applicant will provide an evaluation based on test data to show that these valves have adequate margin and operability testing is not needed.~~

~~• Analysis of trends of valve test parameters during diagnostic static valve operability tests~~

Static testing with diagnostic measurements will be performed on these valves. The specific frequency for operability testing will be based on the risk ranking and the functional margin of the individual valve with a maximum test frequency of once every 10 years. The Combined License applicant shall evaluate the factors below to determine the risk ranking and functional margin. The Combined License applicant is responsible for developing the inservice test program which will also include analysis of trends of valve test parameters resulting from the valve operability.

Risk Ranking

The risk ranking shall consist of calculation of the at power risk importance, develop component ranking worksheets and conduct an expert panel review.

Function Margin

The functional margin will be determined considering the valve design features, material of construction, operating parameters, actuator capability and uncertainties. The uncertainties shall consider degradations, and variations of diagnostic measurements and control logic.

Valves for which functional margins have not been determined due to the use of different valve design features, materials of construction, operating parameters, actuator capability and other uncertainties, may require dynamic testing (differential pressure testing) to determine the appropriate margins.

3.9.8.4 Valve Inservice Testing

Combined License applicants referencing the AP1000 design will develop an inservice test program in conformance with the valve inservice test requirements outlined in subsection 3.9.6 and Table 3.9-16. For power actuated valves the requirements for operability testing shall be based on subsection 3.9.6.2.2. This program will include provisions for nonintrusive check valve testing methods and the program for valve disassembly and inspection outlined in subsection 3.9.6.2.3. The Combined License applicant will complete an evaluation as identified in subsection 3.9.6.2.2 to ~~demonstrate that power-~~

~~operated valves with low differential pressure have adequate margin and operability testing of these valves is not required.~~determine the frequency of power-operated valve operability testing.

Table 3.9.16 **VALVE INSERVICE TEST REQUIREMENTS**

Revise Table 3.9-1 as follows:

Table 3.9-16 (Sheet 1 of 21)

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 Exercise Full Stroke/Refueling Shutdown Operability Test	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 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	27
CAS-PL-V205	Service Air Supply Inside Containment Isolation	Check	Maintain Close	Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test	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 Exercise Full Stroke/Cold Shutdown Operability Test	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 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 Exercise Full Stroke/Cold Shutdown Operability Test	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 Exercise Full Stroke/Cold Shutdown Operability Test	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	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	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	6, 31

Table 3.9-16 (Sheet 2 of 21)

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	27
CVS-PL-V041	Resin Flush ORC Isolation	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test	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 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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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	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 Exercise Full Stroke/Quarterly Operability Test	27, 31

Table 3.9-16 (Sheet 3 of 21)

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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operation Operability Test	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 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	~~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	~~30,~~ 31
DWS-PL-V244	Demineralized Water Supply Containment Isolation - Outside	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test	27
DWS-PL-V245	Demineralized Water Supply Containment Isolation - Inside	Check	Maintain Close	Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test	27
FPS-PL-V050	Fire Water Containment Supply Isolation	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test	27
FPS-PL-V052	Fire Water Containment Supply Isolation - Inside	Check	Maintain Close	Containment Isolation Safety Seat Leakage	AC	Containment Isolation Leak Test	27
FHS-PL-V001	Fuel Transfer Tube Isolation Valve	Manual	Transfer Close Maintain Open	Active	B	Exercise Full Stroke/Refueling Shutdown	33

Table 3.9-16 (Sheet 4 of 21)

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-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	29, 31, 34
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	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	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	29, 31, 34
MSS-PL-V005	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	29, 31, 34
MSS-PL-V006	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	29, 31, 34
MSS-PL-V016A	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	25, 31, 34
MSS-PL-V017A	Moisture Separator Reheater Steam Supply Bypass 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	25, 31, 34
MSS-PL-V016B	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	25, 31, 34
MSS-PL-V017B	Moisture Separator Reheater Steam Supply Bypass 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	25, 31, 34

Table 3.9-16 (Sheet 5 of 21)

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-V001A	Turbine Stop 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	31, 34, 35, 36
MTS-PL-V001B	Turbine Stop 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	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	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	25, 31, 34, 36
MTS-PL-V003A	Turbine Stop 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	31, 34, 35, 36
MTS-PL-V003B	Turbine Stop 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	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	25, 31, 34, 36
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	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	~~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	
PCS-PL-V001C	PCCWST Isolation	Remote	Maintain Open Transfer Open	Active Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test	

