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United States Nuclear Regulatory Commission
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License No.: DPR-43

DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
LICENSE RENEWAL APPLICATION
SECOND ANNUAL UPDATE REQUIRED BY 10 CFR 54.21(b)

By letter dated August 12, 2008 (Reference 1), Dominion Energy Kewaunee (DEK) submitted an application for renewal of the operating license for Kewaunee Power Station Kewaunee Power Station (KPS). DEK is required by 10 CFR 54.21(b) to report any changes to the current licensing basis (CLB) of the facility under review that materially affect the contents of the license renewal application (LRA), including the Updated Safety Analysis Report (USAR) Supplement. These changes are required to be submitted each year and at least 3 months prior to the scheduled completion of the LRA review by the NRC.

DEK has completed the second annual review of CLB changes and concluded that there is one change that materially affects the content of the KPS LRA. This change involves modifications that were made to the substation/switchyard as part of a plan to improve the reliability and maintenance of the offsite power supply and to increase grid reliability. Attachment 1 describes the details of the substation/switchyard modifications. Attachment 2 provides annotated pages from the KPS LRA showing the changes to the content of the KPS LRA resulting from the modifications. Inserted text is indicated with a double underline and deleted text is indicated with a strikethrough. Additionally, all changes have a revision bar in the right margin.

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NRC

cc: U.S. Nuclear Regulatory Commission
Regional Administrator, Region III
2443 Warrenville Road
Suite 210
Lisle, IL 60532-4532

Mr. K. D. Feintuch, Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint, Mail Stop O8-H4A
11555 Rockville Pike
Rockville, MD 20852-2738

Mr. Daniel Doyle
Environmental Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop O-11F1
Washington, DC 20555-0001

Mr. John Daily
License Renewal Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop O-11F1
Washington, DC 20555-0001

NRC Senior Resident Inspector
Kewaunee Power Station
N490 Highway 42
Kewaunee, WI 54216

Public Service Commission of Wisconsin
Electric Division
P.O. Box 7854
Madison, WI 53707

David Hardtke
Chairman - Town of Carlton
E2334 Lakeshore Road
Kewaunee, WI 54216

ATTACHMENT 1

SUBSTATION/SWITCHYARD MODIFICATIONS

**KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.**

Introduction

In the fall of 2009, modifications were made to the Kewaunee substation/switchyard as part of a plan to improve the reliability and maintenance of the offsite power supply and to increase grid reliability.

Modification Description

The substation/switchyard upgrade reconfigured the 138 kV switchyard bus, installed new 138 kV breakers, installed a new 138 kV/13.8 kV Tertiary Auxiliary Transformer (TAT) Supply Transformer (TST), a new 13.8 kV SF6 Gas Circuit Breaker (TST 199) and associated disconnect switches, and associated control cables and connections. A new 13.8 kV feed from the TST transformer secondary disconnects was spliced to the existing 13.8 kV underground feeder cable to the in-scope TAT at an underground pulling pit, which was expanded above ground and a cover was installed to protect the cable splice. The TAT was replaced with a higher capacity transformer to provide for future additional capacity for the TAT circuit to the 4160V buses. The new switchyard 138 kV connections to this circuit allow multiple possible 138 KV switchyard feeds for this circuit for increased reliability.

A new South Control House was added to provide space for equipment controls, indication, relocation of some DEK assets from the North Control House, and future expansion. The South Control House has two 125 VDC batteries for primary and backup capability which provide increased reliability.

A new 345 kV breaker (G1) and disconnect switches were installed between the main transformer feeder and the switchyard. These components were relocated outside the main switchyard (previously located inside the switchyard) to provide for future 345 kV switchyard expansion. The new components are not within the scope of license renewal. However, the Kewaunee license renewal application (LRA) Figure 2.1-2 is affected since it currently indicates that the new breaker and disconnect switches are located within the switchyard.

Additionally, a new Spare Parts Building was added in the Substation. However, this structure is not within the scope of license renewal. The existing out-of-scope Substation Control House has been renamed the North Control House.

