System Function Listing

In addition to the System Functions described above, the Essential Ventilation Systems also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code J	Cri 1	Cri 2	Cri 3				
PROVIDE HEAT REMOVAL FROM SAFETY RELATED HEAT EXCHANGERS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Essential Ventilation Systems perform this associated design system function. Service water interface with Standby Auxiliary Feed Building ventilation.

Code O	Cri 1	Cri 2	Cri 3				
MAINTAIN EMERGENCY TEMPERATURES WITHIN AREAS CONTAINING SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Essential Ventilation Systems perform this primary design system function. This function includes establishing the Control Room emergency air treatment system boundary.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Essential Ventilation Systems perform this associated design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Essential Ventilation Systems perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Essential Ventilation Systems that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5). Augmented quality equipment in the ventilation systems include Relay Room, Battery Room, and Technical Support Center ventilation. Spent Fuel Pool ventilation and filtration is required during fuel handling operations in the Auxiliary Building.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Essential Ventilation Systems perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Essential Ventilation Systems perform this associated design system function. Non-safety ductwork that supports control room ventilation.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Essential Ventilation Systems perform this associated design system function. Selected ventilation components support safe shutdown following fire.

UFSAR Reference

Additional Essential Ventilation Systems details are provided in Section 9.4.2, Section 9.4.3, Section 9.4.4, Section 9.4.8, Section 9.4.9, Section 9.5.1.2.4.3, and Section 6.4.2.2 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Essential Ventilation Systems are listed below:

33013-1250,1
33013-1250,2
33013-1256
33013-1867
33013-1869
33013-1870
33013-1873
33013-2350
33013-2352
33013-1251,1
33013-1868
33013-1871
33013-1872
33013-1875
33013-1888
33013-1889
33013-1894,1
33013-1896
33013-1897,1
33013-1914
33013-1916,1
33013-1917
33013-1920

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.3.3-10 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.3-10 Essential Ventilation Systems

Component Group	Passive Function	Aging Management Reference
AIR OPERATED DAMPER HOUSING	PRESSURE BOUNDARY	Table 3.4-2 Line Number (3) Table 3.4-2 Line Number (5) Table 3.4-2 Line Number (6)
BLOWER CASING	PRESSURE BOUNDARY	Table 3.4-2 Line Number (8) Table 3.4-2 Line Number (9)
COOLING COIL	PRESSURE BOUNDARY	Table 3.4-1 Line Number (5) Table 3.4-2 Line Number (33) Table 3.4-2 Line Number (38) Table 3.4-2 Line Number (39) Table 3.4-2 Line Number (40) Table 3.4-2 Line Number (42)
CS COMPONENTS	PRESSURE BOUNDARY	Table 3.4-1 Line Number (13)

Table 2.3.3-10 Essential Ventilation Systems

Component Group	Passive Function	Aging Management Reference
DAMPER HOUSING/FRAME	PRESSURE BOUNDARY	Table 3.4-2 Line Number (45) Table 3.4-2 Line Number (46) Table 3.4-2 Line Number (47) Table 3.4-2 Line Number (49) Table 3.4-2 Line Number (51)
EXPANSION JOINT	PRESSURE BOUNDARY	Table 3.4-1 Line Number (2) Table 3.4-2 Line Number (64)
FAN CASING	PRESSURE BOUNDARY	Table 3.4-1 Line Number (5) Table 3.4-2 Line Number (71) Table 3.4-2 Line Number (72) Table 3.4-2 Line Number (73) Table 3.4-2 Line Number (74) Table 3.4-2 Line Number (75) Table 3.4-2 Line Number (77) Table 3.4-2 Line Number (78)
FASTENERS (BOLTING)	JOINT INTEGRITY	Table 3.4-1 Line Number (13) Table 3.4-1 Line Number (23) Table 3.4-2 Line Number (79) Table 3.4-2 Line Number (80) Table 3.3-2 Line Number (81)
FILTER HOUSING	PRESSURE BOUNDARY	Table 3.4-1 Line Number (5) Table 3.4-2 Line Number (87) Table 3.4-2 Line Number (94) Table 3.4-2 Line Number (95) Table 3.4-2 Line Number (96)
HEAT EXCHANGER	PRESSURE BOUNDARY HEAT TRANSFER	Table 3.4-1 Line Number (5) This applies to both passive functions. Table 3.4-2 Line Number (125) This applies to the pressure boundary passive function. Table 3.4-2 Line Number (135) This applies to the heat transfer passive function.
HEATING COIL	PRESSURE BOUNDARY	Table 3.4-2 Line Number (157) Table 3.4-2 Line Number (158)

Table 2.3.3-10 Essential Ventilation Systems

Component Group	Passive Function	Aging Management Reference
HVAC EQUIPMENT PACKAGE[1]	PRESSURE BOUNDARY	Table 3.4-2 Line Number (163) Table 3.4-2 Line Number (165) Table 3.4-2 Line Number (166)
MOTOR OPERATED DAMPER	PRESSURE BOUNDARY	Table 3.4-2 Line Number (191) Table 3.4-2 Line Number (192)
VENTILATION DUCTWORK	PRESSURE BOUNDARY	Table 3.4-2 Line Number (468) Table 3.4-2 Line Number (470) Table 3.4-2 Line Number (471) Table 3.4-2 Line Number (472)

1. HVAC equipment packages include the pressure boundary attributes associated with the package and sub-components such as filter housings, internal damper housings, and fan housings. Both the HVAC package units and their associated sub-components are uniquely identified on plant drawings.

2.3.3.11 Cranes, Hoists, and Lifting Devices

System Description

The Cranes, Hoists and Lifting Devices equipment group consists of the load handling systems that comply with NUREG-0612, Control of Heavy Loads. As such, the equipment group is considered to contain non-safety components whose failure could affect a safety function.

The principal components of the Cranes, Hoists and Lifting Devices equipment group include the Reactor Head Lifting Device, the Reactor Internals Lifting Device, and the load carrying elements of the Containment Main Crane, the Auxiliary Building Main Crane, and the Spent Fuel Pool and Containment Refueling Bridge cranes as well as selected jib and monorail hoists. Included are cables, hooks and the moving load bearing elements. The crane rails and supports that interface with building structural members are evaluated within the building that contains them.

These overhead load-handling systems were identified to have the potential for a heavy load drop that could result in damage to safe shutdown equipment. The majority of the plant crane hoists and lifting devices are excluded from NUREG-0612 because of administrative controls over their use or because of their distance from safety related equipment.

System Function Listing

In addition to the System Functions described above, the Cranes, Hoists and Lifting devices equipment group also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the group, or specific components contained in the group, is provided in the summary below.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components in the Cranes, Hoists, and Lifting devices equipment group perform this associated design system function.Components in the Cranes, Hoists, and Lifting devices equipment group perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components in the Cranes, Hoists, and Lifting devices equipment group perform this associated design system function. By definition of NUREG-0612, the safe handling of heavy loads is a non safety affecting safety function or the load handing systems are required to meet single failure proof criteria.

UFSAR Reference

Additional Cranes, Hoists, and Lifting Devices System details are provided in Section 9.1.2.1.7, Section 9.1.4.3.1, Section 9.1.4.3.6, Section 9.1.4.3.7, and Section 9.1.5 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.3.3-11 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.3-11 Cranes, Hoists, and Lifting Devices

Component Group	Passive Function	Aging Management Reference
CRANE	STRUCTURAL SUPPORT	Table 3.4-1 Line Number (15)
FASTENERS (BOLTING)	JOINT INTEGRITY	Table 3.4-1 Line Number (23) Table 3.4-2 Line Number (79) Table 3.4-2 Line Number (80)

2.3.3.12 Treated Water

System Description

The Treated Water system is comprised of the following secondary plant sub-systems: Demineralized water production, Domestic (potable) Water, Secondary Water Chemical Treatment and non-radioactive liquid waste disposal (floor drains, secondary sample effluents, etc.). The Treated Water sub-systems are non-safety auxiliary systems that support the functionality of other process systems. The Treated Water system contains floor drains and equipment whose failure could prevent the satisfactory accomplishment of a safety function (flood mitigation and backflow of oil through floor drain prevention).

The principal components of the Treated Water system are pumps, tanks, ion exchange vessels and the essential piping, hoses and valves necessary for the sub-systems to function. The primary water treatment system or mobile demineralizer trucks process Domestic Water to provide demineralized water to the reactor makeup water tank, the component cooling water surge tank, and the condensate storage tanks and various local locations throughout the plant via a piping distribution network. The All-Volatile-Treatment (AVT) chemistry system uses chemical addition and ion exchange to treat condensate water in order to reduce the corrosion of equipment in the secondary system and minimizes the fouling of heat transfer surfaces. The AVT regeneration wastes are collected in neutralization tanks and sampled to determine disposition methods. The catalytic oxygen removal system reduces condensate dissolved oxygen by mixing hydrogen with the condensate and reducing the free oxygen to water by exposure of the mixture to a metal catalyst surface. The secondary plant equipment and floor drains serve to route leakage from equipment and compartments in order to provide proper control of leakage, prevent uncontrolled communication between areas as necessary, and to allow

monitoring of leakage prior to disposition. Where drains from safety-related areas are tied into drains from areas that contain a large quantity of flammable liquid, backflow protection is provided to prevent possible spread of a liquid fire via the drain system. An underground retention tank is the collection point for the various building floor and equipment drains. It retains these effluents for sampling and treatment prior to discharging into the circulating water discharge.

The following fluid systems interface with the Treated Water System:

Feedwater and Condensate	Component Cooling Water
Circulating Water	Plant Sampling

System Function Listing

In addition to the System Functions listed above, the Treated Water System also supports additional functions (associated design system functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code K	Cri 1	Cri 2	Cri 3				
PROVIDE PRIMARY CONTAINMENT BOUNDARY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Treated Water system perform this associated design system function.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Treated Water system perform this associated design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Treated Water system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Treated Water system that perform special capability class functions are tracked under the Criterion 2 code (Y).

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Treated Water system perform this associated design system function.

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION		X	FP	EQ	PTS	AT	SB

Comment: Components within the Treated Water system perform this associated design system function. Components within the Treated Water system are used for dewatering vital areas and preventing backflow of oil through floor drains.

UFSAR Reference

Additional Treated Water System details are provided in Section 9.2.3, Section 9.5.1.2.4.5, Section 10.7.7, and Table 6.2-15a of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Treated Water System are listed below:

33013-1237	33013-1908,1
33013-1245	33013-1908,2
33013-1248	33013-1909
33013-1893	33013-1910,1
33013-1908,3	33013-1910,2
33013-2287	33013-1911,1
33013-2681	33013-1911,2
33013-1235	33013-1912
33013-1896	33013-1913
33013-1897,1	33013-1914
33013-1897,2	33013-2250
33013-1898	33013-2276
33013-1899,2	33013-2286
33013-1907	33013-2742

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.3.3-12 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.3-12 Treated Water

Component Group	Passive Function	Aging Management Reference
CS COMPONENTS	PRESSURE BOUNDARY	Table 3.4-1 Line Number (13)

Table 2.3.3-12 Treated Water

Component Group	Passive Function	Aging Management Reference
FASTENERS (BOLTING)	JOINT INTEGRITY	Table 3.4-1 Line Number (13) Table 3.4-1 Line Number (23) Table 3.4-2 Line Number (79) Table 3.4-2 Line Number (80) Table 3.4-2 Line Number (81)
PENETRATION SEAL[1]	PRESSURE BOUNDARY	Table 3.4-1 Line Number (5)
PIPE	PRESSURE BOUNDARY	Table 3.4-1 Line Number (5) Table 3.4-2 Line Number (204) Table 3.4-2 Line Number (205) Table 3.4-2 Line Number (212) Table 3.4-2 Line Number (216)
PUMP CASING	PRESSURE BOUNDARY	Table 3.4-2 Line Number (255) Table 3.4-2 Line Number (257) Table 3.4-2 Line Number (261) Table 3.4-2 Line Number (262) Table 3.4-2 Line Number (265)
VALVE BODY	PRESSURE BOUNDARY	Table 3.4-1 Line Number (5) Table 3.4-2 Line Number (388) Table 3.4-2 Line Number (390) Table 3.4-2 Line Number (434) Table 3.4-2 Line Number (441) Table 3.4-2 Line Number (442) Table 3.4-2 Line Number (443) Table 3.4-2 Line Number (446) Table 3.4-2 Line Number (450) Table 3.4-2 Line Number (460) Table 3.4-2 Line Number (461)

1. Floor drain sumps are baffled to prevent cross-communication. These metallic baffles are considered penetration seals.

2.3.3.13 Radiation Monitoring

System Description

The function of the Radiation Monitoring system is to detect any plant problem, which may lead to a radiation hazard and/or release of radioactivity to the environment. The system also warns the operators of this hazard so that appropriate actions may be taken. To accomplish this function, the system utilizes both area and process radiation monitors. Some radiation monitors sense parameters and generate signals that interface with engineered safety features actuation (e.g. containment isolation) or are used to monitor for reactor coolant leakage. Others provide automatic non-safety process system control functions as a result of a high alarm. Radiation monitors also ensure control room habitability by generating an isolation signal used to secure the control room ventilation envelope. The Control Room Emergency Air Treatment System also contains non-nuclear safety toxic gas detection that electrically interfaces with the radiation monitoring systems control room ventilation isolation signal. These toxic gas monitors are included within the evaluation boundary of the radiation monitoring system as non-safety components whose failure could prevent the satisfactory accomplishment of a safety related function. The Radiation Monitoring system also contains post accident monitoring instrumentation that is Environmentally Qualified.

The principal components of the Radiation Monitoring system include area monitors, process monitors, System-Level Particulate, Iodine, and Nobel Gas Monitors (SPING), data acquisition modules (DAM), computer interface and terminal equipment, toxic gas detectors, and the pumps, valves and essential ductwork and piping necessary for their functioning. UFSAR Section 11.5, Process And Effluent Radiation Monitoring And Sampling Systems," provides a detailed description of all the radiation monitors and their functions.

The following fluid systems interface with the Radiation Monitoring System (note that the pressure boundary interfaces are evaluated within the system being monitored):

Reactor Coolant
Component Cooling
Treated Water
Waste Disposal
Service Water

System Function Listing

In addition to the System Functions described above, the Radiation Monitoring System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code D	Cri 1	Cri 2	Cri 3				
SENSE OR PROVIDE PROCESS CONDITIONS AND GENERATE SIGNALS FOR REACTOR TRIP AND ENGINEERED SAFETY FEATURES ACTUATION			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Radiation Monitoring system perform this primary design system function.

Code J	Cri 1	Cri 2	Cri 3				
PROVIDE HEAT REMOVAL FROM SAFETY RELATED HEAT EXCHANGERS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Radiation Monitoring system perform this associated design system function (Service Water interface with RM-20B and RE-20B).

Code K	Cri 1	Cri 2	Cri 3				
PROVIDE PRIMARY CONTAINMENT BOUNDARY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Radiation Monitoring system perform this primary design system function.

Code O	Cri 1	Cri 2	Cri 3				
MAINTAIN EMERGENCY TEMPERATURES WITHIN AREAS CONTAINING SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Radiation Monitoring system perform this associated design system function.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Radiation Monitoring system perform this associated design system function.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Radiation Monitoring system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Radiation Monitoring system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Radiation Monitoring system perform this associated design system function.

Code X SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Radiation Monitoring system perform specific safety related functions different from and in addition to the system level functions (e.g. Reg Guide 1.97 Category 1).

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Radiation Monitoring system perform this associated design system function. Some components could have pressure boundary failures which, if they occurred outside the safety boundary, could dilute the sample and affect the safety function of the device. Additionally, Control Room Toxic Gas monitoring is included for review within the boundaries of the Radiation Monitoring system.

Code Z2 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the Radiation Monitoring system are designated as Environmentally Qualified.

UFSAR Reference

Additional Radiation Monitoring system details are provided in Section 6.4.2.2.3, Section 6.4.5, Section 11.5, Section 12.3.4, and Table 6.2-15a of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Radiation Monitoring system are listed below:

33013-1231	33013-1893
33013-1245	33013-2287
33013-1250,2	33013-1271
33013-1250,3	33013-1871
33013-1278,2	33013-1904
33013-1866	33013-1912
33013-1867	

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.3.3-13 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.3-13 Radiation Monitoring

Component Group	Passive Function	Aging Management Reference
CS COMPONENTS	PRESSURE BOUNDARY	Table 3.4-1 Line Number (13)
FASTENERS (BOLTING)	JOINT INTEGRITY	Table 3.4-1 Line Number (13) Table 3.4-1 Line Number (23) Table 3.4-2 Line Number (79) Table 3.4-2 Line Number (80) Table 3.4-2 Line Number (81)
FILTER HOUSING	PRESSURE BOUNDARY	Table 3.4-2 Line Number (97) Table 3.4-2 Line Number (99)
FLOW ELEMENT	PRESSURE BOUNDARY	Table 3.4-2 Line Number (106) Table 3.4-2 Line Number (108)
FLOW METER[1]	PRESSURE BOUNDARY	Table 3.4-2 Line Number (112) Table 3.4-2 Line Number (113)

Table 2.3.3-13 Radiation Monitoring

Component Group	Passive Function	Aging Management Reference
PIPE	PRESSURE BOUNDARY	Table 3.4-2 Line Number (232) Table 3.4-2 Line Number (236)
PUMP CASING	PRESSURE BOUNDARY	Table 3.4-1 Line Number (5) Table 3.4-2 Line Number (259) Table 3.4-2 Line Number (268) Table 3.4-2 Line Number (270)
RADIATION DETECTOR HOUSING	PRESSURE BOUNDARY	Table 3.4-2 Line Number (276) Table 3.4-2 Line Number (277) Table 3.4-2 Line Number (278) Table 3.4-2 Line Number (279) Table 3.4-2 Line Number (280) Table 3.4-2 Line Number (281)
RADIATION MONITOR SKID	PRESSURE BOUNDARY	Table 3.4-2 Line Number (282) Table 3.4-2 Line Number (283) Table 3.4-2 Line Number (284)
SPECIAL ELEMENT	PRESSURE BOUNDARY	Table 3.4-2 Line Number (291) Table 3.4-2 Line Number (292)
VALVE BODY	PRESSURE BOUNDARY	Table 3.4-2 Line Number (392) Table 3.4-2 Line Number (394) Table 3.4-2 Line Number (426) Table 3.4-2 Line Number (429) Table 3.4-2 Line Number (444) Table 3.4-2 Line Number (445) Table 3.4-2 Line Number (447)

1. Selected instruments were conservatively included within the scope of License Renewal. Consideration was given to the consequences of an instrument housing pressure boundary failure. Where an instrument was unisolable from a pressure source and is of sufficient size that a system function would be degraded should the pressure boundary fail, that instrument is included for License Renewal review.

2.3.3.14 Circulating Water - Not Within Scope of License Renewal

System Description

The Circulating Water (CW) system is designed to provide a reliable supply of water, regardless of weather or lake conditions, to the suction of the screen house pumps. Those portions of the CW system that support the delivery of lake water sufficient for the use of service water and fire water pumps are evaluated within the Service Water system. Those portions of the Circulating Water system that provide circulating water flood detection are evaluated within the Reactor Protection system. Consequently, within the system evaluation boundary there are no components that perform License Renewal Intended Functions.

The principal components of the CW system are: the circulating water pumps, travelling screens, chlorine addition tanks and pumps and the essential piping and valves. The function of the circulating water system is to provide a reliable supply of water to condense the steam exhausted from the low-pressure turbines.

The circulating water system is a nonseismic piping system whose primary function is to remove heat from the steam cycle via the main condensers. To achieve this end, the system consists of an intake structure specially designed to minimize the possibility of clogging, an inlet tunnel, four traveling screens, two circulating water pumps, and a discharge canal. The intake tunnel and the intake tunnel bypass (loss of lake valve and bypass piping) are evaluated within the Service Water system. The intake is designed to withstand, without loss of function, ground accelerations of 0.2g, acting in the vertical and horizontal planes simultaneously. The probability of water stoppage due to plugging of the inlet has been reduced to an extremely low value by incorporating design features in the system. Before the inlet plenum water reaches the pump suctions, the water passes through the four parallel traveling screens. Service water pump discharge is used to periodically flush the debris off the screens into a collecting trough where it is carried away.

The following fluid systems interface with the Circulating Water System:

Service Water
Fire Protection
Waste Disposal

System Function Listing

A comprehensive listing of all functions associated with the Circulating Water system, or specific components contained in the system, is provided in the summary below.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Circulating Water system perform this primary design system function.

UFSAR Reference

Additional Circulating Water system details are provided in Section 10.6 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Circulating Water system are listed below

33013-1250,1	33013-1896
33013-1885,1	33013-1921
33013-1885,2	

2.3.3.15 Chilled Water - Not Within Scope of License Renewal

System Description

The Chilled Water system supports normal habitability and equipment reliability by maintaining Control Room and office space temperature within acceptable bounds during normal operating conditions. Accordingly, components within the Chilled Water system do not perform any License Renewal intended functions.

The principal components of the Chilled Water system are the chilled water pumps, the chiller units, a surge tank and the essential piping and valves. Chilled water (which uses service water as a heat sink) supplies chilled water to the control room HVAC unit and various cooling coils within individual service building HVAC units.

The following fluid systems interface with the Chilled Water System:

Service Water	Treated Water

System Function Listing

A comprehensive listing of all functions associated with the Chilled Water system, or specific components contained in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Chilled Water system perform this primary design system function (augmented quality). Components within the Chilled Water system maintain an atmosphere in the Main Control Room conducive to continuous occupancy during any mode of normal operation or event.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Chilled Water system perform this associated design system function (e.g. chemical addition for water treatment, test and drain valves, etc.)

UFSAR Reference

Additional Chilled Water system details are provided in Section 6.4.2.2 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Chilled Water system are listed below

33013-1250,3	33013-1899,2
33013-1876	33013-1920
33013-1877	33013-2282
33013-1879	

2.3.3.16 Fuel Handling - Not Within Scope of License Renewal

System Description

The Fuel Handling system provide a safe and effective means for transporting and handling reactor fuel from the time the fuel reaches the plant in an unirradiated condition until it is placed in the spent fuel pool racks to await final long term storage. Note: The Fuel Handling system boundary does not include any cranes, hoists or lifting devices categorized under NUREG-0612, Control of

Heavy Loads. Cranes, new and spent fuel storage racks, the spent fuel pool and cavity liners are evaluated separately. Accordingly, components within the Fuel Handling Systems do not perform any License Renewal intended functions.

The principal components of the Fuel Handling system include the new fuel elevator, the underwater air motor driven fuel conveyor car, the pneumatic control assembly equipment for the fuel manipulator cranes, fuel and reactor internals handling tools, control equipment for safety interlocks, and essential valves and air tubing.

Special precautions are taken in all fuel handling operations to minimize the possibility of damage to fuel assemblies during transport to and from the spent fuel pool (SFP) and during installation in the reactor. All handling operations on irradiated fuel are conducted under water. The handling tools used in the fuel handling operations are conservatively designed and the associated devices are of a fail-safe design.

In the fuel storage area, administrative controls and geometric constraints ensure that the fuel assemblies are spaced in a pattern which prevents any possibility of a criticality accident. Also, crane interlocks and administrative controls prevent carrying heavy objects, such as a spent fuel transfer cask, over the fuel assemblies in the storage racks. In addition, administratively, only one fuel assembly can be handled at a given time over storage racks containing spent fuel. The motions of the cranes which move the fuel assemblies are limited to a relatively low maximum speed. Caution is exercised during fuel handling to prevent the fuel assembly from striking another fuel assembly or structures in the containment or spent fuel pool. The fuel handling equipment suspends the fuel assembly in the vertical position during fuel movements, except when the fuel is moved through the transport tube.

The following fluid systems interface with the Fuel Handling System:
Plant Air

System Function Listing

A comprehensive listing of all functions associated with the Fuel Handling system, or specific components contained in the Fuel Handling system, is provided within the summary below.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Fuel Handling system perform this associated design system function.

Note: Equipment used to handle heavy loads (NUREG-0612) is evaluated within Cranes, Hoists and Lifting Devices.

UFSAR Reference

Additional Fuel Handling system details are provided in Section 9.1.2.1.7, Section 9.1.4, and Section 15.7.3 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Fuel Handling system are listed below:

33013-1887 33013-1889

2.3.3.17 Plant Sampling - Not Within Scope of License Renewal

System Description

The Plant Sampling system provide representative nuclear process systems (e.g. primary coolant) and non-nuclear, non-radioactive process systems (e.g. condensate) samples for laboratory analysis. Equipment for sampling secondary and non-radioactive fluids is separated from the equipment provided for reactor coolant samples. No components within the Plant Sampling System evaluation boundary perform license renewal intended functions. Leakage and drainage resulting from the radioactive sampling operations are collected and drained to tanks located in the waste disposal system. Components associated with containment isolation are evaluated in the Containment Isolation system. Safety related interface components (e.g. heat exchangers) are evaluated within the system that is used to remove heat.

The principal components of the Plant Sampling systems include heat exchangers, pumps, tanks, and the essential piping and valves. Two types of samples are obtained by the nuclear process sampling portion of the system: high temperature-high pressure reactor coolant system and steam generator blowdown samples which originate inside the reactor containment, and low temperature-low pressure samples from the chemical and volume control and auxiliary coolant systems. Typical information obtained from the primary coolant analyses includes reactor coolant boron and chloride concentrations; fission product radioactivity level; corrosion product concentration and chemical additive concentrations; and oxygen, hydrogen, and fission gas content.

The nuclear process portion of the sample system also includes a Post Accident Sampling System. The postaccident sampling system is designed to allow the station to obtain and analyze reactor coolant, containment air, and containment sump samples within 3 hours after the decision is made to sample. The postaccident sampling system also permits routine sampling of these process streams. In-line chemical instrumentation is provided in a liquid and gas sample panel that remotely determines important chemical parameters of the reactor coolant, containment air, and containment sump A. In addition, the liquid and gas sample panel enables acquisition of both diluted and undiluted grab samples of the reactor coolant and containment air for isotopic analysis in the counting lab.

The non-nuclear or secondary sampling system is provided with a number of sampling points. Inline analyzers are provided for selected parameters to allow continuous information useful in evaluating secondary conditions and in developing corrective actions when required. Major elements of the non-nuclear process sampling portion of the system include: Steam Generator Blowdown Sampling, Main Condenser Hotwell Sampling, Condensate Sampling, Feedwater Sampling, Main Steam Sampling and Heater Drain Tank Sampling. Typical information obtained from secondary sampling include: pH, Conductivity, Chlorides, Sulfate, Sodium, Ethanolamine and Ammonia.

The following fluid systems interface with the Plant Sampling System:

Reactor Coolant
Chemical and Volume Control
Component Cooling Water
Plant Air Systems
Feed Water and Condensate
Residual Heat Removal
Service Water
Waste Disposal
Main and Auxiliary Steam

System Function Listing

A comprehensive listing of all functions associated with the Plant Sampling system, or specific components contained in the system, is provided in the summary below

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Primary Sampling portion of the Plant Sampling systems perform this associated design system function (augmented quality). This function supports monitoring Reg Guide 1.97, Category 3 Variables (Post Accident Sampling).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Sampling systems perform this associated design system function.

UFSAR Reference

Additional Plant Sampling systems details are provided in Section 9.3.2 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Plant Sampling systems are listed below:

33013-1245
33013-1251,2
33013-1278,1
33013-1278,2
33013-1279
33013-1866
33013-1888
33013-1890
33013-1893
33013-1894,1
33013-1894,2
33013-1895
33013-1899,1
33013-1908,3
33013-1911,2
33013-2251,1
33013-2251,2
33013-2251,3
33013-2251,4
33013-2281,1
33013-2281,2
33013-2287
33013-2711,1
33013-2711,2
33013-2711,3
33013-2711,4
33013-2739

2.3.3.18 Plant Air - Not Within Scope of License Renewal

System Description

The Plant Air systems, although supplying valves in safety related systems, is not designed as a safety-related system. Safety related systems using instrument air are designed such that upon loss of air pressure each component will fail in a position of greater safety. Components that require a pneumatic motive of force to achieve a safety function (e.g. pressurizer power operated relief valves) have nitrogen backup that is evaluated with the system containing those components. Those portions of Plant Air that act as containment isolation devices are evaluated in the Containment Isolation system. Consequently, within the system evaluation boundary there are no components that perform License Renewal Intended Functions.

