## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 1. | 3.1 | Component Supports | Piping supports, cable raceway supports, HVAC ducting supports, equipment supports, frames and saddles (inside Containment)/ LOCA restraints, equipment anchorages (for NSSS) hoods outside Containment) | General Corrosion, Loading Due to Hydraulic Vibration or Water Hammer, Loading Due to Thermal Expansion, SCC of High Strength Bolts | Additional Baseline Walkdowns | See Section 16.2.1 for a general description. |
| 2. | 3.1 | Component Supports | Piping supports, cable raceway supports, HVAC ducting supports, equipment supports, metal spring isolators and fixed bases (outside Containment)/LOCA restraints, frames and saddles/LOCA restraints, frames and saddles/ring foundation for flat bottom vertical TKs, frames and saddles (inside Containment)/LOCA restraints | General Corrosion, Wear, Erosion, Loss of Integrity at Bolted Connections, Welded Connections, Pinned Connections, Cracking (fatigue cracking and SCC of High Strength Bolts) | ASME Section XI, Subsection IWF | See Section 16.2.6 for a general description. |
| 3. | Deleted | | | | | |
| 4. | 3.1 | Component Supports | Control Room HVAC, Elastomer vibration isolators | Elastomer Hardening | Design Change and Modification Implementation | See Section 16.2.15 for a general description. |
| 5. | 3.1 | Component Supports | CAC Fan Housing Spring Isolator Supports and Fixed Bases | General Corrosion | PM | See Section 16.2.23 for a general description.<br>For the CAC fan housing supports and fixed bases, the PM checklists, which open and inspect other components internal to the fan housing, have been modified to also inspect these spring isolator supports for signs of general corrosion. |
| 6. | 3.1 | Component Supports | Piping (Snubber) supports | General Corrosion, Wear, Erosion, Loss of Integrity at Bolted, Pinned or Weld Connections, Cracking | ASME Section XI, Subsection IWF | See Section 16.2.6 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 7. | 3.1 | Component Supports | Piping supports, cable raceway supports, HVAC ducting supports, equipment supports, elastomer vibration isolators, metal spring isolators and fixed bases (outside Containment)/ LOCA restraints, frames and saddles/LOCA restraints, frames and saddles/ ring foundation for flat-bottom vertical TKs | General Corrosion, Loading Due to Hydraulic Vibration or Water Hammer, Loading Due to Thermal Expansion, Elastomer Hardening, Loading Due to Rotating or Reciprocating Equipment | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 8. | 3.1A | For the following systems:<br>(011) SRW Cooling<br>(012) SW Cooling<br>(013) FP<br>(015) CC<br>(019) Compressed Air<br>(023) DFO<br>(024) EDGs<br>(029) Plant Heating<br>(036) AFW<br>(037) Demineralized Water/ Condensate Storage<br>(038) Sampling System (NSSS)<br>(041) CVCS<br>(045) FWS<br>(046) Extraction Steam<br>(051) Plant Water<br>(052) SI<br>(053) Plant Drains<br>(061) Containment Spray<br>(064) RCS<br>(067) SFPC<br>(069) Waste Gas<br>(071) Liquid Waste<br>(074) Nitrogen and Hydrogen<br>(077/79) Area and | Piping/supports beyond SR/NSR boundary providing structural support | Various | Structure and System Walkdowns | Aging management of the piping segments and supports beyond the SR/NSR boundary that provide structural support for the SR piping and boundary isolation valves is accomplished by the Structure and System Walkdowns Program described in Section 16.2.29. This program ensures that the intended structural support function of the NSR piping segments and supports beyond the SR/NSR boundary up to the first anchor point (or equivalent) is maintained. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| | | Process Radiation Monitoring<br>(083) Main Steam | | | | |
| 9. | 3.1A | For the following systems:<br>(011) SRW Cooling<br>(012) SW Cooling<br>(013) FP<br>(015) CC<br>(019) Compressed Air<br>(023) DFO<br>(024) EDGs<br>(029) Plant Heating<br>(036) AFW<br>(037) Demineralized Water/Condensate Storage<br>(038) Sampling System (NSSS)<br>(041) CVCS<br>(045) FWS<br>(046) Extraction Steam<br>(051) Plant Water<br>(052) SI<br>(053) Plant Drains<br>(061) Containment Spray<br>(064) RCS<br>(067) SFPC<br>(069) Waste Gas<br>(071) Liquid Waste<br>(074) Nitrogen and Hydrogen<br>(077/79) Area and Process Radiation Monitoring<br>(083) Main Steam | Piping/supports beyond SR/NSR boundary providing structural support | Various | Various | Aging management of the piping segments and supports beyond the SR/NSR boundary that provide structural support for the SR piping and boundary isolation valves is accomplished by the same AMP credited to manage the SR portion of the piping systems for the identified systems, as described in various items in this Table. These various AMP ensure that the intended structural support function of the NSR piping segments and supports, beyond the SR/NSR boundary up to the first anchor point (or equivalent), is maintained. |
| 10. | 3.2 | Cranes, Reactor Vessel Cooling Shroud | Reactor vessel cooling shroud structural support members, cranes | Corrosion Due to Boric Acid | BACI | See Section 16.2.7 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 11. | 3.2 | Fuel Handling, Cranes | Carbon steel FHE and heavy load handling crane components, Carbon steel wire rope | General Corrosion, Fatigue, Wear, Mechanical Degradation | Load Handling and FHE | See Section 16.2.22 for a general description.<br>Credited for discovery and management of fatigue, wear, and mechanical degradation of carbon steel wire rope and general corrosion of carbon steel components of FHE, by performing visual inspections. PM repetitive tasks have been modified to explicitly present the inspection requirements. |
| 12. | 3.2 | Fuel Handling | Carbon steel components of the SFHM and the Reactor Refueling Machine (RRM) | General Corrosion | Load Handling and FHE | See Section 16.2.22 for a general description.<br>Performance Evaluations provide for checks of the SFHM, RRM, and associated components prior to refueling campaigns (i.e., defuel/refuel or fuel shuffle). These procedures require performing a walkdown for foreign material and cleanliness, inspecting the SFHM and associated equipment for damaged, corroded, or deteriorated parts, and checking cleanliness of rail surfaces. The plant's nuclear operations procedures have numerous levels of controls and reviews, including assignment of responsibility for conducting performance evaluations as required, reviewing all the evaluations for accuracy and completeness, and analyzing data for trends, if applicable. Specific responsibilities are assigned to Calvert Cliffs personnel for monitoring these programs through periodic audits. These controls provide reasonable assurance that the associated activities will continue to be an effective means of monitoring the FHE for the effects of general corrosion/oxidation. |
| 13. | 3.2 | Fuel Handling | Stainless steel wire rope | Fatigue, Wear, Mechanical Degradation | Load Handling and FHE | See Section 16.2.22 for a general description.<br>Performance Evaluations provide for visual inspection of hoisting ropes and drive cables for the fuel upending machines and transfer carriages which are visually inspected for damage. Performance Evaluations provide for wire rope inspection for the SFHM, RRM, the spent fuel inspection elevator, and the new fuel elevator prior to refueling campaigns. The checks for the SFHM and the elevators are also performed. The SFHM procedures require visual inspection of the hoisting rope while running the hoist through the full length of travel. The RRM procedures require the same activities for the main hoist on each unit's RRM. The fuel elevators procedures require visual inspection for damage to hoisting ropes for the spent fuel inspection elevator and the new fuel elevator. |
| 14. | Deleted | | | | | |