ATTACHMENT 2

ANNOTATED PAGES FROM KPS LRA

List of Affected Pages

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**KEWAUNEE POWER STATION
DOMINION ENERGY KEWAUNEE, INC.**

Kewaunee Power Station
Application for Renewed Operating License
Technical and Administrative Information

Abbreviation	Definition
SBO	Station Blackout
SCBA	Self Contained Breathing Apparatus
SCC	Stress Corrosion Cracking
SE	Steam Exclusion
SER	Safety Evaluation Report
SFP	Spent Fuel Pool
SG	Steam Generator
SI	Safety Injection
SR	Safety-Related
SSC	System, Structure, and Component
SV	Special Ventilation
TAT	Tertiary Auxiliary Transformer
TLAA	Time-Limited Aging Analysis
TSC	Technical Support Center
<u>TST</u>	<u>TAT Supply Transformer</u>
U _{EAF}	EAF-corrected Fatigue Usage
ULSD	Ultra Low Sulfur Diesel
USAR	Updated Safety Analysis Report

The Kewaunee required functions to cope with an SBO event are described in USAR Section 8.2.4. Recovery includes the ability to achieve and maintain hot shutdown.

The SSCs required for compliance with 10 CFR 50.63 were identified in a regulated event report which was used as input to the scoping and screening processes. The in-scope SSCs include the TSC diesel generator, its support systems, the TSC Diesel Generator Room, and other equipment relied upon to mitigate an SBO event.

The CLB for Kewaunee considers the recovery of a safety-related EDG as the method of recovery from an SBO. Based solely on the CLB, the offsite power system would not be included within the scope of license renewal. The NRC position on SBO recovery as it relates to the requirements of 10 CFR 54 (Reference 2.1-6) requires the inclusion of structures and components that support the recovery of offsite power after an SBO event within the scope of license renewal. Using this guidance, the supply path required to energize the safety-related 4160 V buses from offsite power after an SBO was included within the scope of license renewal. For Kewaunee, this required the inclusion of the off-site power feeds for both the Reserve Auxiliary Transformer (RAT) that normally supplies Emergency 4,160-Volt Bus 1-6 and the Tertiary Auxiliary Transformer (TAT) that normally supplies Emergency 4,160-Volt Bus 1-5. The scope includes the first point of isolation upstream of the supply for the primary side of the specific transformer and also from the secondary side of the transformer to the safety-related buses. The Kewaunee switchyard provides two possible paths for the 138kV source supplying the overhead conductors to the RAT. Since any of the two incoming transmission lines could be restored first, both circuit breakers and their associated set of disconnect switches were included within the scope of license renewal. The TAT is supplied via an underground cable connected to a circuit breaker and associated set of disconnect switches supplied at 13.8 kV from the ~~tertiary~~ secondary winding of transformer T-10TST. The support structures associated with these in-scope components were also included within the scope of license renewal. Figure 2.1-2 provides a schematic of the electrical components that support the recovery of offsite power after an SBO event.

The proposed ISG, LR-ISG-2008-01, "Staff Guidance Regarding the Station Blackout Rule (10 CFR 50.63) Associated with License Renewal Applications," has been reviewed and the Kewaunee scoping boundary is consistent with the guidance of this document.

NOTE: This Figure has been replaced in it's entirety.

