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**SUSQUEHANNA STEAM ELECTRIC STATION
REQUESTS FOR ADDITIONAL INFORMATION FOR THE
REVIEW OF THE SUSQUEHANNA STEAM ELECTRIC STATION
UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (LRA)
SECTION 2.4
PLA-6262**

**Docket Nos. 50-387
and 50-388**

- References:*
- 1) *PLA-6110, Mr. B. T. McKinney (PPL) to Document Control Desk (USNRC), "Application for Renewed Operating License Numbers NPF-14 and NPF-22," dated September 13, 2006.*
 - 2) *Letter from Ms. E. H. Gettys (USNRC) to Mr. B. T. McKinney (PPL), "Requests for Additional Information for the Review of the Susquehanna Steam Electric Station, Units 1 and 2 License Renewal Application," dated August 3, 2007.*

In accordance with the requirements of 10 CFR 50, 51, and 54, PPL requested the renewal of the operating licenses for the Susquehanna Steam Electric Station (SSES) Units 1 and 2 in Reference 1.

Reference 2 is a request for additional information (RAI) related to License Renewal Application (LRA) Section 2.4. The enclosure to this letter provides the additional information requested by NRC reviewers. These responses are numbered consistently with the RAI questions in Reference 2.

There are no new regulatory commitments contained herein as a result of the additional information provided in these responses.

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If you have any questions, please contact Mr. Duane L Filchner at (610) 774-7819.

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on: 8/28/2007

 for BT McKinney

B. T. McKinney

Enclosure: PPL Responses to NRC's Request for Additional Information (RAI)

Attachments: Attachment 1 - Revised LRA Section 2.4 (RAI 2.4-1)
Attachment 2 - Revised LRA Tables 2.4-1 and 3.5.2-1 (RAI 2.4.1-1)
Attachment 3 - Revised LRA Tables 2.4-1 and 3.5.2-1 (RAI 2.4.1-2)
Attachment 4 - Revised LRA Tables 2.4-10 and 3.5.2-10 (RAI 2.4.1-4)
Attachment 5 - Revised LRA Tables 2.4-2 and 3.5.2-2 (RAI 2.4.2-1)
Attachment 6 - Revised LRA Tables 2.4-2 and 3.5.2-2 (RAI 2.4.2-2)

Copy: NRC Region I

Ms. E. H. Gettys, NRC Project Manager, License Renewal, Safety

Mr. R. V. Guzman, NRC Sr. Project Manager

Mr. R. Janati, DEP/BRP

Mr. F. W. Jaxheimer, NRC Sr. Resident Inspector

Mr. A. L. Stuyvenberg, NRC Project Manager, License Renewal, Environmental

**Enclosure to PLA-6262
PPL Responses to NRC's
Request for Additional Information (RAI)**

RAI 2.4-1

The first sentence in the fourth paragraph of the license renewal application (LRA) Section 2.4 “Scoping and Screening Results: Structures” states that “The major structures in the scope of license renewal are the: ...” Per 10 CFR 54.4, all structures that perform an intended function stated in 10 CFR 54.4(a) are required to be included within the scope of license renewal (LR) and not just the major structures. Please confirm that the in-scope structures and structure categories listed in Section 2.4 is all inclusive. Please clarify the language used in that section of the LRA, “The major structures in the scope...” Please include any remaining structures that may be within the scope of LR and provide corresponding scoping, screening and aging management review (AMR) results information relevant to the LRA.

PPL Response:

The in-scope structures and structure categories listed in Section 2.4 are all inclusive of the in-scope License Renewal structures required by 10CFR54.4 for SSES. The term “major” was used to categorize the structures to be addressed in different sections of the SSES LRA. All in-scope structures for SSES are listed in the LRA with the Yard Structures category encompassing all the miscellaneous in-scope Yard Structures identified in Section 2.4.9. The in-scope Yard Structures are:

- Clarified Water Storage Tank Foundation
- Condensate Storage Tank Foundation and Retention Basin (Units 1 and 2)
- Diesel Generator Fuel Oil Storage Tanks ‘A, B, C, D & E’ Foundations and Vaults
- Refueling Water Storage Tank Foundation (Unit 1)
- Station Blackout component foundations and structures (Startup Transformers T-10 and T-20 and associated disconnect switches, Engineered Safeguards Systems (ESS) Transformers)
- Cooling Tower Basins (Units 1 and 2)
- Duct banks, manholes, valve vaults, instrument pits, piping trenches

The first sentence in the fourth paragraph of the license renewal application (LRA) Section 2.4 “Scoping and Screening Results: Structures” is revised in ***bold italics*** as shown in Attachment 1.