| 15. | 3.2 | Fuel Handling, Cranes, RCS | Carbon steel parts of spent fuel cask handling crane, polar crane, intake structure semi-gantry crane, purge valve exhaust monorail hoist, reactor vessel head lift rig, RRM, containment roof jib crane, and transfer machine jib crane | General Corrosion | Load Handling and FHE | See Section 16.2.22 for a general description.<br>Repetitive Tasks are credited for discovery and management of general corrosion effects in carbon steel parts by performing visual inspections. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 16. | 3.2 | Fuel Handling | Stainless steel wire rope (SFHM and Fuel Elevators) | Fatigue, Wear, Mechanical Degradation, Distortion | Load Handling and FHE | See Section 16.2.22 for a general description.<br>Repetitive tasks are credited for discovery and management of fatigue, wear, and mechanical degradation/ distortion of stainless steel wire rope, for the Auxiliary Building Handling Crane, Fuel Upending Machines, Transfer Jib Crane, and Fuel Elevators. These PM tasks have been modified to explicitly present the inspection requirements. |
| 17. | 3.2 | Fuel Handling | Carbon steel chain (Containment purge monorail hoist) | General Corrosion, Wear | Load Handling and FHE | See Section 16.2.22 for a general description. |
| 18. | Deleted | | | | | |
| 19. | 3.3A | Containment | Containment tendons | Prestress Losses | ASME Section XI, Subsections IWE and IWL | See Section 16.2.5 for a general description. |
| 20. | 3.3A | Containment | Containment tendons | General Corrosion | ASME Section XI, Subsections IWE and IWL | See Section 16.2.5 for a general description. |
| 21. | 3.3A | Containment | Grout under tendon bearing plates | Weathering | ASME Section XI, Subsections IWE and IWL | See Section 16.2.5 for a general description. |
| 22. | 3.3A | Containment | Containment liner | General Corrosion | ASME Section XI, Subsections IWE and IWL | See Section 16.2.5 for a general description. |
| 23. | 3.3A | Containment | Non-metallic portions of non-environmentally qualified electrical penetrations | Radiation and Thermal Damage | Containment Local Leakage Rate Testing | See Section 16.2.14 for a general description. |
| 24. | 3.3A | Containment | Steel components inside the Containment Structure | General Corrosion | Protective Coatings | See Section 16.2.24 for a general description. |
| 25. | 3.3A | Containment | Emergency air lock Personnel air lock and Equipment hatch gaskets | Elastomer Degradation | PM | See Section 16.2.23 for a general description.<br>The Containment Personnel, Emergency Escape Air Lock and Equipment Hatch Adjustment, Lubrication, and Inspection Procedure, provides instructions for adjustment, lubrication, and inspection of the operating mechanism for the air lock.<br>Degradation of the air lock gaskets is managed by routine replacement. |
| 26. | 3.3A | Containment | Embedded steel/rebar within the containment wall and dome | General Corrosion | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 27. | 3.3A | Containment | Steel components outside the Containment Structure | General Corrosion | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 28. | 3.3A | Containment | Refueling pool liner and permanent cavity seal ring | IGSCC | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 29. | 3.3B | Turbine Building | Caulking and sealants that do not function as fire barriers | Weathering | Caulking and Sealant Inspection | See Section 16.2.11 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 30. | 3.3B | Turbine Building | Caulking and sealants that function as fire barriers | Weathering | Fire Barrier Penetration Seal Inspection | See Section 16.2.20 for a general description. |
| 31. | 3.3B | Turbine Building | Carbon steel components | General Corrosion | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 32. | 3.3C | Intake Structure | Caulking and sealants that do not function as fire barriers | Weathering | Caulking and Sealant Inspection | See Section 16.2.11 for a general description. |
| 33. | 3.3C | Intake Structure | Caulking, sealants, and expansion joints that function as fire barriers | Weathering | Fire Barrier Penetration Seal Inspection | See Section 16.2.20 for a general description. |
| 34a. | 3.3C | Intake Structure | Concrete of fluid-retaining walls and slabs | Aggressive Chemical Attack | PM | See Section 16.2.23 for a general description.<br>The repetitive tasks (Intake Structure Cavity Repairs and Cleaning) have been modified to include specific ARDMs where they are not presently included and/or additional specified components/ subcomponents where they are not presently inspected. |
| 34b. | 3.3C | Intake Structure | Concrete of fluid-retaining walls and slabs | Aggressive Chemical Attack | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 35. | 3.3C | Intake Structure | Embedded steel/rebar of fluid-retaining walls and slabs | General Corrosion | PM | See Section 16.2.23 for a general description.<br>The repetitive tasks (Intake Structure Cavity Repairs and Cleaning) were modified to include specific ARDMs where they are not presently included and/or additional specified components/subcomponents where they are not presently inspected. |
| 36. | 3.3C | SW | Sluice gate wire rope and chain assemblies | Crevice Corrosion, MIC and Pitting | PM | See Section 16.2.23 for a general description. |
| 37. | 3.3C | Intake Structure | Carbon steel components | General Corrosion | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 38. | 3.3D | Miscellaneous Tank & Valve Enclosures | Carbon steel components | General Corrosion | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 39. | 3.3E / 5.12 | Auxiliary Building (Main Steam/CVCS/FWS Systems) | Pipe encapsulations | General Corrosion | PM | See Section 16.2.23 for a general description. |
| 40. | 3.3E | Auxiliary Building | SFP liner | IGSCC | Spent Fuel Pool | See Section 16.2.27 for a general description. |
| 41. | NA | 1A Diesel Building | Carbon steel members | General Corrosion | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 42. | NA | 1A Diesel Building | Caulking and sealants that function as fire barriers | Weathering | Fire Barrier Penetration Seal Inspection | See Section 16.2.20 for a general description. |
| 43. | NA | 1A Diesel Building | Caulking and sealants that do not function as fire barriers | Weathering | Caulking and Sealants Inspection | See Section 16.2.11 for a general description. |
| 44. | 3.3E | Auxiliary Building | SFP storage racks (Unit 1 side only) | Loss of Neutron-Absorbing Material | Spent Fuel Pool | See Section 16.2.27 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 45. | 3.3E | Auxiliary Building and SBO Buildings | Caulking, sealants, and expansion joints that do not function as fire barriers | Weathering | Caulking and Sealant Inspection | See Section 16.2.11 for a general description. |
| 46. | 3.3E | Auxiliary Building and SBO Buildings | Caulking, sealants, and expansion joints that function as fire barriers | Weathering, Galvanic Corrosion | Penetration Fire Barrier Inspection | See Section 16.2.20 for a general description. |
| 47. | 3.3E | Auxiliary Building and SBO Buildings | Carbon steel components | General Corrosion, SCC | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 48. | 4.1 | RCS | PUMP | Erosion, Galvanic Corrosion | BACI | See Section 16.2.7 for a general description. |
| 49. | 4.1 | RCS | HV | Galvanic Corrosion; SCC | BACI | See Section 16.2.7 for a general description. |
| 50. | 4.1 | RCS | PP, CKV, CV, ERV, Motor-Operated Valve (MOV), PUMP, SG, PZV, RV, SV | General Corrosion | BACI | See Section 16.2.7 for a general description. |
| 51. | 4.1 | RCS | PP, CV, HV, PUMP and MOV | Wear | BACI | See Section 16.2.7 for a general description. |
| 52. | 4.1 | RCS | PP, PUMP, RVI, and PZV (surge nozzle safe end) | Thermal Embrittlement | CASS | See Section 16.2.10 for a general description. |
| 53. | 4.1 | RCS | PP and PZV | SCC/IGSCC and PWSCC | Alloy 600 | See Section 16.2.3 for a general description. |
| 54. | 4.1 | RCS | SG, SG Tubes and Tube Supports | Denting, Wear, Pitting, SCC/IGSCC, IGA, Erosion, Erosion Corrosion | Steam Generator | See Section 16.2.28 for a general description. |
| 55. | 4.1 | RCS | HV, MOV, SG Tubes | Wear, Pitting, SCC/IGSCC | Surveillance Testing | See Section 16.2.30 for a general description.<br>Calvert Cliffs STPs, are credited for discovering these ARDMs for the SG tubes. These procedures will discover these ARDMs by determining if any of the SG tubes are leaking RCS coolant. These Calvert Cliffs procedures direct the user to perform calculations to determine the amount and potential source of RCS leakage. Any abnormal RCS leakage would be detected and actions taken to correct the leakage prior to a loss of the intended function. The Calvert Cliffs Technical Specifications provide the basis for the acceptance criteria of leakage rates. |