Figure 2.1-2 Offsite Power for SBO

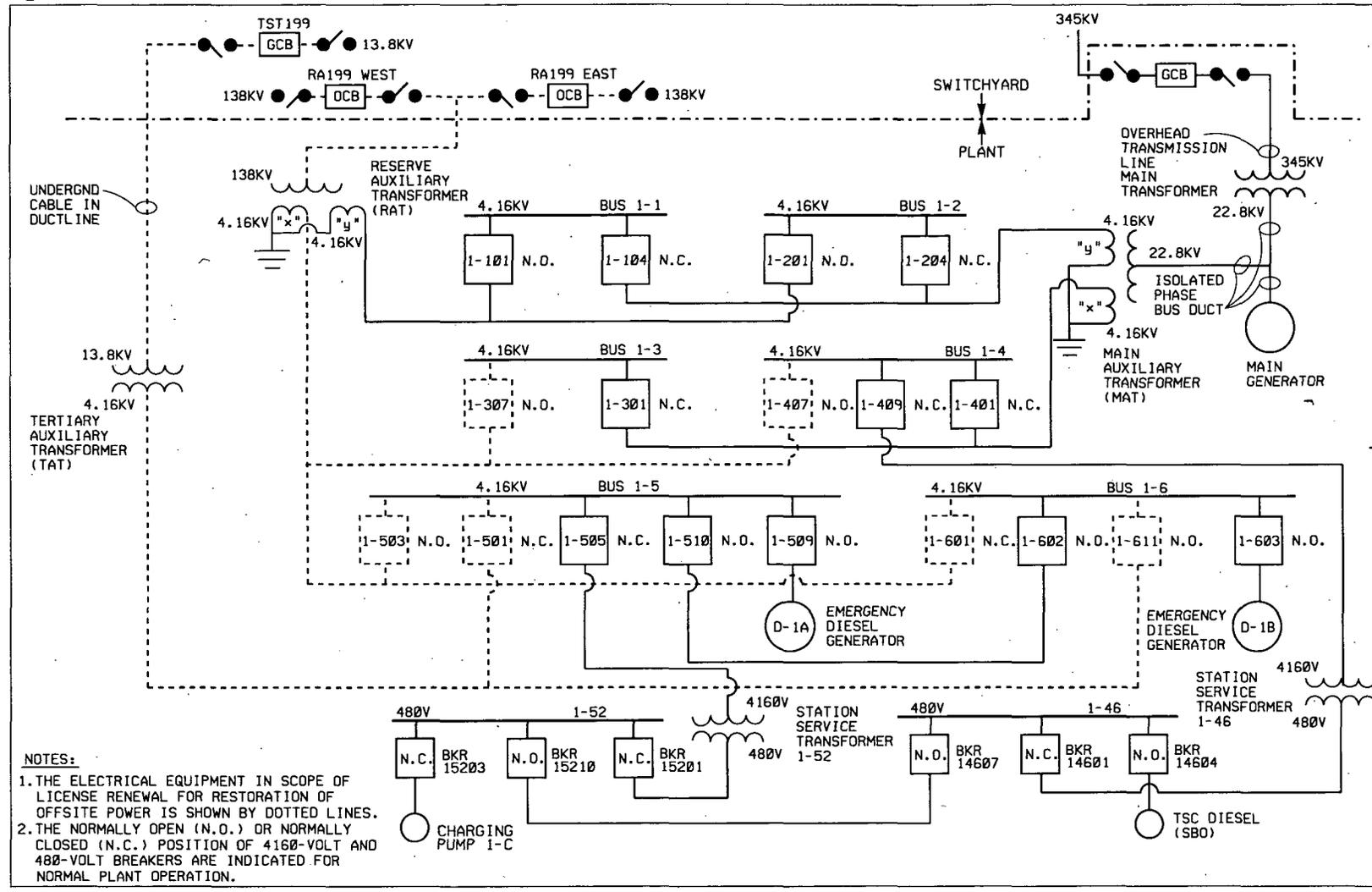


Table 2.2-4 Structures Not Within the Scope of License Renewal

Structure	USAR Reference
Operating Training Facility	Figure 1.1-2
Pump House 1 & 2	Figure 1.1-2
Security Building	Section 1.2.1/Table B.2-1
Sewage Treatment Plant and Laboratory	Figure 1.1-2
SGR Buildings	None
Shore line stabilization	Section 2.6.2
Site Service Building #1	None
<u>Spare Parts Building</u>	<u>None</u>
Substation <u>North Control House</u>	Figure 1.1-2
Training Facility	None
Trench (electrical)	None
Vehicle Garage	Figure 1.1-2
Warehouse No. 1	Figure 1.1-2
Welding Shop	None

The evaluation boundary for the Turbine Building structural members subject to aging management review includes structural members for the Class I and Class III* areas, and the Class I* support structure.

USAR Reference

Additional details of the Turbine Building can be found in the USAR, Sections 1.2.1, 1.3.1, 10A.3, 10A.4, B.2, B.9.3, B.9.4, Figure 1.2-1, Figure 1.2-3, Figure 1.2-5, and Table B.2-1.

License Renewal Drawings

The license renewal drawing for the Turbine Building is listed below:

LR-A-202-1

Components Subject to AMR

The Turbine Building structural members that require aging management review are indicated in Table 2.4.2-6, Turbine Building.

The aging management review results for these structural members are provided in Table 3.5.2-7: Structures and Component Supports - Turbine Building - Aging Management Evaluation.

2.4.2.7 YARD STRUCTURES

Description

The following yard structures, which are located throughout the yard and substation/switchyard area, are within the scope of license renewal:

- Duct Banks
- Emergency Diesel Generator Fuel Oil Storage Tanks Foundation
- Fire Hose Houses
- Lighting Poles (P2, P4, P5)
- Manholes/Pulling Pit
- Outdoor Transformer Bays
- Substation/Switchyard Structures
- Transmission Towers

The evaluation boundary for the fire hose houses structural members subject to aging management review includes the steel structure and the supporting concrete slab.

