

**TABLE 3.2.2-1 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION –  
RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes	
Piping and Fittings (Low Pressure Coolant Injection (LPCI) System)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H	
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01		
		Stainless Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry				H
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.1-f	3.1.1-29	B	
			Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01			
Valves (Body)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H	
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.3-d	3.1.1-01		

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Low-Pressure Coolant Injection (LPCI) and Residual Heat Removal (RHR))	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B
		Stainless Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	V.D2.1-c	3.2.1-16	B
	M-4	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Lines to Suppression Chamber (SC))	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B
Piping and Fittings (Lines to Drywell and Suppression Chamber Spray System (DSCSS))	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Piping specialties)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
		Stainless Steel	Treated Water (Includes Steam) (Internal)	Cracking due to SCC Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-3	Stainless Steel	Treated Water (Includes Steam) (Internal)	Cracking due to SCC Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-4	Stainless Steel	Indoor Air (External)	None	None			J, 215
	M-6	Insulation	Indoor Air (External)	None	None			J, 228

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Misc. auxiliary and drain piping and valves)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-4	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Piping and Fittings (restrictive orifices / flow elements)	M-1	Stainless Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	V.D2.1-c	3.2.1-16	D

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (restrictive orifices / flow elements) (continued)	M-3	Stainless Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	V.D2.1-c	3.2.1-16	D
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Bowl/Casing)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Suction Head)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Discharge Head)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B
Valves (Check, Control, Hand, Motor Operated, and Relief Valves) (Body and Bonnet)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.3-b	3.2.1-02 3.2.1-04	B
				Loss of Material due to Erosion	One-Time Inspection			J, 218
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	V.D2.3-c	3.2.1-16	B

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Check, Control, Hand, Motor Operated, and Relief Valves) (Body and Bonnet) (continued)	M-4	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.3-b	3.2.1-02 3.2.1-04	B
Heat Exchangers (RHR and LPCI) (Tubes)	M-1	Copper Alloys	Raw Water (Internal)	Loss of Material due to Erosion Loss of Material due to MIC	Open-Cycle Cooling Water System			J
			Treated Water (External)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System			J
				Loss of Material due to Selective Leaching	Selective Leaching of Materials			J
	M-5	Copper Alloys	Raw Water (Internal)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Open-Cycle Cooling Water System			J
			Treated Water (External)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Open-Cycle Cooling Water System			J



**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat Exchangers (RHR and LPCI) (Tubesheet)	M-1	Copper Alloys	Raw Water (Internal)	Loss of Material due to Erosion Loss of Material due to MIC	Open-Cycle Cooling Water System			J
			Treated Water (External)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System			J
				Loss of Material due to Selective Leaching	Selective Leaching of Materials			J
	M-5	Copper Alloys	Raw Water (Internal)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Open-Cycle Cooling Water System			J
			Treated Water (External)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Open-Cycle Cooling Water System			J
Heat Exchangers (RHR and LPCI) (Channel Head)	M-1	Copper Alloys	Raw Water (Internal)	Loss of Material due to Erosion Loss of Material due to MIC	Open-Cycle Cooling Water System			J
Heat Exchangers (RHR and LPCI) (Shell)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat Exchangers (RHR and LPCI) (Shell) (continued)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	V.D2.4-a	3.2.1-12	A
Drywell and Suppression Chamber Spray System (DSCSS) (Piping and Fittings)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Drywell and Suppression Chamber Spray System (DSCSS) (Spray Nozzles)	M-1	Carbon Steel	Dry Air/Gas (Internal)	None	None			J
	M-8	Carbon Steel	Dry Air/Gas (Internal)	None	None			J, 229
Emergency Core Cooling System (BWR) (ECCS Pump Suction Strainers)	M-1	Carbon Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
				Loss of Material due to Crevice Corrosion Loss of Material due to Galvanic Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Emergency Core Cooling System (BWR) (ECCS Pump Suction Strainers) (continued)	M-1	Stainless Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J
				Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-2	Carbon Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
				Loss of Material due to Crevice Corrosion Loss of Material due to Galvanic Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
				Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
				Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
		Stainless Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
				Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

<b>Component Commodity</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Volume 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Carbon Steel Components (External Surfaces)	M-1	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E
	M-4	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E
Piping (Piping and Fittings)	M-1	Carbon Steel	Raw Water (Internal)	Flow Blockage due to Fouling Loss of Material due to Crevice Corrosion Loss of Material due to Galvanic Corrosion Loss of Material due to General Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	VII.C1.1-a	3.3.1-17	A