| 55A. | 4.1 | RCS | PP<br>(RPV Head Leak-off Line | SCC | Reactor Coolant | See Section 16.2.25 for a general description.<br>Calvert Cliffs procedure implementation prevents SSC of the RPV head leak-off line by directing that the line be blown clear of fluids with compressed air.<br>NOTE: Clearing the line of fluid eliminates the potential for this ADRM. |
| 56. | 4.1 | RCS/RVI | PP, CKV, CV, ERV, SG, MOV, PUMP, PZV, and RV | Fatigue | Fatigue Monitoring | See Section 16.2.19 for a general description.<br>A one-time fatigue analysis was performed for the reactor coolant pumps (RCPs), MOVs, and pressurizer RVs. RCP Suction/Discharge and shutdown cooling (SDC) piping were added as locations to be monitored. |
| 57. | Deleted | | | | | |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 58. | Deleted | | | | | |
| 59. | 4.1 | RCS | PP, PUMP, SG | General Corrosion | ASME Section XI, Subsections IWB, IWC, and IWD | See Section 16.2.4 for a general description. |
| 60. | 4.1 | RCS | PUMP, and MOV | Wear | ASME Section XI, Subsections IWB, IWC, and IWD | See Section 16.2.4 for a general description. |
| 61. | 4.1 | RCS | ERV, HV, RV, PUMP, MOV | Thermal Embrittlement | ASME Section XI, Subsections IWB, IWC, and IWD | See Section 16.2.4 for a general description. |
| 62. | 4.1 | RCS | SG | Denting, Pitting and SCC/IGSCC | Chemistry | See Section 16.2.12 for a general description.<br>Procedures that control FWS chemistry, includes the SGs, condensate storage tank, FWS, condensate, main steam system, heater drain tanks, condensate demineralizer effluent, SG blowdown ion exchanger effluent, and condensate precoat filters.<br>These procedures control fluid chemistry in order to minimize the concentration of corrosive impurities (chlorides, sulfates, oxygen) and optimizes fluid pH. Control of fluid chemistry minimizes the corrosive environment for FWS components, and limits the rate and effects of corrosion/pitting, denting and SCC/IGSCC.<br>Secondary chemistry parameters (e.g., pH, dissolved oxygen levels) are measured at procedurally-specified frequencies. The measured parameter values are compared against target values that represent a goal or predetermined warning limit. If a measured value is out of bounds, corrective actions are taken (e.g., power reduction, plant shutdown) in accordance with the plant secondary chemistry procedure. Remedial actions are specified to minimize corrosion degradation of components and to ensure that secondary system integrity is maintained. |
| 63. | 4.1 | RCS | SG tube supports | Erosion-Corrosion | Chemistry | See Section 16.2.12 for a general description.<br>See the description of Secondary Chemistry in Item 62 above. |
| 64. | 4.1 | RCS | RCP tube-in-tube seal water HX | IGA | Chemistry | See Section 16.2.12 for a general description.<br>Primary Chemistry Procedures are credited with mitigating the effects of IGA on the RCP seal water HX (RCS side) by monitoring and maintaining the RCS chemistry.<br>Calvert Cliffs Primary Chemistry lists the parameters to monitor (e.g., chloride, fluoride, sulfate, oxygen, pH), the frequency of monitoring these parameters, and the acceptable value or range of values for each parameter. The primary chemistry parameters are measured at procedurally-specified frequencies and are compared against target values, which represent a goal or predetermined warning limit. If a target value is approached or violated, corrective actions are taken as prescribed by the procedure, thereby ensuring timely response to chemical excursions. |
| 65. | 4.1 | RCS | PP | PWSCC | Chemistry | See Section 16.2.12 for a general description.<br>The Primary Chemistry Procedure is described in Item 64 above. |
| 66. | 4.1 | RCS | SG | SCC/IGSCC and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>The Primary Chemistry Procedure is described in Item 64. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 67. | 4.1 | RCS | RCP tube-in-tube seal water HX | IGA | Chemistry | See Section 16.2.12 for a general description.<br>CC/SRW Chemistry Procedures are credited with mitigating IGA on the RCP seal water HX (CC System side) by monitoring and maintaining CC chemistry to control the concentrations of oxygen, chlorides, other chemicals, and contaminants. The water is treated with hydrazine to minimize the amount of oxygen in the water that aids in the prevention and control of most corrosive mechanisms.<br>The procedures list the parameters to monitor, the frequency of monitoring these parameters, and the target and action levels for the CC System fluid parameters. The parameters currently monitored by the procedure are: pH, hydrazine, chloride, dissolved oxygen, dissolved copper, dissolved iron, suspended solids, gamma activity, and tritium activity (normally not a radioactive system).<br>All of the parameters listed in this procedure currently have target values that give an acceptable range or limit for the associated parameter. |
| 68. | N/A | Various | Various | Various | ARDI | See Section 16.2.2 for a general description. |
| 69. | Deleted | | | | | |
| 70. | 4.1 | RCS | RCP tube-in-tube seal water HX | Wear | Reactor Coolant | See Section 16.2.25 for a general description.<br>Calvert Cliffs utilizes OIs for management and discovery of wear in the RCP seal water HXs. |
| 71. | 4.2 | RPVs and CEDMs/ Electrical | RPV Alloy 600 components | SCC | Alloy 600 | See Section 16.2.3 for a general description. |
| 72. | 4.2 | RPVs and CEDMs/ Electrical | RPV head and vessel, RPV studs, nuts and washers | General Corrosion | BACI | See Section 16.2.7 for a general description. |
| 73. | 4.2 | RPVs and CEDMs/ Electrical | RPV Head Nozzles and RPV anchor bolts | SCC | BACI | See Section 16.2.7 for a general description. |
| 74. | 4.2 | RPVs and CEDMs/ Electrical | RPV/CEDM | Wear | BACI | See Section 16.2.7 for a general description. |
| 75. | 4.2 | RPVs and CEDMs/ Electrical | RPV | Neutron Embrittlement | CRVSP | See Section 16.2.13 for a general description. |
| 76. | Deleted | | | | | |
| 77. | 4.2 | RPVs and CEDMs/ Electrical | RPV, CEDM, Reactor Vessel Level Monitoring System (RVLMS)/Incore Instrumentation (ICI) Nozzles | Fatigue | Fatigue Monitoring | See Section 16.2.19 for a general description.<br>This AMP was modified to perform an engineering evaluation for CEDM and RVLMS/ICI nozzle components to ensure that the components are bounded. |
| 78. | 4.2 | RPVs and CEDMs/ Electrical | RPV, CEDM, RVLMS/ICI Nozzles | Fatigue | ASME Section XI, Subsections IWB, IWC, and IWD | See Section 16.2.4 for a general description. |
| 79. | 4.2 | RPVs and CEDMs/ Electrical | RPV components susceptible to general corrosion | General Corrosion | ASME Section XI, Subsections IWB, IWC, and IWD | See Section 16.2.4 for a general description. |
| 80. | 4.2 | RPVs and CEDMs/ Electrical | RPV anchor bolts | SCC | ASME Section XI, Subsections IWB, IWC, and IWD | See Section 16.2.4 for a general description. |

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## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 81. | 4.2 | RPVs and CEDMs/ Electrical | RPV/CEDM | Wear | ASME Section XI; Subsections IWB, IWC, and IWD | See Section 16.2.4 for a general description. |
| 82. | Deleted | | | | | |
| 83. | 4.2 | RPVs and CEDMs/ Electrical | RPV head and vessel, O-ring flange sealing area | General Corrosion | PM | See Section 16.2.23 for a general description.<br>A maintenance procedure is credited for the discovery of general corrosion on the RPV head and vessel O-ring flange sealing area. This procedure provides for inspection and acceptance criteria for minor pitting, nicks, and scratches near or on the O-ring sealing area. Any evidence of general corrosion would be found during the performance of this procedure. |
| 84. | 4.2 | RPVs and CEDMs/ Electrical | RPV, studs, nuts, and washers | General Corrosion, Wear | PM | See Section 16.2.23 for a general description.<br>A maintenance procedure is credited for the discovery of general corrosion and wear. This procedure specifies the procedural steps, materials, and acceptance criteria to be used in the cleaning and inspection of the RPV studs, nuts, and washers. The procedure describes what the inspection process should be looking for, and how to report any wear or damage that is found. The procedure also lists the acceptance criteria for contact between load bearing surfaces as a minimum of 70 percent. |