Lighting Poles

Three lighting poles (Poles 2, 4, and 5), which provide security lighting in the yard area, are within the scope of license renewal. These lighting poles are constructed of steel and supported by a reinforced concrete caisson foundation.

The lighting poles (Poles 2, 4, and 5) are in the scope of license renewal since the structures have intended functions that meet the criteria stated in 10CFR54.4(a). The structures meet 10CFR54.4(a)(2) because failure of these poles could affect safety-related systems, structures and components.

The evaluation boundary for the lighting poles structural members subject to aging management review includes the steel pole structure and the supporting concrete caisson foundation.

Manholes/Pulling Pit

There are four manholes and one pulling pit in the scope of license renewal. One manhole is in the scope of license renewal because it supports electrical cable required for the restoration of offsite power for station blackout. This manhole is an enclosed underground reinforced concrete structure that is soil supported and is located near the Tertiary Auxiliary Transformer. The remaining three manholes provide access to underground fuel oil storage tanks. Two access manholes are provided for the emergency diesel generator fuel oil storage tanks and one for the Technical Support Center diesel generator fuel oil storage tank. These manholes are reinforced concrete structures that rest directly on the tanks. The pulling pit is a reinforced concrete structure that houses spliced electrical cables and is soil supported. The pulling pit is in the scope of license renewal because it supports electrical cables required for the restoration of offsite power for station blackout.

The manholes and the pulling pit are in the scope of license renewal since the structures have intended functions that meet the criteria stated in 10CFR54.4(a). The structures meet 10CFR54.4(a)(3) because the structures support fire protection and station blackout.

The evaluation boundary for the manholes and pulling pit structural members subject to aging management review includes the reinforced concrete structures and the access covers.

Outdoor Transformer Bays

There are seven outdoor transformer bays located adjacent to the south and east sides of the Turbine Building. Each transformer bay, formed with firewalls, has an automatic water spray system to extinguish and prevent the spread of fires. The side walls of all the bays are constructed of reinforced concrete and are supported by a spread footing foundation. The back wall of all the bays is the exterior wall of the Turbine Building. Each bay has a reinforced concrete floor slab founded on soil. The transformers located within the bays are supported on a concrete mat foundation that is isolated by a construction joint from the concrete bay floor. The Reserve Auxiliary Transformer and the Tertiary Auxiliary Transformer have two reinforced rectangular column sections located at the base of the mat foundation, which are utilized in transferring the loads to a lower underground reinforced concrete mat foundation.

The outdoor transformer bays are in the scope of license renewal since the structures have intended functions that meet the criteria stated in 10CFR54.4(a). The structures meet 10CFR54.4(a)(3) because the structures support station blackout and fire protection.

The evaluation boundary for the outdoor transformer bays structural members subject to aging management review includes all of the bays since they support an automatic water spray system required for fire protection.

However, only the foundations that support the RAT and TAT are in scope for license renewal because these two transformers are required for the restoration of offsite power for station blackout. The back wall of all the bays is within the scope of license renewal but is evaluated for aging management with the Turbine Building structure.

Substation/Switchyard Structures

The substation/switchyard structural members associated with the in-scope electrical equipment required for the restoration of offsite power for station blackout includes the steel structures and associated foundations for the 138 kV take-off tower, ~~13.8 kV take-off structure,~~ and the 138 kV and 13.8 kV disconnect switches. The ~~13.8 kV take-off concrete structure and the concrete foundations for the 138 kV and 13.8 kV oil circuit breakers~~ and 13.8 kV gas circuit breaker are also included.

The South Control House structure is a steel frame single story metal structure supported on reinforced concrete spread footings. The building houses the electrical controls essential to the operation of switchyard equipment.

The substation/switchyard structures are in the scope of license renewal since the structures have intended functions that meet the criteria stated in 10CFR54.4(a). The structures meet 10CFR54.4(a)(3) because the structures support station blackout.

The evaluation boundary for the substation/switchyard structures structural members subject to aging management review includes the identified steel support structures and the supporting concrete foundations. The evaluation boundary also includes the foundation for the oil circuit breakers and ~~the concrete take off structure provided to route the 13.8 kV cables underground to a duct bank~~ gas circuit breaker.