The principal components of the Plant Air systems are compressors, tanks, filters, dryers and the essential piping and valves. The instrument air system supplies clean, dry air for valve operators, and piping penetration pressurization. The service air system supplies air for maintenance and service use and the backup eductor for vapor extraction of the turbine-generator bearing drains. A backup source of air supply to the instrument air header is from the service air system. The instrument air system produces 120 to 125 psig dry, filtered air used chiefly as the motive power for valve actuation. The system consists of three air compressors with an associated aftercooler and air reservoir for each compressor. Air from the receivers is supplied to the instrument air header through filters and an air dryer. The instrument air header delivers air to the various valve actuators, piping penetration pressurization system, and containment air and proof test system. The service air system produces 115 to 125 psig dry, filtered air used in the maintenance air connections throughout the station, for fire water storage tank pressurization, and the turbine lube-oil system. The system consists of one air compressor with an integral aftercooler and associated air receivers. A cross-tie between service air and instrument air allows the service air system to supply the instrument air header if instrument air pressure drops below 90 psig. The cross-tie occurs prior to the instrument air filters. Therefore, air being supplied to the instrument air header will always pass through the filters and dryer. A cross-connect between the service air system and the instrument air system allows both systems to be supplied by a single rotary screw air compressor. A pressure regulator valve will stop air flow to the service air system if pressure on the service air side drops below 100 psig. Administratively, the instrument air system and service air system are cross-connected only when one of the rotary screw air compressors is in operation.

The following fluid systems interface with the Plant Air System:

Service Water

System Function Listing

A comprehensive listing of all functions associated with the Plant Air system, or specific components contained in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Air systems perform this associated design system function (augmented quality).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Air systems perform this associated design system function.

UFSAR Reference

Additional Plant Air systems details are provided in Section 9.3.1 and Section 3.5.1.3.2.5 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Plant Air systems are listed below:

33013-1248	33013-1892
33013-1251,2	33013-1893
33013-1278,1	33013-1894,1
33013-1866	33013-1894,2
33013-1882	33013-1895
33013-1883	33013-1896
33013-1884,1	33013-1897,1
33013-1884,2	33013-1897,2
33013-1886,1	33013-1898
33013-1886,2	33013-1899,1
33013-1887	33013-1899,2
33013-1888	33013-1900,1
33013-1889	33013-1900,2
33013-1890	33013-1903
33013-1891	33013-1925

2.3.3.19 Non-Essential Ventilation - Not Within Scope of License Renewal

System Description

The Non-Essential Ventilation Systems provide heating, ventilation and air conditioning to non-vital areas and plant equipment. Components within the Non-Essential Ventilation Systems do not perform any License Renewal intended functions.

The principal components of the Non-Essential Ventilation Systems include filters, fans, dampers, valves, heat exchangers, conditioning/chiller packages and the essential ductwork and piping and valves. Fire dampers contained in the system are evaluated as a separate commodity group.

The turbine building, while not requiring a heating, ventilation, and air conditioning system, uses roof vent fans, wall vent fans, windows, and unit heaters for ventilation and temperature control. The fans are not supplied by emergency power, and loss of these fans would not be critical to a safe shutdown. Included in the turbine building is the main feedwater pump room. Main feedwater pump equipment cooling systems use a mixture of outside air and room air to control the room and equipment temperatures. No mechanical means of heating or cooling is used. A temperature control system controls the feedwater pump room return air dampers and equipment outside air dampers that admit air to the equipment air supply fan plenum mixed at a setpoint temperature.

The service building ventilation system consists of air handling units serving the various areas of the service building. Air from uncontaminated areas is exhausted through roof exhaust fans. Air from areas of potential contamination, such as laboratories equipped with hoods, are exhausted through the controlled intermediate building controlled access area exhaust fans. Controlled access area fans 1A and 1B include high efficiency particulate air and charcoal filter banks, a low-flow alarm, dampers, and fans. These fans take suction from the following areas and discharge to the Auxiliary Building HEPA filter vent which is exhausted by the main Auxiliary Building exhaust system to the main vent header:

a. Men's and women's decontamination general areas.

b. Radiation protection and chemistry office general area.

c. Primary sample room general area.

d. Primary sample hood.

e. Primary and secondary sample lab hoods.

f. Hot shop general area.

The All-Volatile-Treatment Building Ventilation system provides ventilation and heating to maintain required temperatures for the all-volatile-treatment (condensate demineralizer) building and the condensate booster pump area of the Turbine Building.

The evaluation boundary for Non-Essential Ventilation Systems also includes baseboard circulating radiant heat in the service building and any Heating Ventilation and Air Conditioning associated with non-safety buildings not used in direct support of power production (e.g. Engineering Building, Butler Building, Records Management (Steam Generator) Building, etc.).

The following fluid systems interface with the Non-Essential Ventilation Systems:

Plant Air	Heating Steam
Site Services and Facility Support	Chilled Water

System Function Listing

A comprehensive listing of all functions associated with the Non-Essential Ventilation Systems, or specific components contained in the system, is provided in the summary below.

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Non-Essential Ventilation systems perform this associated design system function.

UFSAR Reference

Additional Non-Essential Ventilation Systems details are provided in Section 9.4.5, Section 9.4.6, and Section 9.4.7 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Non-Essential Ventilation Systems are listed below:

33013-1872	33013-1881
33013-1873	33013-1895
33013-1874	33013-1897,1
33013-1875	33013-1899,1
33013-1876	33013-1899,2
33013-1877	33013-1909
33013-1878	33013-1913
33013-1879	33013-2250
33013-1880	

2.3.3.20 Site Service and Facility Support - Not Within Scope of License Renewal

Description

Site Service and Facility Support Systems evaluation boundary includes domestic (potable) water, domestic hot water and the site sewage transfer to the municipal treatment system. Components within the Site Service and Facility Support Systems do not perform any License Renewal intended functions.

The principal components of the Site Service and Facility Support Systems include heat exchangers, hot water heaters, pumps and essential piping and valves. Domestic water is used for drinking, showers, eye wash stations and various domestic applications. The sewage transfer system pumps collected sanitary discharges from the site to the municipal sanitary header offsite. The sewage transfer system does not interconnect with any potentially radioactive systems so no radiation monitoring is required.

The following fluid systems interface with Site Service and Facility Support Systems:

Non-Essential Ventilation Systems
Treated Water
Plant Sampling

System Function Listing

A comprehensive listing of all functions associated with the Site Service and Facility Support Systems, or specific components contained in the system, is provided within the summary below.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Site Service and Facility Support system perform this associated design system function.

UFSAR Reference

Additional Site Service and Facility Support Systems details are provided in Section 1.2.6 and Section 1.2.12 the UFSAR.

License Renewal Drawings

The license renewal drawings for the Site Service and Facility Support Systems are listed below:

33013-1279
33013-1908,3
33013-2250
33013-2252
33013-2681

2.3.4 Steam and Power Conversion Systems

The following systems are addressed in this section:

- Main and Auxiliary Steam System (Section 2.3.4.1)
- Feedwater and Condensate System (Section 2.3.4.2)
- Auxiliary Feedwater System (Section 2.3.4.3)
- Turbine-Generator and Supporting Systems (Section 2.3.4.4)

2.3.4.1 Main and Auxiliary Steam

System Description

The Main and Auxiliary Steam system provides heat removal from the reactor coolant system during normal, accident and post accident conditions. During off-normal conditions the system provides emergency heat removal from the RCS using secondary heat removal capability. Some non-safety related portions of piping in the system have failure modes which could prevent the satisfactory accomplishment of safety related functions (high energy line breaks). The system is also credited for safe shutdown following Station Blackout events, some fire events, and contains components which are part of the Environmental Qualification Program. Selected safety valve discharge vent piping is considered non safety equipment whose failure could affect a safety function due to their importance in directing steam flow out of a safety related area. The conversion of the heat produced in the reactor to electrical energy is evaluated in the Turbine Generator system.

The principal components of the main steam portion of the system include the secondary side of two steam generators, where the main steam lines begin. Each steam line has a flow restrictor, four main steam safety valves, an atmospheric dump valve and a steam admission valve to the turbine-driven auxiliary feedwater pump (TDAFW). The two steam lines join together in the intermediate building prior to entering the turbine building. Each steam line is also equipped with a fast closing Main Steam Isolation Valve (MSIV) and a Main Steam non-return check valve. These valves prevent reverse flow in the steam lines which would result from an upstream steam line break or they isolate any downstream steam line break at the common header. The atmospheric relief valves (ARVs) have two functions. They offer overpressure protection to the steam generator at a setpoint below the main steam safety valves (MSSVs) setpoints and can be used to maintain no-load T_{AVG} or perform a plant cooldown in the event the steam dump to the condenser is not available.

The principal components of the auxiliary steam portion of the system include the piping valves and tanks in the extraction steam and steam generator blowdown sub-systems. In extraction steam, five stages of extraction are provided; two from the high-pressure turbine, one of which is the exhaust, and three stages from the low-pressure turbines. There are also two steam dump lines with four relief valves each to the condenser.

Continuous steam generator blowdown is used to reduce the quantities of solids that accumulate in the steam generators as a result of the boiling process. The blowdown recovery system is designed to recover both the blowdown water and heat. Each steam generator has a blowdown header located at the bottom of the shell side just above the tubesheet. Both steam generators are equipped with independent blowdown piping from the connecting steam generator nozzles to a flash tank. The piping transports the removed fluid and entrapped debris away from the steam generator, through containment penetrations, to a common flash tank in the turbine building basement. Flashed steam is vented from the flash tank to low-pressure feedwater heater 3A for heat recovery. The vented steam condenses in the feedwater heater and returns to the condenser through the feedwater heater drain system. The remaining condensate in the blowdown flash tank is drained directly to condenser 1B through a level control valve.

The following fluid systems interface with Main and Auxiliary Steam:

Reactor Coolant	Auxiliary Feedwater
Plant Sampling	Feedwater and Condensate
Turbine Generator	Plant Air

System Function Listing

In addition to the System Functions listed above, the Main and Auxiliary Steam System also supports additional functions (associated design system functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code H	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
PROVIDE EMERGENCY HEAT REMOVAL FROM THE REACTOR COOLANT SYSTEM USING SECONDARY HEAT REMOVAL CAPABILITY	X						

Comment: Components within the Main and Auxiliary Steam system perform this primary design system function.

Code K	Cri 1	Cri 2	Cri 3				
PROVIDE PRIMARY CONTAINMENT BOUNDARY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Main and Auxiliary Steam system perform this primary design system function.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Main and Auxiliary Steam system perform this associated design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Main and Auxiliary Steam system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Main and Auxiliary Steam system that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Main and Auxiliary Steam system perform this associated design system function.

Code X	Cri 1	Cri 2	Cri 3				
SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Main and Auxiliary Steam system perform specific safety related functions different from and in addition to the system level functions. Flow elements in Main Steam pipe used for ESFAS.

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Main and Auxiliary Steam system perform this associated design system function. Portions of the Main Steam system resist HELB. Safety valve discharge vent stack pipe directs steam out of the intermediate building.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Main and Auxiliary Steam system perform this associated design system function.

Code Z2	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the Main and Auxiliary Steam system are designated as environmentally qualified.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Main and Auxiliary Steam system perform this associated design system function.

UFSAR Reference

Additional Main and Auxiliary Steam System details are provided in Section 5.4.6, Section 10.1.1, Section 10.3, Section 10.7, and Table 6.2-15a of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Main and Auxiliary Steam System are listed below:

33013-1231	33013-1899,1
33013-1232	33013-1903
33013-1277,1	33013-1905
33013-1893	33013-1916,2
33013-1277,2	33013-1918,1
33013-1885,1	33013-1918,2
33013-1894,1	33013-1919,1
33013-1894,2	33013-1919,2
33013-1895	33013-1924
33013-1896	33013-2251,2

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.3.4-1 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.4-1 Main and Auxiliary Steam

Component Group	Passive Function	Aging Management Reference
CONDENSING CHAMBER	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-1 Line Number (7)
CONVERTER[1]	PRESSURE BOUNDARY	Table 3.5-2 Line Number (4) Table 3.5-2 Line Number (5)
CS COMPONENTS	PRESSURE BOUNDARY	Table 3.5-1 Line Number (13)
FASTENERS (BOLTING)	JOINT INTEGRITY	Table 3.5-1 Line Number (8) Table 3.5-1 Line Number (13) Table 3.5-2 Line Number (7) Table 3.5-2 Line Number (8) Table 3.5-2 Line Number (9)
FLOW ELEMENT	PRESSURE BOUNDARY	Table 3.5-2 Line Number (11) Table 3.5-2 Line Number (12) Table 3.5-2 Line Number (15) Table 3.5-2 Line Number (16)

Table 2.3.4-1 Main and Auxiliary Steam

Component Group	Passive Function	Aging Management Reference
OPERATOR	PRESSURE BOUNDARY	Table 3.5-1 Line Number (5) Table 3.5-2 Line Number (24)
PIPE	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-1 Line Number (7) Table 3.5-2 Line Number (28) Table 3.5-2 Line Number (29) Table 3.5-2 Line Number (33) Table 3.5-2 Line Number (34) Table 3.5-2 Line Number (35) Table 3.5-2 Line Number (39) Table 3.5-2 Line Number (41)
POSITIONER[1]	PRESSURE BOUNDARY	Table 3.5-2 Line Number (42) Table 3.5-2 Line Number (43)
PRESSURE RELAY[1]	PRESSURE BOUNDARY	Table 3.5-2 Line Number (44) Table 3.5-2 Line Number (45)
SCREEN	PRESSURE BOUNDARY	Table 3.5-2 Line Number (48) Table 3.5-2 Line Number (49)
VALVE BODY	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-1 Line Number (7) Table 3.5-2 Line Number (56) Table 3.5-2 Line Number (57) Table 3.5-2 Line Number (58) Table 3.5-2 Line Number (62) Table 3.5-2 Line Number (63) Table 3.5-2 Line Number (67) Table 3.5-2 Line Number (68) Table 3.5-2 Line Number (69) Table 3.5-2 Line Number (73) Table 3.5-2 Line Number (75)

1. Selected instruments were conservatively included within the scope of License Renewal. Consideration was given to the consequences of an instrument housing pressure boundary failure. Where an instrument was unisolable from a pressure source and is of sufficient size that a system function would be degraded should the pressure boundary fail, that instrument is included for License Renewal review.

2.3.4.2 Feedwater and Condensate

System Description

The Feedwater and Condensate systems function to condense the steam exhausted from the low-pressure turbines, collect and store this condensate, and then send it back to the steam generator for reuse. Components within the system are used to provide emergency heat removal from the reactor coolant system using secondary heat removal capability. The Engineered Safety Features Actuation System (ESFAS) provides actuation signals for feedwater isolation. Portions of the main feedwater piping systems in the intermediate building the turbine building have failure modes and effects which could prevent the satisfactory accomplishment of a safety related function (high energy line breaks). The feedwater lines are equipped with a non-return check valve and an isolation valve in each line. The non-return valve is the boundary between Seismic Category I and nonseismic feedwater piping and prevents the steam generator from blowing back through the feedwater lines if damage occurs to the nonseismic portion. Components within the Feedwater and Condensate system are also credited for use in safe shutdown following Station Blackout events and some fires. Additionally, components within the system perform functions used to mitigate anticipated transients without a scram (ATWS) and components that are part of the Environmental Qualification Program.

The principal components of the Feedwater and Condensate system are the feedwater and condensate pumps, the feedwater regulating and bypass valves, feedwater heaters and the essential piping and valves. The steam that leaves the exhaust of the low-pressure turbines enters the main condenser as saturated steam with low moisture content. This steam is condensed by the circulating water, which passes through the tubes of the condenser. The condensed steam collects in the condenser hotel from which the condensate pumps take suction. The condensate pumps increase the pressure of the water and provide suction head for the condensate booster pumps. The condensate booster pumps in turn provide sufficient suction head for the main feedwater pumps. Between the condensate pumps and the condensate booster pumps is the condensate demineralizer system, which maintains condensate water purity. The condensate booster pumps flow condensate through the condensate cooler, hydrogen coolers, air ejector condensers, gland steam condenser, and low-pressure heaters to the suction of the feedwater pumps. The feedwater pumps send feedwater through the high-pressure heaters to the steam generators via the feedwater regulating valves.

The following fluid systems interface with the Feedwater and Condensate system:

Reactor Coolant	Auxiliary Feedwater
Plant Air	Plant Sampling
Turbine Generator	Main and Auxiliary Steam

System Function Listing

In addition to the System Functions listed above, the Feedwater and Condensate System also supports additional functions (associated design system functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code H	Cri 1	Cri 2	Cri 3				
PROVIDE EMERGENCY HEAT REMOVAL FROM THE REACTOR COOLANT SYSTEM USING SECONDARY HEAT REMOVAL CAPABILITY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Feedwater and Condensate system perform this associated design system function.

Code K	Cri 1	Cri 2	Cri 3				
PROVIDE PRIMARY CONTAINMENT BOUNDARY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Feedwater and Condensate system perform this associated design system function.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Feedwater and Condensate system perform this associated design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Feedwater and Condensate system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Feedwater and Condensate system that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Feedwater and Condensate system perform this associated design system function.

Code X SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Feedwater and Condensate system perform specific safety related functions different from and in addition to the system level functions. Components within the Feedwater and Condensate system monitor Reg Guide 1.97 Category 1 variables.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Feedwater and Condensate system perform this associated design system function. Portions of the Feedwater system resist HELB.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Feedwater and Condensate system perform this associated design system function.

Code Z2 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the Feedwater and Condensate system are designated as environmentally qualified.

Code Z4	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ANTICIPATED TRANSIENTS WITHOUT SCRAM (10 CFR 50.62)						X	

Comment: Components within the Feedwater and Condensate system perform this associated design system function.

Code Z5	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)							X

Comment: Components within the Feedwater and Condensate system perform this associated design system function.

UFSAR Reference

Additional Feedwater and Condensate System details are provided in Section 5.4.6, Section 10.1.1, Section 10.4, and Table 6.2-15a of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Feedwater and Condensate System are listed below:

33013-1232
33013-1236,1
33013-1236,2
33013-1237
33013-1238
33013-1915
33013-1233
33013-1235
33013-1251,1
33013-1251,2
33013-1252
33013-1277,2
33013-1885,1
33013-1894,1
33013-1894,2
33013-1895
33013-1896
33013-1897,1
33013-1897,2
33013-1899,2
33013-1902
33013-1903
33013-1904
33013-1905
33013-1909
33013-1918,1
33013-1918,2
33013-1919,1
33013-1919,2
33013-1921
33013-1922
33013-1923
33013-1924
33013-2276
33013-2277
33013-2711,1
33013-2739

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.3.4-2 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.4-2 Feedwater and Condensate

Component Group	Passive Function	Aging Management Reference
CONDENSING CHAMBER	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6)
CS COMPONENTS	PRESSURE BOUNDARY	Table 3.5-1 Line Number (13)
FASTENERS (BOLTING)	JOINT INTEGRITY	Table 3.5-1 Line Number (8) Table 3.5-1 Line Number (13) Table 3.5-2 Line Number (7) Table 3.5-2 Line Number (8) Table 3.5-2 Line Number (9)

Table 2.3.4-2 Feedwater and Condensate

Component Group	Passive Function	Aging Management Reference
FLOW ELEMENT	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6)
PIPE	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-2 Line Number (34) Table 3.5-2 Line Number (35) Table 3.5-2 Line Number (38) Table 3.5-2 Line Number (39) Table 3.5-2 Line Number (40) Table 3.5-2 Line Number (41)
TEMPERATURE ELEMENT[1]	PRESSURE BOUNDARY	Table 3.5-2 Line Number (51) Table 3.5-2 Line Number (52) Table 3.5-2 Line Number (53) Table 3.5-2 Line Number (54) Table 3.5-2 Line Number (55)
VALVE BODY	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-2 Line Number (68) Table 3.5-2 Line Number (69) Table 3.5-2 Line Number (72) Table 3.5-2 Line Number (73) Table 3.5-2 Line Number (74) Table 3.5-2 Line Number (75)

1. Selected instruments were conservatively included within the scope of License Renewal. Consideration was given to the consequences of an instrument housing pressure boundary failure. Where an instrument was unisolable from a pressure source and is of sufficient size that a system function would be degraded should the pressure boundary fail, that instrument is included for License Renewal review.

2.3.4.3 Auxiliary Feedwater (AFW)

System Description

The Auxiliary Feedwater (AFW) system is designed to maintain the steam generator water inventory when the normal feedwater system is not available. During accident and post accident conditions the AFW system supplies feedwater to the steam generators in order provide emergency heat removal from the reactor coolant system using secondary heat removal capability (atmosphere or main condenser). The AFW system is also credited for use in mitigating Anticipated Transients Without a Scram (ATWS), and safe shutdown following Station Blackout Events (SBO) and some fires.

The principal components of the AFW system are electric motor-driven and steam turbine-driven pumps, the turbine-driven feedwater pump (TDAFW) oil system, and the essential piping and valves. The preferred auxiliary feedwater system is divided into two independent trains. There are two motor-driven pumps powered from separate redundant 480-V safeguards emergency buses which can receive power from either onsite or offsite sources. Each motor-driven pump can provide 100% of the preferred auxiliary feedwater system flow required for decay heat removal and can be cross-connected to provide flow to either steam generator. There is also a turbine-driven pump which can receive motive steam from each steam line and provide flow to either or both steam generators. The turbine-driven pump provides 200% of the flow required for decay heat removal.

A standby auxiliary feedwater system (SAFW) provides flow in case the preferred auxiliary feedwater system pumps are inoperable (e.g. a high-energy line break event could render inoperable the three preferred auxiliary feedwater pumps). The standby auxiliary feedwater system (SAFW) uses two motor-driven pumps which can be aligned to separate service water (SW) system loops. The standby auxiliary feedwater system (SAFW) has the same features as the preferred auxiliary feedwater system pumps with regard to functional capability and power supply separation. The system is manually actuated from the control room.

The condensate storage tanks are the normal (preferred) suction source for delivery of cooling water to the steam generators. The safety-related supply is from the plant service water system with the fire water system as a back-up source.

The following fluid systems interface with the Auxiliary Feedwater System:

Main and Auxiliary Steam	Service Water
Plant Air Systems	Treated Water
Feedwater and Condensate	Fire Protection

System Function Listing

In addition to the System Functions described above, the Auxiliary Feedwater System also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code H	Cri 1	Cri 2	Cri 3				
PROVIDE EMERGENCY HEAT REMOVAL FROM THE REACTOR COOLANT SYSTEM USING SECONDARY HEAT REMOVAL CAPABILITY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Auxiliary Feedwater system perform this primary design system function.

Code J	Cri 1	Cri 2	Cri 3				
PROVIDE HEAT REMOVAL FROM SAFETY RELATED HEAT EXCHANGERS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Auxiliary Feedwater system perform this associated design system function.

Code K	Cri 1	Cri 2	Cri 3				
PROVIDE PRIMARY CONTAINMENT BOUNDARY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Auxiliary Feedwater system perform this associated design system function.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Auxiliary Feedwater system perform this associated design system function.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Auxiliary Feedwater system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Auxiliary Feedwater system that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Auxiliary Feedwater system perform this associated design system function.

Code X SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Auxiliary Feedwater system perform specific safety related functions different from and in addition to the system level functions (some electrical components within this system do not perform nuclear safety functions, but are not electrically isolated from safety related circuits).

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Auxiliary Feedwater system perform this associated design system function (Condensate storage tanks and Turbine Driven Aux Feed Pump steam trap drain components).

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Auxiliary Feedwater system perform this associated design system function.

Code Z4	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ANTICIPATED TRANSIENTS WITHOUT SCRAM (10 CFR 50.62)			FP	EQ	PTS	AT	SB
						X	

Comment: Components within the Auxiliary Feedwater system perform this associated design system function.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Auxiliary Feedwater system perform this associated design system function.

UFSAR Reference

Additional Auxiliary Feedwater System details are provided in Section 7.2.6, Section 10.5, Section 10.7.4, and Table 6.2-15a of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Auxiliary Feedwater System are listed below:

33013-1231	33013-1893
33013-1234	33013-2285
33013-1237	33013-1892
33013-1238	33013-2739

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.3.4-3 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.4-3 Auxiliary Feedwater (AFW)

Component Group	Passive Function	Aging Management Reference
ACCUMULATOR	PRESSURE BOUNDARY	Table 3.5-1 Line Number (4) Table 3.5-1 Line Number (5)
CONTROLLER[1]	PRESSURE BOUNDARY	Table 3.5-2 Line Number (1) Table 3.5-2 Line Number (2) Table 3.5-2 Line Number (3)
COOLER	PRESSURE BOUNDARY	Table 3.5-1 Line Number (4) Table 3.5-1 Line Number (9) Table 3.5-2 Line Number (6)
CS COMPONENTS	PRESSURE BOUNDARY	Table 3.5-1 Line Number (13)
FASTENERS (BOLTING)	JOINT INTEGRITY	Table 3.5-1 Line Number (8) Table 3.5-1 Line Number (13) Table 3.5-2 Line Number (7) Table 3.5-2 Line Number (8) Table 3.5-2 Line Number (9)
FILTER HOUSING	PRESSURE BOUNDARY	Table 3.5-1 Line Number (4) Table 3.5-2 Line Number (10)
FLOW ELEMENT	PRESSURE BOUNDARY	Table 3.5-2 Line Number (12) Table 3.5-2 Line Number (13) Table 3.5-2 Line Number (14)
GOVERNOR	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5)
HEAT EXCHANGER	HEAT TRANSFER PRESSURE BOUNDARY	Table 3.5-1 Line Number (4) This applies to both passive functions. Table 3.5-1 Line Number (9) Table 3.5-2 Line Number (18) Table 3.5-2 Line Number (20) These apply to the heat transfer passive function. Table 3.5-2 Line Number (17) Table 3.5-2 Line Number (19) Table 3.5-2 Line Number (21) These apply to the pressure boundary passive function.

Table 2.3.4-3 Auxiliary Feedwater (AFW)

Component Group	Passive Function	Aging Management Reference
LEVEL GLASS	PRESSURE BOUNDARY	Table 3.5-2 Line Number (22) Table 3.5-2 Line Number (23)
ORIFICE	PRESSURE BOUNDARY RESTRICTS FLOW	Table 3.5-1 Line Number (4) Table 3.5-2 Line Number (25) Table 3.5-2 Line Number (26) Table 3.5-2 Line Number (27) These apply to both passive functions.
PIPE	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (4) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-2 Line Number (30) Table 3.5-2 Line Number (31) Table 3.5-2 Line Number (32) Table 3.5-2 Line Number (34) Table 3.5-2 Line Number (35) Table 3.5-2 Line Number (36) Table 3.5-2 Line Number (37)
PUMP CASING	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-2 Line Number (46) Table 3.5-2 Line Number (47)
SPEED INCREASER	PRESSURE BOUNDARY	Table 3.5-1 Line Number (4) Table 3.5-1 Line Number (5)
TANK	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (4) Table 3.5-1 Line Number (5) Table 3.5-2 Line Number (50)
TRAP HOUSING	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5)

Table 2.3.4-3 Auxiliary Feedwater (AFW)

Component Group	Passive Function	Aging Management Reference
VALVE BODY	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (4) Table 3.5-1 Line Number (5) Table 3.5-2 Line Number (59) Table 3.5-2 Line Number (60) Table 3.5-2 Line Number (61) Table 3.5-2 Line Number (63) Table 3.5-2 Line Number (64) Table 3.5-2 Line Number (65) Table 3.5-2 Line Number (66) Table 3.5-2 Line Number (69) Table 3.5-2 Line Number (70) Table 3.5-2 Line Number (71)

1. Selected instruments were conservatively included within the scope of License Renewal. Consideration was given to the consequences of an instrument housing pressure boundary failure. Where an instrument was unisolable from a pressure source and is of sufficient size that a system function would be degraded should the pressure boundary fail, that instrument is included for License Renewal review.