RAI 2.4-2

Section 3.8.4 of the final safety analysis report (FSAR) describes the Radwaste Building as a Safety-Related non-Seismic Category 1 structure. Page 3.8-45 of the FSAR also states that the reinforced concrete walls and floor and the concrete block masonry walls meet structural as well as radiation shielding requirements. Sections 2.3.3.19 and

2.3.3.20 of the LRA include the Radwaste Liquid System and the Radwaste Solids Handling System within the scope of LR and subject to an AMR. The first paragraph in Section 2.3.3.20 of the LRA states that all Radwaste Solids Handling System equipment serves both reactor units and is located in the Radwaste Building. Table 2.2-3 excludes the Radwaste Building from the scope of LR. Since the above mentioned in-scope systems are located inside the Radwaste Building, please confirm if this would bring the Radwaste Building within the scope of LR and subject to an AMR. If so, please include the Radwaste Building and describe its scoping, screening and AMR results. If not, provide technical basis for the exclusion.

PPL Response:

The FSAR Section 3.8.4, title heading is a hold-over from earlier versions of the FSAR, listing of the Radwaste Building as a Safety-Related structure is inconsistent with the reduced quality group classification described in FSAR Table 3.2-1. A Condition Report (CR 893711) has been issued to rectify the FSAR text.

The Radwaste Building is not in the scope of License Renewal at SSES, or subject to aging management review, since it does not contain in-scope components and does not perform an intended function. As shown in FSAR Table 3.2-1, the Radwaste Building and associated components have a Safety Class of "Other," the definition of which is shown in FSAR Section 3.2.3.4. As described in Notes 22 and 31 of FSAR Table 3.2-1, a lower quality group classification, associated construction codes and seismic category were determined to be appropriate for Radwaste Treatment systems (and building) as a result of analysis per Regulatory Guides 1.26 and 1.29, which demonstrated that the site boundary dose would not exceed .5 Rem due to a loss of effluent from system components. This quality group classification conforms to Quality Group D (Augmented) as defined in NRC Branch Technical Position ETSB 11-1.

Table 2.3.3-18 of the LRA identifies the piping, valves, and piping components (e.g., cleanouts and pump casings) of the Radwaste Liquid System that are in the scope of License Renewal and subject to aging management review. These components provide containment isolation or are non-safety related components that are required to maintain integrity to prevent spatial interaction with, or support for attached, safety-related components. These components are located in the Reactor Building or Control Structure, as shown on the LR drawings listed in LRA Section 2.3.3.19 (e.g. LR-M-161 Sheet 2), and not in the Radwaste Building. With respect to the Radwaste Solids Handling System, the system description in LRA Section 2.3.3.20 identifies that only the system tanks and associated piping and piping components in the Reactor Building, as shown on drawings LR-M-154, Sheet 1 and LR-M-166, Sheets 1 and 2 are in-scope and subject to aging management review as identified in LRA Table 2.3.3-19.

RAI 2.4.1-1

Table 2.4-1 lists the Drywell Head (the term “Drywell Head Assembly” used in the FSAR is more appropriate) as a Primary Containment component type subject to an AMR. It is not explicitly clear from Table 2.4-1 and Table 2.4-10 if (i) the mating flange bolts that secure the head to the lower flange; (ii) the manhole bolts; and (iii) the double rubber gaskets that help prevent loss of joint leak-tightness at the head-to-lower flange connection and at the manhole are included within the scope of LR and subject to an AMR. Please confirm the inclusion or exclusion of these components. If they were not included as an oversight, please provide a description of their scoping, screening and AMR. If they are excluded from the scope of LR, please provide the technical basis for the exclusion.

PPL Response:

The mating flange bolts that secure the Drywell Head to the lower flange; the manhole bolts that secure the Manhole to the Drywell Head; and the gaskets that help prevent loss of joint leak-tightness at the Drywell Head to lower flange connection and at the manhole to Drywell Head are included in the scope of License Renewal for SSES and subject to aging management review. The manhole and gaskets are considered as part of the host component “Drywell head” and are included under Component Type “Drywell head” in Table 2.4-1. The mating flange bolts and the manhole bolts are included under Component Type “Anchor bolts (ASME Class 1, 2, 3 and MC supports bolting)” in Table 2.4-10.

