3.9 Mechanical Systems and Components

The information in this section of the reference ABWR DCD, including all subsections, tables, and figures, is incorporated by reference with the following departures and supplements.

STD DEP Admin	(Table 3.9-1)
STD DEP T1 2.4-3	(Table 3.9-8, MPL# E51)
STD DEP T1 2.14-1	(Table 3.9-8, MPL # T49 and P21)
STD DEP 3.9-1	
STD DEP T1 2.4-1	(Table 3.9-8, MPL# E11)
STP DEP 9.2-5	(Table 3.9-8, MPL# P41)
STD DEP 9.3-2	(Table 3.9-8, MPL# P52 and P81)

3.9.2.2.2.7 RCIC Pump and Turbine Assembly

STD DEP T1 2.4-3

~~*The RCIC pump construction is a horizontal, multistage type and is supported on a pedestal. The RCIC pump assembly is qualified analytically by static analysis for seismic and other RBV loadings, as well as the design operating loads of pressure, temperature, and external piping loads. The results of this analysis confirm that the stresses are less than the allowable (Subsection 3.9.3.2.2).*~~

The RCIC turbine-pump *is qualified for seismic and other RBV loads via a combination of static analysis and dynamic testing (Subsection 3.9.3.2.1.5* and 3.9.3.2.2*). The turbine*-pump *assembly consists of rigid masses (wherein static analysis is utilized) interconnected with control levers and electronic control systems, necessitating final qualification via dynamic testing. Static loading analyses are employed to verify the structural integrity of the turbine*-pump *assembly and the adequacy of bolting under operating, seismic, and other RBV loading conditions. The complete turbine*-pump *assembly is qualified via dynamic testing in accordance with IEEE-344. The qualification test program includes a demonstration of startup capability, as well as operability during dynamic loading conditions.* ~~*Operability under normal load conditions is assured by comparison to the operability of similar turbines in operating plants.*~~

3.9.2.3 Dynamic Response of Reactor Internals Under Operational Flow Transients and Steady-State Conditions

The following standard supplement addresses Regulatory Guide (R.G.) 1.206, Rev. 0:

The plan to evaluate the response of the reactor internals due to operational flow transients and steady state conditions for the ABWR prototype, STP 3, is included in the STP 3 ABWR Prototype Reactor Internals Flow-Induced Vibration Assessment Program (Reference 3.9-13). For STP 4, STP 3 will be the valid prototype reactor, and STP 4 will be classified as “Non-Prototype, Category I.” The plan for evaluation of STP 4 is included in the STP 4 Reactor Internals Flow-Induced Vibration Assessment Program (Reference 3.9-14).

3.9.2.4 Preoperational Flow-Induced Vibration Testing of Reactor Internals

The following standard supplement addresses Regulatory Guide (R.G.) 1.206, Rev. 0:

As discussed in Subsection 3.9.2.3, STP 3 reactor internals are classified as Prototype, and the STP 4 reactor internals are classified as non-prototype, Category I. In accordance with the requirement of Regulatory Guide 1.206 Section C.I.3.9.2.4 for prototype, Section 3.9.2.3 identifies the assessment program for STP 3 that addresses the flow modes, vibration monitoring and sensor types and locations, procedures and methods to be used to process and interpret the measured data, planned visual inspections, and planned comparisons of test results with analytical predictions. ~~In addition, scale model tests will also be used for the development of the analyses of the steam dryers for acoustic loads.~~

For STP 4 reactor internals components, an inspection program will be implemented in lieu of a vibration measurement program as discussed in paragraph C.3.1.3 of Regulatory Guide 1.20. Subsection 3.9.2.3 identifies the assessment program for the STP 4 non-prototype.

Also, as discussed in Regulatory Guide 1.20, Rev. 3, the main steam lines in STP 3 and 4 will be instrumented with strain gages to provide measurements of pressure fluctuations due to flow-induced vibrations. ~~The measurements will be used by the Acoustic Circuit Methodology to analytically predict the steam dryer flow-induced vibration loads. The predicted loads will then be used with a finite-element model of the dryer to confirm the acceptability of the flow-induced vibration loads.~~

~~After~~No later than the first ~~operating cycle~~refueling outage of STP 3 and STP 4, detailed inspections of the steam dryer will be performed to confirm the structural adequacy of the dryer for flow-induced vibration loads.