2.3.4.4 Turbine-Generator and Supporting Systems

System Description

The Turbine Generator and Supporting Systems function to convert the energy of the heat contained in the main steam into mechanical energy for use in turning the electric generator. These systems have no safety related functions. Turbine first-stage pressure instruments provide a signal used in Anticipated Transients Without a Scram (ATWS) Mitigation System Actuation Circuitry (AMSAC).

The plant subsystems with boundary of the Turbine generator and Supporting systems include: the high and low pressure turbine generator and controls, the main electrical generator, the electro-hydraulic control system, the turbine lube oil system, condenser air ejector and vacuum priming, generator hydrogen cooling and generator seal oil systems.

The principal components of the Turbine Generator systems include: turbines, the main generator, pumps, tanks, heat exchanges, and the essential piping and valves. The main turbine is made up of one high-pressure and two low-pressure turbines, all mounted on a common shaft. The steam flow path is first through the high-pressure turbine, then in a parallel path to the two

low-pressure units via the four moisture separator reheaters. High-pressure steam is admitted to the high-pressure turbine through two stop and four governing control valves. These valves are controlled by the electro-hydraulic control system. Turbine supervisory instrumentation is provided to monitor turbine vibration, eccentricity, and differential thermal expansion and provide alarms in the control room in the case of abnormal conditions.

The main turbine is supported by a number of auxiliary systems that improve the efficiency and safety of its operation. First and second stage air ejectors remove air and noncondensible gases from the condenser and maintain it under a vacuum, improving the efficiency of the main turbine by reducing the backpressure seen by the turbine exhaust. The gland sealing and exhaust system applies steam to a labyrinth seal around the rotor shaft to preclude air inleakage into the turbine casings and condenser and to prevent steam leakage into the turbine building. The vacuum priming system uses mechanical vacuum pumps to prevent air buildup in the condenser water boxes or tubes-a condition that would reduce condenser efficiency. The exhaust hood spray prevents overheating of the last stage low-pressure blading under low steam flow conditions. The turbine lube-oil system provides lubrication and cooling of the turbine bearings and supplies oil to the auto-stop header for turbine protection. It also provides backup oil to the seal-oil system to prevent hydrogen leakage into the turbine building. A purification system is an adjunct to the turbine lube-oil system to remove water and contaminants from the lube-oil, as well as to provide storage space for makeup oil. The generator auxiliary systems are required to ensure that the main generator will operate at its maximum rated output safely and efficiently. This is accomplished by cooling the generator rotor, stator, exciter, main output bushings, and the isophase bus ducts. Pressurized hydrogen is circulated by the internal ventilation of the generator to remove heat produced in the rotor and stator. The hydrogen then transfers this heat to hydrogen coolers which are supplied with cooling water from the condensate system. To prevent the escape of hydrogen along the generator shaft and out of the casing, a seal-oil system is utilized. The air-side seal-oil pump and the hydrogen-side seal-oil pump provide oil for sealing at pressure higher than generator hydrogen pressure. The main turbine oil system can provide a backup source of pressurized seal oil.

The Turbine Generator and Supporting Systems do not interface with any plant mechanical systems not already addressed above.

System Function Listing

In addition to the System Functions listed above, the Turbine Generator and Supporting Systems also supports additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Turbine Generator and Supporting systems perform this associated design system function (augmented quality) (provide turbine trip signals which could lead to reactor trip). For the purposes of License Renewal, components within the Turbine Generator and Supporting systems that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Turbine Generator and Supporting systems perform this associated system function.

Code Z4 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ANTICIPATED TRANSIENTS WITHOUT SCRAM (10 CFR 50.62)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
						X	

Comment: Components within the Turbine-Generator and Supporting systems perform this associated design system function. Turbine first-stage pressure instruments provide a signal used in Anticipated Transients Without a Scram (ATWS) Mitigation System Actuation Circuitry (AMSAC).

UFSAR Reference

Additional Turbine-Generator and Supporting Systems details are provided in Section 7.2.6 and Section 10.2 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Turbine-Generator and Supporting Systems are listed below:

33013-1232	33013-1904
33013-1233	33013-1905
33013-1235	33013-1918,1
33013-1251,1	33013-1918,2
33013-1251,2	33013-1921
33013-1252	33013-1923
33013-1874	33013-1924
33013-1894,1	33013-2249,1
33013-1894,2	33013-2249,2
33013-1895	33013-2277
33013-1896	33013-2283
33013-1901	33013-2284
33013-1903	33013-2711,1

Components Subject to an AMR

The component groups for these systems that require aging management review are indicated in Table 2.3.4-4 along with each Component Group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.3.4-4 Turbine-Generator and Supporting Systems

Component Group	Passive Function	Aging Management Reference
PIPE	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-2 Line Number (35) Table 3.5-2 Line Number (39) Table 3.5-2 Line Number (41)
VALVE BODY	PRESSURE BOUNDARY	Table 3.5-1 Line Number (2) Table 3.5-1 Line Number (5) Table 3.5-1 Line Number (6) Table 3.5-2 Line Number (69) Table 3.5-2 Line Number (73) Table 3.5-2 Line Number (75)

2.4 Scoping and Screening Results: Structures

To optimize the aging management review, structures that are attached to or contained within larger structures, have been reviewed with the larger structure. Also, structural elements that have similar materials and experience similar environments have been grouped and reviewed together. The following structural groupings are addressed in this section:

- Containment Structures (Section 2.4.1)
- Essential Buildings and Yard Structures (including component supports)(Section 2.4.2)
- Non-Essential Buildings and Yard Structures (Section 2.4.3)

Note: Only the general arrangement plot drawing is included in the application. Detailed civil drawings may contain sensitive information and are therefore being made available for on site review only.

2.4.1 Containment Structures

Description

The reactor Containment Structure is a reinforced-concrete, vertical right cylinder with a flat base and a hemispherical dome. The structure houses and supports safety related equipment, provides radiation shielding, and provides a barrier against the release of radioactive nuclides. A welded steel liner is attached to the inside face of the concrete shell to ensure a high degree of leak tightness. The thickness of the liner in the cylinder and dome is 3/8-in. and in the base it is 1/4 in. The cylindrical reinforced-concrete walls are 3 ft 6 in. thick, and the concrete hemispherical dome is 2 ft 6 in. thick. The concrete base slab is 2 ft thick with an additional 2-ft-thick concrete fill over the bottom liner plate. The Containment Structure is 99 ft high to the spring line of the dome and has an inside diameter of 105 ft. The containment vessel provides a minimum free volume of approximately 972,000 ft^3. Access is provided by means of two airlocks designed with an interlocked single-door-opening feature that is leak testable at containment design pressure between doors. One airlock is removable to provide the ability to move large equipment into and out of containment.

The major components of the reactor coolant system are located within the Containment Structure. The Containment Structure provides a physical barrier to protect the equipment from natural disasters and shielding to protect personnel from radiation emitted from the reactor core while at power. Thick reinforced-concrete walls are located around the selected reactor coolant system components to serve as shielding for plant personnel. These walls also serve as a missile barrier to prevent damage to the containment wall and to components of the safety injection system should a failure occur to one of the reactor coolant system components located inside the walls. Removable shield blocks

are located over the pressurizer. A movable missile barrier spans the refueling cavity over the reactor vessel head. The reactor vessel is located in the center of the Containment Structure below ground level. The space below the reactor vessel (sump A) allows for access to the bottom of the reactor vessel. Extending around the top of the reactor vessel is a stainless-steel-lined refueling cavity. Prior to refueling operations a removable seal is installed between the reactor vessel flange and the cavity. The refueling cavity is flooded with borated water to provide shielding and cooling of the irradiated fuel being removed from the reactor vessel. During post accident conditions any spilled reactor coolant, along with any water injected by the emergency core cooling systems, is ultimately collected in containment sump B for recirculation and cooling. Sump A is protected from debris fouling by a concrete curb and metal trash screen.

The Containment Structure also provides and interfaces with equipment and component supports. Major component supports include the Reactor Vessel, Steam Generators, Reactor Coolant Pumps, and the Pressurizer. The structure also supports the containment and refueling cranes. The component supports are attached either to the concrete foundation, concrete floor slabs, or shield walls through steel embedments or structural steel members encased in concrete.

The Containment Structure consists of a reinforced concrete cylinder post-tensioned in the vertical direction and reinforced circumferentially with mild steel deformed bars. The dome is hemispherical and constructed of reinforced concrete. Insulation is provided for the side walls to a point 15 ft 0 in. above the spring line so as to limit the maximum liner temperature due to the loss-of-coolant accident and thereby avoid excessive compressive stresses in the steel liner plate.

A two-foot thick reinforced concrete base slab extends radially from the reactor cavity pit to the containment cylinder wall. Except for participation in anchoring the radial tension bars at the base of the cylinder, the base slab is not an integral part of the containment shell in this design. The base slab rests directly on rock, and the loads on base slab are those from the internal structures and equipment. Near the cylinder wall the slab thickens to 6 ft. and extends beneath the wall above the concrete ring beam. The base slab and ring beam supports the dome and cylinder walls. The ring beam rests directly on rock and is the location of the end anchorage for the rock anchors. No drainage or de-watering system is provided under the Containment Structure. The base of the cylinder is supported by a neoprene pad, which provides a hinge support at the base. The vertical post-tensioning system is anchored at the base of the cylinder to rock anchors. The rock anchors are post-tensioned and grouted, which ensures that the rock acts as an integral part of the containment.

The rock anchors resist vertical axial loads in the cylinder walls and thereby avoid the transfer of vertical shear to the base slab. A sufficient physical separation is provided between wall and base slab to ensure that there is no transfer of vertical reaction to the base slab. A hinge is developed at the base of the containment cylinder by supporting the wall vertically on a series of elastomer bearing pads and anchoring the wall horizontally into the base slab with radial, high-strength steel tension bars. The tension bars resist the radial shear at the base of the containment cylinder and transfer this force as radial compression into the thickened portion of the base slab and ring beam, and thence, as a lateral load, onto the rock outboard of the ring beam and base slab.

The design for the containment provides for prestressing the concrete in the cylinder walls in the longitudinal (vertical) direction with a sufficient compressive force to ensure that upon application of the design load combinations there will be no tensile stresses in the concrete due to membrane forces. The steel tendons for prestressing consist of high tensile, bright, cold drawn and stress-relieved steel wires. The prestressed concrete is assumed to develop no tensile capacity in a direction normal to a horizontal plane.

The use of unbonded tendons gives, in addition to other advantages, accessibility for inspection or replacement. However, because the tendons are not in intimate and integral contact with surrounding concrete, the advantage of the high alkaline environment for use as a corrosion inhibitor is lost. Therefore, these tendons must be provided with a corrosion preventive medium that gives protection equivalent to concrete, but still enables withdrawal of a tendon for inspection or replacement. Consequently, one of the more important programs in connection with the tendons has been the selection of a complete corrosion protection system. The various elements involved are (1) a cathodic protection system in which all tendons are connected to the liner and then to a copper grounding system which is completed by the addition of reference cells and anodes, from which a protective potential can be generated if the need for cathodic protection is indicated by the reference cells, (2) a steel conduit surrounding each tendon providing shielding against stray electrical currents, (3) temporary shipping and erection protection of all wires in each tendon, by the application of a coating, followed by complete filling of each tendon conduit with a petroleum base wax that provides a permanent, chemically stable environment for protection from corrosion, while still giving flexibility of withdrawal for inspection. A tendon surveillance program, in accordance with Regulatory Guide 1.35, Revision 2 is required by the station Technical Specifications.

The containment leakage pressure boundary is provided by the single steel liner in the containment vessel. Each system whose piping penetrates this boundary is designed to maintain isolation of the containment from the outside environment. Provision is made to periodically monitor leakage by pressurizing the penetrations and containment. The

Containment Structure and all penetrations are designed to withstand, within design limits, the combined loadings of the design-basis accident and design seismic conditions. All piping systems, which penetrate the containment, are anchored in the penetration sleeve or the structural concrete of the Containment Structure. The penetrations for the main steam, feedwater, blowdown, and sample lines are designed so that the penetration is stronger than the piping system and the containment will not be breached due to a postulated pipe rupture. The liner thickness in the vicinity of typical penetrations is increased to a minimum of 3/4 in. All lines connected to the primary coolant system that penetrate the containment are also anchored in the secondary shield walls (i.e., walls surrounding the steam generators and reactor coolant pumps) and are each provided with at least one valve between the anchor and the reactor coolant system. For mechanical penetrations that interface with hot fluid systems, a containment penetration cooling system is used to prevent the bulk concrete temperature surrounding the penetrations from exceeding 150°F. Containment electrical penetrations are designed so the Containment Structure can, without exceeding the design leakage rate, accommodate the postulated environment resulting from a loss-of-coolant accident. The electrical penetrations have been shown to maintain structural integrity when subjected to mechanical stresses caused by large magnitude fault currents.

A fuel transfer penetration is provided for fuel movement between the refueling transfer canal in the reactor containment and the spent fuel pool. The penetration consists of a stainless steel pipe installed inside a larger pipe. The inner pipe acts as the transfer tube and connects the refueling canal with the spent fuel pool. The tube is fitted with a standard stainless steel flange in the refueling canal and a stainless steel sluice gate valve in the spent fuel pool. The outer pipe is welded to the containment liner. The fuel transfer penetration, like all other penetrations, is anchored in the containment shell. Because this anchor point moves when the containment vessel is subjected to load, expansion joints are provided where the penetration is connected to structures inside and outside of the containment vessel. Since the penetration is located on a skewed angle, not normal to the containment shell, the expansion joints are subjected to both radial and tangential (lateral) motions. The expansion bellows inside the containment vessel provide a water seal for the refueling canal and accommodate thermal growth of the penetration from the anchor, as well as the pressure and earthquake produced motion of the anchor (the containment shell). The expansion joint accommodates motion of the sleeve within the containment shell relative to the portion of the sleeve anchored in the wall of the refueling canal in the Auxiliary Building.

The Containment Structure contains racks, panels, electrical enclosures, equipment supports. Additionally the structure contains radiant heat shields and a reactor coolant pump oil collection system credited with preserving the ability to achieve safe shutdown in the event of a fire in containment. Those equipment sets receive a separate commodity group evaluation independent of the structure evaluation. Refueling equipment and the cranes located in containment also receive a separate evaluation.

System Function Listing

In addition to the System Functions described above, the Containment Structure also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code K PROVIDE PRIMARY CONTAINMENT BOUNDARY	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Containment Structure perform this primary design system function.

Code R STRUCTURALLY SUPPORT OR HOUSE SAFETY CLASS 1, 2, 3 COMPONENTS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Containment Structure perform this primary design system function.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Containment Structure perform this associated design system function (augmented quality, e.g. Reg Guide 1.97 Category 2 post accident monitoring variables). For the purposes of License Renewal, components within the Containment Structure that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Containment Structure perform this associated design system function.

Code Z2	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the Containment Structure are designated as Environmentally Qualified (electrical penetrations).

UFSAR Reference

Additional Containment Structures details are provided in Section 3.8.1, Section 3.8.2, Section 3.8.3, and Section 9.1.4.1 of the UFSAR.

License Renewal Drawings

The license renewal drawings for Containment Structures are listed below:

33013-1231
33013-1236,2
33013-1238
33013-1246,1
33013-1247
33013-1248
33013-1250,3
33013-1258
33013-1261
33013-1262,1
33013-1262,2
33013-1264
33013-1265,1
33013-1265,2
33013-1275,2
33013-1277,1
33013-1278,1
33013-1279
33013-1863
33013-1865
33013-1866
33013-1870
33013-1882
33013-1884,1
33013-1884,2
33013-1908,3
33013-1915
33013-1991
Site Plot
33013-1272,1
33013-1883
33013-1886,1
33013-1887

Components/Commodities Subject to an AMR

The component groups for the Containment Structures that require aging management review are indicated in Table 2.4.1-1 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-BLOCK-INT This generic asset includes all masonry block walls used in the Containment Vessel protected from the weather. The containment elevator shaft is block. Mortar is included in this asset evaluation.	STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-2 Line Number (13)

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-C-BUR This generic asset includes all concrete in the Containment Vessel that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Containment Vessel threaded fasteners and the exposed faces of plates and structural members are evaluated in Containment Vessel structural steel. This generic asset includes evaluation of sealing materials used below grade in the Containment Vessel. Water stops are embedded in selected below grade construction joints while sealants were used on exterior below grade walls.	PRESSURE BOUNDARY/LEAK BARRIER STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (7) Table 3.6-1 Line Number (8) Table 3.6-1 Line Number (9) Table 3.6-1 Line Number (10) These apply to both passive functions.

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-C-EXT This generic asset includes all concrete in the Containment Vessel that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Containment Vessel threaded fasteners and the exposed faces of plates and structural members are included in Containment Vessel structural steel. Containment tendon conduit, expansion bellows, etc. encased in concrete are included in this evaluation.	PRESSURE BOUNDARY/LEAK BARRIER RADIATION/HEAT SHIELDING STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (7) Table 3.6-1 Line Number (8) Table 3.6-1 Line Number (10) These apply to all three passive functions.

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-C-INT This generic asset includes all concrete in the Containment Vessel that is protected from the weather including the biological shield walls and missile barriers. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Containment Vessel threaded fasteners and the exposed faces of plates and structural members are evaluated in Containment Vessel structural steel.	PIPE WHIP RESTRAINT RADIATION/HEAT SHIELDING SHELTER/PROTECT EQUIPMENT STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (7) Table 3.6-1 Line Number (8) Table 3.6-1 Line Number (10) These apply to all five passive functions.
CV-ELAST-EXT This generic asset includes elastomer materials used in the Containment Vessel that is exposed to the weather. Included in this evaluation are the neoprene gaskets used to seal the tendon grease cans.	STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (6)

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-ELAST-INT This generic asset includes elastomer materials used in the Containment Vessel that is protected from the weather. Included in this evaluation is the caulking used between thermal insulation panels and between the containment floor and the insulation.	SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (6) Table 3.6-2 Line Number (5) These apply to both passive functions.
CV-EPOX-INT This generic asset includes the epoxy in the Containment Vessel that is protected from the weather. Epoxy resin is used to encapsulate the exposed tendon fill port piping.	STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (14)
CV-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners for the Containment Vessel that are protected from the weather. The exposed portion of high strength low alloy steel fasteners are evaluated in the component supports commodity group.	PIPE WHIP RESTRAINT SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-2 Line Number (16) This applies to all four passive functions.

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-INSULATION This generic asset includes the Containment Vessel thermal insulation panels.	RADIATION/HEAT SHIELDING	Table 3.6-2 Line Number (14)
Electrical Penetrations This asset represents pressure retaining boundary of the electrical penetration, including any sleeves or dissimilar metal welds.	PRESSURE BOUNDARY	Table 3.6-1 Line Number (1) Table 3.6-1 Line Number (2) Table 3.6-1 Line Number (3)
CV-SS(CS)-EXT This generic asset includes all carbon structural steel in the Containment Vessel that are exposed to the weather. The Containment tendon grease cans are carbon steel.	STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (14)

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-SS(CS)-INT This generic asset includes all carbon structural steel of the Containment Vessel that is protected from the weather. Columns, posts, beams, baseplates, bracing, crane support girders, crane rails, and the exposed faces of plates and structural members are included. This does not include carbon structural steel used as component supports.	PIPE WHIP RESTRAINT SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-2 Line Number (15) This applies to all four passive functions.
CV-SS(CS)-LINER This generic asset includes all carbon steel of the Containment Vessel liner that is protected from the weather. Included in this evaluation are the insulation retaining studs.	PRESSURE BOUNDARY/LEAK BARRIER	Table 3.6-1 Line Number (12)
CV-SS(CS)-ROCKANCHOR This generic asset represents the high strength carbon steel rock anchors grouted into bedrock. The bottom anchor button head is included in this evaluation. The top head is evaluated with the CV-SS(CS)-TENDONS asset.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (14)

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
CV-SS(CS)-TENDONFILL This generic asset represents the carbon steel grease fill ports. The tendon conduits are evaluated with the CV-C-BUR asset where the steel is imbedded in concrete and the CV-SS(CS)-EXT asset where the conduit exits the top of containment.	STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (14)
CV-SS(CS)-TENDONS This generic asset represents the high strength carbon steel tensioning tendon wire cluster encapsulated in NO-OX-ID (paraffin/ mineral oil wax). The top rock anchor button head is included in this evaluation	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (14)
CV-SS(SS)-INT This generic asset includes all stainless structural steel of the Containment Vessel that is protected from the weather. Included in this evaluation is the refueling cavity and fuel transfer liners (including attachments). Stainless steel expansion bellows used with containment penetrations are addressed with the penetration.	STRUCTURAL SUPPORT SR EQUIPMENT STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-2 Line Number (17) This applies to both passive functions.

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
Mechanical Penetrations This asset represents pressure retaining boundary of the mechanical penetration, including any penetration sleeves, bellows, and dissimilar metal welds.	PRESSURE BOUNDARY	Table 3.6-1 Line Number (1) Table 3.6-1 Line Number (2) Table 3.6-1 Line Number (3)
SPP01 This asset represent the movable hatch and mechanical wear surfaces of the personnel hatch.	PRESSURE BOUNDARY	Table 3.6-1 Line Number (5)
SPP01-GASKET This asset represents the inner and outer elastomeric seals for the hatch doors.	PRESSURE BOUNDARY	Table 3.6-1 Line Number (6)
SPP02 This asset represent the movable hatch and mechanical wear surfaces of the equipment hatch.	PRESSURE BOUNDARY	Table 3.6-1 Line Number (5)
SPP02-GASKET This asset represents the inner and outer elastomeric seals for the hatch doors as well as the containment vessel to hatch seal.	PRESSURE BOUNDARY	Table 3.6-1 Line Number (6)

Table 2.4.1-1 Containment Structures

Component Group	Passive Function	Aging Management Reference
VALVE BODY This generic asset represents the bronze manual valves attached to the tendon fill port piping.	STRUCTURAL/ FUNCTIONAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (14)

2.4.2 Essential Buildings and Yard Structures

The following structures are included in this subsection:

- Auxiliary Building (Section 2.4.2.1)
- Intermediate Building (Section 2.4.2.2)
- Turbine Building (Section 2.4.2.3)
- Diesel Building (Section 2.4.2.4)
- Control Building (Section 2.4.2.5)
- All Volatile Water Treatment Building (Section 2.4.2.6)
- Screen House Building (Section 2.4.2.7)
- Standby Auxiliary Feedwater Building (Section 2.4.2.8)
- Service Building (Section 2.4.2.9)
- Cable Tunnel (Section 2.4.2.10)
- Essential Yard Structures (Section 2.4.2.11)
- Component Supports Commodity Group (Section 2.4.2.12)

The Essential Buildings and Yard Structures group is a compilation of all site civil buildings and features that perform License Renewal Intended Functions. Included within the Essential Buildings and Yard Structures evaluation boundary are civil commodity groups. Each building and commodity group has been separately scoped and screened for License Renewal with the scoping results documented below.

2.4.2.1 Auxiliary Building

Description

The Auxiliary Building is a Seismic Category I three-story rectangular structure measuring approximately 70 ft. by 214 ft. It is located south of the Containment and Intermediate Buildings and adjacent to the Service Building. The Auxiliary Building houses the major support and engineered safety features equipment required for plant operation. Portions of the structure act as fire barriers. Additionally the building contains non-safety elements whose failure can affect a safety function (portions of the structure are designed to resist, and protect equipment from, high-energy line breaks, flooding, and tornadoes).

The Auxiliary Building is part of a complex of interconnected buildings surrounding, but structurally independent of, the Containment Building. These buildings are interconnected as follows: The Seismic Category I Auxiliary Building is contiguous with the nonseismic Service Building on the west side. The Seismic Category I Intermediate Building adjoins the seismically analyzed Turbine Building to the north, and the Auxiliary Building to the south. The Turbine Building adjoins the Seismic Category I Diesel Generator Building to the north and the Seismic Category I Control Building to the south. The facade, a cosmetic rectangular structure that encloses the Containment Building, has all four sides partly or totally in common with the Auxiliary and Intermediate buildings. The Auxiliary Building adjoins the Seismic Category I Standby Auxiliary Feedwater Building on the south. In the original building analysis, each Seismic Category I structure was treated independently. During the Systematic Evaluation Program (SEP) plant evaluation it was found that the interconnected nature of the buildings was an important feature, especially in view of the lack of detailed original seismic design information. Therefore, both Seismic Category I and nonseismic category buildings were included in a complicated three-dimensional structural system reanalysis model. As part of this effort, the interconnected Turbine Building was determined to be capable of withstanding safe shutdown earthquake forces. Based on the SEP review, audits, and plant inspections, the NRC safety evaluation reports concluded that the evaluation and resolution of SEP Topics III-2, Wind and Tornado Loadings; III-4.A, Tornado Missiles; III-6, Seismic Design Considerations; and III-7.B, Load Combinations, were acceptable. The NRC also concluded that the RG&E analysis and implementation of the Structural Upgrade Program were acceptable.

Below grade the Auxiliary Building is primarily concrete, above grade the building has two roofs constructed of steel beam and bracing systems and supported by steel frame bracing systems. Insulated siding is used for most of the walls above the operating floor. The south side of the building has a combination of concrete block finished with architectural brick and siding while portions of the east and north sides contain concrete block and siding. The low roof section of the Auxiliary Buildings parapets have been provided with scuppers designed to ensure that any rainwater, resulting from a design-basis storm, would not accumulate on the roofs and cause overload. The scuppers are located so that their outflow will not damage any surrounding plant structures. The roofing and siding provide weather resistance and allow habitability control but are not designed to be wind or tornado missile resistant.

The structure has a concrete basement floor that rests on a sandstone foundation at elevation 235 ft 8 in., and two reinforced concrete floors: an intermediate floor at elevation 253 ft and an operating floor at elevation 271 ft. The refueling water storage tank extends through all three levels. The intermediate and operating level floors have a minimum thickness of 1.5 ft, and are supported by 2.5-ft thick concrete walls at the south, east, and part of the north sides of the building. There are a number of 2.5-ft to 3.5-ft thick concrete shield walls and compartments located on the floors.

The northwest corner of the building is adjacent to the circular wall of the Containment Building. The west concrete wall, which encloses the spent fuel storage pool, is 6 ft thick. The spent fuel storage pool, located in the Auxiliary Building, is a rectangular concrete structure lined with stainless steel. It contains approximately 255,000 gallons of borated water. Its bottom is at elevation 236 ft 8 in. Walls are 6-ft thick at the north and west sides and 3-ft thick at the east and south sides, which are below the ground surface and also serve as retaining walls. A fuel transfer penetration is provided for fuel movement between the refueling transfer canal in the reactor containment and the spent fuel pool. The penetration consists of a stainless steel pipe installed inside a larger pipe. The inner pipe acts as the transfer tube and connects the reactor refueling canal with the spent fuel pool. The tube is fitted with a standard stainless steel flange in the refueling canal and a stainless steel sluice gate valve in the spent fuel pool. The outer pipe is welded to the containment liner and provision is made for gas leak testing of all welds essential to the integrity of the penetration. The gasketed expansion joint accommodates motion of the sleeve within the containment shell relative to the portion of the sleeve anchored in the wall of the refueling canal in the Auxiliary Building. The expansion bellows inside the Auxiliary Building performs the same function as described for that within the containment.

The west end of the Auxiliary Building superstructure is connected with a portion of the service building and on the northwest with the Intermediate Building. The interior walls separating the buildings are block. However, the foundation of the Auxiliary Building is independent of these building foundations.

The major structures of Ginna Station have experienced no visible evidence of settlement since the construction of the station. (During the SEP and evaluation of Topic II-4.F, Settlement of Foundations and Buried Equipment, the NRC concluded that the settlement of foundations and buried equipment is not a safety concern for Ginna Station.)