| 85. | 4.3 | RVI | Combustion Engineering, Inc. (CE) Pressurized Water Reactor RVI components as identified by Section IV.B3 of GALL, Rev 2 | As identified for CE Pressurized Water Reactor RVI components in Section IV.B3 of GALL, Rev 2 | RVI | See Section 16.2.26 for a general description. |
| 86. | Deleted | | | | | |
| 87. | Deleted | | | | | |
| 88. | Deleted | | | | | |
| 89. | Deleted | | | | | |
| 90. | Deleted | | | | | |
| 91. | Deleted | | | | | |
| 92. | Deleted | | | | | |
| 93. | 5.1 | AFW | Class ‘HB’ PP | Crevice Corrosion<br>General Corrosion<br>MIC, Galvanic Corrosion and Pitting | Buried Pipe Inspection | See Section 16.2.8 for a general description. |
| 94. | Deleted | | | | | |
| 95. | Deleted | | | | | |
| 96. | Deleted | | | | | |
| 97. | 5.1 | AFW | Pump Turbine and GOVs Valves and GOVs Cooler | Crevice Corrosion, General Corrosion, Erosion Corrosion, Pitting | PM | See Section 16.2.23 for a general description.<br>Maintenance procedures for AFW Pump Turbine Overhaul, and AFW Pump Turbine Governor Valve Overhaul disassembles the turbine and turbine GOVs to inspect for damage. Measurements are taken to assure critical tolerances are within acceptance criteria. Specific subcomponents are inspected for wear, erosion, pitting, and/or surface cracking. |
| 98. | 5.1 | AFW | CV | General Corrosion | PM | See Section 16.2.23. for a general description |

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## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 99. | 5.1 | AFW | CKVs | Crevice Corrosion<br>General Corrosion<br>Pitting | Chemistry | See Section 16.2.12 for a general description.<br>Demineralized Water Chemistry procedures have been established to: minimize impurity ingress to plant systems; reduce corrosion product generation, transport, and deposition; reduce collective radiation exposure through chemistry; improve integrity and availability of plant systems; and extend component and plant life.<br>The demineralized water chemistry program controls fluid chemistry in order to minimize the concentration of corrosive impurities and dissolved oxygen. The demineralized water chemistry parameters (e.g., specific conductivity, dissolved oxygen, chloride, fluoride, sulfate) are measured at procedurally-specified frequencies. The measured parameter values are compared against target values, which represent a goal or predetermined warning limit.<br>These procedures will mitigate the effects of crevice corrosion, general corrosion, and pitting of the internal surfaces of AFW System CKVs located at the interface with the Chemical Addition System. |
| 100. | 5.1 | AFW | EB, HB, PP, CKVs, CVs, HVs, PUMP | Crevice Corrosion, General Corrosion, Pitting, Erosion Corrosion (for CVs) | Chemistry | See Section 16.2.12 for a general description.<br>The Secondary Chemistry Procedure is described in Item 62. |
| 101. | 5.1 | AFW | GOV valve pump turbine | Erosion Corrosion, Crevice Corrosion, General Corrosion, Pitting | Chemistry | See Section 16.2.12 for a general description.<br>The Secondary Chemistry Procedure is described in Item 62. |
| 102. | 5.1 | AFW | PUMP | Crevice Corrosion, Pitting | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 103. | 5.1 | AFW | PP | Crevice Corrosion, General Corrosion, Pitting | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 104. | 5.1 | AFW | TK (No. 12 Condensate Storage Tank) | Elastomer Degradation | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 105. | Deleted | | | | | |
| 106. | Deleted | | | | | |
| 107. | 5.2 | CVCS | All items exposed to borated water (due to leakage) | General Corrosion | BACI | See Section 16.2.7 for a general description. |
| 108. | 5.2 | CVCS | CVOPs with air internal environment | General Corrosion | PM | See Section 16.2.23 for a general description.<br>The quality of IA System components that are within scope is verified approximately quarterly, based on operating experience and applicable industry standards, in accordance with PM Checklist. These checklists assure that the system is being maintained in accordance with industry standards for moisture (dew point) and particulate contamination. This procedure is used to mitigate the effects of general corrosion on CVOPs and PCVs. |
| 109. | 5.2 | CVCS | Letdown Line piping, CKVs, CVs, HXs, HVs and TEs | Fatigue | Fatigue Monitoring | See Section 16.2.19 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 110. | 5.2 | CVCS | Heat traced PP and components | SCC | Design Change and Modification Implementation | See Section 16.2.15 for a general description. |
| 111. | 5.2 | CVCS | Letdown HX shell side | Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>The CC/SRW Chemistry Procedure is described in Item 67. |
| 112. | 5.2 | CVCS | Items with boric acid or borated water internal environments | Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>The Primary Chemistry Procedure is described in Item 64. |
| 113. | Deleted | | | | | |
| 114. | Deleted | | | | | |
| 115. | Deleted | | | | | |
| 116. | Deleted | | | | | |
| 117a. | 5.3 | CC | PUMP casings | General Corrosion, Crevice Corrosion, Pitting | PM | See Section 16.2.23 for a general description.<br>The CC pumps are inspected for crevice corrosion/ pitting and general corrosion, using a maintenance procedure. This procedure instructs the user to inspect the pump impeller and shaft for erosion, corrosion/pitting, and inspect all pump parts for wear, corrosion, and mechanical damage. |
| 117b. | 5.3 | CC | PUMP casings | General Corrosion, Crevice Corrosion, Pitting | Surveillance Testing | See Section 16.2.30 for a general description.<br>Pump inspections rely on the CC pump periodic test of the pump active function (flow vs. head) to trigger the overhaul. The periodicity of this test is established by Technical Specifications. |
| 118. | 5.3 | CC | PP, automatic vents, CKVs, CVs, HVs, PUMP casings, REs, RVs, SVs, TEs, TIs, TICs, HXs | Crevice Corrosion, Pitting | Chemistry | See Section 16.2.12 for a general description.<br>The CC/SRW Chemistry Procedure is described in Item 67. |
| 119. | 5.3 | CC | PP, CKVs, CVs, HVs, PUMP casings, RVs, TEs, TIs, HXs | General Corrosion | Chemistry | See Section 16.2.12 for a general description.<br>The CC/SRW Chemistry Procedure is described in Item 67. |
| 120. | 5.3 | CC | Automatic vents, CVs, HVs, RVs, SVs | Selective Leaching | Chemistry | See Section 16.2.12 for a general description.<br>The CC/SRW Chemistry Procedure is described in Item 67. |
| 121. | 5.3 | CC | HXs, PP | Erosion Corrosion | Chemistry | See Section 16.2.12 for a general description.<br>The CC/SRW Chemistry Procedure is described in Item 67. |
| 122. | Deleted | | | | | |
| 123. | 5.4 | Compressed Air | All Compressed Air System carbon steel components | General Corrosion | PM | See Section 16.2.23 for a general description. |
| 124. | Deleted | | | | | |
| 125. | 5.5 | Containment Isolation Group | MOVs in borated water systems | Crevice Corrosion, General Corrosion and Pitting | BACI | See Section 16.2.7 for a general description. |
| 126. | Deleted | | | | | |
| 127. | 5.6 | Containment Spray | PP, CKVs, CVs, HVs, HXs, MOVs, and PUMPs that are exposed to borated water (due to leakage) | General Corrosion | BACI | See Section 16.2.7 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 128. | 5.6 | Containment Spray | SDC HXs | General Corrosion, Crevice Corrosion, and/or Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 129. | 5.6 | Containment Spray | PP, CKVs, CVs, FEs, FOs, HVs, HXs, MOVs, PUMPs, RVs, TEs, and TIs) that are exposed to borated water (as process fluid) | General Corrosion, Crevice Corrosion, and/or Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 64 for a description of the Primary System Chemistry Procedure. |
| 130. | 5.7 | DFO | DFO TKs | Crevice Corrosion, General Corrosion, Pitting, Fouling, and MIC | DFO (Tanks and Chemistry) | See Section 16.2.16 for a general description.<br>Under the DFO Storage Tank Water Check STP, water that may collect at the DFO tank bottom is periodically drained and fuel chemistry is analyzed. If the amount of drained water or fuel chemistry is found not to meet the established standards, corrective action is implemented as required. Draining the water will minimize the degradation of the internal surface of the carbon steel tank bottom, and will also minimize the possibility of MIC since microbes require water to survive and multiply. If more than one gallon of water is drained, the operator is required to notify the shift supervisor, and the situation will be investigated to determine and correct the source of the water. |