Table 2.4-1 specific component type and Table 3.5.2-1 specific component/commodity are revised as shown in *bold italics* in Attachment 2.

RAI 2.4.1-2

Table 2.4-1 lists Penetrations (mechanical and electrical, primary containment boundary), as components subject to an AMR. This does not seem to include the penetrations through the Reactor Shield Wall with hinged doors or removable plugs that facilitate piping (feedwater, reactor recirculation, recirculation inlet, etc.) connections to the reactor vessel which would provide access for in-service inspection (see FSAR Section 3.8.3.1.3 and drawings C-1932 Sheets 3 & 5). Please confirm the inclusion or exclusion of these penetrations and their doors/plugs from the scope of LR and subject to an AMR. If they were not included as an oversight, please provide a description of their scoping, screening and AMR. If they are excluded from the scope of LR, please provide the technical basis for the exclusion.

PPL Response:

The penetrations through the Reactor Shield Wall with hinged doors or removable plugs are in the scope of License Renewal for SSES and subject to aging management review. These penetrations are included under Component Type “Penetrations (Mechanical and Electrical, non Primary Containment boundary)” in Table 2.4-10. The Reactor Shield Wall hinged doors/removable plugs are in the scope of License Renewal for SSES and subject to aging management review. These doors/plugs are included under Component Type “Reactor shield doors” in Table 2.4-1.

Table 2.4-1 specific component type and Table 3.5.2-1 specific component/commodity are revised as shown in *bold italics* in Attachment 3.

RAI 2.4.1-3

Section 2.4.1 and Table 2.4-1 list Access Hatches (equipment hatch, personnel airlock, suppression chamber access hatches, and the control rod drive removal hatch) as Primary Containment components subject to an AMR. It is not explicitly clear from Table 2.4-1 and Table 2.4-10 if the flange double-gaskets, hatch locks, hinges and closure mechanisms that help prevent loss of sealing/leak-tightness for these listed hatches are included within the scope of LR and subject to an AMR. Please confirm the inclusion or exclusion of these components. If they were not included as an oversight, please provide a description of their scoping and AMR. If they are excluded from the scope of LR, please provide the technical basis for the exclusion.

PPL Response:

The Component Types “Control rod drive (CRD) removal hatch,” “Personnel airlock and equipment hatches” and “Suppression chamber access hatches” in Table 2.4-1 include the flange gaskets, hatch locks, hinges and closure mechanisms. These subcomponents (flange gaskets, hatch locks, hinges and closure mechanisms) are considered as part of the host component and are in the scope of License Renewal for SSES and subject to aging management review. Under the Discussion column for LRA Table Items 3.5.1-16 and 3.5.1-17 these subcomponents are listed as part of the host component.

RAI 2.4.1-4

Based on information provided in LRA Section 2.4.1 and Tables 2.4-1 and 2.4-10, it is not clear if all drywell pipe restraints/whip restraints are within the scope of LR. If they are not included as an oversight, please provide a description of their scoping and AMR. If they are covered somewhere else in the LRA, please indicate the location. If they are excluded from the scope of LR, please provide the technical basis for the exclusion.

PPL Response:

The drywell pipe restraints/whip restraints are in the scope of License Renewal for SSES and subject to aging management review. These pipe restraints/whip restraints are included under Component Type “HELB barriers” in Table 2.4-10. HELB barriers provide jet impingement protection to various in scope components. HELB barriers include pipe whip restraints, jet impingement shields or plate barriers, and crushable energy absorbers.

Table 2.4-10 specific component type and Table 3.5.2-10 specific component/commodity are revised as shown in *bold italics* in Attachment 4.

RAI 2.4.1-5

Section 2.4.1 (page 2.4-5) of the LRA states that the suppression chamber vent pipe system is evaluated as a mechanical component in Section 2.3.2.5, Containment and Suppression System. Table 2.3.2-5 includes downcomers and piping and piping components as component types subject to an AMR. It is not clear if the vent pipe support assemblies and downcomer (vent) pipe bracing system (see drawing C-1932 Sheet 4 and FSAR Figure 6.2-56) are included and subject to an AMR. Please confirm the inclusion or exclusion of these components from the scope of LR and subject to an AMR. If they were not included as an oversight, please provide a description of their scoping and AMR. If they are excluded from the scope of LR, please provide the technical basis for the exclusion.