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping (Piping and Fittings) (continued)	M-1	Copper Alloys	Indoor Air (External)	None	None			J, 217
			Raw Water (Internal)	Flow Blockage due to Fouling Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	VII.C1.1-a	3.3.1-17	A
				Loss of Material due to Selective Leaching	Selective Leaching of Materials	VII.C1.1-a	3.3.1-29	B
	Stainless Steel	Indoor Air (External)	None	None				J, 215
		Raw Water (Internal)	Flow Blockage due to Fouling Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	VII.C1.1-a	3.3.1-17	A	
	M-4	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Raw Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	VII.C1.1-a	3.3.1-17	A

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Body and Bonnet)	M-1	Copper Alloys	Indoor Air (External)	None	None			J, 217
			Raw Water (Internal)	Loss of Material due to Erosion	Open-Cycle Cooling Water System			H
				Flow Blockage due to Fouling Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	VII.C1.2-a	3.3.1-17	E
				Loss of Material due to Selective Leaching	Selective Leaching of Materials	VII.C1.2-a	3.3.1-29	E
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Raw Water (Internal)	Flow Blockage due to Fouling Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	VII.C1.2-a	3.3.1-17	E

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat Exchanger (Shell)	M-1	Grey Cast Iron	Treated Water (Internal)	Loss of Material due to Galvanic Corrosion	Preventive Maintenance			J
				Loss of Material due to Selective Leaching	Selective Leaching of Materials			J
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Heat Exchanger (Channel Head and Access Cover)	M-1	Copper Alloys	Indoor Air (External)	None	None			J, 223
			Raw Water (Internal)	Flow Blockage due to Fouling Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System	VII.C1.3-a	3.3.1-17	A
				Loss of Material due to Selective Leaching	Selective Leaching of Materials	VII.C1.3-a	3.3.1-29	B

**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Heat Exchanger (Tubes)	M-1	Copper Alloys	Raw Water (Internal)	Loss of Material due to MIC	Open-Cycle Cooling Water System	VII.C1.3-a	3.3.1-17	A
				Loss of Material due to Erosion Loss of Material due to Galvanic Corrosion	Open-Cycle Cooling Water System			H
		Stainless Steel	Raw Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System			J
				Treated Water (External)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection		
	M-5	Copper Alloys	Indoor Air (External)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Preventive Maintenance			J
			Raw Water (Internal)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Open-Cycle Cooling Water System	VII.C1.3-b	3.3.1-17	A
		Stainless Steel	Raw Water (Internal)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Open-Cycle Cooling Water System			J



**TABLE 3.2.2-1 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – RESIDUAL HEAT REMOVAL (RHR) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Pump (Casing)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Raw Water (Internal)	Flow Blockage due to Fouling Loss of Material due to Crevice Corrosion Loss of Material due to MIC Loss of Material due to Pitting Corrosion	Open-Cycle Cooling Water System			F

**TABLE 3.2.2-2 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION –  
CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Containment Atmospheric Dilution/Control System (Valves)	M-1	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection		J	
		Copper Alloys	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 223
			Indoor Air (Internal)	None	None			J, 223
		Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215
			Treated Water (External)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	Treated Water (Internal)		Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J	
	M-4	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection		J	

**TABLE 3.2.2-2 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Containment Atmospheric Dilution/Control System (Valves) (continued)	M-4	Copper Alloys	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 223
		Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Containment Atmospheric Dilution/Control System (Piping and Fittings)	M-1	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 221
		Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-4	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 221
		Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215

**TABLE 3.2.2-2 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Containment Atmospheric Dilution/Control System (Piping Specialties)	M-1	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 221
		Glass	Indoor Air (External)	None	None			J, 202
			Treated Water (Internal)	None	None			J, 222
		Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-2	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection			J
	M-3	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 221
	M-4	Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215

**TABLE 3.2.2-2 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CONTAINMENT ATMOSPHERE CONTROL (CAC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Containment Atmospheric Dilution/Control System (Tanks)	M-1	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 221
		Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Containment Atmospheric Dilution/Control System (Pumps)	M-1	Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 221
			Indoor Air (External)	None	None			J, 215
Containment Atmospheric Dilution/Control System (Heat Exchangers)	M-1	Carbon Steel	Dry Air / Gas (Internal)	None	None			J, 207, 221
		Stainless Steel	Dry Air / Gas (Internal)	None	None			J, 208, 221
			Indoor Air (External)	None	None			J, 208, 215
Carbon Steel Components (External Surfaces)	M-1	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E
	M-4	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E

**TABLE 3.2.2-3 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (High Pressure Coolant Injection (HPCI) System)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
				Loss of Material due to FAC	Flow-Accelerated Corrosion	IV.C1.1-a	3.1.1-25	D
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-e	3.1.1-01	
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			F
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.1-f	3.1.1-29	D