3.9.3.1.8 RCIC Turbine-Pump

STD DEP T1 2.4-3

~~*Although not under the jurisdiction of the ASME Code, the RCIC turbine is designed and evaluated and fabricated following the basic guidelines of*~~The RCIC turbine-pump is constructed in accordance with the requirements of ASME Code Section III for Class 2 components.

3.9.3.1.9 ECCS Pumps

STD DEP T1 2.4-3

The RHR~~, RCIC,~~ and HPCF pumps are constructed in accordance with the requirements of an ASME Code Section III, Class 2 component.

3.9.3.2.1.5 RCIC Turbine-Pump

STD DEP T1 2.4-3

The RCIC turbine-pump *is qualified by a combination of static analysis and dynamic testing as described in Subsection 3.9.2.2.2.7. The turbine*-pump *assembly consists of rigid masses (wherein static analysis is utilized) interconnected with control levers and electronic control systems, necessitating final qualification by dynamic testing. Static loading analysis has been employed to verify the structural integrity of the turbine*-pump *assembly, and the adequacy of bolting under operating and dynamic conditions. The complete turbine*-pump *assembly is qualified via dynamic testing, in accordance with IEEE-344. The qualification test program includes demonstration of startup capability, as well as operability during dynamic loading conditions. Operability under normal load conditions is assured by comparison to operability of similar turbines in operating plants.*

3.9.3.2.2 SLC Pump and Motor Assembly and RCIC Turbine-Pump Assembly

3.9.3.4.4 Floor-Mounted Major Equipment (Pumps, Heat Exchangers, and RCIC Turbine-Pump)

STD DEP T1 2.4-3

Since the major active valves are supported by piping and not tied to building structures, valve “supports” do not exist (Subsection 3.9.3.4.1).

The HPCF, RHR, ~~RCIC,~~ SLC, FPCCU, SPCU, and CUW pumps; RCW, RHR, CUW, and FPCCU heat exchangers; and RCIC turbine-pump *are all analyzed to verify the adequacy of their support structure under various plant operating conditions. In all cases, the load stresses in the critical support areas are within ASME Code allowables.*

Seismic Category I active pump supports are qualified for dynamic (seismic and other RBV) loads by testing when the pump supports together with the pump meet the following test conditions:

(1) Simulate actual mounting conditions.

3.9.5.1.2.9 Incore Guide Tubes and Stabilizers

STD DEP 3.9-1

These are Safety Class 3 components. The guide tubes protect the incore instrumentation from flow of water in the bottom head plenum and provide a means of positioning fixed detectors in the core, as well as a path for insertion and withdrawl of the calibration monitors (ATIP, Automated Traversing Incore Probe Subsystem). The incore flux monitor guide tubes extend from the top of the incore flux monitor housing to the top of the core plate. (The power range detectors for the power range monitoring *units and the dry tubes for the startup range neutron monitoring and average power range monitoring (SRNM) detectors are inserted through the guide tubes). The local power range monitor (PRNM) detector assemblies and the dry tubes for the startup range monitoring (SRNM) assemblies are inserted through the guide tube.*

Two levels of ~~stainless steel~~stabilizer latticework of clamps, tie bars, and spacers give lateral support and rigidity to the guide tubes. The stabilizers are connected to the shroud and shroud support. The bolts are tack-welded after assembly to prevent loosening during reactor operation.

3.9.6 Testing of Pumps and Valves

STD DEP Admin

The following change is made in the 3rd sentence of the 2nd paragraph of this subsection.

For example, the periodic leak testing of the reactor coolant pressure isolation valves (See Appendix 3M for design changes made to prevent intersystem LOCAs) in Table 3.9-9 will be performed in accordance with Chapter 16 Surveillance Requirement SR ~~3.6.1.5.10~~ 3.4.4.1*.*

3.9.6.3 ~~3.9.6.9.3~~ Relief Requested Pursuant to 10CFR 50.55a(f)(5)(iii) for Testing RHR Fill Pumps

OM-2004 Table ISTB-3000-1 requires measurement of flow rate (Q) for all pumps during Group A, Group B and Comprehensive Tests. The three RHR System Fill Pumps (E11-C002) are classified as Group A pumps. STP proposes not to meet the OM-2004 ISTB-3000 requirement to measure flow rate during Group A and Comprehensive Tests for the RHR system fill pumps, as indicated in Note (i1) in Table 3.9-8.