PPL Response:

The suppression chamber vent pipe system supports are in the scope of License Renewal for SSES and subject to aging management review. These supports are included under Component Type “Component and piping supports (Class 1, 2, 3 and MC)” in Table 2.4-10.

RAI 2.4.2-1

Table 2.4-2 lists “Reinforced concrete: walls, floors, and ceilings” as a component type subject to an AMR within the Reactor Building. Please confirm if the two reinforced concrete girders (see last paragraph of FSAR page 3.8-41) supporting the refueling facility within the Reactor Building are in-scope and subject to an AMR. If so, please state so explicitly in the table. If not, please provide the technical basis for the exclusion.

PPL Response:

The two reinforced concrete girders that support the refueling facility within the Reactor Building are in the scope of License Renewal for SSES and subject to aging management review. They are considered floor beams/walls for the refueling pools and are integral to the Reactor Building concrete structure. The reinforced concrete girders are included under Component Type “Reinforced concrete: walls, floors, and ceilings” in Table 2.4-2.

Table 2.4-2 specific component type and Table 3.5.2-2 specific component/commodity are revised as shown in *bold italics* in Attachment 5.

RAI 2.4.2-2

Table 2.4-2 in Section 2.4.2 lists “Reactor well shield plugs” as a component type subject to an AMR within the Reactor Building. Because of lack of clarity, please confirm if the spent fuel pool plugs and dryer/separator pool plugs (see drawing C-1932 Sheet 5) are included in-scope and subject to an AMR. If so, please state so explicitly in the table. If not, please provide the technical basis for the exclusion.

PPL Response:

The plugs that separate the Reactor Well and the Spent Fuel Storage Pool and the plugs that separate the Reactor Well and the Steam Dryer and Separator Storage Pool are in the scope of License Renewal for SSES and subject to aging management review. These plugs are included under Component Types “Spent fuel pool gates” and “Reactor well and steam dryer and separator storage pool gates” in Table 2.4-2. These slot plugs are concrete enclosed in welded stainless steel.

Table 2.4-2 specific component type and Table 3.5.2-2 specific component/commodity are revised as shown in *bold italics* in Attachment 6.

RAI 2.4.2-3

Tables 2.4-2, 2.4-4, 2.4-6, 2.4-7, and 2.4-8 list “Cranes, including bridge and trolley, rails, and girders” as a component type subject to an AMR within the respective structures. It is not clear to the staff which cranes have been determined to be within the scope of LR and if all relevant sub-components (“...including bridge and trolley, rails, and girders”) of these in-scope crane systems have been screened as items requiring an AMR. Specifically, please identify the specific cranes in each of these structures that are included within the above component type as in-scope and subject to an AMR and those that are excluded. If excluded, please provide the technical basis. Please confirm if fasteners and rail hardware associated with this component type are in-scope and subject

to an AMR. If not, please provide the technical basis for the exclusion. Are there any other hoists and lifting devices (e.g. reactor coolant pump, lifting slings, lifting rigs, etc.) that may need to be included in-scope and subject to an AMR? If so, please include in the tables and provide the associated scoping, screening and an AMR results.

PPL Response:

For SSES all material handling equipment specified in the response to NUREG-0612, Control of Heavy Loads, is in the scope of License Renewal for SSES and subject to aging management review. (Refer to SSES Unit 1 Control of Heavy Loads - Phase 1 - Safety Evaluation Report from NRC to PPL (August 2, 1983) and SSES Unit 2 Control of Heavy Loads - Phase 1 - Safety Evaluation Report from NRC to PPL (November 22, 1983). In addition, other monorails, hoists and miscellaneous cranes within License Renewal in-scope structures are also in the scope of License Renewal for SSES and subject to aging management review. Relevant sub-components (“...including bridge and trolley, rails, and girders”) are in the scope of License Renewal for SSES and subject to aging management review. These sub-components are included under Component Type “Cranes, including bridge and trolley, rails, and girders” in Tables 2.4-2, 2.4-4, 2.4-6, 2.4-7, and 2.4-8.

Fasteners and rail hardware associated are in the scope of License Renewal for SSES and subject to aging management review. These fasteners and rail hardware included under Component Type “Anchorage / Embedments and Anchor Bolts” in Table 2.4-10.

Lifting devices (e.g. lifting slings, lifting rigs, etc.) are tools/rigging that are not within License Renewal scope at SSES.

All the cranes, monorails, hoists and miscellaneous cranes within the in-scope License Renewal SSES structures are in the scope of License Renewal for SSES and subject to aging management review.