In addition to structural and load bearing elements, the Auxiliary Building contains features and appurtenances credited in the licensing basis and relied upon to ensure the health and safety of the public. These features include:

a. Backdraft dampers installed in the Auxiliary Building north wall in order to eliminate the effects of differential pressures associated with the design-basis tornado.

b. Pipe whip and jet impingement protection provided for the 6-in. heating steam line riser located on the intermediate floor of the Auxiliary Building to protect safety-related electrical equipment in the vicinity of the riser.

c. Portable flood barriers for use in the event of flooding from Deer Creek. (The flood barriers consist of a panel with a pair of Pneuma-seal inflatable gaskets on the sides and across the bottom. The panels slide into frames installed around the Auxiliary Building personnel access doors and the rollup vehicle access door. Air flasks located in the Auxiliary Building adjacent to the doors which receive the barriers and are used to inflate the gaskets.) The building exterior provides flood barrier continuity between the door openings where the portable barriers are installed.

d. Curbing at the entrance to the RHR pit to prevent water from spilling from the basement floor into the pit.

e. Sealing material in between the pipe chase and RHR suction piping where it enters the RHR pit to prevent water spilling from the basement floor into the pit.

f. A fire resistant enclosure (the charging pump room) to provide separation between trains of Appendix R safe shutdown equipment.

g. Sealing material between the Intermediate Building/Auxiliary Building, and Auxiliary Building/Containment Building rattle gaps to prevent externally induced flooding of the Auxiliary Building.

h. A barrier at the cable tunnel entrance to the Auxiliary Building to prevent possible cross communication of smoke.

i. Restraining devices installed at the Intermediate Building/Auxiliary Building interface (north side, above the spent fuel pool) to ensure a block wall failure will not damage spent fuel.

j. Scuppers installed in the building parapet to ensure water can not buildup and overload roof members.

k. The building foundations and below grade walls were constructed with water stops to prevent the intrusion of ground water.

Included within the Auxiliary Building license renewal evaluation boundary are the load bearing members of the Auxiliary Building and spent fuel pool bridge cranes (NUREG-0612 cranes). The non-concrete elements of the spent fuel pool (pool and transfer canal liners) along with the new and spent fuel storage racks, spent fuel pool boraflex and borated stainless steel neutron absorbers are evaluated within the Spent Fuel Pool Cooling system.

The Auxiliary Building contains racks, panels, electrical enclosures, equipment supports and fire doors, penetration barriers and seals (in addition to those noted above). Those equipment sets receive a separate commodity group evaluation independent of the building evaluation. Building interior floor drains are evaluated within the Waste Disposal system and the non-building elements of the cranes are evaluated in the Cranes, Hoists and Lifting devices evaluation or the Fuel Handling Equipment review as appropriate.

System Function Listing

In addition to the System Functions described above, the Auxiliary Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY			FP	EQ	PTS	AT	SB
CLASS 1, 2, 3 COMPONENTS	X						

Comment: Components within the Auxiliary Building perform this primary design system function.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Auxiliary Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Auxiliary Building that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Auxiliary Building perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Auxiliary Building perform this associated design system function. Components within the Auxiliary Building resist the effects of high energy line breaks, provide internal and external flood protection, and mitigate the effects of tornados. Structural elements in the Auxiliary Building protect the Spent Fuel Pool from the effects of block wall failures.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Auxiliary Building perform this associated design system function.

UFSAR Reference

Additional Auxiliary Building details are provided in Section 3.6.2.5.1.8, Section 3.8.4.1.9, Section 3.4.1.1.3, Section 1.2.3.3, Section 3.3.2, and Section 3.8.4.1.1 of the UFSAR.

License Renewal Drawings

The license renewal drawings for Auxiliary Building the are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Auxiliary Building that require aging management review are indicated in Table 2.4.2-1 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
AAD86	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)
AB-ARCH-EXT AB-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)
AB-BLOCK-EXT This generic asset includes all masonry block walls of the Auxiliary Building exposed to the weather. Mortar is included in this asset evaluation.	FLOOD BARRIER SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (20) This applies to both passive functions.

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
AB-BLOCK-INT This generic asset includes all masonry block walls of the Auxiliary Building protected from the weather. The west end of the auxiliary building superstructure is connected with a portion of the service building and on the northwest with the intermediate building. The interior walls separating the buildings are block. Mortar is included in this asset evaluation.	FIRE BARRIER	Table 3.6-1 Line Number (20)

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
AB-C-BUR This generic asset includes all concrete in the Auxiliary Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Auxiliary Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Auxiliary Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Auxiliary Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	FLOOD BARRIER STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) These apply to all three passive functions.

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
AB-C-EXT This generic asset includes all concrete in the Auxiliary Building that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Auxiliary Building threaded fasteners and the exposed faces of plates and structural members are included in Auxiliary Building structural steel. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	FLOOD BARRIER STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all three passive functions.

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
AB-C-INT This generic asset includes all concrete in the Auxiliary Building that is protected from the weather including the Spent Fuel Pool. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Auxiliary Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Auxiliary Building structural steel.	FIRE BARRIER FLOOD BARRIER STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all four passive functions.

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
AB-ELAST-INT This generic asset includes elastomer sealing material used in the Auxiliary Building that is protected from the weather. There is sealing material in between the pipe chase and RHR suction piping where it enters the RHR pit to prevent water spilling from the basement floor into the pit, sealing material between the Intermediate Building/Auxiliary Building, and Auxiliary Building/Containment building rattle gaps to prevent external flooding of the Auxiliary Building.	FLOOD BARRIER	Table 3.6-2 Line Number (5)
AB-FAST(CS)-EXT This generic asset includes the exposed portion of carbon steel threaded fasteners for the Auxiliary Building that are exposed to the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
AB-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Auxiliary Building that are protected from the weather.	PIPE WHIP RESTRAINT SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (27) These apply to all four passive functions.
AB-SS(CS)-EXT This generic asset includes all carbon structural steel in the Auxiliary Building frame that is exposed to the weather.	SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.
AB-SS(CS)-INT This generic asset includes all carbon structural steel of the Auxiliary Building that is protected from the weather. Columns, posts, beams, baseplates, bracing, crane support girders, crane rails, and the exposed faces of plates and structural members are included. This does not include carbon structural steel used as component supports.	FLOOD BARRIER HELB SHIELDING MISSILE BARRIER SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (27) These apply to all five passive functions.
FLOOD BARRIER	FLOOD BARRIER	Table 3.6-2 Line Number (1)

Table 2.4.2-1 Auxiliary Building

Component Group	Passive Function	Aging Management Reference
FLOOD BARRIER - SEAL Bladder for flood barrier.	FLOOD BARRIER	Table 3.6-2 Line Number (5)
TANK Local air flask dedicated for inflating flood barrier pneumatic seals.	FLOOD BARRIER PRESSURE BOUNDARY	Table 3.6-1 Line Number (16) This applies to both passive functions.

2.4.2.2 Intermediate Building

Description

The Intermediate Building is a Seismic Category I multi-story steel frame structure measuring approximately 136-ft. by 141-ft. The building includes a facade structure on each side. The Intermediate Building surrounds the Containment Building to the west and north and joins the Service Building, Turbine Building and Auxiliary Building. It is divided into two sections called the hot side (restricted area access) and the cold side. The Intermediate Building houses and supports safety related equipment. Portions of the structure act as fire barriers. Structural elements within the building, along with the ability to open selected door, are factors considered for heat removal during Station Blackout events. Additionally, the building contains non-safety elements whose failure can affect a safety function (portions of the structure are designed to resist high-energy line breaks and flooding).

The Intermediate Building is part of a complex of interconnected buildings surrounding, but structurally independent of, the Containment Building. These buildings are interconnected as follows: The Seismic Category I Auxiliary Building is contiguous with the nonseismic Service Building on the west side. The Seismic Category I Intermediate Building adjoins the seismically analyzed Turbine Building to the north, and the Auxiliary Building to the south. The Turbine Building adjoins the Seismic Category I Diesel Generator Building to the north and the Seismic Category I Control Building to the south. The facade, a cosmetic rectangular structure that encloses the Containment Building, has all four sides partly or totally in common with the Auxiliary and Intermediate

buildings. The Auxiliary Building adjoins the Seismic Category I Standby Auxiliary Feedwater Building on the south. In the original building analysis, each Seismic Category I structure was treated independently. During the Systematic Evaluation Program (SEP) plant evaluation it was found that the interconnected nature of the buildings was an important feature, especially in view of the lack of detailed original seismic design information. Therefore, both Seismic Category I and nonseismic category buildings were included in a complicated three-dimensional structural system reanalysis model. As part of this effort, the interconnected Turbine Building was determined to be capable of withstanding safe shutdown earthquake forces. Based on the SEP review, audits, and plant inspections, the NRC safety evaluation reports concluded that the evaluation and resolution of SEP Topics III-2, Wind and Tornado Loadings; III-4.A, Tornado Missiles; III-6, Seismic Design Considerations; and III-7.B, Load Combinations, were acceptable. The NRC also concluded that the RG&E analysis and implementation of the Structural Upgrade Program were acceptable.

The Intermediate Building is located on the north and west sides of the Containment Building, and is founded on rock. The west end has a retaining wall where the floor at elevation 253 ft 6 in. is supported. The bottom of the retaining wall footing is at elevation 233 ft 6 in. Rock elevation in this area is at approximately elevation 239 ft 0 in. Foundations for interior columns are on individual column footings and embedded a minimum of 2 ft in solid rock. The building, which also encloses the cylindrical Containment Building, is north of the Auxiliary Building and is connected to the part of the Auxiliary Building that is under the high roof.

The building is a 136-ft 7-in. by 140-ft 11-in. steel frame structure with facade structures on each side. The facade structures are steel frame bracing systems covered with siding. The concrete basement floor slab (elevation 253.5 ft) is supported by a set of 2-ft 10-in. square concrete columns and a concrete retaining wall on the west side. The columns have individual concrete footings embedded in the rock foundation. The top elevations of the footings vary from 238 ft to 236.5 ft.

In the north part of the building, there are three floors at elevations 278.33 ft, 298.33 ft, and 315.33 ft, and a high roof at elevation 335.5 ft. In the south part of the building there are two floors at elevations 271 ft and 293 ft, and the low roof at elevation 318 ft. All floors are made of composite steel girders and 5-in. thick concrete slabs. Built around the circular Containment Building, the floors extend completely through the west side of the Intermediate Building, a major portion of the north side and a small portion of the south side. There are no floors on the east side. The roofs are supported by steel roof girders. The floors

and roofs are also supported vertically on a set of interior steel columns which are continuous from the basement floor to the roof. Concrete block walls surround the floor space between the basement floor and the roofs. The top of the four facade structures is at elevation 387 ft. There is no roof at the top, only a horizontal truss connecting the four sides to provide out-of-plane strength. One special characteristic of the west facade is that the horizontal floor or roof girders are connected not to the bracing joints but somewhere between joints. In such a design, the columns must transform significant shears and moments when the structure is subject to lateral loads.

Cosmetic siding is used on the façade portion of the structure. The roof of the Intermediate Building has been provided with scuppers designed to ensure that any rainwater, resulting from a design-basis storm, would not accumulate on the roof and cause damage. The scuppers are located so that their outflow will not damage any surrounding plant structures. The roofing and exterior walls provide weather resistance and allow habitability control but are not designed to be tornado missile resistant.

The major structures of Ginna Station have experienced no visible evidence of settlement since the construction of the station. (During the SEP and evaluation of Topic II-4.F, Settlement of Foundations and Buried Equipment, the NRC concluded that the settlement of foundations and buried equipment is not a safety concern for Ginna Station.)

In addition to structural and load bearing elements, the Intermediate Building contains features and appurtenances credited in the licensing basis and relied upon to ensure the health and safety of the public. These features include:

a. A fire resistant enclosure at the cable tunnel entrance to the Intermediate Building to provide separation between trains of safe shutdown equipment.

b. Grating versus solid manway covers in the access holes between the cold side of the Intermediate Building and the building sub-basement to provide a dewatering path in the event of a line break.

c. Jet impingement shielding on the floor under the main steam header.

d. Missile shields to protect vital cable trays from possible Turbine Driven Auxiliary Feedwater (TDAFW) pump turbine missiles.

e. Jet impingement shields affixed to the containment wall to provide separation between vital instruments.

f. Jet impingement and missile shielding around the solenoid valves for the main steam isolation valves.

g. Sealing material between the Intermediate Building/Containment Building rattle gaps to prevent cross communication of flood volumes.

h. Restraining devices installed at the Intermediate Building/Turbine Building interface (above the main steam power operated relief valves) to ensure a block wall failure will not damage the valves.

i. Scuppers are installed in the building roof to ensure water can not buildup and overload roof members.

j. The building foundations and below grade walls were constructed with water stops to prevent the intrusion of ground water.

k. An oil containment dike around the TDAFW lube oil tank to minimize the fire risk from any spilled oil.

l. Selected structural steel building members are coated with a protective material to resist the effects of fires.

m. Specially constructed radiation shielding enclosures to minimize personnel dose during post accident sampling evolutions.

n. A Standby Auxiliary Feedwater System (SAFW) was added to further improve steam generator feedwater reliability and specifically to substitute for the preferred auxiliary feedwater in the low probability that preferred auxiliary feedwater pumps are damaged due to nearby high-energy pipe breaks within the Intermediate Building.

The Intermediate Building contains racks, panels, electrical enclosures, equipment supports and fire doors, penetration barriers and seals (in addition to those noted above). These equipment sets receive a separate commodity group evaluation independent of the building evaluation. The restricted access portion of the buildings interior floor drains are evaluated within the Waste Disposal system, the unrestricted access portion is evaluated in the Treated Water system.

System Function Listing

In addition to the System Functions described above, the Intermediate Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY			FP	EQ	PTS	AT	SB
CLASS 1, 2, 3 COMPONENTS	X						

Comment: Components within the Intermediate Building perform this primary design system function.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Intermediate Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Intermediate Building that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Intermediate Building perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Intermediate Building perform this associated design system function. Components within the Intermediate Building resist the effects of high energy line breaks and provide internal and external flood protection. Structural elements in the Intermediate Building protect the Main Steam Atmospheric Relief Valves from the effects of block wall failures.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Intermediate Building perform this associated design system function.

Code Z5 LICENSE RENEWAL CRITERION 3 (SBO) - CONTAINS SSCS RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Intermediate Building perform this associated design system function.

UFSAR Reference

Additional Intermediate Building details are provided in Section 3.6.2.4.8.1, Section 3.8.2, Section 3.6.2.1, Section 3.8.4.1.9, Section 3.8.4.1, Section 3.8.4.1.4, Section 1.2.3.4, Section 3.6.2.5.1.2, Section 8.1.4.5.2, and Section 12.3.2.2.6 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Intermediate Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Intermediate Building that require aging management review are indicated in Table 2.4.2-2 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-2 Intermediate Building

Component Group	Passive Function	Aging Management Reference
IB-ARCH-EXT IB-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)
IB-BLOCK-EXT This generic asset includes all masonry block walls of the Intermediate Building exposed to the weather. Mortar is included in this asset evaluation.	HEAT SINK SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (20) This applies to both passive functions.

Table 2.4.2-2 Intermediate Building

Component Group	Passive Function	Aging Management Reference
IB-BLOCK-INT This generic asset includes all masonry block walls of the Intermediate Building that are protected from the weather. The interior walls separating the buildings rooms are block. Mortar is included in this asset evaluation.	FIRE BARRIER HEAT SINK	Table 3.6-1 Line Number (20) This applies to both passive functions.

Table 2.4.2-2 Intermediate Building

Component Group	Passive Function	Aging Management Reference
IB-C-BUR This generic asset includes all concrete in the Intermediate Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Intermediate Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Intermediate Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Intermediate Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	FLOOD BARRIER STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) These apply to both passive functions.

Table 2.4.2-2 Intermediate Building

Component Group	Passive Function	Aging Management Reference
IB-C-EXT This generic asset includes all concrete in the Intermediate Building that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Intermediate Building threaded fasteners and the exposed faces of plates and structural members are included in Intermediate Building structural steel.	HEAT SINK STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to both passive functions.

Table 2.4.2-2 Intermediate Building

Component Group	Passive Function	Aging Management Reference
IB-C-INT This generic asset includes all concrete in the Intermediate Building that is protected from the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Intermediate Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Intermediate Building structural steel.	FIRE BARRIER FLOOD BARRIER HEAT SINK MISSILE BARRIER STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all five passive functions.
IB-ELAST-INT This generic asset includes elastomer sealing material used in the Intermediate Building that is protected from the weather. Elastomers are used as a sealing material in the seismic gap between Containment and Intermediate Building.	FLOOD BARRIER	Table 3.6-2 Line Number (5)

Table 2.4.2-2 Intermediate Building

Component Group	Passive Function	Aging Management Reference
IB-FAST(CS)-EXT This generic asset includes the exposed portion of carbon steel threaded fasteners for the Intermediate Building that are exposed to the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)
IB-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Intermediate Building that are protected from the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (27)
IB-LEAD-INT This generic asset represents the shielded enclosure constructed over the primary sample Containment isolation valves in the Intermediate Building hot side. This generic asset includes leaded glass and lead bricks. The lead bricks are sandwiched between galvanized steel sheets which are evaluated under the IB-SS(CS)-INT asset.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-2 Line Number (8)

Table 2.4.2-2 Intermediate Building

Component Group	Passive Function	Aging Management Reference
IB-SS(CS)-EXT This generic asset includes all carbon structural steel in the Intermediate Building frame that is exposed to the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)
IB-SS(CS)-INT This generic asset includes all carbon structural steel of the Intermediate Building that is protected from the weather. Columns, posts, beams, baseplates, bracing, and the exposed faces of plates and structural members are included. Structural steel is used as missile barriers, jet impingement shields and an oil containment dike around the Turbine Driven Auxiliary Feed Pump oil system. This does not include carbon structural steel used as component supports.	HEAT SINK HELB SHIELDING MISSILE BARRIER SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (27) These apply to all five passive functions.

2.4.2.3 Turbine Building

Description

Though the Turbine Building was not originally designed to be Seismic Category I, it is part of complex of interconnected buildings and is connected to Seismic Category I structures. As such, the Turbine Building is considered a structure that supports nuclear safety related equipment. Subsequently, the Turbine Building has been modified and re-evaluation found the building

capable of withstanding safe shutdown earthquake forces. Portions of structure also act as fire barriers and oil confinement systems. Additionally, the building contains non-safety elements whose failure can affect a safety function (portions of the structure are designed to resist, and protect equipment from, high-energy line breaks, flooding, and tornadoes).

The Turbine Building is part of a complex of interconnected buildings surrounding, but structurally independent of, the Containment Building. These buildings are interconnected as follows: The Seismic Category I Auxiliary Building is contiguous with the nonseismic Service Building on the west side. The Seismic Category I Intermediate Building adjoins the seismically analyzed Turbine Building to the north, and the Auxiliary Building to the south. The Turbine Building adjoins the Seismic Category I Diesel Generator Building to the north and the Seismic Category I Control Building to the south. The facade, a cosmetic rectangular structure that encloses the Containment Building, has all four sides partly or totally in common with the Auxiliary and Intermediate buildings. The Auxiliary Building adjoins the Seismic Category I Standby Auxiliary Feedwater Building on the south. In the original building analysis, each Seismic Category I structure was treated independently. During the Systematic Evaluation Program (SEP) plant evaluation it was found that the interconnected nature of the buildings was an important feature, especially in view of the lack of detailed original seismic design information. Therefore, both Seismic Category I and nonseismic category buildings were included in a complicated three-dimensional structural system reanalysis model. As part of this effort, the interconnected Turbine Building was determined to be capable of withstanding safe shutdown earthquake forces. Based on the SEP review, audits, and plant inspections, the NRC safety evaluation reports concluded that the evaluation and resolution of SEP Topics III-2, Wind and Tornado Loadings; III-4.A, Tornado Missiles; III-6, Seismic Design Considerations; and III-7.B, Load Combinations, were acceptable. The NRC also concluded that the RG&E analysis and implementation of the Structural Upgrade Program were acceptable.

The Turbine Building is a 257.5-ft by 124.5-ft rectangular building on the north side of the building complex. The Turbine Building foundation is a concrete mat supported by compacted fill material. In addition to the concrete basement, it has two concrete floors. The building roof includes a roof truss structure composed of top and bottom chords connected by vertical bracing. The roof and floors are supported by steel framing and bracing systems on all four sides of the building. The floors are also supported by additional interior framing at various locations under the floors. Part of the south wall frame also serves as the north wall of the Intermediate Building. The north facade structure is

actually on the top of the south frame of the Turbine Building. The west frame is the continuation of the west facade structure of the Intermediate Building. This west frame is also part of the Service Building. Except between buildings, the walls of the Turbine Building have insulated siding. The Turbine Building parapets have been provided with scuppers designed to ensure that any rainwater, resulting from a design-basis storm, would not accumulate on the roof and cause damage. The scuppers are located so that their outflow will not damage any surrounding plant structures. The roofing and siding provide weather resistance and allow habitability control but are not designed to be tornado missile resistant.

Inside the building and parallel to the south and north frames, there is an interior frame system supporting the crane from the basement elevation. The crane frame is designed like the exterior frame system with vertical columns, horizontal beams, and cross bracing bolted to columns. Each interior column is welded to the corresponding exterior column at the joints and mid-points of columns by a series of girder connections. The south frame of the Turbine Building is designed like the west facade structure of the Intermediate Building; that is, horizontal floor girders are connected to columns somewhere between joints. For the purposes of License Renewal review, the walls separating the Turbine Building from the Intermediate Building, the Diesel Generator Building, the Service Building, the Control Building and the All-Volatile-Treatment (AVT) building will be evaluated as part of those structures as appropriate. Additionally, the main feedwater pumps are surrounded by a block wall enclosure. (This enclosure is not credited for fire protection or high energy line break mitigation.)

The major structures of Ginna Station have experienced no visible evidence of settlement since the construction of the station. (During the SEP and evaluation of Topic II-4.F, Settlement of Foundations and Buried Equipment, the NRC concluded that the settlement of foundations and buried equipment is not a safety concern for Ginna Station.)

In addition to structural and load bearing elements, the Turbine Building contains features and appurtenances credited in the licensing basis and relied upon to ensure the health and safety of the public. These features include:

a. The Turbine Building includes a barrier installed around the turbine lube-oil reservoir area to contain possible oil spillage.

b. Selected structural steel building members are coated with a protective material to resist the effects of fires.

c. Some building structural members also interface with the pressure-shielding steel diaphragm walls that were installed at the Control Building-Turbine Building wall and at the diesel building-Turbine Building wall to ensure continued operability of safety-related equipment following a postulated high-energy pipe break in the Turbine Building.

d. The turbine seal oil unit is enclosed in a fire resistant shelter.

e. The building foundations and below grade walls were constructed with water stops to prevent the intrusion of ground water.

The Turbine Building contains racks, panels, electrical enclosures, equipment supports and fire doors, penetration barriers, seals and coatings. These equipment sets receive a separate commodity group evaluation independent of the building evaluation.

System Function Listing

In addition to the System Functions described above, the Turbine Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY			FP	EQ	PTS	AT	SB
CLASS 1, 2, 3 COMPONENTS	X						

Comment: Components within the Turbine Building perform this primary design system function. Even though the Turbine Building was not originally designed to be Seismic Category I, it is part of complex of interconnected buildings surrounding the containment building and is connected to Seismic Category I structures. As such, the building is considered a structure that supports nuclear safety related equipment. Because of its importance, as part of the Structural Upgrade Program, the building was modified to add additional bracing.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Turbine Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Turbine Building that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Turbine Building perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Turbine Building perform this associated design system function. Components within the Turbine Building resist the effects of high energy line breaks.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Turbine Building perform this associated design system function.

UFSAR Reference

Additional Turbine Building details are provided in Section 1.2.3.5, Section 3.8.4.1.7, Section 3.7.1.5, Section 3.8.4.1, Section 3.8.4.4.2.3, and Section 3.8.4.1.9 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Turbine Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Turbine Building that require aging management review are indicated in Table 2.4.2-3 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-3 Turbine Building

Component Group	Passive Function	Aging Management Reference
TB-ARCH-EXT TB-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)

Table 2.4.2-3 Turbine Building

Component Group	Passive Function	Aging Management Reference
TB-C-BUR This generic asset includes all concrete in the Turbine Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Turbine Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Turbine Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Turbine Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) These apply to both passive functions.

Table 2.4.2-3 Turbine Building

Component Group	Passive Function	Aging Management Reference
TB-C-EXT This generic asset includes concrete exposed to the weather that acts as part of the building siding system. TB-C-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)

Table 2.4.2-3 Turbine Building

Component Group	Passive Function	Aging Management Reference
TB-C-INT This generic asset includes all concrete in the Turbine Building that is protected from the weather. This includes oil confinement curbing around the seal oil unit. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Turbine Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Turbine Building structural steel.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.
TB-FAST(CS)-EXT This generic asset includes the exposed portion of carbon steel threaded fasteners for the Turbine Building that are exposed to the weather.	SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.

Table 2.4.2-3 Turbine Building

Component Group	Passive Function	Aging Management Reference
TB-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Turbine Building that are protected from the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.
TB-SS(CS)-EXT This generic asset includes all carbon structural steel in the Turbine Building frame that is exposed to weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)
TB-SS(CS)-INT This generic asset includes all carbon structural steel of the Turbine Building that is protected from the weather. Columns, posts, beams, baseplates, bracing, crane support girders, crane rails, and the exposed faces of plates and structural members are included. This does not include carbon structural steel used as component supports.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.

2.4.2.4 Diesel Building

Description

The Diesel Building is a Seismic Category I structure that houses and supports nuclear safety related equipment. The Diesel Building also protects connections for an alternate diesel cooling water source should the service water system be disabled. The structure also acts as a fire barrier and contains non-safety elements whose failure can affect a safety function (portions of the structure are designed to resist, and protect equipment from, high-energy line breaks, flooding, and tornadoes).

The Diesel Building is part of a complex of interconnected buildings surrounding, but structurally independent of, the Containment Building. These buildings are interconnected as follows: The Seismic Category I Auxiliary Building is contiguous with the nonseismic Service Building on the west side. The Seismic Category I Intermediate Building adjoins the seismically analyzed Turbine Building to the north, and the Auxiliary Building to the south. The Turbine Building adjoins the Seismic Category I Diesel Generator Building to the north and the Seismic Category I Control Building to the south. The facade, a cosmetic rectangular structure that encloses the Containment Building, has all four sides partly or totally in common with the Auxiliary and Intermediate buildings. The Auxiliary Building adjoins the Seismic Category I Standby Auxiliary Feedwater Building on the south. In the original building analysis, each Seismic Category I structure was treated independently. During the Systematic Evaluation Program (SEP) plant evaluation it was found that the interconnected nature of the buildings was an important feature, especially in view of the lack of detailed original seismic design information. Therefore, both Seismic Category I and nonseismic category buildings were included in a complicated three-dimensional structural system reanalysis model. As part of this effort, the interconnected Turbine Building was determined to be capable of withstanding safe shutdown earthquake forces. Based on the SEP review, audits, and plant inspections, the NRC safety evaluation reports concluded that the evaluation and resolution of SEP Topics III-2, Wind and Tornado Loadings; III-4.A, Tornado Missiles; III-6, Seismic Design Considerations; and III-7.B, Load Combinations, were acceptable. The NRC also concluded that the RG&E analysis and implementation of the Structural Upgrade Program were acceptable.

The Diesel Building adjoins the Turbine Building on the east end of the north wall, opposite the Control Building. The Diesel Building is a one-story reinforced-concrete structure divided into two rooms, each with a cable vaults underneath the floor. The south wall, which is common with the turbine building,

is reinforced to be a pressurization wall to protect the areas adjacent to the turbine building from the effects of high-energy line breaks. The foundations of the diesel generator buildings were excavated to the surface of bedrock. Lean concrete or compacted backfill was placed on the rock surface to a depth whereby the elevation of the top of the fill material was coincident with the elevation of the bottom of the concrete foundation.

The Diesel Building was modified as part of the Structural Upgrade Program to withstand tornado winds and missiles, external flooding, seismic loads, and extreme snow loads. A new reinforced-concrete north wall was constructed 4 ft north of the existing north wall. Reinforced-concrete wing walls were constructed that extended the east and west walls to meet the new north wall, enclosing the space between the existing and new north wall. The new wall includes missile-resistant watertight equipment and personnel doors. A new reinforced-concrete slab roof with a reinforced-concrete parapet was constructed covering the entire Diesel Building. The existing north wall and portions of the existing roof were left in place. The building as modified was designed to remain undamaged during and after an operating basis earthquake and remain functional during and after a safe shutdown earthquake.