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (High Pressure Coolant Injection (HPCI) System) (continued)	M-3	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			F
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.1-f	3.1.1-29	D
Piping and Fittings (Steam Line to HPCI and RCIC Pump Turbine)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Small Bore Piping Less than NPS 4)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H, J
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01	
				Cracking due to Thermal and Mechanical Loading	Section XI Inservice Inspection and Water Chemistry	IV.C1.1-i	3.1.1-07	I, 226
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H, J
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01	
				Cracking due to SCC	Section XI Inservice Inspection and Water Chemistry	IV.C1.1-i	3.1.1-07	E, 226
				Cracking due to Thermal and Mechanical Loading	Section XI Inservice Inspection and Water Chemistry	IV.C1.1-i	3.1.1-07	I, 226



**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Body)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
			Loss of Material due to FAC	Flow-Accelerated Corrosion	IV.C1.3-a	3.1.1-25	B	
			Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.3-d	3.1.1-01		
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
			Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.3-c	3.1.1-29	B	
			Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.3-d	3.1.1-01		

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (High Pressure Coolant Injection (HPCI))	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B
			Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	V.D2.1-b	3.2.1-01		
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
			Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	V.D2.1-b	3.2.1-01		
			Cracking due to SCC	Water Chemistry and One-Time Inspection	V.D2.1-c	3.2.1-16	E, 230	
Piping and Fittings (Lines to Suppression Chamber (SC))	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Lines to HPCI and RCIC Pump Turbine)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	D
Piping and Fittings (Lines from HPCI and RCIC Pump Turbines to Torus or Wetwell)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	D
Piping and Fittings (Piping specialties)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Lube Oil (Internal)	None	None			J, 220
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Piping specialties) (continued)	M-1	Glass	Indoor Air (External)	None	None			J, 202
			Treated Water (Internal)	None	None			J, 222
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Cracking due to SCC Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-2	Carbon Steel	Lube Oil (Internal)	None	None			J, 220
	M-6	Insulation	Indoor Air (External)	None	None			J, 228
Piping and Fittings (Misc. auxiliary and drain piping and valves)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Lube Oil (Internal)	None	None			J, 220
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Misc. auxiliary and drain piping and valves) (continued)	M-4	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Piping and Fittings (restrictive orifices / flow elements)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			J
				Loss of Material due to FAC	Flow-Accelerated Corrosion	IV.C1.1-a	3.1.1-25	D
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Lube Oil (Internal)	None	None			J, 220
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
Cracking due to SCC Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection					J		

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (restrictive orifices / flow elements) (continued)	M-3	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Lube Oil (Internal)	None	None			J, 220
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Cracking due to SCC Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Bowl/Casing)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Suction Head)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Discharge Head)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Check, Control, Hand, Motor Operated, and Relief Valves) (Body and Bonnet)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Lube Oil (Internal)	None	None			J, 220
		Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated per 10 CFR 54.21(c)				
			Loss of Material due to FAC	Flow-Accelerated Corrosion	V.D2.3-a	3.2.1-14	B	
			Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.3-b	3.2.1-02 3.2.1-04	B	
		Stainless Steel	Indoor Air (External)	None	None			J, 215
	Treated Water (Internal)		Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			F	
	Strainer Element	Treated Water (Internal)	Flow Blockage due to Fouling	Preventive Maintenance			J, 225	
	M-4	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.3-b	3.2.1-02 3.2.1-04	B

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Emergency Core Cooling System (BWR) (Auxiliary Pumps)	M-1	Carbon Steel	Lube Oil (Internal)	None	None			J, 220
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Emergency Core Cooling System (BWR) (Misc. Tanks and Vessels)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Lube Oil (Internal)	None	None			J, 220
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	Loss of Material due to FAC	Flow-Accelerated Corrosion	IV.C1.1-a	3.1.1-25	D			
M-4	Carbon Steel	Indoor Air (External)	None	None			J, 219	
		Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J	



**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Emergency Core Cooling System (BWR) (Steam Turbines)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Auxiliary Heat Exchangers (Auxiliary Heat Exchanger tubing)	M-1	Copper Alloys	Lube Oil (External)	None	None			J, 220
			Lube Oil (Internal)	None	None			J, 220
	M-5	Copper Alloys	Lube Oil (External)	None	None			J, 220
			Lube Oil (Internal)	None	None			J, 220
Auxiliary Heat Exchangers (Auxiliary Heat Exchanger shell / housing)	M-1	Carbon Steel	Lube Oil (Internal)	None	None			J, 220
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Auxiliary Strainers/Filters (Auxiliary Strainer Element)	M-2	Strainer Element	Lube Oil (Internal)	Flow Blockage due to Fouling	Preventive Maintenance			J
Auxiliary Strainers/Filters (Auxiliary Strainer Housing)	M-1	Carbon Steel	Lube Oil (Internal)	None	None			J, 220
Emergency Core Cooling System (BWR) (ECCS Pump Suction Strainers)	M-1	Carbon Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
				Loss of Material due to Crevice Corrosion Loss of Material due to Galvanic Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	Stainless Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J	
			Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J	