| 131. | 5.7 | DFO | Buried PP | Crevice Corrosion, General Corrosion, Galvanic Corrosion, MIC, and Pitting | Buried Pipe Inspection | See Section 16.2.8 for a general description. |
| 132. | 5.7 | DFO | DFO Tanks | Crevice Corrosion, General Corrosion, Pitting, Fouling, and MIC | DFO (Tanks and Chemistry) | See Section 16.2.16 for a general description.<br>Fuel oil chemistry is controlled, under this procedure, including testing for the presence of biologics. The procedure establishes surveillance frequencies, fuel oil specifications (e.g., viscosity, % water and sediment, particulate contamination, and biologics), and corrective actions. Sampling and analysis are performed on new fuel prior to unloading from fuel trucks. This procedure specifies limits for viscosity, water, and sediment for both receipt inspection and Technical Specification surveillance, in accordance with ASTM D975-81. This procedure requires the addition of a stabilizer/corrosion inhibitor prior to unloading fuel oil into the Fuel Oil Storage Tanks (FOSTs). This approach provides assurance that the desired ratio of inhibitor to fuel oil exists. Corrosion inhibitor is added to the fuel to control corrosion of any exposed metal surfaces in the tank. A biocide is also added to the FOSTs for the initial addition, or if the presence of biological activity has been confirmed, to control MIC. |
| 133. | 5.7 | DFO | All above-ground DFO items | Crevice Corrosion, General Corrosion, and Pitting | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 134. | 5.7 | DFO | DFO TKs | Weathering | Structure and System Walkdowns | See Section 16.2.29 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 135. | 5.7 | DFO | DFO TKs | Crevice Corrosion, General Corrosion, Pitting, Fouling, and MIC | DFO (Tanks and Chemistry) | See Section 16.2.16 for a general description.<br><br>Draining water and chemistry testing/control of fuel oil provide a high degree of confidence that the effects of the plausible ARDMs will be minimized. However, the internal surfaces of the tank are not accessible during system walkdowns. Calvert Cliffs has developed PM Tasks to perform internal inspections of the FOSTs at periodic intervals, consisting of UT assessments of the condition of the tank interior conducted in accordance with American Petroleum Institute Standard 653 for FOST inspections. The results of these inspections are documented as part of the PM program. These results are used to assess the overall condition of the tank interior and to determine the appropriate intervals for future inspections. |
| 136. | Deleted | | | | | |
| 137. | Deleted | | | | | |
| 138. | Deleted | | | | | |
| 139. | Deleted | | | | | |
| 140. | 5.8 | EDG | Jacket water expansion TKs and cooling water PP | General Corrosion, Crevice Corrosion, and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>Procedures are credited with mitigating the effects of general corrosion, crevice corrosion, and pitting of the cooling water piping and jacket water expansion tanks by monitoring and maintaining EDG jacket water chemistry (e.g., pH, dissolved oxygen). This procedure contains two different sets of chemistry parameters, one for the Fairbanks Morse EDGs, and one for the Societe Alsacienne De Constructions Mecaniques De Mulhouse EDG. The water is treated with hydrazine or corrosion inhibitors to minimize the amount of oxygen in the water, which aids in the prevention and control of most corrosive mechanisms. Continued maintenance of system water quality will mitigate EDG jacket water expansion tank and cooling water piping degradation. The procedure provides for a prompt review of EDG jacket water chemistry parameters so that steps can be taken to return chemistry parameters to normal levels, and, thus, minimize the effects of general corrosion, crevice corrosion, and pitting. |
| 141. | 5.8 | EDG | EDG lube oil “Y” strainers | General Corrosion, Crevice Corrosion, and Pitting | PM | See Section 16.2.23 for a general description.<br>PM checklists (Clean/Inspect 2B, 1B, and 2A EDG Lube Oil “Y” Strainers and Baskets) are credited with discovery of the effects of degradation on the “Y” strainer internal surfaces. The PMs tasks have been modified to check for signs of corrosion on the “Y” strainer internal surfaces during performance of the procedures. |
| 142. | 5.8 | EDG | EDG Starting Air (SA) and CA intake piping and SA system CKVs | General Corrosion, Crevice Corrosion, and Pitting | PM | See Section 16.2.23 for a general description.<br>A PM procedure (disassemble, Inspect and Overhaul EDG CKV) is credited with discovery of the effects of pitting, crevice corrosion, and general corrosion of the internal surfaces of EDG SA System CKVs. This procedure has been modified to inspect specifically for corrosion of piping and check for the presence of debris in valves that could indicate the piping in these systems is undergoing corrosion. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 143. | 5.8 | EDG | EDG SA/CA intake/ exhaust piping, EDG intake filters and intake/ exhaust mufflers, EDG exhaust piping and flame arrestors | General Corrosion, Crevice Corrosion, Erosion Corrosion, Particulate Wear, Erosion, Fatigue, and Pitting | PM | See Section 16.2.23 for a general description.<br>A PM procedure (Inspect EDG Air Intake Filters) is credited for the discovery of effects of corrosion on the internal surfaces of the EDG SA/CA intake piping, internal surfaces of the EDG intake filters and intake mufflers, and external surfaces of the EDG intake filters and exhaust mufflers. The MPM has been modified to inspect the attached piping for signs of corrosion. |
| 144. | 5.8 | EDG | EDG SA and CA intake PP | General Corrosion | PM | See Section 16.2.23 for a general description.<br>PM repetitive tasks are credited with the discovery of the effects of corrosion of internal piping surfaces for EDG SA, and CA intake systems. These PM repetitive tasks have been modified to inspect specifically for corrosion of piping and check for the presence of debris in valves that could indicate the piping in these systems is undergoing corrosion. |
| 145. | 5.8 | EDG | EDG SA and CA intake PP | General Corrosion, Crevice Corrosion, and Pitting | PM | See Section 16.2.23 for a general description.<br>A PM procedure (Remove Relief Valve, Test and Reinstall) is credited with the discovery of degradation of the internal piping surfaces for EDG SA, and CA intake systems. This procedure has been modified to inspect specifically for corrosion of piping and check for the presence of debris in valves that could indicate the piping in these systems is undergoing corrosion. |
| 146. | 5.8 | EDG | DFO day TKs, drip TKs and associated level switches | General Corrosion, Crevice Corrosion, Pitting, and MIC | DFO (Tanks and Chemistry) | See Section 16.2.16 for a general description.<br>A procedure is credited for mitigating the effects of crevice corrosion, general corrosion, MIC and pitting on the interior surfaces of the EDG DFO day tanks, and drip tanks with associated tank-mounted level switches. Under this procedure, fuel oil chemistry is controlled, including testing for the presence of biologics. The procedure establishes surveillance frequencies, fuel oil specifications (e.g., viscosity, % water and sediment, particulate contamination and biologics), and corrective actions. Sampling and analysis are performed on new fuel prior to unloading from fuel trucks. This procedure specifies limits for water, viscosity, and sediment for both receipt inspection and Technical Specification surveillance for fuel oil in the FOSTs in accordance with ASTM-D975-81. The procedure currently has target values and action levels that give an acceptable range or limit for a given parameter. This procedure now requires the addition of a stabilizer/corrosion inhibitor prior to unloading fuel oil into the FOSTs. This approach provides a better assurance that the desired ratio of inhibitor to fuel oil exists. This procedure was revised to incorporate criteria in accordance ASTM-D270-65 for taking quarterly samples from the diesel FOSTs. This revision involves taking multilevel samples from each diesel FOST rather than sampling only from the tank bottom. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 147. | 5.8 | EDG | DFO day TKs, drip TKs | General Corrosion, Crevice Corrosion, Pitting, and MIC | Surveillance Testing | See Section 16.2.30 for a general description.<br>STPs (Testing EDGs and the 4 kV LOCA Sequencers) are credited for mitigation of crevice corrosion, general corrosion, pitting, and MIC on the interior of the DFO day tanks. The procedures provide for periodic draining of DFO day tank of any water that may be present, which minimizes the corrosive effects of water on carbon steel. The tank sample is taken and visually examined for the presence of water in the fuel. This procedure is currently performed monthly after the EDGs are shut down from testing. |