The major structures of Ginna Station have experienced no visible evidence of settlement since the construction of the station. (During the SEP and evaluation of Topic II-4.F, Settlement of Foundations and Buried Equipment, the NRC concluded that the settlement of foundations and buried equipment is not a safety concern for Ginna Station.)

In addition to structural and load bearing elements, the Diesel Building contains features and appurtenances credited in the licensing basis and relied upon to ensure the health and safety of the public. These features include:

a. The B diesel room vault contains a fire resistant enclosure to provide electrical train separation.

b. The building foundations and below grade walls were constructed with water stops to prevent the intrusion of ground water.

c. The common wall between the Diesel Building and Turbine Building is reinforced with heavy sheet piling and stiffeners to form a pressurization wall to resist the effects of a high energy line break in the Turbine Building.

d. The Diesel Building exterior has been modified during the Structural Upgrade Program to withstand the effects of tornado wind, tornado differential pressure, tornado missiles, and flooding of Deer Creek.

e. Scuppers are installed in the building roof to ensure water can not buildup and overload roof members.

The Diesel Building contains sump pumps to remove any ground water that may leak into the vaults. This equipment is not considered part of the structure and is evaluated within the Treated Water System. The building also contains racks, panels, electrical enclosures, equipment supports and fire doors, penetration barriers and seals. These equipment sets receive a separate commodity group evaluation independent of the building evaluation.

System Function Listing

In addition to the System Functions described above, the Diesel Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Diesel Generator Building perform this primary design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Diesel Generator Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Diesel Generator Building that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Diesel Generator Building perform this associated design system function. The Diesel Generator Building contains structural elements designed to resist the effects of high energy line breaks, tornadoes, and flooding events.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Diesel Generator Building perform this associated design system function.

UFSAR Reference

Additional Diesel Building details are provided in Section 3.8.5, Section 3.8.4.4, Section 3.8.4.1.3, and Section 3.8.4.1.9 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Diesel Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Diesel Building that require aging management review are indicated in Table 2.4.2-4 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-4 Diesel Building

Component Group	Passive Function	Aging Management Reference
DB-ARCH-EXT DB-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)

Table 2.4.2-4 Diesel Building

Component Group	Passive Function	Aging Management Reference
DB-C-BUR This generic asset includes all concrete in the Diesel Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Diesel Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Diesel Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Diesel Generator Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	SHELTER/PROTECT EQUIPMENT SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) These apply to all three passive functions.

Table 2.4.2-4 Diesel Building

Component Group	Passive Function	Aging Management Reference
DB-C-EXT This generic asset includes all concrete in the Diesel Generator Building that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Diesel Generator Building threaded fasteners and the exposed faces of plates and structural members are included in Diesel Generator Building structural steel.	FLOOD BARRIER MISSILE BARRIER SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all four passive functions.

Table 2.4.2-4 Diesel Building

Component Group	Passive Function	Aging Management Reference
DB-C-INT This generic asset includes all concrete in the Diesel Generator Building that is protected from the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Diesel Generator Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Diesel Generator Building structural steel.	FIRE BARRIER FLOOD BARRIER STRUCTURAL SUPPORT SR EQUIPMENT SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all four passive functions.
DB-ELAST-INT This generic asset includes all elastomer sealing material in the Diesel Generator Building that is protected from the weather. Elastomers are used as door seals.	FLOOD BARRIER	Table 3.6-2 Line Number (5)

Table 2.4.2-4 Diesel Building

Component Group	Passive Function	Aging Management Reference
DB-FAST(CS)-EXT This generic asset includes the exposed portion of carbon steel threaded fasteners for the Diesel Generator Building that are exposed to the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.
DB-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Diesel Generator Building that are protected from the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.
DB-FAST(HSLAS)-INT This generic asset includes the exposed portion of high strength carbon steel threaded fasteners in the Diesel Generator Building that is protected from the weather.	FLOOD BARRIER HELB SHIELDING MISSILE BARRIER	Table 3.6-2 Line Number (12) This applies to all three passive functions.
DB-SS(CS)-EXT This generic asset includes all structural carbon steel for the Diesel Generator Building (e.g., missile barriers) that is exposed to the weather.	MISSILE BARRIER STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to both passive functions.

Table 2.4.2-4 Diesel Building

Component Group	Passive Function	Aging Management Reference
DB-SS(CS)-INT This generic asset includes all structural carbon steel for the Diesel Generator Building (e.g., plates, beams, columns, grating, high energy line break pressurization wall, etc.) that is protected from the weather.	FIRE BARRIER FLOOD BARRIER MISSILE BARRIER STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to all five passive functions.
EXT-DOOR Carbon steel exterior doors are designed to resist tornados and floods.	FLOOD BARRIER MISSILE BARRIER SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (16) This applies to all three passive functions.
INT-DOOR Carbon steel interior doors are designed to resist high energy line breaks and floods.	FLOOD BARRIER HELB SHIELDING	Table 3.6-1 Line Number (16) This applies to both passive functions.

2.4.2.5 Control Building

Description

The Control Building is a Seismic Category I three-story structure measuring approximately 41 ft. by 54 ft. It is located north of the Containment Building and adjacent to the Turbine Building. The Control Building houses and supports the safety related control room, vital battery rooms, the relay room, and the mechanical equipment room. These rooms provide power and controls for the engineered safety features equipment and most other equipment required for plant operation. The control room portion of the Control Building functions in concert with the Control Room Emergency Air Treatment ventilation equipment to maintain a habitable environment for plant operators during design basis

events. Portions of the structure act as fire barriers. Some structural elements of the building are credited with providing a heat sink to ensure vital equipment can function for the required coping duration of a Station Blackout. Additionally, the building contains non-safety elements whose failure can affect a safety function (portions of the structure are designed to resist, and protect equipment from, high-energy line breaks, flooding, and tornadoes).

The Control Building is part of a complex of interconnected buildings surrounding, but structurally independent of, the Containment Building. These buildings are interconnected as follows: The Seismic Category I Auxiliary Building is contiguous with the nonseismic Service Building on the west side. The Seismic Category I Intermediate Building adjoins the seismically analyzed Turbine Building to the north, and the Auxiliary Building to the south. The Turbine Building adjoins the Seismic Category I Diesel Generator Building to the north and the Seismic Category I Control Building to the south. The facade, a cosmetic rectangular structure that encloses the Containment Building, has all four sides partly or totally in common with the Auxiliary and Intermediate buildings. The Auxiliary Building adjoins the Seismic Category I Standby Auxiliary Feedwater Building on the south. In the original building analysis, each Seismic Category I structure was treated independently. During the Systematic Evaluation Program (SEP) plant evaluation it was found that the interconnected nature of the buildings was an important feature, especially in view of the lack of detailed original seismic design information. Therefore, both Seismic Category I and nonseismic category buildings were included in a complicated three-dimensional structural system reanalysis model. As part of this effort, the interconnected Turbine Building was determined to be capable of withstanding safe shutdown earthquake forces. Based on the SEP review, audits, and plant inspections, the NRC safety evaluation reports concluded that the evaluation and resolution of SEP Topics III-2, Wind and Tornado Loadings; III-4.A, Tornado Missiles; III-6, Seismic Design Considerations; and III-7.B, Load Combinations, were acceptable. The NRC also concluded that the RG&E analysis and implementation of the Structural Upgrade Program were acceptable.

The Control Building is located adjacent to the south side of the Turbine Building. The foundation of the Control Building is supported on lean concrete or compacted backfill. The foundation of the Control Building was excavated to the surface of the bedrock. The fill material was placed on the rock surface to a depth coincident with the control building foundation. The bottom elevation of the deepest portion of the foundation mat is at elevation 245 ft 4 in., with a structural slab supported at elevation 250 ft 6 in. with a thickened slab for column footings. The south and west sides have reinforced-concrete walls, and

the roof is also reinforced concrete. The roof of the Control Building has a parapet provided with a scupper designed to ensure that any rainwater, resulting from a design-basis storm, would not accumulate on the roof and cause damage. The scupper is located so that its outflow will not damage any surrounding plant structures or equipment. The building siding is entirely cosmetic.

The control room floor and the relay room floor are 6-in. thick reinforced-concrete slabs supported by steel girders that are tied to Turbine Building floors at the respective elevations. The relay room east interior wall is primarily insulated siding and some concrete block. The east relay room exterior wall was installed during the Structural Upgrade Program and is designed to withstand the effects of tornado wind, tornado differential pressure, tornado missiles, and flooding of Deer Creek. The modification consisted of installing a reinforced-concrete Seismic Category I structure adjoining the east wall of the relay room. The entire north wall of the Control Building is protected from the effects of a high energy line break in the Turbine Building by a steel barrier.

In the basement of the structure are the battery rooms and the Control Building mechanical equipment room. Analysis concluded that a service water system or fire main system postulated failure in the mechanical equipment room was considered capable of flooding both battery rooms. To preclude that event the original door between the air handling room and the B battery room has been replaced by a wall and a water relief valve has been installed between the mechanical equipment room and the turbine building. The relief valve will ensure that the room can de-water sufficiently to prevent wall collapse.

The control room portion of the structure acts in conjunction with the control room ventilation system to accomplish Control Room Emergency Air Treatment (CREATS). The control room's role is to provide a non-leak tight pressure boundary envelope to support emergency air treatment. The CREATS boundary encompasses the entire room interior boundary, including the room access doors. The false ceiling is not included in the CREATS boundary but the structural ceiling and the room's interface with the ventilation ductwork is. The false ceiling panels are non-safety equipment whose failure can effect a safety function and are seismically restrained. Additionally, the panels can be removed during station blackout events in order to allow optimum heat transfer to the structural members.

The major structures of Ginna Station have experienced no visible evidence of settlement since the construction of the station. (During the SEP and evaluation of Topic II-4.F, Settlement of Foundations and Buried Equipment, the NRC concluded that the settlement of foundations and buried equipment is not a safety concern for Ginna Station.)

In addition to structural and load bearing elements, the Control Building contains features and appurtenances credited in the licensing basis and relied upon to ensure the health and safety of the public. These features include:

a. The common wall between the Control Building and Turbine Building is reinforced with heavy sheet piling and stiffeners to form a pressurization wall to resist the effects of a high energy line break in the Turbine Building.

b. The north and east wall of the control room has 1/4-in. armor plate to resist the effects of tornado missiles and malicious acts.

c. The east wall of the relay room was been modified during the Structural Upgrade Program to withstand the effects of tornado wind, tornado differential pressure, tornado missiles, and flooding of Deer Creek.

d. Scuppers installed in the building parapet to ensure water can not buildup and overload roof members.

e. Selected below grade construction joints, seams and cracks are sealed to prevent ground water intrusion.

f. Battery room and mechanical equipment room doors at the Turbine Building entrances are elevated to preclude water intrusion into the rooms from floods.

g. A barrier exists at the cable tunnel entrance to the Control Building to provide fire area separation.

h. Selected structural steel building members are coated with a protective material to resist the effects of fires.

i. Design configuration control is strictly maintained to ensure the building structural features credited in heat sink calculations for Station Blackout are maintained.

j. The south and west above grade concrete walls provide radiation shielding for plant operators.

k. Block walls were evaluated and upgraded as necessary to ensure their continued functioning during a design basis earthquake.

l. The building foundations and below grade walls were constructed with water stops to prevent the intrusion of ground water.

The Control Building contains racks, panels, electrical enclosures, equipment supports and fire doors, penetration barriers and seals (in addition to those noted above). These equipment sets receive a separate commodity group evaluation independent of the building evaluation. Building interior floor drains are evaluated within the Treated Water system.

System Function Listing

In addition to the System Functions described above, the Control Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Control Building perform this primary design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Control Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Control Building that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Control Building perform this associated design system function. The Control Building contains structural elements designed to resist the effects of high energy line breaks, tornadoes, and flooding events.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Control Building perform this associated design system function.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 (SBO) - CONTAINS SSCS RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Control Building perform this associated design system function.

UFSAR Reference

Additional Control Building details are provided in Section 3.8.4.1.2, Section 3.6.2.5.1.5, Section 3.8.2, Section 1.2.3.6, Section 3.8.4.1, Section 3.3.5.4.4, Section 3.7.1.5, and Section 3.8.5 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Control Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the that require aging management review are indicated in Table 2.4.2-5 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-5 Control Building

Component Group	Passive Function	Aging Management Reference
CB-ARCH-EXT CB-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)
CB-BLOCK-INT This generic asset includes all masonry block walls of the Control Building that are protected from the weather. The interior walls separating the buildings rooms are block. Mortar is included in this asset evaluation.	FIRE BARRIER FLOOD BARRIER	Table 3.6-1 Line Number (20) This applies to both passive functions.

Table 2.4.2-5 Control Building

Component Group	Passive Function	Aging Management Reference
CB-C-BUR This generic asset includes all concrete in the Control Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Control Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Control Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Control Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) These apply to both passive functions.

Table 2.4.2-5 Control Building

Component Group	Passive Function	Aging Management Reference
CB-C-EXT This generic asset includes all concrete in the Control Building that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Control Building threaded fasteners and the exposed faces of plates and structural members are included in Control Building structural steel.	FLOOD BARRIER HEAT SINK MISSILE BARRIER RADIATION/HEAT SHIELDING SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all six passive functions.

Table 2.4.2-5 Control Building

Component Group	Passive Function	Aging Management Reference
CB-C-INT This generic asset includes all concrete in the Control Building that is protected from the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Control Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Control Building structural steel.	HEAT SINK RADIATION/HEAT SHIELDING SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all four passive functions.
CB-ELAST-INT This generic asset includes elastomer sealing material used in the Control Building that is protected from the weather. Elastomers are used as door seals. Elastomer is also used for the dewatering valve closure seal.	FLOOD BARRIER HELB SHIELDING	Table 3.6-2 Line Number (5) This applies to both passive functions.

Table 2.4.2-5 Control Building

Component Group	Passive Function	Aging Management Reference
CB-FAST(CS)-EXT This generic asset includes the exposed portion of carbon steel threaded fasteners for the Control Building that are exposed to the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)
CB-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Control Building that is protected from the weather.	HELB SHIELDING MISSILE BARRIER STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to all three passive functions.
CB-FAST(HSLAS)-INT This generic asset includes the exposed portion of high strength carbon steel threaded fasteners in the Control Building that is protected from the weather.	HELB SHIELDING	Table 3.6-2 Line Number (12)
CB-SS(CS)-EXT This generic asset includes all carbon structural steel in the Control Building frame that is exposed to the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)

Table 2.4.2-5 Control Building

Component Group	Passive Function	Aging Management Reference
CB-SS(CS)-INT This generic asset includes all carbon structural steel of the Control Building that is protected from the weather. Columns, posts, beams, baseplates, bracing, and the exposed faces of plates and structural members are included. This does not include carbon structural steel used as component supports.	FIRE BARRIER SHELTER/PROTECT EQUIPMENT HEAT SINK HELB SHIELDING MISSILE BARRIER SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to all seven passive functions.
S51F This carbon steel interior door is designed to resist high energy line breaks. The door, along with the water curtain, provides a fire barrier.	FIRE BARRIER HELB SHIELDING MISSILE BARRIER	Table 3.6-1 Line Number (16) This applies to all three passive functions.
EXT-DOOR Carbon steel interior doors are designed to resist high energy line breaks and floods.	FLOOD BARRIER HELB SHIELDING MISSILE BARRIER	Table 3.6-1 Line Number (16) This applies to all three passive functions.
INT-DOOR Carbon steel interior doors are designed to resist high energy line breaks.	HELB SHIELDING MISSILE BARRIER	Table 3.6-1 Line Number (16) This applies to both passive functions.

Table 2.4.2-5 Control Building

Component Group	Passive Function	Aging Management Reference
VALVE BODY This valve dewaters the Control Building in the event of a Service Water or Fire Water line break in the mechanical equipment room.	FLOOD BARRIER HELB SHIELDING	Table 3.6-2 Line Number (3) This applies to both passive functions

2.4.2.6 All Volatile Water Treatment Building

Description

The All-Volatile-Treatment (AVT) Building is a nonseismic structure that houses non-nuclear safety equipment considered important to safety. Specifically, the AVT Building houses and supports the technical support center diesel generator and battery which may be used to mitigate the effects of fires and station blackouts. Additionally, building walls act as fire barriers. Accordingly, the AVT Building is considered a non-safety structure whose failure could affect a safety function.

The AVT Building houses demineralizers and other equipment necessary for the condensate polishing system to allow all-volatile-treatment of secondary water. The technical support center is located on the second floor of the all-volatile-treatment building and houses the computers and equipment, including emergency power supplies (diesel generator and batteries), necessary to provide the staff technical support during an emergency event. The AVT Building is founded on a concrete mat. The building abuts the Turbine Building at the east end of the Turbine Building. A small section of masonry block separates the Turbine Building from the AVT Building. Some exterior portions of the east and north sides of the structure are masonry block. The load bearing portions of the building include steel support framing and reinforced concrete. Select portions of the bottom floor of the building have 2-ft-thick concrete walls and ceiling to minimize operator exposure in case of radioactivity buildup in the resin beds should a steam-generator tube leak occurs. The building concrete roof is supported by steel decking and trusses. The AVT building is not designed to be high wind or tornado missile resistant. The technical support center is above the maximum external flood water level.

The AVT Building contains racks, panels, electrical enclosures, equipment supports and fire doors, penetration barriers and seals. Those equipment sets receive a separate commodity group evaluation independent of the building evaluation. Building interior floor drains are evaluated within the Treated Water system.

System Function Listing

In addition to the System Functions described above, the All-Volatile-Treatment Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the AVT/TSC Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the AVT/TSC Building that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the AVT/TSC Building perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the AVT/TSC Building perform this associated design system function. The AVT/TSC Building shelters and support the TSC diesel generator and battery charger both of which are used for post fire safe shutdown activities.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the AVT/TSC Building perform this associated design system function.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the AVT/TSC Building perform this associated design system function.

UFSAR Reference

Additional All Volatile Water Treatment Building details are provided in Section 10.7.7.4.1, Section 13.3, Section 1.2.3.7, and Section 3.8.5 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the All Volatile Water Treatment Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the All Volatile Water Treatment Building that require aging management review are indicated in Table 2.4.2-6 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-6 All Volatile Water Treatment Building

Component Group	Passive Function	Aging Management Reference
AVT-ARCH-EXT AVT-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)
AVT-BLOCK-EXT This generic asset includes masonry block exposed to the weather that acts as part of the building siding system. Mortar is included in this evaluation. AVT-BLOCK-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (20)

Table 2.4.2-6 All Volatile Water Treatment Building

Component Group	Passive Function	Aging Management Reference
AVT-BLOCK-INT This generic asset includes all masonry block walls of the AVT/TSC Building protected from the weather. The west side of the AVT/TSC Building abuts the Turbine Building. Some interior walls separating the buildings are block. Mortar is included in this evaluation.	FIRE BARRIER	Table 3.6-1 Line Number (20)

Table 2.4.2-6 All Volatile Water Treatment Building

Component Group	Passive Function	Aging Management Reference
AVT-C-BUR This generic asset includes all concrete in the AVT/TSC Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the AVT/TSC Building threaded fasteners and the exposed faces of plates and structural members are evaluated in AVT/TSC Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the AVT/TSC Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23)

Table 2.4.2-6 All Volatile Water Treatment Building

Component Group	Passive Function	Aging Management Reference
AVT-C-EXT This generic asset includes all concrete in the AVT/TSC Building that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the AVT/TSC Building threaded fasteners and the exposed faces of plates and structural members are included in AVT/TSC Building structural steel.	SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)

Table 2.4.2-6 All Volatile Water Treatment Building

Component Group	Passive Function	Aging Management Reference
AVT-C-INT This generic asset includes all concrete in the AVT/TSC Building that is protected from the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the AVT/TSC Building threaded fasteners and the exposed faces of plates and structural members are evaluated in AVT/TSC Building structural steel. This asset includes the fuel oil confinement curb for the TSC Diesel.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)
AVT-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the AVT/TSC Building that are protected from the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (16)

Table 2.4.2-6 All Volatile Water Treatment Building

Component Group	Passive Function	Aging Management Reference
AVT-SS(CS)-INT This generic asset includes all structural carbon steel of the AVT/TSC Building that is protected from the weather. Columns, posts, beams, baseplates, bracing, crane support girders, crane rails, and the exposed faces of plates and structural members are included. This does not include carbon structural steel used as component supports.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (16)

2.4.2.7 Screen House Building

Description

The Screen House Building is partially a Seismic Category 1 structure. It is located north of the Turbine Building and is not immediately adjacent to any other major structure. The Screen House structurally supports and houses safety related equipment, equipment used to mitigate fires and components used for safe shutdown following fires and station blackout events. Included within the Screen House evaluation boundary is the Circulating Water system discharge canal which functions to ensure the availability of essential service water from the ultimate heat sink. Additionally, the Screen House also contains non-safety equipment whose failure could prevent the satisfactory accomplishment of a safety function (internal flood protection).

The Screen House is located 115 ft north of the Turbine Building and 80 ft south of the lake shore. The structural configuration of the Screen House is integral to the functioning of the Service Water System, the Circulating Water System and the Fire Protection System. The below grade and submerged portions of the structure make available the flow path from the ultimate heat sink to the referenced system pump suctions. Should the Circulating Water System intake

tunnels be lost, the structure supports provisions for an alternate lake suction path by providing a flow path from the discharge canal to the Service Water and Fire System water pump bay. The components supporting this feature are evaluated within the Service Water system.

The Screen House building is comprised of two structural steel superstructures, one on the service water system side and one on the circulating water system side. The superstructures share a reinforced concrete substructure. The service water portion of the building (both below and above grade) is a Seismic Category I structure. The service water portion houses four safety related service water pumps and safety related electric switchgear. The circulating water side houses the traveling water screens and circulating water pumps. The entire screen house-service water building is founded in or on bedrock with the exception of the basement of the service water portion, which is founded approximately 4 ft above bedrock. The service water portion of the Screen House consists of four rigid frame bents in the east-west direction with bracing for wind and seismic loads in the north-south direction. The roof system is designed as a rigid bent to transmit horizontal seismic loads to the frame columns and through the bracing to the foundation. Insulated siding is used for most of the walls above the operating floor. The exterior walls contain windows, doors and louvered ventilation openings. The roof has been provided with scuppers designed to ensure that any rainwater, resulting from a design-basis storm, would not accumulate on the roofs and cause damage. The roofing and siding provide weather resistance and allow habitability control but are not designed to be tornado missile resistant.

The Screen House Building is not designed to resist, or protect housed components, against all possible external flooding, high wind, fire, or high or moderate energy line break events. Complete protection against these low probability events is not needed because alternative shutdown means are available, which do not rely upon service water from the Screen House. In the safety evaluation report for SEP Topic III-5.B, Pipe Breaks Outside Containment, the NRC concluded that any further modification of the Screen House to provide additional protection from pipe break effects for service water system components or for buses 17 and 18 is not required. The mitigative strategy developed and approved for pipe breaks was subsequently applied with respect to external flooding and tornado events. After completion of the Structural Upgrade Program the NRC concluded that the station could achieve safe shutdown given the effects of loss of the Screen House from external events.

The discharge canal, included in the Screen House evaluation boundary, is a reinforced concrete structure that directs Circulating Water and Service Water effluent back to the lake and the end of the open loop cooling cycle. As noted above the Screen House and discharge canal have features which provide water intake from the discharge canal to the Service Water system should the Circulating Water intake tunnel become unavailable. Over topping of the discharge canal from storm effects in the lake is prevented by a revetment. The revetment is evaluated separately within the Essential Yard Structures group.

In addition to structural and load bearing elements, the Screen House contains features and appurtenances credited in the licensing basis and relied upon to ensure the health and safety of the public. These features include:

a. Protection of safety-related equipment from flooding due to a break or leakage in the circulating water system. The first protective feature consists of tripping the circulating water pumps when a leak is detected. The tripping of the circulating water pumps is accomplished by redundant two-out-of-three logic receiving level information from the circulating water pump pit in the screen house and from the condenser pit in the Turbine Building. Electrical components that perform this function are evaluated within the Reactor Protection System. The second part of the flood mitigative system is a permanently installed, non-movable Seismic Category I dike in the Screen House, which have been built to contain the water that may escape from the circulating water system. The dike is 30 in. in height and is situated to prevent water from reaching safety-related equipment.

b. A curb has been installed around the diesel fire pump and the diesel oil storage tank to control any diesel oil leaks. The curbed area is equipped with a floor drain which drains to a holding tank buried outside the Screen House.

c. The building foundations and below grade walls were constructed with water stops to prevent the intrusion of ground water.

d. Cable entrances are sealed to prevent the intrusion of ground water.

The Screen House contains racks, panels, electrical enclosures, equipment supports and fire penetration barriers and seals. Those equipment sets receive a separate commodity group evaluation independent of the building evaluation. Building interior floor drains are evaluated within the Circulating Water System.

System Function Listing

In addition to the System Functions described above, the Screen House also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY			FP	EQ	PTS	AT	SB
CLASS 1, 2, 3 COMPONENTS	X						

Comment: Components within the Screen House Building perform this primary design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Screen House Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Screen House Building that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Screen House Building perform this associated design system function.

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY			FP	EQ	PTS	AT	SB
RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION		X					

Comment: Components within the Screen House Building perform this associated design system function. Components within the Screen House Building resist the effects of flooding.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED			FP	EQ	PTS	AT	SB
UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			X				

Comment: Components within the Screen House Building perform this associated design system function.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Screen House Building perform this associated design system function.

UFSAR Reference

Additional Screen House Building details are provided in Section 3.6.2.5.1.1 and Section 2.2.2.3 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Screen House Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Screen House Building that require aging management review are indicated in Table 2.4.2-7 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-7 Screen House Building

Component Group	Passive Function	Aging Management Reference
SH-ARCH-EXT SH-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)

Table 2.4.2-7 Screen House Building

Component Group	Passive Function	Aging Management Reference
SH-C-BUR This generic asset includes all concrete in the Screenhouse that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Screenhouse threaded fasteners and the exposed faces of plates and structural members are evaluated in Screenhouse structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Screenhouse. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) Table 3.6-2 Line Number (7)

Table 2.4.2-7 Screen House Building

Component Group	Passive Function	Aging Management Reference
SH-C-EXT This generic asset includes all of the concrete in the Screenhouse that is exposed to the weather. Included in this evaluation is the concrete used in the discharge canal. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Screenhouse threaded fasteners and the exposed faces of plates and structural members are included in Screenhouse structural steel.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) Table 3.6-2 Line Number (7)

Table 2.4.2-7 Screen House Building

Component Group	Passive Function	Aging Management Reference
SH-C-INT This generic asset includes all concrete in the Screenhouse that is protected from the weather. Interior concrete provides flood protection curbing for the sub-basement and fire protection curbing to contain diesel fuel oil spills. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Screenhouse threaded fasteners and the exposed faces of plates and structural members are evaluated in Screenhouse structural steel.	COOLING WATER SOURCE FIRE BARRIER STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all four passive functions.

Table 2.4.2-7 Screen House Building

Component Group	Passive Function	Aging Management Reference
SH-C-RW This generic asset includes all of the concrete in the Screenhouse that is submerged. Included in this evaluation is the concrete used in the discharge canal. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Screenhouse threaded fasteners and the exposed faces of plates and structural members are included in Screenhouse structural steel.	COOLING WATER SOURCE STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-2 Line Number (7) This applies to all three passive functions.
SH-ELAST-INT This generic asset includes all elastomer sealing material in the Screenhouse that is protected from the weather. Elastomers are used as gasketing material for flood barriers.	FLOOD BARRIER	Table 3.6-2 Line Number (5)

Table 2.4.2-7 Screen House Building

Component Group	Passive Function	Aging Management Reference
SH-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Screenhouse that are protected from the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)
SH-SS(CS)-INT This generic asset includes all structural carbon steel for the Screenhouse (e.g., plates, beams, columns, grating, etc., and the barrier between the CW and SW bays to protect the SW pumps from a break in the C/W system and to prevent flooding of other vital equipment) that is protected from the weather.	FLOOD BARRIER SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) This applies to all four passive functions.