**TABLE 3.2.2-3 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Emergency Core Cooling System (BWR) (ECCS Pump Suction Strainers) (continued)	M-2	Carbon Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
				Loss of Material due to Crevice Corrosion Loss of Material due to Galvanic Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
		Stainless Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J
				Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Carbon Steel Components (External Surfaces)	M-1	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E
	M-4	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E

**TABLE 3.2.2-4 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION –  
AUTOMATIC DEPRESSURIZATION SYSTEM (ADS)**

<b>Component Commodity</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Volume 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Valves (including check valves and containment isolation) (Body and Bonnet)	M-1	Stainless Steel	Dry Air / Gas (Internal)	None	None			F, 214
Non-Carbon Steel Components (External Surfaces)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 201

**TABLE 3.2.2-5 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes	
Piping and Fittings (Low Pressure Core Spray (LPCS) System)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H	
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01		
		Stainless Steel	Indoor Air (External)	None	None			J, 215	
				Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
					Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.1-f	3.1.1-29	B
					Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01	

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Low Pressure Core Spray (LPCS) System) (continued)	M-3	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.1-f	3.1.1-29	B
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01	
Piping and Fittings (Small Bore Piping Less than NPS 4)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01	
				Cracking due to SCC	Section XI Inservice Inspection and Water Chemistry	IV.C1.1-i	3.1.1-07	E, 226
				Cracking due to Thermal and Mechanical Loading	Section XI Inservice Inspection and Water Chemistry	IV.C1.1-i	3.1.1-07	I, 226

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Body)	M-1	Carbon Steel	Indoor Air (External)	None	None			J, 219
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
			Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.3-d	3.1.1-01		
		Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H	
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Body) (continued)	M-1	Stainless Steel	Treated Water (Includes Steam) (Internal)	Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.3-c	3.1.1-29	B
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.3-d	3.1.1-01	J, 219 H
	M-4	Carbon Steel	Indoor Air (External)	None	None			
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			
Piping and Fittings (Low-Pressure Core Spray (LPCS))	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B



**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Low-Pressure Core Spray (LPCS)) (continued)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			F
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	V.D2.1-c	3.2.1-16	B
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			F
Piping and Fittings (Lines to Suppression Chamber (SC))	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.1-a	3.2.1-02 3.2.1-04	B
Piping and Fittings (Piping specialties)	M-4	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			F

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Misc. auxiliary and drain piping and valves)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	One-Time Inspection			J, 205
	M-4	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	One-Time Inspection			J, 205
Piping and Fittings (restrictive orifices / flow elements)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			F
	M-3	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			F

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

<b>Component Commodity</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Volume 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Bowl/Casing)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Suction Head)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B
Pumps (HPCS or HPCI Main and Booster, LPCS, LPCI or RHR, and RCIC) (Discharge Head)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.2-a	3.2.1-02 3.2.1-04	B

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Check, Control, Hand, Motor Operated, and Relief Valves) (Body and Bonnet)	M-1	Carbon Steel	Treated Water (Includes Steam) (Internal)	Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
				Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.3-b	3.2.1-02 3.2.1-04	B
		Stainless Steel	Indoor Air (External)	None	None			J, 215
	M-4	Carbon Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			F
				Loss of Material due to Crevice Corrosion	Water Chemistry and One-Time Inspection			F
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)			
M-4	Carbon Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection	V.D2.3-b	3.2.1-02 3.2.1-04	B	

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes	
Emergency Core Cooling System (BWR) (ECCS Pump Suction Strainers)	M-1	Carbon Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203	
				Loss of Material due to Crevice Corrosion Loss of Material due to Galvanic Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J	
		Stainless Steel		Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
					Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
	M-2	Carbon Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203	
				Loss of Material due to Crevice Corrosion Loss of Material due to Galvanic Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J	

**TABLE 3.2.2-5 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – CORE SPRAY (CS) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Emergency Core Cooling System (BWR) (ECCS Pump Suction Strainers) (continued)	M-2	Stainless Steel	Treated Water (Internal)	Flow Blockage due to Fouling	Protective Coating Monitoring and Maintenance			J, 203
				Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			J
Carbon Steel Components (External Surfaces)	M-1	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E
	M-4	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E