Transmission Towers

Three steel transmission towers (Towers 1, 3, and 4), which support the transmission line required for the restoration of offsite power for SBO, are installed from outside the substation/switchyard to the RAT. These towers are single pole steel structures that support the 138 kV RAT circuit on one side and the main transformer 345 kV circuit on the other side. The steel poles are supported by a reinforced concrete caisson foundation.

The transmission towers are in the scope of license renewal since the structures have intended functions that meet the criteria stated in 10CFR54.4(a). The structures meet 10CFR54.4(a)(3) because the structures support station blackout.

The evaluation boundary for the transmission towers structural members subject to aging management review includes the steel pole structure and the supporting concrete caisson foundation.

USAR Reference

Additional details for the Yard Structures can be found in the USAR Table B.2-1.

License Renewal Drawings

The license renewal drawing for the Yard Structures is listed below:

LR-A-202-1

Table 2.4.2-7 Yard Structures

Structural Member	Intended Function(s)
Duct Banks	Enclosure Protection, Structural Support
Fire Hose Houses	Enclosure Protection, Structural Support
Foundations (EDG fuel oil storage tanks, lighting poles, fire hose houses, outdoor transformer walls, RAT & TAT transformers, substation/switchyard structures, transmission towers)	Structural Support
Lighting Poles	Structural Support
Manhole/ <u>Pulling Pit</u> Access Covers	Enclosure Protection, Structural Support
Manholes/ <u>Pulling Pit</u>	Enclosure Protection, Structural Support
Outdoor RAT Bay Miscellaneous Steel [embedded steel exposed surfaces (shapes, plates)]	Structural Support
Outdoor Transformer Bays Structural Reinforced Concrete (beams, columns, walls, floor, curbs)	Fire Barrier, Structural Support
Steel Bar Straps (EDG fuel oil storage tanks)	Structural Support
Substation/Switchyard Concrete Structure (13.8 kV take-off structure)	Structural Support
Substation/Switchyard Steel Structures ({138 kV take-off tower, supports for 138 kV & 13.8 kV disconnect switches, 13.8 kV take-off structure}) (<u>includes the attached underground take-offs, South Control House</u>)	Structural Support

See Table 2.0-1 for definition of intended function.

assembly. The associated fuse holders (metallic clamps) meet 10CFR54.4(a)(1) by providing power and protection to safety-related radiation monitor circuits.

The evaluation boundary for fuse holders that are subject to aging management review includes the metallic clamps holding the fuse and the cable conductor attachments at the ends of the fuse holder.

The non-metallic fuse base, which serves as an electrical insulating material, is evaluated with Cables and Connections in Section 2.5.1.

USAR Reference

None

Components Subject to AMR

The component types that require aging management review are indicated in Table 2.5.2-1, Fuse Holders.

The results of the aging management review of these components are provided in Table 3.6.2-2: Electrical Components - Fuse Holders - Aging Management Evaluation.

2.5.3 METAL ENCLOSED BUS

Description

Metal enclosed buses are electrical buses installed on electrically insulated supports and are constructed with each phase conductor enclosed in a separate metal enclosure or all conductors enclosed in a common metal enclosure. The MEBs are used in power systems to connect various elements in electric power circuits such as switchgear, transformers, main generator, and diesel generators. The four types of buses classified as MEBs are isolated phase, segregated phase, non-segregated phase, and switchyard bus (bare non-enclosed bus). The ~~13.8kV and 138 kV~~ switchyard bus and 4.16 kV non-segregated phase bus that provide paths for the recovery of off-site power during an SBO event are the only MEBs within the scope of license renewal. ~~The 13.8Kv switchyard bus consists of angle bus that is supported on porcelain post type insulators and provides connection between the disconnect switch associated with Oil Circuit Breaker TA 199 (10) to the underground cable that supplies power to the TAT. The TAT provides power via cables to 4.16kV Emergency Bus 1-6 during normal operation. The 138kV switchyard bus consists of~~

tubular bus supported on porcelain post type insulators used to connect 138 kV Oil Circuit Breakers RA-199E (3E) and RA-199W (3W) to their associated disconnect switches and the overhead transmission line that provides power to the RAT. The RAT powers two secondary 4.16 kV windings (RX and RY) that are connected to non-segregated MEBs. Only the MEB of the RX winding is in the scope of license renewal since it is the off-site power source for 4.16 kV Emergency Bus 1-6. See Figure 2.1-2 for a schematic of the electrical components that support the recovery of offsite power after an SBO event.