2.4.2.8 Standby Auxiliary Feedwater Building

Description

The Standby Auxiliary Feedwater (SAFW) Building is a Seismic Category I high wind and tornado missile resistant structure located south of the Auxiliary Building. The SAFW Building houses and supports a safety related feedwater system that is completely diverse from the preferred auxiliary feedwater system (located in the Intermediate Building). The SAFW Building also protects connections for an alternate pump suction source should the service water system be disabled.

The SAFW Building is a concrete structure utilizing reinforced concrete for the walls, roof, and base mat. The building is supported by 12 caissons that are socketed into competent rock. The exterior of the building is sheathed with a combination of architectural brick and siding. The SAFW building does not need to be external flood resistant because the safety related equipment in the room is mounted above the maximum flood level. The seismic portion of the building is connected to an entry way enclosure that allows for building environmental control. The major structures of Ginna Station have experienced no visible evidence of settlement since the construction of the station. (During the SEP and evaluation of Topic II-4.F, Settlement of Foundations and Buried Equipment, the NRC concluded that the settlement of foundations and buried equipment is not a safety concern for Ginna Station.)

In addition to structural and load bearing elements, the SAFW Building contains features and appurtenances credited in the licensing basis and relied upon to ensure the health and safety of the public. These features include:

a. Safety related equipment is mounted above the maximum external flood level.

b. An internal missile barrier separates the A and B SAFW pumps.

c. The structure provides a high wind and tornado missile protected feedwater source.

d. The structure, in conjunction with the Standby Auxiliary Feedwater System, was added to further improve steam generator feedwater reliability and specifically to substitute for the preferred auxiliary feedwater in the low probability that preferred auxiliary feedwater pumps are damaged due to nearby high-energy pipe breaks within the Intermediate Building.

The SAFW Building contains racks, panels, electrical enclosures, equipment supports and fire, penetration barriers and seals (in addition to those noted above). These equipment sets receive a separate commodity group evaluation independent of the building evaluation.

System Function Listing

In addition to the System Functions described above, the SAFW Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
STRUCTURALLY SUPPORT OR HOUSE SAFETY CLASS 1, 2, 3 COMPONENTS	X						

Comment: Components within the Standby Auxiliary Feedwater Building perform this primary design system function.

Code S	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
SPECIAL CAPABILITY CLASS FUNCTIONS							

Comment: Components within the Standby Auxiliary Feedwater Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Standby Auxiliary Feedwater Building that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
NON-NUCLEAR SAFETY CLASS FUNCTIONS							

Comment: Components within the Standby Auxiliary Feedwater Building perform this associated design system function.

Code Y	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION		X					

Comment: Components within the Standby Auxiliary Feedwater Building perform this associated design system function. The Standby Auxiliary Feedwater Building entrance way provides an enclosure necessary for habitability control.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Standby Auxiliary Feedwater Building perform this associated design system function.

UFSAR Reference

Additional Standby Auxiliary Feedwater Building details are provided in Section 3.11.3.8, Section 3.8.4.1.5, Section 3.8.5, Section 1.2.3.8, and Section 3.8.4.1 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Standby Auxiliary Feedwater Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Standby Auxiliary Feedwater Building that require aging management review are indicated in Table 2.4.2.8 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-8 Standby Auxiliary Feedwater Building

Component Group	Passive Function	Aging Management Reference
AF-ARCH-EXT AF-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)

Table 2.4.2-8 Standby Auxiliary Feedwater Building

Component Group	Passive Function	Aging Management Reference
AF-C-BUR This generic asset includes all concrete in the Standby Aux Feedwater Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Standby Aux Feedwater Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Standby Aux Feedwater Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Auxiliary Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23)

Table 2.4.2-8 Standby Auxiliary Feedwater Building

Component Group	Passive Function	Aging Management Reference
AF-C-EXT This generic asset includes all concrete in the Standby Aux Feedwater Building that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Standby Aux Feedwater Building threaded fasteners and the exposed faces of plates and structural members are included in Standby Aux Feedwater Building structural steel.	SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)

Table 2.4.2-8 Standby Auxiliary Feedwater Building

Component Group	Passive Function	Aging Management Reference
AF-C-INT This generic asset includes all concrete in the Standby Aux Feedwater Building that is protected from the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Standby Aux Feedwater Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Standby Aux Feedwater Building structural steel.	FIRE BARRIER MISSILE BARRIER SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all four passive functions.
AF-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Standby Aux Feedwater Building that are protected from the weather.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)

Table 2.4.2-8 Standby Auxiliary Feedwater Building

Component Group	Passive Function	Aging Management Reference
AF-SS(CS)-INT This generic asset includes all structural carbon steel of the Standby Aux Feedwater Building that is protected from the weather. Columns, posts, beams, baseplates, bracing, and the exposed faces of plates and structural members are included. This does not include carbon structural steel used as component supports.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16)

2.4.2.9 Service Building

Description

The Service Building is a nonseismic structure that houses non-nuclear safety equipment considered important to safety. Specifically, the Service Building houses and supports the condensate storage tanks which may be used to mitigate the effects of fires and station blackouts and is the preferred suction source for the auxiliary feedwater system. Additionally, building walls act as fire barriers. Accordingly, the Service Building is considered a non-safety structure whose failure could affect a safety function.

The Service Building is part of a complex of interconnected buildings surrounding, but structurally independent of, the Containment Building. These buildings are interconnected as follows: The Seismic Category I Auxiliary Building is contiguous with the nonseismic Service Building on the west side. The Seismic Category I Intermediate Building adjoins the seismically analyzed Turbine Building to the north, and the Auxiliary Building to the south. The Turbine Building adjoins the Seismic Category I Diesel Generator Building to the north and the Seismic Category I Control Building to the south. The facade, a cosmetic rectangular structure that encloses the Containment Building, has

all four sides partly or totally in common with the Auxiliary and Intermediate Buildings. The Auxiliary Building adjoins the Seismic Category I Standby Auxiliary Feedwater Building on the south. In the original building analysis, each Seismic Category I structure was treated independently. During the Systematic Evaluation Program (SEP) plant evaluation it was found that the interconnected nature of the buildings was an important feature, especially in view of the lack of detailed original seismic design information. Therefore, both Seismic Category I and nonseismic category buildings were included in a complicated three-dimensional structural system reanalysis model. As part of this effort, the interconnected Turbine Building was determined to be capable of withstanding safe shutdown earthquake forces. Based on the SEP review, audits, and plant inspections, the NRC safety evaluation reports concluded that the evaluation and resolution of SEP Topics III-2, Wind and Tornado Loadings; III-4.A, Tornado Missiles; III-6, Seismic Design Considerations; and III-7.B, Load Combinations, were acceptable. The NRC also concluded that the RG&E analysis and implementation of the Structural Upgrade Program were acceptable.

The Service Building is a nonseismic structure. It extends from the south end of the Auxiliary Building, through the Intermediate Building, and ends at the north end of the Turbine Building. The building is a two-story steel structure with spread footings, steel columns, and concrete-steel framing floors and roof. The basement is at elevation 253.66 ft, the floor is at elevation 271 ft, and the roof is at elevation 287.33 ft. The walls between the Service Building and the other buildings as well as the partitions in the building are made of concrete blocks.

The building has a combination of architectural brick siding and glass windows. The roofing, siding and windows provide weather resistance and allow habitability control but are not designed to be wind or tornado missile resistant. During high wind or tornado events the siding on the superstructure above elevation 271 ft would blow outward, thus relieving the pressure and wind loads. The components that might be affected by a tornado are the two condensate storage tanks. There is reasonable assurance that the feedwater supply will be maintained because of the available redundancy and the fact that two-thirds of the tank volume is below grade. If the tanks are damaged alternate protected feedwater sources are available.

The Service Building contains racks, panels, electrical enclosures, equipment supports and fire doors, penetration barriers and seals. Those equipment sets receive a separate commodity group evaluation independent of the building evaluation. Building interior floor drains are evaluated within the Treated Water system.

System Function Listing

In addition to the System Functions described above, the Service Building also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Service Building perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Service Building that perform special capability class functions are tracked under the Criterion 2 code (Y) and Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Service Building perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Service Building perform this associated design system function. The Service Building provides shelter and support for the condensate storage tanks which are the preferred suction source for Auxiliary Feedwater.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Service Building perform this associated design system function.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Service Building perform this associated design system function.

UFSAR Reference

Additional Service Building details are provided in Section 3.8.4.1, Section 1.2.3.10, Section 3.8.4.1.8, and Appendix 3A.3.8 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Service Building are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Service Building that require aging management review are indicated in Table 2.4.2.9 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-9 Service Building

Component Group	Passive Function	Aging Management Reference
SB-ARCH-EXT SB-ARCH-EXT includes the non-load bearing building elements not relied upon in the safety analysis which provide normal habitability control and weather proofing, e.g., building siding, built up roof systems, windows, etc.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (2)

Table 2.4.2-9 Service Building

Component Group	Passive Function	Aging Management Reference
SB-BLOCK-INT This generic asset includes all masonry block walls of the Service Building protected from the weather. The east side of the Service building abuts the Intermediate Building and Turbine Building. The interior walls separating the buildings are block. Mortar is included in this asset evaluation.	FIRE BARRIER	Table 3.6-1 Line Number (20)

Table 2.4.2-9 Service Building

Component Group	Passive Function	Aging Management Reference
SB-C-BUR This generic asset includes all concrete in the Service Building that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Service Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Service Building structural steel. This generic asset includes evaluation of elastomer sealing material used below grade in the Service Building. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23)

Table 2.4.2-9 Service Building

Component Group	Passive Function	Aging Management Reference
SB-C-EXT This generic asset includes all concrete in the Service Building that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Service Building threaded fasteners and the exposed faces of plates and structural members are included in Service Building structural steel.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)

Table 2.4.2-9 Service Building

Component Group	Passive Function	Aging Management Reference
SB-C-INT This generic asset includes all concrete in the Service Building that is protected from the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. Grout, used under column base plates is included in this evaluation. The exposed portion of structural anchor bolts are evaluated in the Service Building threaded fasteners and the exposed faces of plates and structural members are evaluated in Service Building structural steel.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)
SB-FAST(CS)-INT This generic asset includes the exposed portion of carbon steel threaded fasteners in the Service Building that are protected from the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (16)

Table 2.4.2-9 Service Building

Component Group	Passive Function	Aging Management Reference
SB-SS(CS)-INT This generic asset includes all structural carbon steel of the Service Building that is protected from the weather. Columns, posts, beams, baseplates, bracing, crane support girders, crane rails, and the exposed faces of plates and structural members are included. This does not include carbon structural steel used as component supports	STRUCTURAL SUPPORT NSR EQUIPMENT	Table 3.6-1 Line Number (16)

2.4.2.10 Cable Tunnel

Description

The Cable Tunnel is a safety related structure which houses and supports the electrical control circuits for most safety related equipment. The Cable Tunnel includes a cofferdam, placed to protect the structure from the effects of external flooding. Accordingly, the Cable Tunnel contains non-nuclear safety equipment whose failure could affect a safety function.

The Cable Tunnel is a below grade reinforced concrete structure supported by steel piles that has openings in the Control Building, the Intermediate Building and the Auxiliary Building. The tunnel allows cables to be routed between these structures. The roof of the portion of the tunnel that extends to the Control Building is level with the yard grade. This section houses an escape hatch. The tunnel is protected from the effects of external flooding by a cofferdam surrounding the escape hatch. The Cable Tunnel is resistant to the effects of high winds and internally or externally generated missiles due to its underground configuration, the orientation of its openings, and the shielding provided by adjacent structures and components.

The Cable Tunnel contains equipment supports and is also associated with fire penetration barriers and seals where it interfaces with the other structures. These equipment sets receive a separate commodity group evaluation independent of the structure evaluation. The structure interior floor drains are evaluated within the Treated Water system.

System Function Listing

In addition to the System Functions described above, the Cable Tunnel also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Cable Tunnel perform this primary design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Cable Tunnel perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Cable Tunnel that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Cable Tunnel perform this associated design system function. The Cable Tunnel escape hatch is equipped with a cofferdam that acts as an external flood barrier.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Cable Tunnel perform this associated design system function.

UFSAR Reference

Additional Cable Tunnel details are provided in Section 3.8.2.1.2.5, Section 3.8.2.1.1.1, Section 3.11.3.4, Section 3.3.3.3.10, and Section 3.6.2.1.1 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Cable Tunnel are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Cable Tunnel that require aging management review are indicated in Table 2.4.2.10 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-10 Cable Tunnel

Component Group	Passive Function	Aging Management Reference
PIPE Cable tunnel escape hatch gutter drain.	PRESSURE BOUNDARY	Table 3.6-2 Line Number (10)

Table 2.4.2-10 Cable Tunnel

Component Group	Passive Function	Aging Management Reference
TUNNEL-C-BUR This generic asset includes all concrete in the Cable Tunnel that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are evaluated in the Cable Tunnel threaded fasteners. This generic asset includes evaluation of elastomer sealing material used below grade in the Cable Tunnel. Water stops are embedded in selected below grade construction joints. Also included in this evaluation is post-construction urethane foam resin injected into seams and cracks to prevent ground water intrusion.	SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) These apply to both passive functions.

Table 2.4.2-10 Cable Tunnel

Component Group	Passive Function	Aging Management Reference
TUNNEL-C-EXT This generic asset includes all concrete in the Cable Tunnel that is exposed to the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included. The exposed portion of structural anchor bolts are included in the Cable Tunnel threaded fasteners.	FLOOD BARRIER SHELTER/PROTECT EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23) These apply to all three passive functions.
TUNNEL-C-INT This generic asset includes all concrete in the Cable Tunnel that is protected from the weather. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)
TUNNEL-ELAST-EXT This generic asset includes all elastomer sealing material in the Cable Tunnel that is exposed to the weather. Elastomers are used between the escape hatch cofferdam and the exterior concrete.	FLOOD BARRIER	Table 3.6-2 Line Number (6)

Table 2.4.2-10 Cable Tunnel

Component Group	Passive Function	Aging Management Reference
TUNNEL-FAST(CS)-EXT This generic asset includes the exposed portion of carbon steel threaded fasteners for the Cable Tunnel that are exposed to the weather.	FLOOD BARRIER	Table 3.6-1 Line Number (16)
TUNNEL-SS(CS)-EXT This generic asset includes all structural carbon steel for the Cable Tunnel (e.g., cofferdam) that is exposed to the weather.	FLOOD BARRIER	Table 3.6-1 Line Number (16)
TUNNEL-SS(CS)-PILE S-BURIED This generic asset represents the carbon steel piles that comprise portions of the cable tunnel foundation.	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-2 Line Number (9)
VALVE BODY Cable tunnel escape hatch gutter drain.	PRESSURE BOUNDARY	Table 3.6-2 Line Number (10)

2.4.2.11 Essential Yard Structures

Description

Within the site boundary there are structures and subterranean yard components that are necessary to support safety related functions. These civil features emanate from design considerations that are typically independent of the function of the plant system associated with the feature. Accordingly, components evaluated within the Essential Yard Structures group house and support or provide shelter and protection for safety related or essential equipment.

The Essential Yard Structures group is a listing of the major civil components found onsite but not be included within any other License Renewal review boundary. (Note: Above and below grade tanks are evaluated within the mechanical system they serve while the discharge canal is evaluated with the Screen House.)

Structures and Components evaluated in this grouping include:

a. Service Water Alternative Discharge Structure

b. Vital AC and DC Duct Banks, including their manholes and covers

c. Revetment Armor Stone

d. Transformer support pads

The primary service water discharge line discharges to the discharge canal and then to Lake Ontario. The redundant service water discharge line discharges to a Seismic Category I discharge structure, then to Deer Creek and to Lake Ontario. The redundant service water discharge line is normally in standby; however, it is occasionally placed in service for such activities as surveillance testing or maintenance work.

Direct current control power from the station batteries is run in underground duct, separated, and apart from the cable tunnel, in order to maintain the necessary control in the event of an emergency. The electrical connections from the diesels to buses 17 and 18 are routed inside a separate underground duct bank from the diesel-generator building to the screen house.

The breakwater that protects the plant from lake flooding is a stone revetment constructed in two reaches. The stone revetment was initially constructed with two layers of 5-ton minimum armor stones laid upon a 1.0 vertical to a 1.5 horizontal sideslope to a minimum elevation of 257.0 ft msl. Because of the high lake levels that were predicted for Lake Ontario during the early 1970s, the crest elevation of the revetment was raised to a minimum of 261.0 ft msl by placement of cap stone along the top of the revetment.

System Function Listing

In addition to the System Functions described above, the Essential Yard Structures group also contains components which support additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the, or specific components contained in the group, is provided within the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY			FP	EQ	PTS	AT	SB
CLASS 1, 2, 3 COMPONENTS	X						

Comment: Components within the Essential Yard Structures group perform this primary design system function.

UFSAR Reference

Additional Essential Yard Structures details are provided in Appendix 3A.4.5.2, Section 9.2.1.2.2, Section 3.4.1.1.2, and Appendix 3A.4.1.3 of the UFSAR.

License Renewal Drawings

The license renewal drawings for the Essential Yard Structures are listed below:

Site Plot

Components/Commodities Subject to an AMR

The component groups for the Essential Yard Structures that require aging management review are indicated in Table 2.4.2.11 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-11 Essential Yard Structures

Component Group	Passive Function	Aging Management Reference
YARD-CASTIRON-EXT This generic asset includes all cast iron for the Essential Yard Structures (e.g., manhole covers) that are exposed to the weather.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (4)
YARD-C-BUR This generic asset includes all concrete in Essential Yard Structures that is in contact with the soil and groundwater. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included.	COOLING WATER SOURCE SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (17) Table 3.6-1 Line Number (21) Table 3.6-1 Line Number (22) Table 3.6-1 Line Number (23) These apply to both passive functions.
YARD-C-EXT This generic asset includes all of the concrete in the Essential Yard Structures that is exposed to the weather. Included in this evaluation is the concrete used in the Service Water alternate discharge structure and the exposed portions of duct bank manholes. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included.	SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)

Table 2.4.2-11 Essential Yard Structures

Component Group	Passive Function	Aging Management Reference
YARD-C-INT This generic asset includes all of the concrete in the Essential Yard Structures that is protected from the weather. Included in this evaluation is the concrete used in the duct bank manholes. Embedded steel, reinforcement, and the embedded portion of anchor bolts are included.	SHELTER/PROTECT EQUIPMENT	Table 3.6-1 Line Number (16) Table 3.6-1 Line Number (23)
YARD-STONE-EXT This generic asset includes all armor stone used in the revetment.	SHELTER/PROTECT EQUIPMENT	Table 3.6-2 Line Number (7)

2.4.2.12 Component Supports Commodity Group

Description

System components physically interface with civil structures. The interface takes place in the form of Component Supports that position and bear the weight of the component assemblies and provide the proper amount of resistance to motion during normal operating conditions, accidents, transients and off normal events. Component Supports are located throughout the plant. Included in the scope of the Component Support Commodity group are supports for safety related components and non-safety related components whose failure could affect a safety function (typically referred to as seismic II/I). The Component Support Commodity Group does not include evaluation of snubbers (considered active per NEI 95-10) or the reactor vessel, reactor coolant pumps, steam generators, pressurizer and other reactor coolant system supports, all of which receive a separate evaluation.

The Component Support Commodity Group includes those structural elements that are connected to civil structures and which extend to a system or system components for the purpose of providing support or restraint. Inclusive in this boundary definition is any vibration dampeners or other passive connective appurtenances intrinsic to the functioning of the support. The commodity group also includes spray or drip shields attached to equipment and electrical system rack, panels and enclosures.

For mechanical systems the evaluation boundary includes the connections to or around piping systems, bracing and framing for tanks, pumps and skids, etc. Component Supports provide the connection between a system's equipment or component and a plant structural member (e.g., wall, floor, ceiling, column, beams, etc.). They provide support for distributed loads (e.g., piping, tubing, HVAC ducting,) and localized loads (e.g., individual equipment). Pipe restraints, consisting of failure restraints and seismic restraints, limit pipe movement during postulated events.

For electrical systems the evaluation boundary includes the connections to raceways, cable trays and conduits. The evaluation boundary also includes the raceways, cable trays, and conduits as well as racks, panels or enclosures which house or support system components within the scope of license renewal. Raceways and cable trays identify a general component type that is designed specifically for holding electrical wires and cables. Like mechanical system supports, electrical supports provide support for distributed loads (e.g., cable trays, raceways, conduit) and localized loads (e.g., individual equipment, cabinets, junction boxes, etc.).

Only seismically analyzed supports for system piping greater than or equal to four inches is uniquely field labeled and tracked in the plant database. These supports are not all inclusive of the supports that are in-scope to License Renewal. Because of the difficulty in uniquely distinguishing supports, all supports for safety related equipment and all supports for any equipment contained within a safety related structure, regardless of the equipment's seismic classification, shall be considered in-scope to License Renewal unless a support is specifically excepted and that exception documented. Additionally, other structures also house and support equipment that is in-scope to the rule. Component supports for those equipment sets are also in-scope to License Renewal.

System Function Listing

In addition to the System Functions listed above, the Component Support Commodity Group also supports additional functions (associated design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code R	Cri 1	Cri 2	Cri 3				
STRUCTURALLY SUPPORT OR HOUSE SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Component Supports commodity group perform this primary design system function. Component Supports commodity group provides structural support, including the fasteners and anchorages, for safety related system piping, ventilation ducting, raceways, and equipment. This commodity group also contains electrical enclosures and raceways that can house safety related system electrical components.

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Component Supports commodity group perform this associated design system function. Component Supports commodity group provides structural support to non-safety related system piping, ventilation ducting, raceways, and equipment, whose failure would not prevent satisfactory accomplishment of safety related functions.

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSCS WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Component Supports commodity group perform this associated design system function. Component Supports commodity group provides structural support, including the fasteners and anchorages, for non-safety related system piping, ventilation ducting, raceways, and equipment, whose failure could prevent satisfactory accomplishment of safety related functions.

UFSAR Reference

Additional Component Supports Commodity Group details are provided in Section 3.9.2, Section 3.9.3, and Section 3.10 of the UFSAR.

Components/Commodities Subject to an AMR

The component groups for the Component Supports Commodity Group that require aging management review are indicated in Table 2.4.2.12 along with each component group's passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.4.2-12 Component Supports Commodity Group

Component Group	Passive Function	Aging Management Reference
CSUPP-AL-INT This generic asset includes aluminum alloy electrical conduit and conduit supports that are not exposed to the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-2 Line Number (1) This applies to both passive functions.
CSUPP-ASME(CS)-EXT This generic asset includes all structural carbon steel used in NSSS pipe and component supports that is outdoors (i.e., exposed to the weather).	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) Table 3.6-1 Line Number (28)
CSUPP-ASME(CS)-INT This generic asset includes all structural carbon steel used in NSSS pipe and component supports that is indoor (i.e., protected from the weather).	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) Table 3.6-1 Line Number (27) Table 3.6-1 Line Number (28)

Table 2.4.2-12 Component Supports Commodity Group

Component Group	Passive Function	Aging Management Reference
CSUPP-ELAST-INT This generic asset includes all elastomer (e.g., vibration isolator equipment mounts) that is indoor (i.e., protected from the weather). Also included in this evaluation are cabinet door seals, gaskets, and other seals. Fire barrier sealing material is evaluated as a separate commodity group.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) Table 3.6-2 Line Number (5) These apply to both passive functions.
CSUPP-EXP(CS)-EXT This generic asset includes all carbon steel expansion/grouted anchors that are exposed to the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) This applies to both passive functions.
CSUPP-EXP(CS)-INT This generic asset includes all carbon steel expansion/grouted anchors that are not exposed to the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) Table 3.6-1 Line Number (27) These apply to both passive functions.
CSUPP-EXP(SS)-RW This generic asset includes all stainless steel expansion/grouted anchors that are submerged in raw water.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) This applies to both passive functions.

Table 2.4.2-12 Component Supports Commodity Group

Component Group	Passive Function	Aging Management Reference
CSUPP-FAST(CS)-EXT This generic asset includes all carbon steel structural fasteners (e.g., bolts, studs, nuts) that are exposed to the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) This applies to both passive functions.
CSUPP-FAST(CS)-INT This generic asset includes all carbon steel structural fasteners (e.g., bolts, studs, nuts) that are indoor (i.e., protected from the weather). Indoor air is considered to be non-air conditioned (bounding condition), even though some fasteners are within boundaries for air conditioned areas (e.g., Control Building).	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) Table 3.6-1 Line Number (27) These apply to both passive functions.
CSUPP-FAST(HSLAS)-INT This generic asset includes all high strength carbon steel structural fasteners (e.g., bolts, studs, nuts whose yield strength is greater than 150 ksi) that are indoor (i.e., protected from the weather) (e.g., used for selected electrical enclosures and a limited number of structural steel component supports).	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) Table 3.6-1 Line Number (27) Table 3.6-1 Line Number (29) These apply to both passive functions.

Table 2.4.2-12 Component Supports Commodity Group

Component Group	Passive Function	Aging Management Reference
CSUPP-FAST(SS)-RW This generic asset includes all stainless steel fasteners (e.g., bolts, studs, nuts, etc.) that are submerged in raw water.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) This applies to both passive functions.
CSUPP-G-INT This generic asset includes all grout used in expansion/grouted anchors within the plant (expansion/grouted anchors include Hilti bolts, but do not include Drillco Maxi-Bolts). Also included in this evaluation is grout used as a component support under equipment bases. Grout used as a fire barrier is evaluated as a separate commodity group.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) This applies to both passive functions.
CSUPP-SS(CS)-EXT This generic asset includes all structural carbon steel (e.g., plates, channels, support members) that is exposed to the weather.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) This applies to both passive functions.

Table 2.4.2-12 Component Supports Commodity Group

Component Group	Passive Function	Aging Management Reference
CSUPP-SS(CS)-INT This generic asset includes all structural carbon steel (e.g., plates, beams, support members) that is indoor (i.e., protected from the weather). Indoor air is considered to be non-air conditioned (bounding condition), even though some steel surfaces are within boundaries for air conditioned areas (e.g., Control Building). Also included in this evaluation are electrical enclosure drip guards and spray shields	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) . Table 3.6-1 Line Number (27) These apply to both passive functions.
CSUPP-SS(SS)-RW This generic asset includes all structural stainless steel (e.g., plates, beams, support members) that is submerged in raw water.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (25) This applies to both passive functions.
CSUPP-SURFACE-ELAST-EXT This generic asset includes all non-metallic materials used in NSSS pipe and component supports that is outdoors (i.e., exposed to the weather).	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (28)

Table 2.4.2-12 Component Supports Commodity Group

Component Group	Passive Function	Aging Management Reference
CSUPP-SURFACE-ELAST-INT This generic asset includes all non-metallic materials used in NSSS pipe and component supports that is indoors (i.e.,protected from the weather).	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (28)
CSUPP-SURFACE-METAL-EXT This generic asset includes all metallic surfaces used in NSSS pipe and component supports that is outdoors (i.e., exposed to the weather).	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (28)
CSUPP-SURFACE-METAL-INT This generic asset includes all metallic surfaces used in NSSS pipe and component supports that is indoors (i.e., protected from the weather).	STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-1 Line Number (27) Table 3.6-1 Line Number (28)
CSUPP-WOOD-INT This generic asset includes wood used in electrical cable support spacers and the Intermediate Building supply fan support frame.	STRUCTURAL SUPPORT NSR EQUIPMENT STRUCTURAL SUPPORT SR EQUIPMENT	Table 3.6-2 Line Number (11) This applies to both passive functions.

2.4.3 Non-Essential Buildings and Yard Structures - Not within Scope of License Renewal

Description

Within the site boundary there are numerous buildings, structures and yard components that are necessary to support the commercial operation of the facility. These civil features differ than those evaluated in the other building and yard component groups in that they do not perform License Renewal intended functions nor do they have any failure modes or effects that prevent an intended function from being performed. Accordingly, components within the Non-Essential Buildings, Structures and Yard Components group do not perform any License Renewal intended functions.