The following is a list of License Renewal in-scope Cranes, Monorails, Hoists and Miscellaneous Cranes for SSES.

SSES Cranes and Monorails, Hoists (NUREG-0612)	
Building	Description
Reactor	Reactor Building Crane
Reactor	Refueling Platform
Diesel Generator A to E	Diesel Generator Bridge Cranes

SSES Cranes and Monorails, Hoists (NUREG-0612)	
Building	Description
Monorails, Hoists and Miscellaneous Cranes	
Reactor	Recirculation Pump Hoist
Reactor	RHR Heat Exchanger Hoists
Reactor	HPCI Hoist
Reactor	Core Spray Pump & Cooling Water Heat Exchanger Hoists
Reactor	Equipment Shaft Crane
Reactor	Reactor Building Concrete Shielding Block Hoists
Reactor	Drywell Equipment Hatch Hoist
Primary Containment	Drywell Main Steam Relief Valve Hoist
Primary Containment	Main Steam Isolation Valve Hoist
SSES Monorails, Hoists and Miscellaneous Cranes (Not within NUREG-0612)	
Building	Description
Circulating Water Pumphouse	Circulating Water Pump Bridge Crane
Turbine	220 Ton Overhead Cranes
Various in-scope structures	Miscellaneous monorails/hoists within in-scope structures

RAI 2.4.6-1

Tables 2.4-6 and 2.4-7 list the components of the Diesel Generator (DG) Buildings A, B, C, D, and E that are subject to an AMR. Please confirm that the DG pedestals are components requiring an AMR are included in the referenced Tables of the LRA. If not, please provide the technical basis for the exclusion.

PPL Response:

Diesel Generator Pedestals are an integral part of the Diesel Generator building concrete structure and are in the scope of License Renewal for SSES and subject to aging management review. The Diesel Generator Pedestals are included under Component Type "Reinforced concrete: walls, floors, and ceilings" in Table 2.4-6 and Table 2.4-7.

RAI 2.4.8-1

Table 2.4-8 lists the components of the Turbine Building that are subject to an AMR. Please confirm if the pipe tunnels at the foundation level for the off-gas piping (see third paragraph under the title “Turbine Building” on page 3.8-44 of the FSAR and drawing A-11 Sheet 1) are in-scope and subject to an AMR and are included in the referenced table. If not, please provide the technical basis for the exclusion.

PPL Response:

The pipe tunnels at the foundation level for the off-gas piping are an integral part of the Turbine building concrete structure and in the scope of License Renewal for SSES and subject to aging management review. The pipe tunnels are included under Component Type “Reinforced concrete: walls, floors, and ceilings” in Table 2.4-8.

RAI 2.4.10-1

Sections 2.4.1 thru 2.4.9 state that the structural commodities for these respective structures are addressed in the bulk commodities evaluation in Section 2.4.10. Table 2.4-10 lists the Bulk Commodities Components Subject to an AMR in categories based on the material of the component type. This table does not identify the specific structures addressed in Sections 2.4.1 thru 2.4.9 in which these individual component types are located. Please add a column to Table 2.4-10 listing the structure(s) in which each bulk commodity component type is located. Clearly state if the intent of the table is for every occurrence (all inclusive) of these component types in each of the applicable structures are in-scope and subject to an AMR. If not, specifically identify those cases which are in-scope and subject to an AMR and those that are not in-scope and excluded from an AMR with technical justification for exclusion. Please confirm and address if there is or is not any Lubrite sliding support bearings/surfaces in-scope and subject to an AMR and will need to be included in Table 2.4-10.

PPL Response:

As stated in Section 2.4.10, the Bulk Commodities common to SSES in-scope License Renewal structures are listed in Table 2.4-10. They are common to multiple SSCs and share material and environment properties which allow a common program or inspection to manage their aging effects. Commodities unique to a specific structure are included in the review of that structure (Sections 2.4.1 through 2.4.9). All commodities within the SSES in-scope License renewal structures are in-scope and are subject to aging management review and are listed in Table 2.4-10. Commodities classified as Bulk Commodities typically have no unique component identification number. Therefore, a comprehensive listing of components and location is not feasible. LRA Table 3.5.2-10

describes and indicates Aging Management Programs for the components listed in Section 2.4.10.

There are no in-scope License Renewal Lubrite sliding support bearings/surfaces at SSES.