As described in Section 6.3.2, the primary function of the RHR System Fill Pumps is to maintain a water solid condition in the RHR pump discharge piping, and the piping will be maintained full by a small fraction of the pump's flow capacity. The RHR System Fill Pumps are expected to run continuously providing a small makeup flow to compensate for any back leakage through the RHR system. These pumps will provide a low flow rate that is dependent on the piping system leakage characteristics at any given time. Without a constant, explicit, and definable piping system leak rate and path, the system resistance and make up requirements cannot be set. Therefore, the pump flow rate may vary considerably around a small value and these variations likely would exceed the ISTB-5221 Acceptance Criteria, but actually be due to variations in RHR system back leakage rather than the pump's hydraulic performance. Accordingly, it is impractical to perform the measurement of flow rates for the three RHR System Fill Pumps, as designed, to obtain meaningful results.

The RHR System Fill Pump will be designed so that they will normally operate in the flat region of the pump pressure-flow performance curve. The pumps will be designed and analyzed to continuously operate in this low-flow regime without any significant pump degradation. Since the pump will normally be operating on the flat region of the pump performance curve, the pump differential pressure is the hydraulic parameter of interest in monitoring pump nonperformance. The ISTB-3000 requirement for measuring pump differential pressure as well as peak vibration velocity, as reflected in Table 3.9-8, will assure detection of any significant degradation in the pumps' hydraulic or mechanical performance. In addition, SR 3.5.1.1 in Chapter 16 requires the physical confirmation of a water solid RHR pipeline by opening a high point vent to confirm solid water flow on a 31-day frequency and RHR system pressure is continuously monitored and alarmed in the control room.

In lieu of measuring flow rate, the use of pumps that are designed and analyzed to ensure both that the expected flow rate stays well within the flat portion of the pressure-flow curve and that no significant degradation occurs with the expected continuous low flow operation, combined with the proposed testing and system monitoring, will provide an acceptable level of quality and safety.

3.9.7 COL License Information

3.9.7.1 Reactor Internals Vibration Analysis, Measurement and Inspection Program

The following standard supplement addresses COL License Information Item 3.27.

The results of the vibration assessment program for the first ABWR plant have been assessed and it was determined that the level of detail of the available information is inadequate to meet the level of information described in the guidance provided in RG 1.20 Rev. 3. Therefore, as described in Subsection 3.9.2.3, STP 3 is the prototype plant, and therefore a prototype reactor internals stress and vibration analysis, measurement and inspection program is provided. This program addresses the following regulatory positions of RG 1.20 Rev. 3:

C.2.1 Vibration and Stress Analysis Program

C.2.2 Vibration and Stress Measurement Program

C.2.3 Inspection Program

C.2.4 Documentation of Results

As described in Subsection 3.9.2.3, the STP 3 ABWR FIV Assessment Program (Ref. 3.9-13) provides the summary of the results of the vibration and stress analysis, and descriptions of the vibration and stress measurement program and inspection program. The preliminary and final reports, which together summarize the results of the vibration analysis, measurement, and inspection programs, will be submitted to the NRC within 60 and 180 days, respectively, following the completion of vibration testing in accordance with the guidance in RG 1.20 Rev. 3.

As described in Subsection 3.9.2.3, STP 4 is considered a non-prototype category 1 plant. Based on the guidance of RG 1.20 Rev. 3 regulatory position C.3, the STP 4 FIV Assessment Program (Ref. 3.9-14) provides the summary of the results of the vibration and stress analysis, and description of the inspection program. The preliminary and final reports, which together summarize the results of the vibration analysis and inspection programs, will be submitted to the NRC within 60 and 180 days, respectively, following the completion of inspection program in accordance with the guidance in RG 1.20 Rev. 3.