**TABLE 3.2.2-6 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT – EVALUATION  
STANDBY GAS TREATMENT SYSTEM (SGTS)**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Ductwork (Equipment Frames and Housing)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	V.B.1-a	3.2.1-03	E
Filters (Housing and Supports)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	V.B.2-a	3.2.1-03	E
Filters (Elastomer Seals)	M-1	Elastomers	Indoor Air (External)	Loss of Material due to Wear	Systems Monitoring			H
				Cracking due to Various Degradation Mechanisms	Systems Monitoring	V.B.2-b	3.2.1-07	E
			Indoor Air (Internal)	Loss of Material due to Wear	Preventive Maintenance			H
				Cracking due to Various Degradation Mechanisms	Preventive Maintenance	V.B.2-b	3.2.1-07	E
Standby Gas Treatment System (Boiling Water Reactor) (Piping)	M-1	Carbon Steel	Buried (External)	Loss of Material due to Crevice Corrosion	Buried Piping and Tanks Inspection			J
				Loss of Material due to General Corrosion				
	M-4	Carbon Steel	Indoor Air (Internal)	Loss of Material due to MIC				
Loss of Material due to Pitting Corrosion				One-Time Inspection			J	
			Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection			J

**TABLE 3.2.2-6 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT – EVALUATION STANDBY GAS TREATMENT SYSTEM (SGTS)**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Standby Gas Treatment System (Boiling Water Reactor) (Valves)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection			J
	M-4	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection			J
Standby Gas Treatment System (Boiling Water Reactor) (Piping Specialties)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Indoor Air (Internal)	None	None			J, 215
	M-3	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Indoor Air (Internal)	None	None			J, 215
	M-4	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Indoor Air (Internal)	None	None			J, 215
Standby Gas Treatment System (Boiling Water Reactor) (Instrument Tubing)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Indoor Air (Internal)	None	None			J, 215
Carbon Steel Components (External Surfaces)	M-1	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E
	M-4	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E



**TABLE 3.2.2-7 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION –  
STANDBY LIQUID CONTROL (SLC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping and Fittings (Lines to Reactor Water Cleanup (RWC) and Standby Liquid Control (SLC) Systems)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
				Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.1-f	3.1.1-29	B
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-h	3.1.1-01	
Piping and Fittings (Small Bore Piping Less than NPS 4)	M-1	Stainless Steel	Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
				Cracking due to SCC	Section XI Inservice Inspection and Water Chemistry	IV.C1.1-i	3.1.1-07	E, 226
				Cracking due to Thermal and Mechanical Loading	Section XI Inservice Inspection and Water Chemistry	IV.C1.1-i	3.1.1-07	I, 226
				Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.1-i	3.1.1-07	

**TABLE 3.2.2-7 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – STANDBY LIQUID CONTROL (SLC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Body)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Section XI Inservice Inspection and Water Chemistry			H
			Cracking due to SCC	Water Chemistry and BWR Stress Corrosion Cracking	IV.C1.3-c	3.1.1-29	B	
			Cracking due to Thermal Fatigue	TLAA, evaluated in accordance with 10 CFR 54.21(c)	IV.C1.3-d	3.1.1-01		
Carbon Steel Components (External Surfaces)	M-1	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	V.E.1-b	3.2.1-10	E
Piping (Piping and Fittings)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H

**TABLE 3.2.2-7 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – STANDBY LIQUID CONTROL (SLC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping (Piping and Fittings) (continued)	M-4	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
Piping (Piping specialties)	M-1	Carbon Steel	Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to General Corrosion Loss of Material due to Pitting Corrosion	Preventive Maintenance			J, 206
		Glass	Indoor Air (External)	None	None			J, 202
			Treated Water (Internal)	None	None			J, 222
		Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
		Solution Storage (Tank)	M-1	Stainless Steel	Indoor Air (External)	None	None	
Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion				Water Chemistry and One-Time Inspection			H

**TABLE 3.2.2-7 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – STANDBY LIQUID CONTROL (SLC) SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (Pump Suction, Relief, Injection, Containment Isolation, and Explosive Actuated Discharge) (Body and Bonnet)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Includes Steam) (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
Injection Pumps (Casing)	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 215
			Treated Water (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Water Chemistry and One-Time Inspection			H
Standby Liquid Control System (Boiling Water Reactor) (Hydraulic Accumulator Tank)	M-1	Plastics / Polymers	Indoor Air (Internal)	Cracking due to Various Degradation Mechanisms	Preventive Maintenance			J, 227
			Treated Water (External)	Change in Material Properties due to Various Degradation Mechanisms	Preventive Maintenance			J, 227