RAI 2.4.10-2

Based on information provided in Table 2.4-10, the staff cannot specifically identify the insulation and insulation jacketing included in the LR scope nor the specific subsets of insulation and insulation jacketing that are included in Table 2.4-10. It is also unclear whether insulation and jacketing on the reactor vessel, reactor coolant system, main steam and feed water systems have been included. In order to help staff complete the screening review for insulation and insulation jacketing, please provide the following information:

- (a) Identify the structures and structural components designated within the LR scope that have insulation and/or insulation jacketing, and identify their location in the plant. Identify locations of the thermal insulation that serves an intended function in accordance with 10 CFR 54.4(a)(2) and describe the scoping and screening results of thermal insulation and provide technical basis for its exclusion from the scope of LR.
- (b) For insulation and insulation jacketing materials associated with item (a) above that do not require aging management, submit the technical basis for this conclusion, including plant-specific operating experience.
- (c) For insulation and insulation jacketing materials associated with item (a) above that require aging management, indicate the applicable LRA sections that identify the AMPs credited to managing aging.

PPL Response:

The component type "Reactor vessel thermal insulation" is in the scope of License Renewal for SSES and subject to aging management review as listed in LRA Table 2.4-1. Insulation for Reactor Coolant, Main Steam, and Feedwater System components in the scope of License Renewal is also in-scope at SSES and subject to aging management review as listed in LRA Table 2.4-10 under Component Types "Insulation" and "Insulation jacketing."

- (a) LRA Section 2.1.2.6 describes the treatment of insulation, including the identification of the various materials, indication of scope, and evaluation of degradation potential. Thermal insulation provides nonsafety-related insulating

characteristics and personnel protection for both safety-related and nonsafety-related mechanical components that contain fluid (liquid or steam).

Piping and equipment insulation is not classified as safety-related and has the intended function to maintain its structural integrity for nonsafety affecting safety (NSAS) considerations, in accordance with 10 CFR 54.4(a)(2), if located in a structure that contains safety-related equipment and components. Insulating materials (insulation and insulation jacketing) that function to limit heat transfer or are required to maintain their structural integrity are in the scope of License Renewal at SSES and subject to aging management review.

Similar to numerous structural components that are not uniquely identified, for which a comprehensive listing of components and location is not feasible, the various in-scope insulation and insulation jacketing materials are addressed as bulk commodities.

- (b) Aging management reviews have determined that no aging management is required for insulation and insulation jacketing materials associated with item (a).

As described in LRA Section 2.1.2.6, only stainless steel reflective metal or stainless steel jacketed insulation is used inside containment. In other structures, aluminum or aluminum jacketing is also used. Both stainless steel and aluminum insulating materials are listed in LRA Table 3.5.2-10. These metallic insulating materials are exposed to uncontrolled indoor air and no aging management is required consistent with NUREG-1801 items VII.J-15 and V.F-2, as addressed in LRA items 3.2.1-50 and 3.3.1-94. Furthermore, while aluminum exposed to uncontrolled indoor air is not listed in NUREG-1801 Volume II, Chapters IV or VII, stainless steel and steel exposed to uncontrolled indoor air requires no aging management as listed in item NUREG-1801 items IV.E-2, VIII.I-10 and VIII.I-13. Similarly, in-scope metallic insulation materials for the Reactor Coolant, Main Steam and Feedwater systems do not require aging management. This was not reflected in LRA items 3.1.1-85 or 3.4.1-41.

With respect to other evaluated insulating materials, such as calcium silicate, fiberglass, Flexible "Min-K" (ceramic), woven glass fiber, and ceramic fiber listed in LRA Table 3.5.2-10, aging management is also not required. Operating experience has not identified any age-related degradation of insulation and typical insulation problems are event driven (e.g., mechanical damage), and not considered for license renewal.

The potential for degradation of insulation is described in LRA Section 2.1.2.6. The only plausible aging effects that could result in degradation and failure, affecting the intended function or creating a potential for spatial interaction are those which may cause reaction or corrosion of barriers and coverings or that

could impact the insulating materials themselves. The relevant conditions do not exist in the indoor air environment of the subject NSAS component group for the following aging effect(s) to occur:

- Loss of Material due to Corrosion – The SSES site is a location that is rural rather than industrial or coastal and the air is not salt-laden nor does it contain sufficient contaminants (e.g., sulfur) to concentrate and attack the insulation barriers/coverings.
- Loss of Material, Cracking, and/or Change in Material Properties due to Ultra-Violet (UV) Radiation and/or Oxidation – Ultra-violet radiation and the oxidizing effects of the air may also cause deterioration of insulation barriers and coverings. However, the only insulation at SSES that is not either encapsulated in aluminum or stainless steel jacketing, or is reflective metal (stainless steel or aluminum), are for the diesel engine exhaust lines, where “Fibrefrax” cloth blanket is an acceptable alternate jacketing material, and locations that have “Temp-mat” (fiberglass blanket) or “Min-K” (ceramic fiber) insulation. Stainless steel and aluminum jacket materials are resistant to the oxidizing effect of the air, due to the passive layer and are considered impervious to ultraviolet radiation (e.g., plant lighting).