Table 3.9-16 (Sheet 6 of 21)

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-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	
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	
PCS-PL-V002C	PCCWST Series Isolation	Remote	Maintain Open Transfer Open	Active Remote Position	B	Remote Position Indication, Exercise/2 Years Exercise Full Stroke/Quarterly Operability Test	
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	
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	

Table 3.9-16 (Sheet 7 of 21)

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-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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 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 Exercise Full Stroke/Quarterly Operability Test	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	~~30,~~ 31
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	~~30~~, 31

Table 3.9-16 (Sheet 8 of 21)

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-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	~~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	~~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

Table 3.9-16 (Sheet 9 of 21)

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 Exercise Full Stroke/Quarterly Operability Test	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 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	~~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	~~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	~~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	~~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

Table 3.9-16 (Sheet 10 of 21)

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-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
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	~~30,~~ 31

Table 3.9-16 (Sheet 11 of 21)

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-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	~~30,~~ 31
PXS-PL-V208A	RNS Suction Leak Test	Manual	Maintain Close	Containment Isolation Safety Seat Leakage	A	Containment Isolation Leak Test/2 Years	
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	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	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	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	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	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	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

Table 3.9-16 (Sheet 12 of 21)

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-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	
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	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	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	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	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	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	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	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	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	4, 31

Table 3.9-16 (Sheet 13 of 21)

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-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	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	15, ~~30,~~ 31
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	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	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	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 Exercise Full Stroke/Quarterly Operability Test	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 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

Table 3.9-16 (Sheet 13 of 21)

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-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	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	15, ~~30,~~ 31
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	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	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	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 Exercise Full Stroke/Quarterly Operability Test	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 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

Table 3.9-16 (Sheet 14 of 21)

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-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
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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	27, ~~30,~~ 31

Table 3.9-16 (Sheet 15 of 21)

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
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 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 Exercise Full Stroke/Quarterly Operability Test	27, ~~30,~~ 31
SFS-PL-V071	Refueling Cavity to Steam Generator Compartment	Check	Transfer Open Transfer Close Maintain Close	Active	BC	Check Exercise/Refueling Shutdown	26
SFS-PL-V072	Refueling Cavity to Steam Generator Compartment	Check	Transfer Open Transfer Close Maintain Close	Active	BC	Check Exercise/Refueling Shutdown	26
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	31
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	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

Table 3.9-16 (Sheet 16 of 21)

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-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-V033A	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-V033B	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-V034A	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-V034B	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-V035A	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-V035B	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	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	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	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	20, 31

Table 3.9-16 (Sheet 17 of 21)

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-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	20, 31
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	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	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	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	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	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	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	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	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	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	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	31

Table 3.9-16 (Sheet 18 of 21)

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-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	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	31
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	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	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	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	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	~~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	~~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	~~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	~~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	~~30,~~ 31

Table 3.9-16 (Sheet 19 of 21)

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
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	~~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	31
VES-PL-V002B	Pressure Regulating Valve B	Press. Reg.	Throttle Flow	Active	B	Exercise Full Stroke/Quarterly Operability Test	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	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	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	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	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	

Table 3.9-16 (Sheet 20 of 21)

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-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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	27, ~~30,~~ 31
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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Check Exercise/Quarterly	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operability Test	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 Exercise Full Stroke/Quarterly Operation Operability Test	27, ~~30,~~ 31

Table 3.9-16 (Sheet 21 of 21)

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-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 Exercise Full Stroke/Quarterly Operation Operability Test	27, ~~30,~~ 31
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 Exercise Full Stroke/Quarterly Operation Operability Test	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 Exercise Full Stroke/Quarterly Operation Operability Test	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

Revise Note 30 in Table 3.9-16 as follows:

NOTE 30:

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.~~ Deleted

V. REGULATORY IMPACT

A. FSER IMPACT

The changes described would meet the FSER comments in Chapter 3 on page 3-240.

B. SCREENING QUESTIONS (Check correct response and provide justification for that determination under each response)

1. Does the proposed change involve a change to an SSC that adversely affects a DCD described design function? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the design function of the valves. The change in the valve inservice test requirements does not adversely affect the reliability of the systems containing the valves.