3.9.7.2 ASME Class 2 or 3 or Quality Group D Components with 60-Year Design Life

The following standard supplement addresses COL License Information Item 3.28.

The ASME Class 2 or 3 or Quality Group D components that are subjected to cyclic loadings, including operating vibration loads and thermal transients effects, of a magnitude and/or duration so severe the 60-year design life cannot be assured by required Code calculations and, if similar designs have not already been evaluated, will be identified and an appropriate analysis will be available to demonstrate the required design life or designs to mitigate the magnitude or duration of the cyclic loads will be available for review prior to fuel load. (COM 3.9-2)

3.9.7.3 Pump and Valve Testing Program

The following standard supplement addresses COL License Information Item 3.29.

The plant specific environmental parameters for the equipment qualification program will be available for NRC review as part of the ITAAC for basic configuration of systems, as provided in the reference ABWR DCD Tier 1 Section 1.2.

The pump and valve inservice testing and inspection program will be provided to the NRC as specified in section 13.4S. This program will include the following:

(1) Include baseline pre-service testing to support the periodic inservice testing of the components required by technical specifications. Provisions are included to disassemble and inspect the pump, check valves, POVs, and MOVs within the Code and safety-related classification as necessary, depending on test results.

(2) Provide a study to determine the optimal frequency of the periodic verification of the continuing MOV capability for design basis conditions.

The design qualification test, inspection and analysis criteria in Subsections 3.9.6.1, 3.9.6.2.1, 3.9.6.2.2 and 3.9.6.2.3 of Tier 2 of the reference ABWR DCD will be included in the respective safety-related pump and valve design specifications prior to fuel load. (COM 3.9-3)

The design, qualification, and preoperational testing for MOVs as discussed will conform to the provisions in Subsection 3.9.6.2.2 of Tier 2 of the reference ABWR DCD. (COM 3.9-4)

SRV IST requirements are included in Table 3.9-8 (B21 Nuclear Boiler System Valves) and additional SRV testing including technical specification testing is described in Section 5.2.2.10.

As is described for ISI in COL License Information item 6.6.9.1, inservice tests to verify operational readiness of pumps and valves, whose function is required for safety, conducted during the initial 120-month interval must comply with the requirements in the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) of this section on the date 12 months before the date of issuance of the operating license (or the optional ASME Code cases listed in NRC Regulatory Guide 1.192 that is incorporated by reference in 10 CFR 50.55a(b) of this section), subject to the limitations and modifications listed in 10 CFR 50.55a(b) of this section.

As is described for ISI in COL License information item 6.6.9.1, inservice tests to verify operational readiness of pumps and valves, whose function is required for safety, conducted during successive 120-month intervals must comply with the requirements of the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) of this section 12 months before the start of the 120- month interval (or the optional ASME Code cases listed in NRC Regulatory Guide 1.147, through Revision 14, or 1.192 that are incorporated by reference in 10 CFR 50.55a(b) of this section), subject to the limitations and modifications listed in 10 CFR 50.55a(b) of this section.

3.9.7.4 Audit of Design Specification and Design Reports

The following site-specific supplement addresses COL License Information Item 3.30.

The design specification and design reports required by ASME Code for vessels, pumps, valves and piping systems for the purpose of audit will be made available for NRC review.

The piping system design is consistent with the construction practices, including inspection and examination methods, of the ASME Code 1989 edition with no addenda.

ASME Code editions and addenda other than those listed in Tables 1.8-21 and 3.2-3, will not be used to design ASME Code Class 1, 2 and 3 pressure retaining components and supports.

3.9.8 References

3.9-13 "STP 3 ABWR Prototype Reactor Internals Flow-Induced Vibration Assessment Program," WCAP-17256.

3.9-14 "STP 4 Reactor Internals Flow-Induced Vibration Assessment Program," WCAP-17257.