The MEB is in the scope of license renewal since the commodity has intended functions that meet the criteria stated in 10CFR54.4(a). The above MEBs meet 10CFR 54.4(a)(3) because they support the restoration of off-site power following a SBO event.

The evaluation boundaries for the components subject to aging management review are from the non-segregated MEB or switchyard bus to where connection has been made to equipment or to cables. This includes the 138 kV switchyard bus connections of the overhead transmission conductors supplying the RAT and the 4.16 kV switchyard bus connections to the underground cables supplying the RAT, which are evaluated for aging management with Cables and Connections.

The 4.16 kV MEB enclosures (including expansion joints, sealants, and exterior enclosure supports) and the switchyard post insulator supports are considered structural components and are discussed in Section 2.4.2, Miscellaneous Structural Commodities (Electrical enclosure commodities) and Section 2.4.2.7, Yard Structures (Substation/Switchyard Structures and Transmission Towers).

USAR Reference

None

Components Subject to AMR

The component types that require aging management review are indicated in Table 2.5.3-1, Metal Enclosed Bus.

The results of the aging management review of these components are provided in Table 3.6.2-3: Electrical Components - Metal Enclosed Bus - Aging Management Evaluation.

Table 3.5.2-8: Structures and Component Supports - Yard Structures - Aging Management Evaluation

Structural Member	Intended Function(s)	Material	Environment	Aging Effect/Mechanism Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Reference	Table 1 Item	Notes
Foundations (EDG fuel oil storage tanks, lighting poles, fire hose houses, outdoor transformer walls, RAT & TAT transformers, substation/switchyard structures, transmission towers)	SS	Concrete	(E) Air-outdoor	Loss of material (spalling, scaling) and cracking/freeze-thaw	Structures Monitoring Program	III.A3-06	3.5.1-26	A
			(E) Soil	Cracking, loss of bond, and loss of material (spalling, scaling)/corrosion of embedded steel	Structures Monitoring Program	III.A3-04	3.5.1-31	A
				Cracks and distortion/due to increased stress levels from settlement	Structures Monitoring Program	III.A3-03	3.5.1-28	A
				Increase in porosity and permeability, cracking, loss of material (spalling, scaling)/aggressive chemical attack	Structures Monitoring Program	III.A3-05	3.5.1-31	A
Lighting Poles	SS	Steel	(E) Air-outdoor	Loss of material/corrosion	Structures Monitoring Program	III.A3-12	3.5.1-25	A
Manhole/Pulling Pit Access Covers	EN; SS	Aluminum	(E) Air-outdoor	Loss of material/pitting and crevice corrosion	Structures Monitoring Program	TP-006	3.5.1-50	C
		Steel	(E) Air-outdoor	Loss of material/corrosion	Structures Monitoring Program	III.A3-12	3.5.1-25	A

See Table 2.0-1 for definitions of intended function and Table 3.0-1 for definitions of service environments.

Table 3.5.2-8: Structures and Component Supports - Yard Structures - Aging Management Evaluation

Structural Member	Intended Function(s)	Material	Environment	Aging Effect/Mechanism Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Reference	Table 1 Item	Notes
Manholes/ <u>Pulling Pit</u>	EN; SS	Concrete	(E) Air-outdoor	Cracking, loss of bond, and loss of material (spalling, scaling)/corrosion of embedded steel	Structures Monitoring Program	III.A3-09	3.5.1-23	A
				Cracking/due to expansion and reaction with aggregates	Structures Monitoring Program	III.A3-02	3.5.1-27	A
				Increase in porosity and permeability, loss of strength/leaching of calcium hydroxide	Structures Monitoring Program			H
				Loss of material (spalling, scaling) and cracking/freeze-thaw	Structures Monitoring Program	III.A3-06	3.5.1-26	A
			(E) Soil	Cracking, loss of bond, and loss of material (spalling, scaling)/corrosion of embedded steel	Structures Monitoring Program	III.A3-04	3.5.1-31	A
				Cracks and distortion/due to increased stress levels from settlement	Structures Monitoring Program	III.A3-03	3.5.1-28	A
				Increase in porosity and permeability, cracking, loss of material (spalling, scaling)/aggressive chemical attack	Structures Monitoring Program	III.A3-05	3.5.1-31	A

See Table 2.0-1 for definitions of intended function and Table 3.0-1 for definitions of service environments.