The Non-Essential Buildings, Structures and Yard Components group is a listing of the major civil components found onsite but not included within any other License Renewal review boundary. (Note: Above and below grade tanks are evaluated within the mechanical system they serve. Some external tanks have dikes and spill abatement features included in this list.) A review of the Update Final Safety Analysis Report (UFSAR), other current licensing basis documents, as well as field verifications were performed to ensure that these civil features do not meet the criteria to be considered in-scope to License Renewal.

Structures and Components evaluated in this grouping include:

a) Nuclear Engineering Services Building located on the northwest side of site boundary and used for office space (also contains the Emergency Plan Engineering Support Facility).

b) Miscellaneous Storage Building located east of Engineering Building and use for equipment and spare parts storage.

c) Office Trailers at various locations around the site used for office space and storage.

d) Steam Generator Facilities Building located northeast of plant used as office space (the building was previously used for Steam Generator repair training).

e) Radwaste Storage Building located northeast of plant used for contaminated waste storage.

f) Sodium Hypochlorite Tank located north of plant and east of Screenhouse used for chemical storage for secondary water treatment. Tank has a spill containment dike.

g) Ammonia Storage Tank located north of plant and south of Screenhouse used for chemical storage for secondary water treatment. Tank has a spill containment dike.

h) Roadways, Paths, and Sidewalks located variously around the site used for personnel and equipment access/egress.

i) Contaminated Storage Building located south of Auxiliary Building used for personnel and equipment access/egress.

j) Guard House located on the south side of site boundary, centerline, used for personnel access/egress point.

k) Warehouse / Construction Office (Butler Building) located west of plant used for office space, the wellness center and the machine shop.

l) Miscellaneous Storage Building located south of Engineering Building used for equipment and spare parts storage.

m) Off Load Portal located west of Guardhouse on the south site boundary used as a shipping transfer point from offsite warehouse into the secure area.

n) Hydrogen Building located south of Auxiliary Building contains Hydrogen and Nitrogen bottled gas for the Volume Control Tank.

o) High Mast Lighting located in variously throughout the site used for security Lighting.

p) Security Fences and Structures at various locations around the site parameter used for site access control.

q) Storm Drainage Structures various located throughout the site used for ground water runoff control.

r) Lube Oil Storage Building located north of Turbine Building used for Oil storage.

s) Hydrogen Bottle House located north of Turbine Building contains hydrogen and carbon dioxide bottled gas used for the main electrical generator.

t) High Integrity Container (HIC) storage facility located west of the Radwaste Storage Building used for shielding for containerized spent resin prior to shipment.

u) Old Steam Generator Storage facility located northwest of the plant outside the security fence. This facility houses the old steam generators and is designed for long-term storage.

System Function Listing

A comprehensive listing of all functions associated with the Non-Essential Buildings, Structures and Yard Components, or specific components contained in the system, is provided within the summary below.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Non-Essential Buildings and Yard Structures perform this associated design system function.

UFSAR Reference

Additional Non-Essential Buildings, Structures and Yard Components details are provided in Section 1.2.3 of the UFSAR.

2.5 Screening Results: Electrical and Instrumentation and Controls Systems

As stated in Section 2.1.7.4, the electrical and I&C components have been screened and evaluated on a plant-wide basis rather than on a system basis. The generic list of long-lived, passive components discussed in Section 2.1.7.4. The revised list is provided below:

- Medium Voltage Insulated Cables and Connections
- Low Voltage Insulated Cables and Connections
- Electrical Portions of Electrical and I&C Penetration Assemblies
- Electrical Phase Bus
- Switchyard Bus
- Transmission Conductors
- Uninsulated Ground Conductors
- High Voltage Insulators

Each component commodity group is described below. Following the component commodity group descriptions is electrical and I&C system descriptions. There is no technical or regulatory requirement to perform plant system level scoping on the electrical and I&C systems. Although no technical benefit is derived from performing plant system level electrical scoping, system information is included in the License Renewal Application for consistency and flow of the application and is intended to aid a reviewer in understanding electrical system functions, boundaries, interfaces and nomenclature. Reviewers are cautioned to understand that the system level descriptions presented in this section were not required, needed, or used in the performance of the electrical and I&C components aging management reviews. The objective of the information contained in the system component group tables is to provide a cross-reference between plant electrical and I&C systems and the commodity groups that receive aging management. Each system description contains a table listing the associated component commodity group.

2.5.1 Commodity Group Descriptions

Medium Voltage Insulated Cables and Connections

An insulated cable is an assembly of a single electrical conductor (wire) with an insulation covering or a combination of conductors insulated from one another. Medium voltage cables operate between 1000V and 15000V and are normally shielded. Power cables at Ginna Station operate at a nominal voltage of 4160V. Connections (or terminations) are used to connect the cable conductors to other cables or electrical devices. Connections include, but are not limited to; mechanical connections, splices, terminal blocks and fuse

holders not included within other assemblies. The License Renewal intended function of these components is to provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals. The aging management review of medium voltage cables and connections is performed in application Section 3.7.

Low Voltage Insulated Cables and Connections

An insulated cable is an assembly of a single electrical conductor (wire) with an insulation covering or a combination of conductors insulated from one another. Low voltage cables operate at voltage levels below 600 VAC. This includes power, instrumentation, control, and communications cables. Connections (or terminations) are used to connect the cable conductors to other cables or electrical devices. Connections include, but are not limited to; mechanical connections, splices, terminal blocks and fuse holders not included within other assemblies. The License Renewal intended function of these components to provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals. The aging management review of low voltage cables and connections is performed in application Section 3.7.

Electrical Penetration Assemblies

Electrical penetration assemblies consist of one or more electrical conductors and a pressure boundary between the inboard and outboard sides of the penetration capable of maintaining electrical continuity through the boundary. These penetrations are used to transmit electrical power and signals, through the containment wall. The License Renewal intended function of these components to provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals. The review of the Electrical Penetration Assemblies does not include the pressure boundary function, which is discussed in the containment structural review. All primary containment electrical penetration assemblies at Ginna Station are included in the scope of the environmental qualification program (10 CFR 50.49). The Time-Limited Aging Analysis of Electrical Penetration Assemblies is performed in application Section 4.4.3.

Electrical Phase Bus

Phase bus consists of rigid electrical conductors that are enclosed within their own enclosure or vault, and are not part of an active component such as switchgear, load center or motor control center. Phase bus is discussed as three distinct types: isolated-phase bus, non-segregated phase bus, and segregated phase bus. Only non-segregated phase bus is within the scope of License Renewal at Ginna Station. This includes the 480V diesel generator bus and the portions of the 4.16 KV bus that provide a

normal source of power for the 480V Class 1E power system. The License Renewal intended function of these components to provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals. The aging management review of the electrical phase bus is performed in application Section 3.7.

Switchyard Bus

Switchyard bus is uninsulated, unenclosed, rigid electrical conductor used in switchyards and switching stations to connect two or more elements of an electrical power circuit such as disconnect switches and transmission conductors. The switchyard bus at Ginna station is used to distribute 34.5KV power from the offsite power circuits (751 and 767) to oil circuit breakers and then to the station auxiliary transformers. The License Renewal intended function of these components is to provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals. The aging management review of the switchyard bus is performed in application Section 3.7.

Transmission Conductors

Transmission conductors are uninsulated, stranded electrical cables used in switchyards, switching stations and transmission lines to connect two or more elements of an electrical power circuit such as disconnect switches, power circuit breakers, transformers, and switchyard bus. At Ginna station, transmission conductors are used to supply the onsite 34.5 KV switchyard from multiple offsite sub-stations. These components are not included in the license renewal boundary because they are primarily located off-site. Therefore an aging management review of transmission conductors is not required.

Uninsulated Ground Conductors

Uninsulated ground conductors are electrical conductors (e.g., copper cable, copper bar, steel bar) that are uninsulated (bare) and are used to make ground connections for electrical equipment. Uninsulated ground conductors are connected to electrical equipment housings and electrical enclosures as well as metal structural features such as the cable tray system and building structural steel. Uninsulated ground conductors are always isolated or insulated from the electrical operating circuits. Uninsulated ground conductors enhance the capability of the electrical system to withstand electrical system faults disturbances (e.g., electrical faults, lightening surges) for equipment and personnel protection. There are no License Renewal intended functions for uninsulated ground conductors used at Ginna Station.

High Voltage Insulators

An insulator is a material in a form designed to (a) support a conductor physically and (b) separate the conductor electrically from another conductor or object. The insulators evaluated for License Renewal are those used to support and insulate "high voltage" electrical components in switchyards, switching stations and transmissions such as transmission conductors and switchyard bus. The License Renewal intended function of these components is to insulate and support electrical conductors. The aging management review of high voltage insulators is performed in application Section 3.7

2.5.2 120 VAC Vital Instrument Buses - Within Scope of License Renewal

System Description

The 120 VAC Vital Instrument Bus System is a source of uninterruptible power to safety related components. In addition to providing power to reactor protection and engineered safety features actuation equipment, the system provides power to components used for safe shutdown following fire and Station Blackout Events. The vital instrument buses also provide power to instrumentation used to detect and mitigate Anticipated Transients without Scram.

The principal components of the 120 VAC Vital Instrument Bus system are four instrument buses, three inverters, two static switches/ regulating transformers, three constant voltage transformers, eight distribution panels and the corresponding essential breakers, fuses, metering, relays and wiring. The A and C buses normally receive power from inverters powered from the vital batteries, while the B and D buses receive power from constant voltage transformers connected to separate 480 VAC buses. Thus Instrument Buses A and C have two power sources, with automatic transfer from the primary to backup supply. Instrument Buses A, B, and C provide power to vital plant instrumentation. All three buses are backed up by safety related emergency supplies. Mechanical interlocks prevent the inadvertent paralleling of the instrument buses. In addition to the four instrument buses, inverter MQ-483 supplies power to one channel each of containment pressure and steam generator pressure (PT-950 and PT-479).

Included within the system review boundary is selected 120 VAC non-vital power distributed from the technical support center uninterruptible power supply. This power is used for the PPCS/SAS computer systems which do not perform any control functions. This distribution system is electrically diverse from the 120 VAC Vital Instrument Buses but was included for review to ensure devices associated with the plant computer system are accounted for.

The following electrical systems interface with the 120 VAC Vital Instrument Buses:

Reactor Protection System
125 VDC System
480 VAC Power
Engineered Safety Feature Actuation System
4160 VAC Power

System Function Listing

In addition to the System Functions described above, the 120 VAC Vital Instrument Buses also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 120 VAC Vital Instrument Buses system perform this primary system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the 120 VAC Vital Instrument Buses system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the 120 VAC Vital Instrument Buses system that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5). Included within the system boundary is non-vital 120 VAC power (TSC) providing power to RG 1.97 Category 2 and 3 Post Accident Monitoring variables and displays (e.g., SAS/PPCS).

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the 120 VAC Vital Instrument Buses system perform this associated system function.

Code X	Cri 1	Cri 2	Cri 3				
SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 120 VAC Vital Instrument Buses system perform specific safety related functions different from and in addition to the system level functions (e.g. electrical isolation devices protecting safety related sources from non-safety loads).

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the 120 VAC Vital Instrument Buses system perform this associated system function.

Code Z4	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ANTICIPATED TRANSIENTS WITHOUT SCRAM (10 CFR 50.62)			FP	EQ	PTS	AT	SB
						X	

Comment: Components within the 120 VAC Vital Instrument Buses system perform this associated system function.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the 120 VAC Vital Instrument Buses system perform this associated system function.

UFSAR Reference

Additional 120 VAC Vital Instrument Buses system details are provided in Section 8.3.1.1.5 and Section 8.3.1.2.5 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.2-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.2-1 120 VAC Vital Instrument Buses

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.3 125 VDC Power - Within Scope of License Renewal

System Description

The 125 VDC Power system provides direct current (dc) electrical power to safety related components. Equipment contained within the system boundary is used for safe shutdown following fire and Station Blackout events. Additionally, some components within the system boundary are Environmentally Qualified. The system also supplies non-safety power to Anticipated Transient-Without- Scram (ATWS) mitigation system actuation circuitry.

The principal components of the 125 VDC Electrical System are four station battery chargers, one technical support center battery charger, two station batteries, one technical support center battery, fuse cabinets, distribution panels, switches, fuses, relays and the essential wire and cabling. The 125-V dc system is divided into two buses with one battery and two battery chargers (supplied from the 480-V system) serving each. The battery chargers supply the normal dc loads as well as maintaining proper charges on the batteries. Two 60-cell batteries are provided for power supply for control, emergency lighting, and the inverters for critical 60-cycle instrument power. Control power for 4160-V and 480-V switchgear sections and for each diesel-generator can be supplied from either battery.

Two vital batteries provide separate sources of dc power. The train A engineered safety features equipment is supplied from battery A while train B engineered safety features equipment is supplied from battery B. In addition, the 480-V engineered safety features switchgear and diesel-generator control panels are supplied from either battery by means of an automatic transfer circuit in the switchgear and control panels. The normal supply from train A (switchgear buses 14 and 18 and diesel generator A) is from dc distribution panels A in the auxiliary building, diesel generator building, and screen house. These

panels also provide the emergency dc supply for train B (switchgear buses 16 and 17 and diesel generator B). Similarly, dc distribution panels 1B in the auxiliary building, diesel generator building and screen house provide the normal supply for switchgear buses 16 and 17 and diesel generator B and the emergency supply for switchgear buses 14 and 18 and diesel generator A. In the event of loss of the normal Class 1E battery supply, throwover contactors automatically transfer the load to the emergency supply (other battery). The DC system also has provisions to ensure that equipment required for post fire alternative safe shutdown are supplied appropriately and that the power supply can be maintained for the required time period.

A third 60-cell non-vital battery is installed in the technical support center. This battery and charger supply power to the uninterruptible power supply to the plant process computer. The uninterruptible power supply is designed to provide continuous power for up to 3 hours during loss of its normal power supply and failure of the technical support center diesel generator to start. It also supplies dc power to the anticipated transient without scram (ATWS) mitigation system actuation circuitry (AMSAC) inverter. The technical support center battery is capable of supplying both safeguards dc trains in the event of an emergency. The system is designed with an intertie between each of the two main distribution panels and the technical support center panel so that either Class 1E battery and its chargers can be removed from service. This intertie is utilized only during maintenance, testing, or abnormal plant conditions. The intertie is also configured so both Class 1E-battery systems can be paralleled simultaneously through the technical support center battery. Procedures permit this condition only during specific 10 CFR 50 Appendix R conditions in which some process instrumentation from both trains is required for long-term cooldown. Paralleling both safety-related dc trains is restricted by two separate key locks on the throwover switches and separate locked disconnect switches in each battery room.

The following Electrical Systems interface with the 125 VDC Power System:

Reactor Protection	480 VAC Power
4160 VAC Power	120 VAC Vital Instrument Buses
Plant Communications	Misc. AC Power and Lighting
Plant Computer	Engineered Safety Features Actuation
Emergency Power	Control Rod Drive and Nuclear Process Instrumentation

System Function Listing

In addition to the System Functions described above, the 125 VDC Power System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 125 VDC Power system perform this primary design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the 125 VDC Power system perform this associated design system function (augmented quality, e.g. RG 1.97 Category 2 and 3 Post Accident Monitoring variables). For the purposes of License Renewal, components within the 125 VDC Power system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the 125 VDC Power system perform this associated design system function.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the 125 VDC Power system perform this associated design system function.

Code Z4	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ANTICIPATED TRANSIENTS WITHOUT SCRAM (10 CFR 50.62)						X	

Comment: Components within the 125 VDC Power system perform this associated design system function.

Code Z5	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)							X

Comment: Components within the 125 VDC Power system perform this associated design system function.

UFSAR Reference

Additional 125 VDC Power System details are provided in Section 8.3.2 and Section 7.2.6 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.3-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.3-1 125 VDC Power

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (5)

2.5.4 4160 VAC Power- Within Scope of License Renewal

System Description

The 4160 VAC power system consists of four buses that are classified as non-Class 1E. Discrete relaying is used to provide overcurrent, undervoltage, and underfrequency protection as required. The two buses connected to the No. 11 transformer supply normal plant auxiliary loads (non-Class 1E) and are designated 11A and 11B. The two buses connected to the offsite system through transformers 12A and 12B supply the startup power and also feed the Class 1E loads on the 480-V safeguards system through four station service transformers. Ginna Stations licensing basis does not rely on the recovery of offsite power to mitigate Station Blackout (SBO) events. License Renewal regulatory guidance also mandates the inclusion of power system SSCs used for SBO recovery beyond those identified in the regulatory commitments made to satisfy 10 CFR 50.63 criteria. In accordance with the current License Renewal regulatory interpretation, 4160 VAC Power systems and structures that provide a function for SBO coping and systems or structures that provide a function for recovery from an SBO condition are being evaluated within the system boundary.

The principal components of the 4160 VAC System are four 4160 Volt supply buses, six station service transformers, breakers, relays and the essential cables and wiring. The buses in this system are 11A, 11B, 12A, 12B. The six station service transformers are numbers 13,14,15,16,17 and 18. Buses 11A and 11B are connected to the generator leads via bus main breakers and the unit auxiliary transformer. Buses 11A and 12A or buses 11B and 12B can be tied together via bus tie breakers. When off-line, a tie breaker is also supplied between buses 11A and 11B, which may be closed under administrative control so as to perform certain maintenance activities. All 4160-V auxiliaries except condensate booster pump 1A are split between buses 11A and 11B. In addition, buses 11A and 11B each serve one 4160/480-V station service transformer. Buses 12A and 12B each serve two 4160/480-V station service transformers. Bus 12A also feeds condensate booster pump 1A. Buses 11A and 11B are provided with solid-state underfrequency relays and undervoltage relays to provide protection against a loss-of-flow transient. The relays are set to give a reactor trip before decreasing bus frequency can degrade primary system flow below the level assumed in the steady-state or transient analyses.

The following electrical systems interface with the 4160 VAC Power System:

Reactor Protection	480 VAC Power
125 VDC Power	Offsite Power

System Function Listing

In addition to the System Functions described above, the 4160 VAC Power system also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the 4160 VAC Power system perform this associated design system function (augmented quality, e.g. components within the system provide non-nuclear safety source trip signals to the Reactor Protection system). For the purposes of License Renewal, components within the 4160 VAC Power system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the 4160 VAC Power system perform this associated design system function.

Code Z5 LICENSE RENEWAL CRITERION 3 - SSCS RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
							X

Comment: Ginna Stations licensing basis does not rely on the recovery of offsite power to mitigate Station Blackout (SBO) events. That notwithstanding, recent regulatory guidance suggests the scope of SBO mitigation equipment be expanded. Accordingly, components within the 4160 VAC power system have been evaluated with regard to SBO.

UFSAR Reference

Additional 4160 VAC Power System details are provided in Section 8.3 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.4-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.4-1 4160 VAC Power

Component/Commodity Group	Passive Function	Aging Management Reference
Medium Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)
Phase Bus	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-2 Line Number (1)

2.5.5 480 VAC Power - Within Scope of License Renewal

Description

The 480-VAC System provides electrical power to safety related and non-safety related loads during both normal and emergency modes of plant operation. The 480-VAC System is also credited for use in safe shutdown following fires and contains components that are part of the Environmental Qualification Program. Restoration of the 480-VAC system is the means by which the plant recovers from Station Black Out events. The 480 VAC Power system also contains non safety related relays, fuses or supplementary breakers used to provide backup protection schemes such that non safety circuits will not have failures that could prevent satisfactory accomplishment of a safety related function (containment penetration integrity).

The principal components of the 480-VAC system include buses, breakers, starter/controllers, relays, transformers, switches, and the essential cables, wires, and connectors necessary for their functioning.

The 480-VAC system is divided into separate electrical distribution buses. Each bus is normally supplied by a separate 4160/480-V station service transformer. Two Class 1E independent trains provide the necessary redundancy for safety related electrical loads on the 480-VAC safeguards system. Each safeguard 480-VAC train consists of two buses. The plant equipment is arranged electrically so that multiple items receive their power from the two different sources. The electrical system equipment is arranged so that no single contingency can inactivate enough engineered safety features equipment to jeopardize the plant safety.

Each safeguards bus has undervoltage detection. Activation of the undervoltage detection system will result in bus load shedding and an associated onsite Emergency Power generator start and bus connection. In the event of a loss of offsite power, or abnormal offsite power, the emergency generators are started concurrent with load shedding. When the generators come up to speed and close onto the buses, the undervoltage relays reset, thus allowing the operator to manually load any of the motors that are required. Some loads may also be automatically loaded onto the bus. The automatic load sequencer is not activated unless a safety injection signal is present.

Additional non-class 1E 480-VAC buses provide power to non-safety related electrical loads. Tie breakers are provided between 480-VAC buses to provide the cross-connect capability necessary for maintenance purposes.

The following electrical systems interface with the 480 VAC System:.

120 VAC Vital Instrument Buses	Misc. AC Power and Lighting
125 VDC Power	4160 VAC Power
Offsite Power	

System Function Listing

In addition to the System Functions described above, the 480-VAC System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code B	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
INTRODUCE EMERGENCY NEGATIVE REACTIVITY TO MAKE THE REACTOR SUBCRITICAL	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code D	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
SENSE OR PROVIDE PROCESS CONDITIONS AND GENERATE SIGNALS FOR REACTOR TRIP AND ENGINEERED SAFETY FEATURES ACTUATION	X						

Comment: Components within the 480 VAC Power system perform this associated design system function (MCC load shed).

Code F	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
REMOVE RESIDUAL HEAT FROM THE RCS	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code G	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
PROVIDE EMERGENCY CORE COOLANT WHERE THE ECCS PROVIDES COOLANT DIRECTLY TO THE CORE	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code H	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
PROVIDE EMERGENCY HEAT REMOVAL FROM THE REACTOR COOLANT SYSTEM USING SECONDARY HEAT REMOVAL CAPABILITY	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code J	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
PROVIDE HEAT REMOVAL FROM SAFETY RELATED HEAT EXCHANGERS	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code L	Cri 1	Cri 2	Cri 3				
PROVIDE EMERGENCY HEAT REMOVAL FROM PRIMARY CONTAINMENT AND PROVIDE CONTAINMENT PRESSURE CONTROL			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code M	Cri 1	Cri 2	Cri 3				
PROVIDE EMERGENCY REMOVAL OF RADIOACTIVE MATERIAL FROM THE PRIMARY CONTAINMENT ATMOSPHERE			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code O	Cri 1	Cri 2	Cri 3				
MAINTAIN EMERGENCY TEMPERATURES WITHIN AREAS CONTAINING SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code P	Cri 1	Cri 2	Cri 3				
ENSURE ADEQUATE COOLING IN THE SPENT FUEL POOL			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 480 VAC Power system perform this primary design system function.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the 480 VAC Power system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the 480 VAC Power system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T	Cri 1	Cri 2	Cri 3				
NON-NUCLEAR SAFETY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code X	Cri 1	Cri 2	Cri 3				
SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the 480 VAC Power system perform specific safety related functions different from and in addition to the system level functions (e.g. electrical isolation devices protecting safety related sources from non-safety loads).

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the 480 VAC Power system perform this associated design system function. (In addition to the circuit protection afforded by safety related isolation devices, circuits serving some non safety related loads have been modified to add relays, fuses or supplementary breakers to provide backup protection schemes. This was done to ensure containment penetrations are not affected by possible fault currents should the non safety load fail.)

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the 480 VAC Power system perform this associated design system function.

Code Z2	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the 480 VAC Power system are designated as Environmentally Qualified.

UFSAR Reference

Additional 480 VAC Power system details are provided in Section 8.3.1.1.4 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.5-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.5-1 480 VAC Power

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)
Phase Bus	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-2 Line Number (1)

2.5.6 Control Rod Drive and Nuclear Process Instrumentation - Within Scope of License Renewal

Description

The Control Rod Drive and Nuclear Process Indication System evaluation boundary includes Rod Control, Rod Position indication, in-core and ex-core Nuclear Instrumentation, and Core Exit Thermocouples. The ex-core Nuclear Instrumentation portion of the system generates signals used for reactor trip and indication used for safe shutdown following fire events and Station Blackout events. Core Exit Thermocouples are used for Station Blackout Events and are Environmentally Qualified. Note: This system has an interface with the Reactor Coolant Pressure boundary. The mechanical components that provide that interface are not within the boundary of the Control Rod Drive and Nuclear Process Indication System. For information relating to the Reactor Coolant Pressure Boundary see the Class 1 Reactor Coolant System and Non-Class 1 RCS Components system evaluations.

The principal components of the Control Rod Drive and Nuclear Process Indication System include rod drive motor-generators, rod control power supplies, magnetic latch and step assemblies, breakers, thermocouples, relays, power supplies, isolators, indicators, neutron detectors, display modules, switches, and the essential wiring.

The control rod drive mechanisms are used for withdrawal and insertion of the control rods into the reactor core and to provide sufficient holding power for stationary support. Fast total insertion (reactor trip) is obtained by simply removing the electrical power allowing the rods to fall by gravity. The complete drive mechanism, consists of the internal (latch) assembly, the pressure vessel, the operating coil stack, the drive shaft assembly, and the position indicator coil stack. Each assembly is an independent unit which can be dismantled or assembled separately. Reactor coolant fills the pressure containing parts of the drive mechanism. All working components and the shaft are immersed in the main coolant. Three magnetic coils, which form a removable electrical unit and surround the rod drive pressure housing, induce magnetic flux through the housing wall to operate the working components. They move two sets of latches which lift or lower the grooved drive shaft. The three operating coils are sequenced by solid-state switches for the control rod drive assemblies. The position indicator coil stack slides over the rod travel housing section of the pressure vessel. It detects drive rod position by means of discrete cylindrically wound coils that are spaced at 7.5 in. (12 step) intervals along the rod travel (144 in.). The rod control system is a solid-state electronic control system that moves and holds the control rods according to system input orders. The rod drive mechanism is an electromagnetic stepping type mechanism with three actuating coils for holding and movement. To hold a control rod, the system keeps a gripper coil energized. To move a rod, the system sequentially energizes and deenergizes the three coils causing the rod to move in discrete steps. In automatic control the rod control system maintains a programmed reactor coolant average temperature with adjustments of control rod position for equilibrium plant conditions. The reactor control system is capable of restoring programmed average temperature following a scheduled or transient change in load. The coolant average temperature increases linearly from zero power to the full power conditions. In manual control the operator maintains control of the reactor through bypassing the reactor control unit. By using the bank selector and the IN-HOLD-OUT switches the operator can move the rods either by individual banks or in manual with bank overlap.

Two separate systems are provided to sense and display control rod position. The microprocessor rod position indication (MRPI) system consists of a digital detector assembly for each rod, a data cabinet located inside containment, and display racks located in the relay room. Rod position data is displayed on a color cathode ray tube

(CRT) in the control room and also transmitted to the plant process computer system. The data cabinet inside containment contains two multiplexers, which take rod position information from each of the rods and transmit it to the processors, which are in the display racks located in the relay room. One processor supplies information to the CRT located on the control board, the other processor supplies information to the plant process computer system. Both processors are required to produce a block rod withdrawal signal. The plant process computer system backup can be used if the CRT in the MRPI system becomes inoperable. The digital system counts pulses generated in the rod drive control system. One counter is associated with each group of rods within a bank, making a total of 10 for the four control banks and one shutdown bank. Readout of the digital system is in the form of electromechanical add-subtract counters reading the number of steps of rod withdrawal with one display for each. These readouts are mounted on the control panel.

Thirty-nine chromel-alumel thermocouples are threaded into guide tubes that penetrate the reactor vessel head through seal assemblies (36 terminate at the exit flow end of the fuel assemblies and three are located in the upper head). The thermocouples are enclosed in stainless steel sheaths within the above tubes to allow replacement if necessary. Thermocouple readings are indicated in the control room on scanning digital display units.

The movable detector flux monitoring system has miniature neutron flux detectors are remotely positioned in the core and provide remote readout for flux mapping. Retractable thimbles are provided into which the miniature detectors are driven. Four movable detectors are provided, with separate drives and readouts. This allows four locations to be monitored simultaneously. The control room contains the necessary equipment for control, position indication, and flux recording. Panels are provided to indicate the core position of the detectors and for recording the flux level versus the detector position. The detectors are driven or inserted to the top of the core and stopped automatically.