Table 3.9-1 Plant Events

B. Dynamic Loading Events[5]		
	ASME Code Service Limit[1]	**No. of Cycles/Events[2]**
13.Safe Shutdown Earthquake (SSE) at Rated Power Operating Conditions	D[8]	1 ~~*Cycle*~~ **Event**[4]

Table 3.9-2 Load Combinations and Acceptance Criteria for Safety-Related, ASME Code Class 1, 2 and 3 Components, Component Supports, and Class CS Structures

Plant Event	*Service Loading Combination*	*ASME Service Level*
1. Normal Operation (NO)	*N*	*A*[13]

13 For ASME Code Class 1, 2 and 3 piping, piping stresses due to differential foundation (building) settlement shall be evaluated to meet the following stress limits:

a) ASME Code Class 1 piping:

$S_{SETTLEMENT} = (C_2 \times D_O \times M_d) / (2 \times I) \leq 6 \times S_m$.

where:

$S_{SETTLEMENT}$	is the nominal value of stress due to differential settlement
M_d	is the resultant moment due to predicted differential settlement
C_2, D_O and I	are defined in ASME Code Subsection NB-3600
S_m	is material allowable stress at cold (room) temperature

$S_{SETTLEMENT}$ shall not be included in ASME Code Subsection NB-3600 Equations (10) and (11).

b) ASME Code Class 2 and 3 piping:

$S_{SETTLEMENT} = (i \times M_d) / Z \leq 3 \times S_c$.

where:

$S_{SETTLEMENT}$	is the nominal value of stress due to differential settlement
M_d	is the resultant moment due to predicted differential settlement
i and Z	are defined in ASME Code Subsections NC/ND-3600
S_c	is material allowable stress at cold (room) temperature

$S_{SETTLEMENT}$ shall not be included in ASME Code Subsections NC/ND-3600 Equations (9), (10) and (11).

Table 3.9-8 Inservice Testing Safety-Related Pumps and Valves

MPL	System	Pump Page No.	Valve Page No.
P81	Breathing Air System		3.9-132

Table 3.9-8 Inservice Testing Safety-Related Pumps and Valves (Continued)

No.	Qty	Description (h) (i)	Safety Class (a)	Code Cat. (c)	Valve Func (d)	Test Para (e)	Test Freq (f)	Tier 2 Fig. (g)
E11 Residual Heat Removal System Valves								
F014	~~2~~3	*Fuel Pool Cooling supply line inboard MOV*	*2*	*B*	*A*	*P S*	*2yr, 3 mo*	*5.4-10 sh.**3**,5,7*
F015	~~2~~3	Fuel Pool Cooling supply line outboard MOV	2	B	A	P S	2 yr,3 mo	5.4-10 sh. **3**,5,7
F016	~~2~~3	Gate valve-line from Fuel Pool Cooling (FPC)	2	B	A	S	3 mo	5.4-10 sh. 2
E51 Reactor Core Isolation Cooling System Valves								
~~*F012*~~	~~*1*~~	~~*RCIC turbine accessories cooling water line MOV*~~	~~*2*~~	~~*B*~~	~~*A*~~	~~*P S*~~	~~*2 yr 3 mo*~~	~~*5.4-8 sh. 3*~~
~~*F013*~~	~~*1*~~	~~*RCIC turbine accessories cooling water line PCV*~~	~~*2*~~	~~*B*~~	~~*A*~~		~~*E1*~~	~~*5.4-8 sh. 3*~~
~~*F015*~~	~~*1*~~	~~*Barometric condenser condensate pump discharge line valve*~~	~~*2*~~	~~*B*~~	~~*P*~~		~~*E1*~~	~~*5.4-8 sh. 3*~~
~~*F016*~~	~~*1*~~	~~*Barometric condenser condensate pump discharge line check valve*~~	~~*2*~~	~~*C*~~	~~*P*~~	~~*P S*~~	~~*2 yr 3 mo*~~	~~*5.4-8 sh. 3*~~
~~*F030*~~	~~*1*~~	~~*Turbine accessories cooling water line relief valve*~~	~~*2*~~	~~*C*~~	~~*A*~~	~~*R*~~	~~*5 yr*~~	~~*5.4-8 sh. 3*~~
~~*F031*~~	~~*1*~~	~~*Barometric condenser condensate discharge line AOV to HCW*~~	~~*2*~~	~~*B*~~	~~*P*~~		~~*E1*~~	~~*5.4-8 sh. 3*~~
~~*F032*~~	~~*1*~~	~~*Barometric condenser condensate discharge line AOV to HCW*~~	~~*2*~~	~~*B*~~	~~*P*~~		~~*E1*~~	~~*5.4-8 sh. 3*~~
~~*F034*~~	~~*1*~~	~~*Barometric condenser condensate pump discharge line test line valve*~~	~~*2*~~	~~*B*~~	~~*P*~~		~~*E1*~~	~~*5.4-8 sh. 3*~~
~~*F044*~~	~~*1*~~	~~*Steam admission valve bypass line maintenance valve*~~	~~*2*~~	~~*B*~~	~~*P*~~		~~*E1*~~	~~*5.4-8 sh. 2*~~
~~*F045*~~	~~*1*~~	~~*Steam admission valve bypass line MOV*~~	~~*2*~~	~~*B*~~	~~*A*~~	~~*P S*~~	~~*2 yr 3 mo*~~	~~*5.4-8 sh. 2*~~
~~*F046*~~	~~*1*~~	~~*Barometric condenser vacuum pump discharge line check valve (h3)*~~	~~*2*~~	~~*A, C*~~	~~*I, A*~~	~~*L,S*~~	~~*RO*~~	~~*5.4-8 sh. 1*~~