Table 3.5.2-8: Structures and Component Supports - Yard Structures - Aging Management Evaluation

Structural Member	Intended Function(s)	Material	Environment	Aging Effect/Mechanism Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Reference	Table 1 Item	Notes
Steel Bar Straps (EDG fuel oil storage tanks)	SS	Steel	(E) Soil	Loss of material/general, pitting, crevice, and microbiologically influenced corrosion	Buried Piping and Tanks Inspection	A-001	3.3.1-19	C
Substation/Switchyard Concrete Structure (13.8 kV take off structure)	SS	Concrete	(E) Air outdoor	Cracking, loss of bond, and loss of material (spalling, scaling)/corrosion of embedded steel	Structures Monitoring Program	III.A3-09	3.5.1-23	A
				Cracking/due to expansion and reaction with aggregates	Structures Monitoring Program	III.A3-02	3.5.1-27	A
				Increase in porosity and permeability, loss of strength/leaching of calcium hydroxide	Structures Monitoring Program			H
				Loss of material (spalling, scaling) and cracking/freeze thaw	Structures Monitoring Program	III.A3-06	3.5.1-26	A
			(E) Soil	Cracking, loss of bond, and loss of material (spalling, scaling)/corrosion of embedded steel	Structures Monitoring Program	III.A3-04	3.5.1-34	A
			Cracks and distortion/due to increased stress levels from settlement	Structures Monitoring Program	III.A3-03	3.5.1-28	A	

See Table 2.0-1 for definitions of intended function and Table 3.0-1 for definitions of service environments.

Table 3.5.2-8: Structures and Component Supports - Yard Structures - Aging Management Evaluation

Structural Member	Intended Function(s)	Material	Environment	Aging Effect/Mechanism Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Reference	Table 1 Item	Notes
Substation/Switchyard Concrete Structure (13.8 kV take-off structure)	SS	Concrete	(E) Soil	Increase in porosity and permeability, cracking, loss of material (spalling, scaling)/aggressive chemical attack	Structures Monitoring Program	III.A3-05	3.5.1-31	A
Substation/Switchyard Steel Structures (138 kV take-off tower, supports for 138 kV & 13.8 kV disconnect switches, 13.8 kV take-off structure) (includes the attached <u>underground take-offs</u>), <u>South Control House</u>	SS	Steel	(E) Air-outdoor	Loss of material/corrosion	Structures Monitoring Program	III.A3-12	3.5.1-25	A
			<u>(E) Air-indoor uncontrolled</u>	<u>Loss of material/corrosion</u>	<u>Structures Monitoring Program</u>	<u>III.A3-12</u>	<u>3.5.1-25</u>	<u>A</u>
Transmission Towers	SS	Steel	(E) Air-outdoor	Loss of material/corrosion	Structures Monitoring Program	III.A3-12	3.5.1-25	A

Table 3.5.2-8 Notes:

Plant Standard Notes

Note - The following plant standard notes have generic applicability, but may or may not be used for each SSC:

- S1. Thermal embrittlement is only applicable to CASS components that are subject to temperatures in excess of 482°F.
- S2. Cracking due to SCC is only applicable to stainless steel components exposed to temperatures greater than 140°F.
- S3. Selective leaching is applicable to the material group 'Steel,' but only for gray cast iron components.

Industry Standard Notes

See last page of Section 3.5 tables.

See Table 2.0-1 for definitions of intended function and Table 3.0-1 for definitions of service environments.

A2.1.21 NON-EQ INACCESSIBLE MEDIUM-VOLTAGE CABLES

Program Description

The *Non-EQ Inaccessible Medium-Voltage Cables* program is a new program that will correspond to NUREG-1801, Section XI.E3, "Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements."

The *Non-EQ Inaccessible Medium-Voltage Cables* program will manage the aging effects of localized damage and breakdown of insulation leading to electrical failure for non-EQ, inaccessible, medium-voltage cables within the scope of license renewal that are subject to an adverse localized environment caused by exposure to significant moisture simultaneously with significant voltage.