With respect to “Temp-mat,” “Min-K,” and Fibrefrax (cloth coated alternative) insulation, the limited uses of these insulation types (e.g., diesel exhaust lines, pipe whip restraints, etc.) are not expected to experience sufficient UV radiation (plant lighting) exposure or ambient air oxidation to result in degradation.

- Loss of Material due to Wear – Wear (abrasion) is an applicable aging mechanism for insulation whenever there is relative movement between a surface and an insulation barrier or cover that is in contact. However, wear occurs during the performance of active functions; as a result of improper design, application, or operation; or to a very small degree with insignificant consequences.

Degradation of Insulating Materials – The insulating materials are fabricated of calcium silicate, glass fiber, or ceramic fiber. As described in LRA Item 3.3.1-93, and others, no aging management is required for glass exposed to uncontrolled indoor air. The thermal resistance (insulating) characteristics of mass insulation systems are not expected to naturally degrade over the course of their service life as proper selection, design and installation for the specific service and condition is assumed. Unless protective coverings of mass insulation systems are damaged, loss/degradation of insulating material is not a concern. Mass insulation systems used in nuclear plant applications typically are sealed and include a combination of insulating material and a weather barrier, vapor barrier, condensate barrier, or covering for the specific service. This outer covering (or barrier) protects mass insulation from the weather,

solar/UV radiation, or atmospheric contaminants, and mechanical damage, but permits the evaporation of any moisture vapor. Furthermore, SSES operating experience supports a lack of degradation in insulating characteristics over the service life of insulation, except as the result of event-driven mechanical damage of coatings/barriers

Details of the operating experience review and aging management review of non-metallic insulating materials are contained in auditable format and available for onsite review.

- (c) There are no aging effects requiring management for any subject insulating material component group that is exposed to indoor air, in order to preclude spatial interaction with safety-related SCs, or for an intended (insulation) function credited in heating analyses.

RAI 2.4.10-3

Table 2.4-10 lists “Monorails, hoists and miscellaneous cranes” as a bulk commodity component type subject to an AMR. It is not clear to the staff which specific monorails, hoists and miscellaneous cranes have been determined to be within the scope of LR and if all relevant sub-components (including bridge and trolley, rails, girders, etc.) of these in-scope items have been screened in as items requiring an AMR. Please identify the specific monorails, hoists, and cranes that are included within the above component type as in-scope and subject to an AMR and those that are excluded with technical basis. Please confirm if there are any bridge and trolley, rails, and girders associated with these miscellaneous cranes and if they are included in-scope and subject to an AMR. Also, confirm if fasteners and rail hardware associated with this component type are in-scope and subject to an AMR. If not, please provide the technical basis for the exclusion.

PPL Response:

Monorails, hoists and miscellaneous cranes within License Renewal in-scope structures are also in the scope of License Renewal for SSES and subject to aging management review. (Refer to response to RAI 2.4.2-3 above)

Relevant sub-components (including bridge and trolley, rails, and girders) are in the scope of License Renewal for SSES and subject to aging management review. These sub-components are included under Component Type “Monorails, hoists and miscellaneous cranes” in Table 2.4-10.

Fasteners and rail hardware associated are in the scope of License Renewal for SSES and subject to aging management review. These fasteners and rail hardware included under Component Type “Anchorage / Embedments and Anchor Bolts” in Table 2.4-10.