Table 3.9-8 Inservice Testing Safety-Related Pumps and Valves (Continued)

~~F047~~	~~1~~	~~Barometric condenser vacuum pump discharge line MOV~~	~~2~~	~~A~~	~~I,A~~	~~L,P S~~	~~RO 3 mo~~	~~5.4-8 sh. 1~~
~~F051~~	~~1~~	~~Turbine exhaust line drain line valve~~	~~2~~	~~B~~	~~P~~		~~E1~~	~~5.4-8 sh. 3~~
~~F052~~	~~1~~	~~Turbine exhaust line drain line valve~~	~~2~~	~~B~~	~~P~~		~~E1~~	~~5.4-8 sh. 3~~
~~F059~~	~~1~~	~~Barometric condenser vacuum pump discharge line test line valve~~	~~2~~	~~B~~	~~P~~		~~E1~~	~~5.4-8 sh. 1~~
~~F712~~	~~1~~	~~Turbine accessories cooling water line instrument root valve~~	~~2~~	~~B~~	~~P~~		~~E1~~	~~5.4-8 sh. 3~~
~~F713~~	~~1~~	~~Turbine accessories cooling water line instrument root valve~~	~~2~~	~~B~~	~~P~~		~~E1~~	~~5.4-8 sh. 3~~
~~F714~~	~~1~~	~~Turbine accessories cooling water line instrument root valve~~	~~2~~	~~B~~	~~P~~		~~E1~~	~~5.4-8 sh. 3~~
P21 Reactor Building Cooling Water System Valves								
~~F037~~	~~2~~	~~Cooling water supply line to FCS room air conditioner~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~9.2-1 sh. 2,5~~
~~F038~~	~~2~~	~~Cooling water return line from FCS room air conditioner~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~9.2-1 sh. 2,5~~
~~***T49 Flammability Control System Valves***~~								
~~F001~~	~~2~~	~~Inlet line from drywell inboard isolation valve~~	~~2~~	~~A~~	~~I,A~~	~~L, P S~~	~~2 yr 3 mo~~	~~6.2-40~~
~~F002~~	~~2~~	~~Inlet line from drywell outboard isolation valve~~	~~2~~	~~A~~	~~I,A~~	~~L, P S~~	~~2 yr 3 mo~~	~~6.2-40~~
~~F003~~	~~2~~	~~Flow control valve for the FCS inlet line from drywell~~	~~3~~	~~B~~	~~A~~	~~P S~~	~~2 yr 3 mo~~	~~6.2-40~~
~~F004~~	~~2~~	~~Blower bypass line flow control valve~~	~~3~~	~~B~~	~~A~~	~~P S~~	~~2 yr 3 mo~~	~~6.2-40~~
~~F005~~	~~2~~	~~Blower discharge line to wetwell check valve (h9)~~	~~3~~	~~C~~	~~A~~	~~S~~	~~RO~~	~~6.2-40~~
~~F006~~	~~2~~	~~Discharge line to wetwell outboard isolation valve~~	~~2~~	~~A~~	~~I,A~~	~~L, P S~~	~~2 yr 3 mo~~	~~6.2-40~~
~~F007~~	~~2~~	~~Discharge line to wetwell inboard isolation valve~~	~~2~~	~~A~~	~~I,A~~	~~L, P S~~	~~2 yr 3 mo~~	~~6.2-40~~