| 148. | Deleted | | | | | |
| 149. | Deleted | | | | | |
| 150. | 5.9 | FWS | PP | Erosion Corrosion | FAC | See Section 16.2.18 for a general description.<br>All of the FWS piping subject to aging management review, as well as all the piping in the system not subject to aging management review, are included in this program. |
| 151. | 5.9 | FWS | PP | Low Cycle Fatigue | Fatigue Monitoring | See Section 16.2.19 for a general description. |
| 152. | 5.9 | FWS | CKVs | Erosion Corrosion | PM | See Section 16.2.23 for a general description. |
| 153. | 5.9 | FWS | PP, CKVs, HVs, MOVs, and TEs | General Corrosion Crevice Corrosion, Erosion Corrosion, and/or Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 62 for a description of Secondary Systems Chemistry procedures. |
| 154. | Deleted | | | | | |
| 155. | 5.10 | FP | NSR portions of the below listed systems required for 10 CFR 50.48(c) are included in the group 041 - CVCS 064 - RCS | General Corrosion | BACI | See Section 16.2.7 for a general description. |
| 156. | 5.10 | FP | NSR portions of the below listed systems required for 10 CFR 50.48(c) are included in the group:<br>008 – Well Water<br>011 – SRW<br>013 – FP<br>015 – CC<br>019 – Compressed Air<br>029 – Plant Heating<br>036 – AFW<br>037 – Demin Water and Cond Storage<br>044 - Condensate<br>053 – Plant Drains<br>071 – Liquid Waste<br>083 – Main Steam | For Plausible Aging Mechanisms Applicable to These Systems | FP | See Section 16.2.21 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 157. | 5.10 | FP | NSR portions of the below listed systems required for 10 CFR 50.48(c) are included in the group<br>013 – FP<br>023 – DFO<br>036 – AFW<br>053 – Plant Drains | For Plausible Aging Mechanisms Applicable to These Systems | FP | See Section 16.2.21 for a general description. |
| 158. | 5.10 | FP | NSR portions of the below listed systems required for 10 CFR 50.48(c) are included in the group<br>008 – Well Water<br>011 – SRW<br>013 – FP<br>015 – CC<br>019 – Compressed Air<br>029 – Plant Heating<br>036 – AFW<br>037 – Demin Water & Cond Storage<br>044 – Condensate<br>053 – Plant Drains<br>071 – Liquid Waste<br>083 – Main Steam | For Plausible Aging Mechanisms Applicable to These Systems | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 159. | Deleted | | | | | |
| 160. | Deleted | | | | | |
| 161. | Deleted | | | | | |
| 162. | 5.11A | Auxiliary Building Heating and Ventilation | Fans | Dynamic Loading | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 163. | 5.11A | Auxiliary Building Heating and Ventilation | Duct flexible collars, GD | Elastomer Degradation, Wear | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 164. | 5.11A | Auxiliary Building Heating and Ventilation | Ducts, HXs | General and Crevice Corrosion, Pitting | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 165. | 5.11A | Auxiliary Building Heating and Ventilation | HX | General and Crevice Corrosion, Pitting | PM | See Section 16.2.23 for a general description. |
| 166. | Deleted | | | | | |
| 167. | Deleted | | | | | |
| 168. | 5.11B | Primary Containment Heating and Ventilation | Cooling coil external surfaces | Crevice Corrosion, Pitting | PM | See Section 16.2.23 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 169. | 5.11B | Primary Containment Heating and Ventilation | Fans | Dynamic Loading | PM | See Section 16.2.23 for a general description. |
| 170. | 5.11B | Primary Containment Heating and Ventilation | Fans | Dynamic Loading | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 171. | 5.11B | Primary Containment Heating and Ventilation | Cooler housings, HXs | General Corrosion, Crevice Corrosion, Pitting, MIC | PM | See Section 16.2.23 for a general description. |
| 172. | 5.11B | Primary Containment Heating and Ventilation | Cooler rubber boots, GD | Radiation Damage, Elastomer Degradation, Wear | PM | See Section 16.2.23 for a general description. |
| 173. | 5.11B | Primary Containment Heating and Ventilation | Cooling coil internal surfaces | Crevice Corrosion, Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 174. | 5.11B | Primary Containment Heating and Ventilation | Duct flexible collars, GD | Elastomer Degradation, Wear | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 175. | Deleted | | | | | |
| 176. | 5.11C | Control Room and Diesel Generator Buildings HVAC | Dampers, ducts, fans, filters, HXs | General Corrosion, Crevice Corrosion, MIC, and Pitting | PM | See Section 16.2.23 for a general description.<br>Existing procedures have been modified to include specific items with respect to discovery of these ARDMs to help ensure each plausible ARDM is being adequately managed. |
| 177. | Deleted | | | | | |
| 178. | 5.11C | Control Room and Diesel Generator Buildings HVAC | Fans | Dynamic Loading | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 179. | 5.11C | Control Room and Diesel Generator Buildings HVAC | Duct flexible collars | Elastomer Degradation, Wear | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 180. | 5.11C | Control Room and Diesel Generator Buildings HVAC | Dampers, ducts, fans, FD, filters, HXs | General Corrosion, Crevice Corrosion, MIC, and Pitting | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 181. | Deleted | | | | | |
| 182. | 5.12 | Main Steam, Extraction Steam | PP | Erosion Corrosion | FAC | See Section 16.2.18 for a general description. |
| 183. | 5.12 | Main Steam, Extraction Steam | PP, CKVs, CVs, FOs, HVs, HXs, and MOVs | General Corrosion, Crevice Corrosion, Pitting, and Erosion Corrosion | FAC | See Section 16.2.18 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 184. | 5.12 | Main Steam, Compressed Air | PP, CVs, HVs, ACC | General Corrosion | PM | See Section 16.2.23 for a general description<br>The quality of the air to IA System components that are within scope is periodically verified, in accordance with PM Checklists. These checklists assure that the system is being maintained in accordance with industry standards for moisture (dewpoint) and particulate contamination. Maintenance of dry air mitigates corrosion of compressed air components. |
| 185. | 5.12 | Main Steam | CVs | General Corrosion, Erosion Corrosion | PM | See Section 16.2.23 for a general description.<br>Main steam isolation valves (MSIVs) are periodically inspected. The PM activities require the periodic disassembly and inspection of these valves, per the requirements of the PM procedure. These regularly scheduled inspections would result in the detection of the effects of degradation such that corrective action would be taken.<br>Existing procedures were modified to include specific items with respect to discovery of these ARDMs to help ensure each plausible ARDM is being adequately managed. |
| 185A. | 5.12 | Main Steam | MSIV actuation system | Any Plausible Aging Effects | PM | See Section 16.2.23 for a general description. |
| 186. | 5.12 | Main Steam | SG blowdown HXs | General Corrosion, Crevice Corrosion, Erosion Corrosion, and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 187. | 5.12 | Main Steam | SG blowdown radiation monitor cooler | General Corrosion, Crevice Corrosion, Pitting, and Selective Leaching | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of CC/SRW Chemistry Procedure. |
| 188. | 5.12 | Chemical Addition | HVs | General Corrosion, Crevice Corrosion, and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 99 for a description of the Demineralized Water Chemistry Procedure. |