Attachment 1 to PLA-6262

**Revised LRA Section 2.4
(RAI 2.4-1)**

LRA Amendment

Revise text of Section 2.4, fourth paragraph, first sentence (deleted text shown as strike through ***bold italics***)

The ~~***major***~~ structures in the scope of license renewal are the:

Attachment 2 to PLA-6262

**Revised LRA Tables 2.4-1 and Table 3.5.2-1
(RAI 2.4.1-1)**

LRA Amendment (added text shown in *bold italics*)

LRA Table 2.4-1

Component Type	Intended Function (as defined in Table 2.0-1)
Drywell head (<i>drywell head assembly includes manhole and double gaskets</i>)	EN, PB, MB, SSR

LRA Table 3.5.2-1

Component / Commodity	Intended Function ¹	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Drywell Head (<i>drywell head assembly includes manhole and double gaskets</i>)	EN, PB, MB, SSR	Carbon Steel	Protected from weather	Loss of material	ISI-IWE Containment Leakage Rate Test Program	II.B2.2-10	3.5.1-05	A

Attachment 3 to PLA-6262

**Revised LRA Tables 2.4-1 and Table 3.5.2-1
(RAI 2.4.1-2)**

LRA Amendment (added text shown in *bold italics*)

LRA Table 2.4-1

Component Type	Intended Function (as defined in Table 2.0-1)
Reactor shield doors (<i>includes hinged doors and removable plugs</i>)	EN, SHD, SSR

LRA Table 3.5.2-1

Component / Commodity	Intended Function ¹	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Reactor shield doors (<i>includes hinged doors and removable plugs</i>)	EN, SHD, SSR	Carbon Steel	Protected from weather	Loss of material	Structures Monitoring Program	III.A4-5	3.5.1-25	A

Attachment 4 to PLA-6262

**Revised LRA Tables 2.4-10 and Table 3.5.2-10
(RAI 2.4.1-4)**

LRA Amendment (added text shown in *bold italics*)LRA Table 2.4-10

Component Type	Intended Function (as defined in Table 2.0-1)
HELB barriers (<i>includes pipe restraints, whip restraints, jet impingement shields/plate barriers, and crushable energy absorbers</i>)	HELB, PW, SNS, SSR

LRA Table 3.5.2-10

Component / Commodity	Intended Function ¹	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG -1801 Volume 2 Item	Table 1 Item	Notes
HELB barriers (<i>includes pipe restraints, whip restraints, jet impingement shields/plate barriers and crushable energy absorbers</i>)	HELB, PW, SNS, SSR	Aluminum	Protected from weather	None	None	III.B5-2	3.5.1-58	C
		Carbon Steel	Protected from weather	Loss of material	Structures Monitoring Program	III.B5-7	3.5.1-39	C
		Galvanized Steel	Protected from weather	None	None	III.B5-3	3.5.1-58	C

Attachment 5 to PLA-6262

**Revised LRA Tables 2.4-2 and Table 3.5.2-2
(RAI 2.4.2-1)**

LRA Amendment (added text shown in *bold italics*)

LRA Table 2.4-2

Component Type	Intended Function (as defined in Table 2.0-1)
Reinforced concrete: <i>girders</i> , walls, floors, and ceilings	EN, FB, FLB, HELB, MB, PB, PW, SHD, SNS, SRE, SSR

LRA Table 3.5.2-2

Component / Commodity	Intended Function ¹	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Reinforced Concrete: <i>Girders</i> , walls, floors, and ceilings	EN, FB, FLB, HELB, MB, PB, PW, SHD, SNS, SRE, SSR	Concrete	Protected from weather	None	Structures Monitoring Program	N/A	N/A	I, 0501
					Fire Protection Program	N/A	N/A	I, 0501

Attachment 6 to PLA-6262

**Revised LRA Tables 2.4-2 and Table 3.5.2-2
(RAI 2.4.2-2)**

LRA Amendment (added text shown in *bold italics*)

LRA Table 2.4-2

Component Type	Intended Function (as defined in Table 2.0-1)
Reactor well and steam dryer and separator storage pool gates <i>(includes steam dryer / separator pool plugs)</i>	SSR
Spent fuel pool gates <i>(includes spent fuel pool plugs)</i>	SSR

LRA Table 3.5.2-2

Component / Commodity	Intended Function ¹	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Volume 2 Item	Table 1 Item	Notes
Reactor Well and Steam Dryer and Separator Storage Pool Gates <i>(includes steam dryer / separator pool plugs)</i>	SSR	Stainless Steel	Protected from weather	None	None	III.B5-5	3.5.1-59	C
Spent Fuel Pool Gates <i>(includes spent fuel pool plugs)</i>	SSR	Stainless Steel	Exposed to treated water	Loss of material	BWR Water Chemistry Program Spent Fuel Pool Water Monitoring per Tech Spec Leak Chase Channel Monitoring Activities	III.A5-13	3.5.1-46	C, 0514