**TABLE 3.2.2-8 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION –  
HVAC CONTROL BUILDING SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Piping (Piping and Fittings)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	VII.D.1-a	3.3.1-19	E, 209
		Carbon Steel - Galvanized	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance			F
		Copper Alloys	Dry Air/Gas (Internal)	None	None			G, 216, 214
		Plastics / Polymers	Indoor Air (Internal)	Cracking due to Various Degradation Mechanisms	Preventive Maintenance			F
		Stainless Steel	Dry Air/Gas (Internal)	None	None			G, 214
	M-3	Copper Alloys	Dry Air/Gas (Internal)	None	None			G, 214
Valves (including check valves and containment isolation) (Body and Bonnet)	M-1	Aluminum Alloys	Dry Air/Gas (Internal)	None	None			J, 214
		Copper Alloys	Dry Air/Gas (Internal)	None	None			J, 216, 214
		Plastics / Polymers	Indoor Air (Internal)	Cracking due to Various Degradation Mechanisms	Preventive Maintenance			F
		Stainless Steel	Dry Air/Gas (Internal)	None	None			J, 214

**TABLE 3.2.2-8 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HVAC CONTROL BUILDING SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Valves (including check valves and containment isolation) (Body and Bonnet) (continued)	M-4	Copper Alloys	Dry Air/Gas (Internal)	None	None			J, 216, 214
Air Receiver (Shell and Access Cover)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection	VII.D.3-a	3.3.1-19	E, 209
Filter (Shell and Access Cover)	M-1	Copper Alloys	Dry Air/Gas (Internal)	None	None			G, 214
Dryer (Shell and Access Cover)	M-1	Copper Alloys	Dry Air/Gas (Internal)	None	None			J, 214
Duct (Duct Fittings, Access Doors, Damper Housings and Closure Bolts)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	VII.F1.1-a	3.3.1-05	E, 210
			Outdoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance			G, 210

**TABLE 3.2.2-8 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HVAC CONTROL BUILDING SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Duct (Duct Fittings, Access Doors, Damper Housings and Closure Bolts) (continued)	M-1	Carbon Steel - Galvanized	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	VII.F1.1-a	3.3.1-05	E, 210
			Outdoor Air (Internal)	Loss of Material due to Aggressive Chemical Attack Loss of Material due to General Corrosion	Preventive Maintenance			G
		Stainless Steel	Indoor Air (Internal)	None	None			F, 201
Duct (Equipment Frames and Housings, including Fan Housings)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	VII.F1.1-a	3.3.1-05	E, 210
			Outdoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance			G
	M-4	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	VII.F1.1-a	3.3.1-05	E, 210
Duct (Flexible Collars between Ducts and Fans)	M-1	Elastomers	Indoor Air (Internal)	Cracking due to Various Degradation Mechanisms	Preventive Maintenance	VII.F1.1-b	3.3.1-02	E
				Loss of Material due to Wear	Preventive Maintenance	VII.F1.1-c	3.3.1-02	E

**TABLE 3.2.2-8 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HVAC CONTROL BUILDING SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Duct (Seals in Dampers and Doors)	M-1	Elastomers	Indoor Air (Internal)	Cracking due to Various Degradation Mechanisms	Preventive Maintenance	VII.F1.1-b	3.3.1-02	E
				Loss of Material due to Wear	Preventive Maintenance	VII.F1.1-c	3.3.1-02	E
Air Handler Heating/Cooling (Heating/Cooling Coils)	M-1	Copper Alloys	Dry Air/Gas (Internal)	None	None			G, 216
	M-4	Carbon Steel - Galvanized	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance			F
	M-5	Copper Alloys	Dry Air/Gas (Internal)	None	None			G, 216
Piping (Piping and Fittings)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	One-Time Inspection			G
		Copper Alloys	Dry Air/Gas (Internal)	None	None			G, 216, 214
		Glass	Dry Air/Gas (Internal)	None	None			F, 216
		Plastics/ Polymers	Indoor Air (Internal)	Cracking due to Various Degradation Mechanisms	One-Time Inspection			F



**TABLE 3.2.2-8 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HVAC CONTROL BUILDING SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes	
Piping (Piping and Fittings) (continued)	M-1	Stainless Steel	Indoor Air (Internal)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	One-Time Inspection			F	
	M-4	Copper Alloys	Dry Air/Gas (Internal)	None	None			G, 216, 214	
Filters (Housing and Supports)	M-1	Carbon Steel	Indoor Air (Internal)	Loss of Material due to General Corrosion	Preventive Maintenance	VII.F1.4-a	3.3.1-05	E, 210	
		Carbon Steel - Galvanized	Indoor Air (Internal)	None	None			F, 211	
		Copper Alloys	Indoor Air (Internal)	None	None			F, 201	
		Stainless Steel	Indoor Air (Internal)	None	None			F, 201	
	M-4	Carbon Steel - Galvanized	Indoor Air (Internal)	None	None	None			F, 201
			Outdoor Air (Internal)	Loss of Material due to Aggressive Chemical Attack Loss of Material due to General Corrosion	Preventive Maintenance			G	