2. Does the proposed change involve a change to a procedure that adversely affects how DCD described SSC design functions are performed or controlled? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not affect the performing or controlling of design functions.

3. Does the proposed activity involve revising or replacing an DCD described evaluation methodology that is used in establishing the design bases or used in the safety analyses? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not impact evaluation methodology.

4. Does the proposed activity involve a test or experiment not described in the DCD, where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the DCD? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the operation of the reactor, reactor coolant system, or associated systems.

C. EVALUATION OF DEPARTURE FROM TIER 2 INFORMATION (Check correct response and provide justification for that determination under each response)

10 CFR Part 52, Appendix D, Section VIII. B.5.a. provides that an applicant for a combined licensee who references the AP1000 design certification may depart from Tier 2 information, without prior NRC approval, if it does not require a license amendment under paragraph B.5.b. The questions below address the criteria of B.5.b.

1. Does the proposed departure result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the design function reactor coolant system or associated systems. The change in the valve inservice test requirements will not affect accident precursors.

2. Does the proposed departure result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the design function of the reactor coolant system or components and systems relied on to mitigate postulated accident conditions.

3. Does the proposed departure result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the response of systems relied on to mitigate postulated accident conditions. Therefore the calculated radioactivity release from a postulated accident condition is not affected.

4. Does the proposed departure result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the design functions or response to postulated accident conditions and anticipated transients for the components in the reactor coolant system or associated systems. Therefore the calculated radioactivity release from a malfunction of equipment is not affected.

5. Does the proposed departure create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the design functions of the reactor coolant system. The change in the valve inservice test requirements does not add or modify accident precursors.

6. Does the proposed departure create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD? ☐ YES ☒ NO

The change in the valve inservice test requirements does not alter operating conditions or design functions of SSCs important to safety. Therefore there is no new malfunction.

7. Does the proposed departure result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the pressure boundary integrity design function of the reactor coolant system or other SSCs important to safety.

8. Does the proposed departure result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses? ☐ YES ☒ NO

   The change in the valve inservice test requirements does not alter the methodology of the evaluation of the pressure boundary integrity or of the safety analyses.

☒ The answers to the evaluation questions above are "NO" and the proposed departure from Tier 2 does not require prior NRC review to be included in plant specific FSARs as provided in 10 CFR Part 52, Appendix D, Section VIII. B.5.b

☐ One or more of the the answers to the evaluation questions above are "YES" and the proposed change requires NRC review.

D. IMPACT ON RESOLUTION OF A SEVERE ACCIDENT ISSUE

10 CFR Part 52, Appendix D, Section VIII. B.5.a. provides that an applicant for a combined licensee who references the AP1000 design certification may depart from Tier 2 information, without prior NRC approval, if it does not require a license amendment under paragraph B.5.c. The questions below address the criteria of B.5.c.

1. Does the proposed activity result in an impact to features that mitigate severe accidents. If the answer is Yes answer Questions 2 and 3 below. ☒ YES ☐ NO

   The change in the valve inservice test requirements include changes to test requirements for valves in systems and subsystems used to mitigate severe accidents

2. Is there is a substantial increase in the probability of a severe accident such that a particular severe accident previously reviewed and determined to be not credible could become credible? ☐ YES ☒ NO ☐ N/A

   There is no change to the response of the valves and systems to severe accidents due to the change in the valve inservice test requirements.

3. Is there is a substantial increase in the consequences to the public of a particular severe accident previously reviewed? ☐ YES ☒ NO ☐ N/A

There is no change to the response of the valves and systems to severe accidents due to the change in the valve inservice test requirements.

☒ The answers to the evaluation questions above are "NO" or are not applicable and the proposed departure from Tier 2 does not require prior NRC review to be included in plant specific FSARs as provided in 10 CFR Part 52, Appendix D, Section VIII. B.5.c

☐ One or more of the he answers to the evaluation questions above are "YES" and the proposed change requires NRC review.

E. SECURITY ASSESSMENT

1. Does the proposed change have an adverse impact on the security assessment of the AP1000. ☐ YES ☒ NO

The changes to the valve inservice test requirements will not alter barriers or alarms that control access to protected areas of the plant. The changes to the valve inservice test requirements will not alter requirements for security personnel.