| 189. | 5.12 | Main Steam, Nitrogen & Hydrogen | PP, CKVs, CVs, HVs, FOs, HXs, MOVs, TEs, and TKs | General Corrosion, Crevice Corrosion, Pitting, Erosion Corrosion, Wear, Selective Leaching | Chemistry | See Section 16.2.12 for a general description.<br>See Item 62 for a description of the Secondary Chemistry Procedure. |
| 190. | Deleted | | | | | |
| 191. | 5.13 | NSSS Sampling | Sample coolers, CVs, and HVs that are exposed to borated water (due to leakage) | General Corrosion | BACI | See Section 16.2.7 for a general description. |
| 192. | 5.13 | NSSS Sampling | CVOP | General Corrosion | PM | See Section 16.2.23 for a general description.<br>The quality of IA System components that are within scope is periodically verified in accordance with PM Checklists. These checklists assure that the system is being maintained in accordance with industry standards for moisture (dew point) and particulate contamination. |
| 193. | 5.13 | NSSS Sampling | PP and Valves in the RCS hot leg sampling line | Fatigue | Fatigue Monitoring | See Section 16.2.19 for a general description.<br>The FMP was modified to include an engineering evaluation of the piping and valves in the RCS hot leg sampling line. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 194. | 5.13 | NSSS Sampling | HXs that are exposed to chemically treated water from the CC System | Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 195. | 5.13 | NSSS Sampling | Sample coolers, CVs, HVs, and SVs that are exposed to borated water (as process fluid) | Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 64 for a description of Primary Chemistry Procedure. |
| 196. | 5.13 | NSSS Sampling | Sample coolers and HVs that are exposed to steam and feedwater (as process fluid) | Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 62 for a description of the Secondary Chemistry Procedure. |
| 197. | 5.13 | NSSS Sampling | PUMP | Rubber Degradation | PM | See Section 16.2.23 for a general description. |
| 198. | Deleted | | | | | |
| 199. | Deleted | | | | | |
| 200. | Deleted | | | | | |
| 201. | 5.15 | SI | RWT penetrations and associated welds | SCC | BACI | See Section 16.2.7 for a general description.<br>Engineering review discussed in Item 204 concluded that periodic inspections of RWT penetrations and associated welds will be performed as part of BACI Program to manage the effects of aging on subject structures, systems, and components. PM tasks have been generated to perform the inspections. |
| 202. | 5.15 | SI | PP (fasteners), CKVs, CVs, HVs, HXs, MOVs, RVs, PUMPs, and TKs that are exposed to borated water (due to leakage) | General Corrosion | BACI | See Section 16.2.7 for a general description. |
| 203. | 5.15 | SI | PP and valves in the safety injection tank (SIT) injection mode flowpath | Fatigue | Fatigue Monitoring | See Section 16.2.19 for a general description.<br>In response to NRC Bulletin 88-08, “Thermal Stresses in Piping Connected to Reactor Coolant Systems,” Calvert Cliffs identified the potential for thermal stratification in the piping between the SIT outlet CKVs and the loop inlet CKVs, and subsequently confirmed the natural convection phenomenon. Since the current piping analysis for the affected portions of the SI System does not include the additional stresses imposed by thermal stratification, Calvert Cliffs completed an engineering review of the industry’s task reports and determined: (a) any necessary changes to the piping analyses of record for the SI System; and (b) the impact of such changes on fatigue usage parameters used by the FMP. SI System locations were added to the FMP. |
| 204. | 5.15 | SI | RWT penetrations and associated welds | SCC | BACI | See Section 16.2.7 for a general description.<br>An engineering evaluation determined that RWT penetrations will leak before break. This evaluation confirmed that detection of minor leakage by visual inspection will adequately manage the RWT penetrations prior to a challenge of the structural integrity under design basis conditions. See Item 201. |
| 205. | 5.15 | SI | PP and valves in the SIT injection and SDC mode flowpaths | Fatigue | Fatigue Monitoring | See Section 16.2.19 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 206. | 5.15 | SI | Low pressure SI pump seal HXs and high pressure SI Pump seal coolers | General Corrosion, Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 207. | 5.15 | SI | All SI System device types that are exposed to borated water (as process fluid) | General Corrosion, Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 64 for a description of the Primary Chemistry Procedure. |
| 208. | 5.15 | SI | RWT penetrations and associated that are exposed to borated water (as process fluid) | SCC | Chemistry | See Section 16.2.12 for a general description.<br>See Item 64 for a description of the Primary Chemistry Procedure. |
| 209. | 5.15 | SI | RWT HXs | Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 99 for a description of the Demineralized Water Chemistry Procedure. |
| 210. | Deleted | | | | | |
| 211. | 5.15 | SI | RWT perimeter seal | Weathering | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 212. | Deleted | | | | | |
| 213. | Deleted | | | | | |
| 214. | 5.16 | SW | CC and SRW HXs | Crevice Corrosion, Erosion Corrosion, General Corrosion, MIC, Pitting, and Elastomer Degradation | PM | See Section 16.2.23 for a general description. |
| 215. | 5.16 | SW | FOs | Crevice Corrosion, Erosion Corrosion, MIC, Particulate Wear Erosion, and Pitting | PM | See Section 16.2.23 for a general description. |
| 216. | 5.16 | SW | Internally lined PP, BSs, CKVs, CVs, HVs, LC, LJ, and PUMPs | Crevice Corrosion, Galvanic Corrosion, General Corrosion, MIC, Particulate Wear Erosion, Pitting, Elastomer Degradation, and Selective Leaching | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected.<br>Degradation of the SW strainer carbon steel drain lines is managed by routine replacement. |
| 217. | 5.16 | SW | Emergency Core Cooling System Pump Room air coolers | Crevice Corrosion, General Corrosion, MIC, and Pitting | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected. |
| 218. | 5.16 | SW | ACCs, CVs, HVs, and PCVs, with air internal environment | General Corrosion | PM | See Section 16.2.23 for a general description. |
| 219. | 5.16 | SW | CC and SRW HXs | Crevice Corrosion, General Corrosion, and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 220. | 5.16 | SW | SW System bolting | General Corrosion, Crevice Corrosion, and Pitting | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 221. | Deleted | | | | | |
| 222. | Deleted | | | | | |
| 223. | Deleted | | | | | |
| 224. | Deleted | | | | | |
| 225. | 5.17 | SRW | Air-operated valves (CV, HV) | General Corrosion | PM | See Section 16.2.23 for a general description.<br>The quality of IA System components that are within scope is periodically verified, in accordance with PM Checklists. These checklists assure that the system is being maintained in accordance with industry standards for moisture (dew point) and particulate contamination.<br>Mitigation of general corrosion of the SRW air-operated valves. The exposure to moisture is minimal and short-term, and is not expected to result in significant levels of degradation of the carbon steel components. |
| 226. | 5.17 | SRW | PP, AVV, CKVs, CVs, FEs, FOs, HVs, PUMPs, REs, RVs, TEs, TIs, TKs | Crevice Corrosion and Pitting | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 227. | 5.17 | SRW | PP, AVVs, CKVs, CVs, HVs, PUMPs, RVs, TIs | General Corrosion | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 228. | 5.17 | SRW | CVs, HVs, and PUMPs | Selective Leaching | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 229a. | 5.17 | SRW | PUMPs | General Corrosion, Crevice Corrosion and Pitting | PM | See Section 16.2.23 for a general description.<br>The SRW pumps are inspected for general corrosion, crevice corrosion/pitting using the PM Pump Overhaul Procedure. This procedure instructs the user to inspect certain pump components for erosion, wear, and mechanical damage. The procedure has been modified to include inspections for general corrosion, crevice corrosion/pitting on the pump casing and bushings. The procedure directs the user to contact the System Engineer if any of these indications are found, and to replace parts as necessary. |