The nuclear instrumentation system is provided to monitor the reactor power from source range through the intermediate range and power range up to 120% of full power. The system provides indication, control, and alarm signals for reactor operation and protection. The power range nuclear instrumentation system has four channels, each consisting of two long ion chambers (top and bottom detectors). The intermediate range is composed of two independent channels. The lowest level of intermediate range indication corresponds to ~103 cps on the source range and the highest level corresponds to full power operation The intermediate range neutron detectors are also compensated ionization chambers. The source range is composed of two independent

channels, N-31 and N-32. The neutron detectors are proportional counters that are filled with boron trifluoride (BF3) gas. Neutron flux, as measured in the primary shield area, produces current pulses in the detectors. These preamplified pulses are applied to transistor amplifiers.

The following electrical distribution systems interface with the Control Rod Drive and Nuclear Process Indication System:

120 VAC Vital Instrument Buses
125 VDC Power
Reactor Protection
Plant Process Computers
480 VAC Power

System Function Listing

In addition to the System Functions described above, the Control Rod Drive and Nuclear Process Indication System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code D	Cri 1	Cri 2	Cri 3				
SENSE OR PROVIDE PROCESS CONDITIONS AND GENERATE SIGNALS FOR REACTOR TRIP AND ENGINEERED SAFETY FEATURES ACTUATION			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system perform this primary design system function (Nuclear Instrumentation).

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system perform this associated design system function

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Control Rod Drive and Nuclear Process Instruments system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5) (e.g., RG-1.97 Category 2 and 3 Post Accident Monitoring, Rod Position Indication)

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system perform this associated design system function.

Code X SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system perform specific safety related functions different from and in addition to the system level functions (RG-1.97 Category 1 Post Accident Monitoring).

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system perform this associated design system function.

Code Z2 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system are Environmentally Qualified (Core Exit Thermocouple cables and connectors).

Code Z5 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS STATION BLACKOUT (10 CFR 50.63)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Control Rod Drive and Nuclear Process Instruments system perform this associated design system function (Core Exit Thermocouple Indication).

UFSAR Reference

Additional Control Rod Drive and Nuclear Process Instrumentation System details are provided in Section 3.9.4, Section 7.7.1.2, Section 4.2.1.3.4.4, Section 7.7.2, Section 7.7.3, and Section 7.7.4 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.6-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.6-1 Control Rod Drive and Nuclear Process Instrumentation

Component/Commodity Group	Passive Function	Aging Management Reference
Medium Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.7 Misc. AC Power and Lighting - Within Scope of License Renewal

Description

The Miscellaneous AC Power and Lighting System includes the source of power to a majority of the low voltage non-safety related power receptacles, transformers, circuit breakers, lighting panels, and various pieces of office and shop equipment within the plant. The alternating current (AC) equipment grouping receives power from various AC power sources via isolation transformers that serve to convert the voltage level and protect the source. (Those isolation transformers, as well as their source, are not included in the Miscellaneous AC Power and Lighting System evaluation boundary.) Components evaluated within the system provide power to non-safety sump pumps used to mitigate

internal flooding events and whose failure could therefore prevent the satisfactory accomplishment of a safety related function. The system evaluation boundary also includes the direct current (DC) permanently mounted emergency lights used to ensure safe shutdown can be achieved during fire events.

The principal components of the Miscellaneous AC Power and Lighting System are the AC power Distribution Panels, Power Receptacles, Transformers, Circuit Breakers, and Lighting Panels, and battery operated DC lights. Fixed emergency lighting units are provided in safety-related areas and other areas which contain fire hazards to facilitate emergency operations, manual fire fighting, and access to and egress from each designated fire area.

The following electrical systems interface with the Misc. AC Power and Lighting System:

125 VDC Power
480 VAC Power
Offsite Power

System Function Listing

In addition to the System Functions described above, the Miscellaneous AC Power and Lighting System also contains components which support additional components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Misc AC Power and Lighting system perform this associated system function. Control Room direct current lighting is powered from the vital batteries.

Code S	Cri 1	Cri 2	Cri 3				
SPECIAL CAPABILITY CLASS FUNCTIONS			FP	EQ	PTS	AT	SB

Comment: Components within the Misc. AC Power and Lighting system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Misc. AC Power and Lighting system that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5). Included within the system boundary is non-vital 120 VAC power (TSC) providing power to RG 1.97 Category 2 and 3 Post Accident Monitoring variables and displays (e.g., SAS/PPCS).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Misc. AC Power and Lighting system perform this associated design system function.

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Misc. AC Power and Lighting system perform this associated design system function. Misc. AC Power and Lighting provides power to dewatering sump pumps.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Misc. AC Power and Lighting system perform this associated design system function.

UFSAR Reference

Additional Misc. AC Power and Lighting system details are provided in Section 9.5.3 and Section 8.1 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.7-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.7-1 Misc. AC Power and Lighting

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.8 Offsite Power - Within Scope of License Renewal

Description

Offsite power is supplied by two separate sources that are classified as non-Class 1E. One source comes directly from the RG&E 34.5-kV system through station auxiliary (startup) transformer 12A and the second from the 115-kV system through a 115-kV to 34.5-kV step-down transformer and station auxiliary (startup) transformer 12B. (The station auxiliary transformers (12A and 12B) are the normal offsite power sources to the safeguards buses.) In the event of a failure of both station auxiliary transformers, the unit auxiliary transformer (11) can be used as a backup supply. Ginna Stations licensing basis does not rely on the recovery of offsite power to mitigate Station Blackout (SBO) events. License Renewal regulatory guidance also mandates the inclusion of the plant system portion of the offsite power SSCs used for SBO recovery beyond those identified in the regulatory commitments made to satisfy 10 CFR 50.63 criteria. In accordance with the current License Renewal regulatory interpretation, Offsite Power systems and structures that provide a function for SBO coping and systems or structures that provide a function for recovery from an SBO condition are being evaluated within the system boundary.

The principal components of the Offsite Power System include station auxiliary transformers (12A, 12B, 11, and the GSU), and circuit breakers, relays and the essential cable and wiring. The components that are part of the Switchyard 115 KV (Station 13A) are not included in this system because they are not within the R.E. Ginna station site. The external transmission system provides two basic and interrelated functions for the station. It supplies auxiliary power for startup and normal shutdown and Class 1E auxiliary loads during MODES 1 and 2 via the station auxiliary (startup) transformers, and it delivers the output of the station to the grid.

During normal startup and operation, the station auxiliary (startup) transformers are supplied from two separate offsite feeders. Each of these feeders is capable of supplying the entire auxiliary power load. During normal shutdown, auxiliary loads are transferred to the station auxiliary (startup) transformers prior to securing the main generator. Two independent offsite power sources are available to supply the engineered safety features equipment. These offsite sources each feed an independent auxiliary (startup) transformer. Offsite circuit 751 feeds transformer 12A. Offsite circuit 767 feeds transformer 12B. Each transformer is capable of supplying all plant engineered safety features equipment. Breakers permit the station auxiliary transformers to be lined up so that transformer 12A supplies one engineered safeguards bus and transformer 12B supplies the other (50/50 mode), transformer 12A supplies both safeguards buses (0/100 mode), or transformer 12B supplies both safeguards buses (100/0 mode). The 50/50 mode is the normal configuration. The Offsite Power System, in conjunction with onsite power sources, is provided to permit functioning of structures, systems, and components important to safety. Each system provides sufficient capacity and capability to ensure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences, and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The following electrical systems interface with the Offsite Power System:

4160 VAC Power

125 VDC Power

System Function Listing

In addition to the System Functions described above, the Offsite Power System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Offsite Power system perform this associated design system function (augmented quality, e.g. components within the system are required to be operable as per Technical Specifications). For the purposes of License Renewal, components within the Offsite Power system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Offsite Power system perform this associated design system function.

Code Z5 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
							X

Comment: Ginna Stations licensing basis does not rely on the recovery of offsite power to mitigate Station Blackout (SBO) events. That notwithstanding, recent regulatory guidance suggests the scope of SBO mitigation equipment be expanded. Accordingly, components within the Offsite power system have been evaluated with regard to SBO.

UFSAR Reference

Additional Offsite Power System details are provided in Section 8.2 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.8-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.8-1 Offsite Power

Component/Commodity Group	Passive Function	Aging Management Reference
Medium Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

Table 2.5.8-1 Offsite Power

Component/Commodity Group	Passive Function	Aging Management Reference
Switchyard Bus	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-2 Line Number (2)
High Voltage Insulators	To insulate and support an electrical conductor.	Table 3.7-2 Line Number (3)

2.5.9 Reactor Protection - Within Scope of License Renewal

Description

The Reactor Protection System senses or provides the process conditions and generates signals for Reactor Trip and Engineered Safety features actuation. The Reactor Protection system includes non-safety component whose failure could prevent the accomplishment of a safety function (the circulating water flood detection and circulating water pump trip). Components evaluated within the boundary of the Reactor Protection system are used for safe shutdown following fires and Station Blackout Events. The Reactor Protection System also contains components used in ATWS mitigation and components that are Environmentally Qualified.

The principal components of the Reactor Protection System include: transmitters, detectors, relays, power supplies, bistables, switches, converters, indicators and their essential wiring and connectors. The Reactor Protection System senses accidents or impending accident conditions and responds by supplying a reactor trip signal, initiates a rod stop, and initiates a load runback depending upon the severity of the condition. The Reactor Protection System provides the introduction of negative reactivity by opening reactor trip breakers, causing gravity insertion of control rods into the reactor core. There are two complete and independent sets of logic circuits to the reactor protection system cabinets. Each set constitutes a logic train. When the setpoint values are sensed, a trip signal is sent to the protection cabinets. If a reactor trip is required, the protection cabinets will send a signal to the reactor trip breakers. Tripping of these breakers will remove power from the control rod drive mechanisms allowing the rods to drop into the reactor core. Additionally the protection cabinets will actuate any required safeguards

devices and also provide appropriate permissive signals to the logic trains to allow automatic or manually initiated interlocks and blocks. In addition, the Reactor Protection System initiates a rod stop signal, which prevents control rod withdrawal, and also initiates a turbine runback, which limits the maximum reactor overpower.

The Reactor Protection System also receives input from non-nuclear safety signals that provide anticipatory reactor trips (e.g. Turbine trip causing a reactor trip is provided to anticipate probable plant transients and to avoid the resulting thermal transients. If the reactor were not tripped by the turbine trip, the overtemperature delta T or high pressure trip would prevent reactor safety limits from being exceeded. By utilizing this trip, undesirable excursions are prevented rather than terminated). Additionally, 10 CFR 50.62 requires that all PWRs provide a means that is diverse and independent from the existing Reactor Trip System (RTS) for tripping the main steam turbine and initiating auxiliary feedwater flow following an anticipated transient without scram (ATWS) event. Anticipated transients include loss of normal feedwater flow, loss of electrical load that results in closure of the turbine stop valves, and loss of offsite power. Rochester Gas & Electric has installed a system providing ATWS mitigation system actuation circuitry (AMSAC) at Ginna Station that satisfies the requirements. The AMSAC, whose functionality is based on low feedwater flow logic, is evaluated within the Reactor Protection System boundary. AMSAC is a non-Class 1E system designed to trip the turbine and start the motor-driven (MDAFW) and turbine-driven (TDAFW) auxiliary feedwater pumps if main feedwater flow is lost with reactor power above 40%.

The following electrical systems interface with the Reactor Protection System:

480 VAC Power
120 VDC Power
125 VAC Power
Nuclear Process Instrumentation
Control Rod Drive and Nuclear Process Inst.
Plant Process Computer System
Engineered Safety Feature Actuation

System Function Listing

In addition to the System Functions described above, the Reactor Protection System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code D	Cri 1	Cri 2	Cri 3				
SENSE OR PROVIDE PROCESS CONDITIONS AND GENERATE SIGNALS FOR REACTOR TRIP AND ENGINEERED SAFETY FEATURES ACTUATION			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Reactor Protection system perform this primary design system function.

Code E	Cri 1	Cri 2	Cri 3				
PROVIDE REACTOR COOLANT PRESSURE BOUNDARY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Reactor Protection system perform this associated design system function. Reactor Protection system transmitters interface with the Reactor Coolant system. Associated valves, piping, etc., are evaluated within the Reactor Coolant system.

Code H	Cri 1	Cri 2	Cri 3				
PROVIDE EMERGENCY HEAT REMOVAL FROM THE REACTOR COOLANT SYSTEM USING SECONDARY HEAT REMOVAL CAPABILITY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Reactor Protection system perform this associated design system function (steam generator level inputs into RPS).

Code K	Cri 1	Cri 2	Cri 3				
PROVIDE PRIMARY CONTAINMENT BOUNDARY			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Reactor Protection system perform this associated design system function.

Code Q	Cri 1	Cri 2	Cri 3				
PROVIDE ELECTRICAL POWER TO SAFETY CLASS 1, 2, 3 COMPONENTS			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Reactor Protection system perform this associated design system function.

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Reactor Protection system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Reactor Protection system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5) (e.g., RG-1.97 Post Accident Monitoring category 2 or 3 variable, non safety trip signals to Reactor Protection, feedwater control signals, etc.)

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Reactor Protection system perform this associated design system function.

Code X SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Reactor Protection system perform specific safety related functions different from and in addition to the system level functions (e.g. RG 1.97 category 1 Post Accident Monitoring variables).

Code Y LICENSE RENEWAL CRITERION 2 - NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
		X					

Comment: Components within the Reactor Protection system associated with the Circulating Water system perform this associated design system function. These components provide internal flooding protection measures by tripping the Circulating Water Pumps on high level in the screenhouse basement and turbine building condenser pit.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Reactor Protection system perform this associated design system function.

Code Z2	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the Reactor Protection system are designated as Environmentally Qualified.

Code Z4	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ANTICIPATED TRANSIENTS WITHOUT SCRAM (10 CFR 50.62)			FP	EQ	PTS	AT	SB
						X	

Comment: Components within the Reactor Protection system perform this associated design system function. The ATWS Mitigating System Actuation Circuitry shall be capable of providing a diverse signal to trip the main turbine and start MDAFWP and TDAFWP when a loss of MFW is detected.

Code Z5	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR STATION BLACKOUT (10 CFR 50.63)			FP	EQ	PTS	AT	SB
							X

Comment: Components within the Reactor Protection system perform this associated design system function.

UFSAR Reference

Additional Reactor Protection system details are provided in Section 7.2 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.9-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.9-1 Reactor Protection

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.10 Engineered Safety Features Actuation System - Within Scope of License Renewal

Description

The Engineered Safety Features Actuation System (ESFAS) senses process conditions and generates actuation signals for reactor trip and engineered safety features. The following actions are initiated by ESFAS: safety injection, containment isolation, steam line isolation, containment spray and feedwater isolation, emergency diesel generator start, and preferred auxiliary feedwater pump start. Instrumentation included within the ESFAS system boundary is also used for safe shutdown following some fire events and Station Blackout events.

The principal components of the ESAFS system include: transmitters, detectors, relays, power supplies, bistables, switches, converters, indicators and their essential wiring and connectors. The ESFAS detects plant conditions that require automatic Engineered Safety Features (ESF) equipment operation, and actuates the appropriate ESF equipment when preset limits are reached. ESFAS subsystems monitor plant parameters indicative of different accidents. When the minimum number of channels of a monitored variable reaches a preset limit, trip bistables satisfy coincidence logic for an individual subsystem and the subsystem is automatically initiated. On the channel level, the four ESFAS channels share protection racks with the four Reactor Protection System channels, because some of the same plant variables used to initiate reactor trip also actuate ESFAS subsystems. Not all four channels are used for each ESFAS variable, because most ESFAS subsystem coincidence logic relies on less than four channels to

actuate. Each channel is energized from a separate AC power feed. On the train level, the racks for the two ESFAS logic trains are independent and separate from the racks for the two Reactor Protection System logic trains. Each train is energized from a separate DC power feed.

The following electrical systems interface with the ESFAS System:

120 VAC Vital Instrument Buses	125 VDC Power
Reactor Protection	Plant Process Computers

System Function Listing

In addition to the System Functions described above, the Engineered Safety Features Actuation System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below.

Code D	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
SENSE OR PROVIDE PROCESS CONDITIONS AND GENERATE SIGNALS FOR REACTOR TRIP AND ENGINEERED SAFETY FEATURES ACTUATION	X						

Comment: Components within the Engineered Safety Features Actuation system perform this primary design system function.

Code H	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
PROVIDE EMERGENCY HEAT REMOVAL FROM THE REACTOR COOLANT SYSTEM USING SECONDARY HEAT REMOVAL CAPABILITY	X						

Comment: Components within the Engineered Safety Features Actuation system perform this associated design system function.

Code K	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
PROVIDE PRIMARY CONTAINMENT BOUNDARY	X						

Comment: Components within the Engineered Safety Features Actuation system perform this associated design system function (transmitters in this system provide signals that initiate containment isolation).

Code S SPECIAL CAPABILITY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Engineered Safety Features Actuation system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Engineered Safety Features Actuation system that perform License Renewal Criterion 3 functions are tracked under the Criterion 3 codes (Z1 through Z5). Transmitters in the Engineered Safety Features Actuation system also provide feedwater control signals.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Engineered Safety Features Actuation system perform this associated design system function.

Code X SFR FUNCTION NOT APPLICABLE AT COMPONENT LEVEL	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
	X						

Comment: Components within the Engineered Safety Features Actuation system perform specific safety related functions different from and in addition to the system level functions (RG 1.97 Type A post-accident monitoring variables).

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Engineered Safety Features Actuation system perform this associated design system function.

Code Z2 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
				X			

Comment: Components within the Engineered Safety Features Actuation system are designated as Environmentally Qualified.

Code Z5	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS STATION BLACKOUT (10 CFR 50.63)							X

Comment: Components within the Engineered Safety Features Actuation system perform this associated design system function.

UFSAR Reference

Additional ESFAS system details are provided in Section 7.3 and Section 8.3.1.2.4.4 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.10-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.10-1 Engineered Safety Features Actuation System

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.11 Plant Communications - Within Scope of License Renewal

Description

The Plant Communications System is comprised of a broad range of communications equipment. Included within the evaluation boundary is the radio and repeater system used for fire fighting and safe shutdown activities following some fire events.

The principal components of the Plant Communications System include various different 8" speaker assemblies, speaker amplifier assemblies, GAI-tronics Model 350 Tone Generator or equivalent, a Motorola radio equipment to include handsets, base station, and repeater, and a commercial telephone system. In addition there are Grey Page telephones situated at every level throughout the plant. This equipment works together to ensure good communications throughout the plant during an emergency.

The Plant Communications System consists of several different communication systems. The primary system is the combination paging and party system; in addition, there is a sound powered phone system and a radio paging system. The sound powered system is hard wired with separate wires from the combination paging and party system. The radio paging system provides communication with areas inside the containment with the help of a radio antenna mounted in the containment. Additionally, a repeater located in the yard area allows for greater flexibility with radio communications. There is adequate redundancy with these three systems to ensure good communications throughout the plant during an emergency. There are also emergency telephones within the Technical Support Center (TSC) that provide a direct line to the NRC, New York State, and Monroe and Wayne Counties. The TSC is also equipped for direct communications with the Control Room, Survey Center, Operational Support Center, and the Emergency Operations Facility. Communications between the control room, technical support center, emergency survey center, and other operations centers can be established using either telephone, two-way intercom, radio, or the plant public address system. The telephone system at Ginna affords a great deal of flexibility and capacity. Calls can be received or made to either the Rochester telephone system or the Ontario telephone system. The telephone system has its own power supply located onsite which could maintain house phones independent of offsite lines. Additionally, the plant commercial telephone system can access the plant sound powered phone system.

The following are electrical systems that interface with the Plant Communications System:

Misc. AC Power and Lighting	125 VDC Power

System Function Listing

In addition to the System Functions described above, the Plant Communications System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the system, is provided in the summary below

Code S SPECIAL CAPABILITY CLASS FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Communications system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Plant Communications system that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Communications system perform this associated design system function.

Code Z1 LICENSE RENEWAL CRITERION 3 - SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB
			X				

Comment: Components within the Plant Communications system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Plant Communications system that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5).

UFSAR Reference

Additional information on the plant communications system is provided in Section 9.5.1.2.4.7 and Section 9.5.2 of the UFSAR.

Components Subject to an AMR

The component groups for this system that require aging management review are indicated in Table 2.5.11-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.11-1 Plant Communications

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.12 Plant Process Computer - Not Within Scope of License Renewal

Description

The Plant Process Computer System (PPCS) and Safety Assessment System (SAS) are integrated data acquisition and display systems, which include common multiplexer cabinets for the termination of field inputs. The Plant Process Computer System (PPCS) provides information to the plant operator to effectively assist in the operation of the nuclear steam supply system and to informing the operator of specific abnormal conditions by comparison with preset or calculated limits. Basic to the design of this computer system is the requirement that the conventional plant instrumentation systems and control room instrumentation and control functions permit operation of the plant with the computer out of service. The computer system reduces the burden to the plant operator in maintaining surveillance over the nuclear steam supply system to ensure that operating conditions are maintained within normal bounds. The PPCS does not control any part of the plant, it is used as an aid in alerting operators to deviations in plant operating parameters. The Safety Assessment System (SAS) is designed to provide an integrated display of critical plant safety parameters and perform reference diagnostics during emergencies. The Plant Process Computer System contains no safety-related or safety significant components. The equipment contained within the Plant Process Computers system boundary does not perform any license renewal intended function.

The principal components of the Plant Process Computer System and SAS are two redundant processing units, multiplexers, display and output devices and the essential wiring. The Plant process computer system is a dedicated real-time system consisting of a central processing unit with parametric inputs from the reactor coolant system, the secondary system, the effluent monitoring system, and auxiliary service systems throughout the plant. These inputs are stored as discrete, addressable data points that are used to perform specific computations (e.g., compute subcooling margin), generate alarms, indicate digital and analog information, and to provide pre-trip and post-trip data.

System Function Listing

In addition to the System Functions described above, the Plant Process Computers System also contains components which support additional functions (associated system design functions) that may or may not be License Renewal Intended Functions. A comprehensive listing of all functions associated with the system, or specific components contained in the in the system, is provided in the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Process Computers system perform this associated design system function (augmented quality). For the purposes of License Renewal, components within the Plant Process Computers system that perform special capability class functions are tracked under the Criterion 3 codes (Z1 through Z5). The PPCS portion of the system displays and records Reg Guide 1.97 post

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Process Computers system perform this associated design system function

UFSAR Reference

Additional information on the plant process computer system is provided in Section 7.7.6 of the UFSAR.

Components Subject to an AMR

System level scoping shows that there are no components subject to AMR in the Plant Process Computers system. However, the basic philosophy used in the electrical components IPA process does not account for system level scoping (all electrical components are included in the IPA review unless they are specifically scoped out or screened out in the electrical IPA process). Therefore the component groups associated with Plant Process Computers are conservatively included in the population of components subject to AMR.

The component groups for this system that require aging management review are indicated in Table 2.5.12-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.12-1 Plant Process Computers

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.13 Plant Security - Not Within Scope of License Renewal

Description

The plans for physical protection of Ginna Station are described in the NRC-approved plans which are withheld from public disclosure pursuant to 10 CFR 2.790(d) and 10 CFR 73.21 The plans conform to the requirements of appropriate federal regulations governing security activities of nuclear power reactors. Some plant security physical barrier features interfaces with station building and structures. Those features are evaluated within the system boundary of the appropriate plant structure (e.g. security doors that act as external missile shield, etc.). Thus the remaining equipment contained within the Plant Security System boundary does not perform any license renewal intended function.

The principal components of the Plant Security system include intrusion detection systems (visual and electronic perimeter monitoring, access control and door position), the vehicle barrier system, and perimeter fencing. Additional protection features include defensive positions and strategically placed armor and bullet resistant ballistic steel. The security system includes a dedicated diesel generator that provides backup power to security computers, detection systems and the high mast lighting system. Security computers also have an additional diverse backup power supply. Plant Security features have been evaluated to ensure that they do not impede the safe operation of the facility. The equipment identified in the system scoping and screening report does not represent any safeguards information and functional descriptions and references are withheld. The list is simply the collection of identification numbers contained in the plant database.

System Function Listing

A comprehensive listing of all functions associated with the Plant Security system, or specific components contained in the system, is provided in the summary below.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Plant Security system perform this associated design system function

UFSAR Reference

Additional functional information or descriptions are available in Section 1.8.1.17 and Section 13.6 of the UFSAR.

Components Subject to an AMR

System level scoping shows that there are no components subject to AMR in the Plant Security system. However, the basic philosophy used in the electrical components IPA process does not account for system level scoping (all electrical components are included in the IPA review unless they are specifically scoped out or screened out in the electrical IPA process). Therefore the component groups associated with Plant Security are conservatively included in the population of components subject to AMR.

The component groups for this system that require aging management review are indicated in Table 2.5.13-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.13-1 Plant Security

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)

2.5.14 Seismic and Meteorological Instrumentation System- Not Within Scope of License Renewal

Description

The Seismic and Meteorological Instrumentation System provides operators with current weather conditions, including wind speeds, wind direction and atmospheric stability, which are Regulatory Guide 1.97, category 3 variables. Variable readout of this information is displayed in the control room on the plant process computer. A strong motion accelerograph, used to measure seismic activity, is installed in the subbasement of the intermediate building. Components within the Seismic and Meteorological Instrumentation System do not perform any License Renewal intended functions.

The principal components of the Seismic and Meteorological Instrumentation System are the Primary Tower, the Backup Tower, and the Seismic Monitoring Station. The primary tower, a 250 foot tower located approximately 850 feet Northwest of the of the containment building, measures wind speed, wind direction, and temperatures. The primary tower has a gasoline powered backup AC generator. The backup tower, located at substation 13A, approximately 0.5 miles south of the Ginna site, measures wind speed and direction. Precipitate is measured by means of a rainfall bucket, on a separate pad near the primary tower. The seismic monitoring station, accelerograph, is located in the intermediate building subbasement, and is used to take shock recordings. This location was chosen rather than the basement of the containment since it more easily facilitates periodic surveillance of the instrument (this would be difficult should the instrument be

located in the basement of the containment) and the retrieval of the shock record can more readily be made. Instrumentation included within the Seismic and Meteorological instrumentation boundary include wind speed, wind direction, and atmospheric stability equipment.

The following electrical systems interface with the Seismic and Meteorological Instrumentation System:

Plant Process Computer System Misc. AC Power and Lighting

System Function Listing

A comprehensive listing of all functions associated with the Seismic and Meteorological Instrumentation System, or specific components contained in the system, is provided within the summary below.

Code S SPECIAL CAPABILITY CLASS FUNCTION	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Seismic and Meteorological Instrumentation system perform this associated design system function (augmented quality). The Seismic and Meteorological Instrumentation system provides RG 1.97 Category 3 Post Accident monitoring variables.

Code T NON-NUCLEAR SAFETY CLASS FUNCTIONS	Cri 1	Cri 2	Cri 3				
			FP	EQ	PTS	AT	SB

Comment: Components within the Seismic and Meteorological Instrumentation system perform this associated design system function.

UFSAR Reference

Additional information on the Seismic and Meteorological Instrumentation System is provided in Section 2.3.3 and Section 3.7.4 of the UFSAR.

Components Subject to an AMR

System level scoping shows that there are no components subject to AMR in the Seismic and Meteorological Instrumentation system. However, the basic philosophy used in the electrical components IPA process does not account for system level scoping (all electrical components are included in the IPA review unless they are specifically scoped out or screened out in the electrical IPA process). Therefore the component groups associated with Seismic and Meteorological Instrumentation are conservatively included in the population of components subject to AMR.

The component groups for this system that require aging management review are indicated in Table 2.5.14-1 along with each components passive function(s) and reference(s) to the corresponding AMR Table(s) in Section 3.

Table 2.5.14-1 Seismic and Meteorological

Component/Commodity Group	Passive Function	Aging Management Reference
Low Voltage Insulated Cables and Connections	To provide electrical connections to specified sections of an electrical circuit to deliver voltage, current or signals.	Table 3.7-1 Line Number (2) Table 3.7-1 Line Number (3) Table 3.7-1 Line Number (5)