Table 3.9-8 Inservice Testing Safety-Related Pumps and Valves (Continued)

~~F008~~	~~2~~	~~Cooling water supply line from the RHR System MOV~~	~~3~~	~~B~~	~~A~~	~~P S~~	~~2 yr 3 mo~~	~~6.2-40~~
~~F009~~	~~2~~	~~Cooling water supply line maintenance valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F010~~	~~2~~	~~Cooling water supply line admission MOV~~	~~3~~	~~B~~	~~A~~	~~P S~~	~~2 yr 3 mo~~	~~6.2-40~~
~~F013~~	~~2~~	~~Inlet line from drywell drain line valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F015~~	~~1~~	~~Blower discharge line to wetwell pressure relief valve~~	~~2~~	~~A,C~~	~~I,A~~	~~R L~~	~~5 yr RO~~	~~6.2-40~~
~~F016~~	~~2~~	~~Blower discharge line to wetwell pressure relief line check valve (h3)~~	~~2~~	~~A,C~~	~~I,A~~	~~L, S~~	~~RO~~	~~6.2-40~~
~~F501~~	~~2~~	~~Inlet line from drywell test line valve~~	~~2~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F502~~	~~2~~	~~Discharge line to wetwell test line valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F504~~	~~2~~	~~Blower suction line test line valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F505~~	~~2~~	~~Blower discharge line test line valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F506~~	~~2~~	~~Drain line to low conductivity waste (LCW) valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F507~~	~~2~~	~~Cooling water supply line test line valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F701~~	~~2~~	~~FE-T49-FE002 upstream instrument line root valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F702~~	~~2~~	~~FE-T49-FE002 downstream instrument line root valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F703~~	~~2~~	~~Blower suction line pressure instrument line root valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F704~~	~~2~~	~~FE-T49-FE004 upstream instrument line root valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
~~F705~~	~~2~~	~~FE-T49-FE004 downstream instrument line root valve~~	~~3~~	~~B~~	~~P~~		~~E1~~	~~6.2-40~~
P41 Reactor Service Water System Valves								
F110	**6**	**RSW return to cooling tower**	**3**	**B**	**A**	**P S**	**2 yr 3mo**	**9.2-7 sh. 1,2,3**
F109	**3**	**RSW cold bypass to cooling tower basin MOV**	**3**	**B**	**A**	**P S**	**2 yr 3mo**	**9.2-7 sh. 1,2,3**

Table 3.9-8 Inservice Testing Safety-Related Pumps and Valves (Continued)

	F115	1	Makeup water to UHS basin MOV	3	B	A	P S	2 yr 3mo	9.2-7 sh. 1
	F113/ F116	2	Makeup water to UHS basin Manual Isolation valves	3	B	P		E1	9.2-7 sh. 1
	F114/ F117	2	Makeup water to UHS basin Check valves	3	C	A	S	3mo	9.2-7 sh. 1
	F101	3	RSW line to HVAC Air Conditioning Condenser Manual Isolation valves	3	B	P		E1	9.2-7 sh. 1,2,3
	F102	3	RSW blowdown line to Main Cooling Reservoir MOV	3	B	A	P S	2 yr 3mo	9.2-7 sh. 1,2,3
P51 Service Air System Valves									
	F132	*1*	*Inboard isolation ~~manual~~*check *valve* (h1)	*2*	*A*, C	*I,* ~~*P*~~A	*L*, S	*RO*	*9.3-7*
P81 Breathing Air System									
	F252	1	Inboard Isolation Manual valve	2	A	I,P	L	RO	9.3-10
	F251	1	Outboard Isolation Manual valve	2	A	I,P	L	RO	9.3-10