| 229b. | 5.17 | SRW | PUMPs | General Corrosion, Crevice Corrosion and Pitting | Surveillance Testing | See Section 16.2.30 for a general description.<br>Pump inspections rely on the SRW pump periodic test of the pump active function (flow vs. head) to trigger the overhaul. The periodicity of these tests is established by Technical Specifications. |
| 230. | Deleted | | | | | |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 231. | 5.18 | SFPC | All items that are exposed to borated water (due to leakage) | General Corrosion | BACI | See Section 16.2.7 for a general description. |
| 232. | 5.18 | SFPC | SFP demineralizer, filter and pipe supports | General Corrosion, Boric Acid Corrosion | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to explicitly call for inspection of the components for signs of boric acid corrosion. |
| 233. | 5.18 | SFPC | SFPC PUMPs | Cavitation Erosion, Erosion Corrosion | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to explicitly present inspection requirements. |
| 234. | 5.18 | SFPC | HXs | General Corrosion | Chemistry | See Section 16.2.12 for a general description.<br>See Item 67 for a description of the CC/SRW Chemistry Procedure. |
| 235. | 6.1 | Cables | For information concerning the AMP for LRA Section 6.1, Cables, see items 258 through 266 | | | |
| 236a. | 6.2 | Electrical Commodities | Battery terminals/ charger and inverter cabinets | Electrical Stressors, General Corrosion, and Wear | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected. |
| 236b. | 6.2 | Electrical Commodities | Battery terminals/ charger and inverter cabinets | Electrical Stressors, General Corrosion, and Wear | Surveillance Testing | See Section 16.2.30 for a general description. |
| 237. | 6.2 | Electrical Commodities | Breaker cabinets | Electrical Stressors, Wear, and Fatigue | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected. |
| 238. | 6.2 | Electrical Commodities | Bus cabinets | Electrical Stressors, Wear, and Fatigue | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected. |
| 239. | 6.2 | Electrical Commodities | Bus cabinets | Electrical Stressors, Wear, and Fatigue | PM | See Section 16.2.23 for a general description.<br>New PM Tasks have been created to include specific ARDMs for components/sub-components that were not initially inspected. |
| 240. | 6.2 | Electrical Commodities | Motor-control cabinets panels | Electrical Stressors, Wear, Fatigue, and Dynamic Loading | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected. |
| 241. | 6.2 | Electrical Commodities | Motor-control cabinets panels | Electrical Stressors, Wear, Fatigue, and Dynamic Loading | PM | See Section 16.2.23 for a general description.<br>New PM Tasks have been created to include specific ARDMs for components/sub-components that were not initially inspected. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 242. | 6.2 | Electrical Commodities | Miscellaneous panels | Electrical Stressors, Wear, Fatigue, and Dynamic Loading | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected. |
| 243. | 6.2 | Electrical Commodities | Miscellaneous panels | Electrical Stressors, Wear, Fatigue, and Dynamic Loading | PM | See Section 16.2.23 for a general description.<br>New PM Tasks have been created to include specific ARDMs for components/sub-components that were not initially inspected. |
| 244. | 6.2 | Electrical Commodities | Local control station panels | Electrical Stressors, Wear, Fatigue, and General Corrosion | PM | See Section 16.2.23 for a general description.<br>PM tasks have been modified to include specific ARDMs where they were not initially included and/or additional specified components/ subcomponents where they were not initially inspected. |
| 245. | 6.2 | Electrical Commodities | Local control station panels | Electrical Stressors, Wear, Fatigue, and General Corrosion | PM | See Section 16.2.23 for a general description.<br>New PM Tasks have been created to include specific ARDMs for components/sub-components that were not initially inspected. |
| 245a. | NA | Electrical Commodities | Fuse Holders | Electrical Stressors, Corrosion, Fatigue | PM | See Section 16.2.23 for a general description. |
| 245b. | NA | Electrical Commodities | Fuse Holders | Electrical Stressors, Corrosion, Fatigue | Surveillance Testing | See Section 16.2.30 for a general description. |
| 246. | 6.3 | EQ Equipment | All long-lived components on the EQ Master List | Thermal, Radiative, and Kapton-Unique Aging Effects | Environmental Qualification | See Section 16.2.17 for a general description. |
| 247. | 6.3 | EQ Equipment | EQ Penetrations | Thermal, Radiative | Containment Local Leakage Rate Testing | See Section 16.2.14 for a general description. |
| 248. | 6.3 | EQ Equipment | EQ Penetrations | General Corrosion | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 249. | 6.3 | EQ Equipment | EQ Penetrations | General Corrosion | Protective Coatings | See Section 16.2.24 for a general description. |
| 250. | Deleted | | | | | |
| 251. | Deleted | | | | | |
| 252. | Deleted | | | | | |
| 253. | 6.4 | Instrument Lines | Instrument line supports | General Corrosion and Elastomer Hardening | Structure & System Walkdown | See Section 16.2.29 for a general description. |
| 254. | Deleted | | | | | |
| 255. | NA | Piping External Surfaces | External pipe surfaces | Various Corrosion Mechanisms | BACI | See Section 16.2.7 for a general description. |
| 256. | NA | Piping External Surfaces | External pipe surfaces | Various Corrosion Mechanisms | Structure and System Walkdowns | See Section 16.2.29 for a general description. |
| 257. | Deleted | | | | | |
| 258. | 6.1 | Cables | In-Scope Random-Lay tray Electrical Cables and Connections (low and medium voltage) | Thermal Stress, Radiation Stress, Moisture | Cable | See Section 16.2.9 for a general description. |
| 259. | 6.1 | Cables | In-Scope Maintained-Spacing Tray Electrical Cables and Connections (low and medium voltage) | Thermal Stress, Radiation Stress, Moisture | Cable | See Section 16.2.9 for a general description. |

## TABLE 16-1

## AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM

| fItem No. | LRA Section | System | Components | Aging Mechanism | Program | Program Description |
|---|---|---|---|---|---|---|
| 260. | 6.1 | Cables | In-Scope Thermal and Radiative Synergy Electrical Cables and Connections (low and medium voltage) | Thermal Stress, Radiation Stress, Moisture | Cable | See Section 16.2.9 for a general description. |
| 261. | 6.1 | Cables | In-Scope Large-Motor Terminations | Thermal Stress | Cable | See Section 16.2.9 for a general description. |
| 262. | N/A | Cables | In-Scope Inaccessible Power Cables | Thermal Stress, Radiation Stress, Moisture/Submergence/ Wetting | Cable | See Section 16.2.9 for a general description. |
| 263. | 6.1 | Cables | In-Scope Sensitive, Low Current Instrumentation Circuits | Thermal Stress, Radiation Stress, Moisture | Cable | See Section 16.2.9 for a general description. |
| 264. | 6.1 | Cables | In-Scope, 4 kV Bus Insulating Boots | Thermal Stress, Radiation Stress, Moisture | Cable | See Section 16.2.9 for a general description. |
| 265. | 6.1 | Cables | In-Scope ITE (ITE Imperial Company) MCC Internal Wiring | Thermal Stress, Radiation Stress, Moisture | Cable | See Section 16.2.9 for a general description. |
| 266. | N/A | Cables | In-Scope EQ Cables and Connections | Thermal Stress, Radiation Stress, Moisture | Cable | See Section 16.2.9 for a general description. |

**TABLE 16-1**

**AGING MANAGEMENT PROGRAMS (AMP), INDEXED BY LRA SECTION AND SYSTEM**

Component Key

| | | | |
|---|---|---|---|
| ACC | Accumulator | HV | Hand Valve |
| AVV | Auto Vent Valve | HX | Heat Exchanger |
| BS | Basket Strainer | LC | Level Controller |
| CA | Combustion Air | LJ | 'LJ' Pipe Class |
| CAC | Containment Air Cooler | MOV | Motor-Operated Valve |
| CC | Component Cooling | PCV | Pressure Control Valve |
| CKV | Check Valve | PP | Piping |
| CV | Control Valve | PUMP | Pump/Driver Assembly |
| CVOP | Control Valve Operator | PZV | Pressurizer |
| EB | 'EB' Pipe Class | RE | Radiation Element |
| ERV | Electro-Relief Valve | RV | Relief Valve |
| FD | Fire Damper | SV | Solenoid Valve |
| FE | Flow Element | TE | Temperature Element |
| FO | Flow Orifice | TI | Temperature Indicator |
| GD | Gravity Damper | TIC | Temperature Indicating Controller |
| GOV | Governor | TK | Tank |
| HB | 'HB' Pipe Class | | |