Significant moisture is defined as periodic exposures to moisture that last more than a few days (e.g., cable in standing water). Periodic exposures to moisture that last less than a few days (i.e., normal rain and drain) are not significant. Significant voltage exposure is defined as being subjected to system voltage for more than twenty-five percent of the time. An adverse localized environment is a condition in a limited plant area that is significantly more severe than the specified service environment for the cables (power, control, and instrumentation) and connections. An adverse localized environment is significant if it could appreciably increase the rate of aging of a component, or has an immediate adverse effect on operability.

The program will inspect the in-scope manhole east of the tertiary auxiliary transformer and the pulling pit for water collection that could cause the in-scope cables to be exposed to significant moisture and will remove water, if required. The program will perform a test on the in-scope non-EQ inaccessible medium-voltage cables to provide an indication of the condition of the conductor insulation.

Inspection of the in-scope manhole east of the tertiary auxiliary transformer and the pulling pit for water collection will be performed prior to the period of extended operation, and the inspection will be repeated every two years thereafter.

Testing of the in-scope inaccessible medium-voltage cables exposed to significant moisture and significant voltage will be performed prior to the period of extended operation, and the tests will be repeated every ten years thereafter.

Table A6.0-1 License Renewal Commitments

Item	Commitment	Source	Schedule ^a
15	The <i>Non-EQ Electrical Cable Connections</i> program will be established. The program will perform a one-time inspection, on a sampling basis, to confirm the absence of loosening of bolted connections.	Non-EQ Electrical Cable Connections	Prior to the Period of Extended Operation
16	The <i>Non-EQ Inaccessible Medium-Voltage Cables</i> program will be established. The program will periodically inspect the in-scope manhole/ <u>pulling pit</u> for water collection and will remove water, if required. The program will periodically perform a test on the in-scope cables to provide an indication of the condition of the conductor insulation.	Non-EQ Inaccessible Medium-Voltage Cables	<p>Prior to the Period of Extended Operation</p> <p>Thereafter, the manhole/<u>pulling pit</u> inspections will not exceed a 2-year interval.</p> <p>Thereafter, the cable testing will not exceed a 10-year interval.</p>
17	The <i>Non-EQ Instrumentation Circuits Subject to Sensitive, High-Voltage, Low-Level Signals</i> program will be established. The program will periodically perform a proven cable system test for detecting deterioration of the insulation system for those electrical cables and connections disconnected during calibration, or will periodically review the results and findings of calibrations for those electrical cables that remain connected during the calibration process.	Non-EQ Instrumentation Circuits Subject to Sensitive, High-Voltage, Low-Level Signals	<p>Prior to the Period of Extended Operation</p> <p>Thereafter, the cable testing and calibration reviews will not exceed a 10-year interval.</p>

voltage exposure is defined as being subjected to system voltage for more than twenty-five percent of the time. An adverse localized environment is a condition in a limited plant area that is significantly more severe than the specified service environment for the cables (power, control, and instrumentation) and connections. An adverse localized environment is significant if it could appreciably increase the rate of aging of a component, or has an immediate adverse effect on operability.

The program will inspect the in-scope manhole east of the tertiary auxiliary transformer and the in-scope pulling pit for water collection that could cause the in-scope cables to be exposed to significant moisture and will remove water, if required. The program will perform a test on the in-scope non-EQ inaccessible medium-voltage cables to provide an indication of the condition of the conductor insulation. The specific type of test performed will be determined prior to the initial test, and will be a proven test for detecting deterioration of the insulation system due to wetting, such as power factor, partial discharge, or polarization index, as described in EPRI TR-103834-P1-2, "Effects of Moisture on the Life of Power Plant Cables, Part 1, Medium-Voltage Cables, Part 2, Low-Voltage Cables, Electric Power Research Institute," or other testing that is state-of-the-art at the time the test is performed.

Inspection of the in-scope manhole east of the tertiary auxiliary transformer and the in-scope pulling pit for water collection will be performed prior to the period of extended operation, and the inspection will be repeated every two years thereafter.

Testing of the in-scope inaccessible medium-voltage cables exposed to significant moisture and significant voltage will be performed prior to the period of extended operation, and the tests will be repeated every ten years thereafter.

NUREG-1801 Consistency

The *Non-EQ Inaccessible Medium-Voltage Cables* program is a new program that will be consistent with the recommendations of NUREG-1801, Section XI.E3, "Inaccessible Medium-Voltage Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements."

Exceptions to NUREG-1801

The *Non-EQ Inaccessible Medium-Voltage Cables* program takes no exceptions to the recommendations of NUREG-1801, Section XI.E3, "Inaccessible