**TABLE 3.2.2-8 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HVAC CONTROL BUILDING SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Filters (Elastomer Seals)	M-1	Elastomers	Indoor Air (Internal)	Loss of Material due to Wear	Preventive Maintenance			H
				Cracking due to Various Degradation Mechanisms	Preventive Maintenance	VII.F1.4-b	3.3.1-02	E
Carbon Steel Components (External Surfaces)	M-1	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	VII.I.1-b	3.3.1-05	E
			Outdoor Air (External)	Loss of Material due to General Corrosion	Preventive Maintenance			G
				Loss of Material due to General Corrosion	Systems Monitoring			G
	M-4	Carbon Steel	Indoor Air (External)	Loss of Material due to General Corrosion	Systems Monitoring	VII.I.1-b	3.3.1-05	E
Non-Carbon Steel Components (External Surfaces)	M-1	Aluminum Alloys	Indoor Air (External)	None	None			J, 201
		Carbon Steel - Galvanized	Indoor Air (External)	None	None			J, 201
		Copper Alloys	Dry Air/Gas (External)	None	None			J, 201
			Indoor Air (External)	Loss of Material due to Crevice Corrosion Loss of Material due to Pitting Corrosion	Preventive Maintenance			J, 207

**TABLE 3.2.2-8 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HVAC CONTROL BUILDING SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Non-Carbon Steel Components (External Surfaces) (continued)	M-1	Elastomers	Indoor Air (External)	Cracking due to Various Degradation Mechanisms Loss of Material due to Wear	Systems Monitoring			J
		Glass	Indoor Air (External)	None	None			J, 201
		Plastics / Polymers	Indoor Air (External)	Cracking due to Various Degradation Mechanisms	Systems Monitoring			J
		Stainless Steel	Indoor Air (External)	None	None			J, 201
	M-4	Carbon Steel - Galvanized	Indoor Air (External)	None	None			J, 201
		Copper Alloys	Indoor Air (External)	None	None			J, 201
	M-5	Copper Alloys	Indoor Air (External)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Preventive Maintenance			J, 207
			Outdoor Air (External)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Preventive Maintenance			J, 207
	M-6	Insulation	Indoor Air (External)	None	None			J, 201

**TABLE 3.2.2-8 (continued) ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – HVAC CONTROL BUILDING SYSTEM**

<b>Component Commodity</b>	<b>Intended Function</b>	<b>Material</b>	<b>Environment</b>	<b>Aging Effect Requiring Management</b>	<b>Aging Management Program</b>	<b>NUREG-1801 Volume 2 Item</b>	<b>Table 1 Item</b>	<b>Notes</b>
Non-Carbon Steel Components (External Surfaces) (Heat Exchanger)	M-5	Aluminum Alloys	Indoor Air (External)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Preventive Maintenance			J, 207
			Outdoor Air (External)	Loss of Heat Transfer Effectiveness due to Fouling of Heat Transfer Surfaces	Preventive Maintenance			J, 207

**TABLE 3.2.2-9 ENGINEERED SAFETY FEATURES – SUMMARY OF AGING MANAGEMENT EVALUATION – REACTOR PROTECTION SYSTEM**

Component Commodity	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Program	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Engineered Safety Features (Misc. Non-GALL Components (Inside))	M-1	Stainless Steel	Indoor Air (External)	None	None			J, 201
			Indoor Air (Internal)	None	None			J, 201

Notes for Tables 3.2.2-1 through 3.2.2-9:

Generic Notes:

- A. Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- B. Consistent with NUREG-1801 item for component, material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- C. Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP is consistent with NUREG-1801 AMP.
- D. Component is different, but consistent with NUREG-1801 item for material, environment, and aging effect. AMP takes some exceptions to NUREG-1801 AMP.
- E. Consistent with NUREG-1801 for material, environment, and aging effect, but a different AMP is credited.
- F. Material not in NUREG-1801 for this component.
- G. Environment not in NUREG-1801 for this component and material.
- H. Aging effect not in NUREG 1801 for this component, material, and environment combination.
- I. Aging effect in NUREG-1801 for this component, material, and environment combination is not applicable.
- J. Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant-specific Notes:

201. The BSEP AMR methodology concluded that the subject material in an Indoor Air environment, and in the absence of moisture, has no aging effects.
202. The BSEP methodology concluded that glass components in an Indoor Air environment have no aging effects.
203. Potential for fouling associated with failed coatings is managed by the Protective Coating Monitoring and Maintenance Program.
204. The BSEP AMR methodology concluded that the subject non-metallic material in an Indoor Air environment has no aging effects.
205. The One-Time Inspection Program will include elements to verify the integrity of spatial interaction piping.
206. Internal inspection of the phenolic-lined carbon steel accumulator tanks is performed under the Preventive Maintenance Program.
207. This commodity represents surface of heat exchanger coils.
208. Heat exchangers in this category are in scope for spatial interaction with safety related components. Therefore, only the external surfaces require aging management review.
209. NUREG-1801 identified potential aging effects/mechanisms. The BSEP AMR methodology predicted that pitting corrosion is not applicable due to the lack of sustained wetting and aggressive chemical species required to produce this aging mechanism.
210. NUREG-1801 identified potential aging effects/mechanisms that were not predicted by BSEP AMR methodology. Crevice and pitting corrosion are not applicable due to the lack of sustained wetting and aggressive chemical species required to produce these aging mechanisms. MIC has not been observed in BSEP HVAC environments.
211. NUREG-1801 identified potential aging effects/mechanisms that were not predicted by BSEP AMR methodology. General, crevice, and pitting corrosion are not applicable due to the lack of sustained wetting and aggressive chemical species required to produce these aging mechanisms. MIC has not been observed in BSEP HVAC environments.
212. Short-lived, a PM activity will inspect/replace filter media periodically.
213. NUREG-1801 identified SCC as a potential aging effect. The BSEP methodology does not predict SCC at the temperatures at which components in this group operate.
214. Commodity identifies compressed air/gas components used for pneumatic controls. The BSEP design includes air dryers to ensure that moisture does not cause general and pitting corrosion for the components in this item (Ref. Gall VII.D). The BSEP AMR methodology predicts no aging effects for the subject material in a dry air/gas environment.
215. The BSEP methodology predicts no aging effects for stainless steel in an Indoor Air environment.
216. Commodity identifies a non-corrosive refrigerant portion of the HVAC system. The BSEP AMR methodology predicts no aging effects.
217. The BSEP AMR methodology predicts no aging effects for the subject material and environment. Crevice and pitting corrosion are not applicable due to the lack of sustained wetting and aggressive chemical species required to produce these aging mechanisms.
218. Erosion has been identified as a potential aging mechanism in specific ECCS valves and is to be addressed by one time inspections of these valves and adjacent piping.
219. These components operate at temperatures substantially above ambient, such that moisture-related external corrosion is not expected.
220. The BSEP AMR methodology predicts no aging effects for the subject material in a lube oil environment without moisture intrusion.
221. The BSEP AMR methodology predicts no aging effects at ambient temperatures in a dry air/gas environment.

222. The BSEP AMR methodology predicts no aging effects for glass in a treated water environment.
223. The BSEP AMR methodology predicts no aging effects for copper alloys in an Indoor Air environment without the presence of sustained wetting.
224. The ECCS strainers have a carbon steel base with a stainless steel strainer element. The commodity is treated as carbon steel with a potential for galvanic corrosion for aging management review.
225. The HPCI mini-flow bypass valves have cage trim with smaller openings than the Torus Strainers. Potential for fouling of these cages will be managed by periodic flow verification under the Preventive Maintenance Program.
226. BSEP requested and received approval to implement Risk-Informed ISI. In support of the submittal, evaluations of degradation mechanisms were performed; and cracking due to thermal and mechanical loadings was evaluated and dispositioned as not applicable. The risk associated with cracking due to SCC is bounded by those components selected for inservice inspection as part of the Risk-Informed ISI Program. Therefore, the current inspection methods as detailed in the ASME Section XI Inservice Inspection, Subsections IWB, IWC and IWD Program, supplemented by the Water Chemistry Program, will manage cracking of small bore piping.
227. Aging effects are conservatively assumed for the bladder in the hydraulic accumulator. The integrity of this bladder is regularly monitored through the Preventive Maintenance Program.
228. Thermal insulation is credited in room cooler evaluations. Applicable insulation classes are glass fiber or calcium silicate, depending on temperature. No aging effects are predicted for these materials in an indoor environment.
229. Suppression Pool spray is not required for design basis events. Drywell spray nozzles/piping is required but is normally isolated and not subject to plugging or fouling.
230. Instrument piping in this line item is not addressed by the BWR Stress Corrosion Cracking Program due to its size (less than 4 inch).