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SOUTHERN COMPANY
Energy to Serve Your World℠

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NL-08-0275

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant
License Renewal – Responses to 01/28/2008 RAIs

Ladies and Gentlemen:

By letter dated June 27, 2007, Southern Nuclear Operating Company (SNC) submitted a License Renewal Application (LRA) for Vogtle Electric Generating Plant (VEGP) Units 1 and 2, seeking to extend the terms of the operating licenses an additional 20 years beyond the current expiration dates.

By two letters, both dated January 28, 2008, the Nuclear Regulatory Commission (NRC) submitted Requests for Additional Information (RAIs) to SNC resulting from the NRC staff review of the LRA. The SNC responses to these RAIs are provided in the enclosure to this letter.

(Affirmation and signature are provided on the following page.)

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NRR

Mr. T. E. Tynan states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

The NRC commitments contained in this letter are listed in the updated License Renewal Commitment List, to be provided concurrently with the first LRA amendment. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

T. E. Tynan
Vice President – Vogtle

Sworn to and subscribed before me this 27 *day of* February, *2008.*

Notary Public

Notary Public, Burke County, Georgia
My Commission Expires January 13, 2012

My commission expires:

TET/JAM/daj

Enclosure: VEGP License Renewal Audit Question Responses

cc: Southern Nuclear Operating Company

Mr. J. T. Gasser, Executive Vice President	w/o Enclosure
Mr. T. E. Tynan, Vice President – Vogtle	w/o Enclosure
Mr. D. H. Jones, Vice President – Engineering	w/o Enclosure
Mr. B. J. George, Manager, Nuclear Licensing	w/ Enclosure
Mr. N. J. Stringfellow, Licensing Supervisor, Vogtle	w/ Enclosure
RType: CVC7000	

U. S. Nuclear Regulatory Commission

Mr. V. M. McCree, Acting Regional Administrator	w/ Enclosure
Mr. S. P. Lingam, NRR Project Manager – Vogtle	w/ Enclosure
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle	w/ Enclosure
Mr. D. J. Ashley, License Renewal Project Manager, Vogtle	w/ Enclosure

State of Georgia

Mr. N. Holcomb, Commissioner – Department of Natural Resources	w/o Enclosure

Vogtle Electric Generating Plant

Enclosure

VEGP License Renewal RAI Responses – January 28, 2008

Vogtle License Renewal Audit Questions and Answers

RAI - 2.1-1

License renewal application (LRA) Section 2.1.2.1, "Title 10 CFR 54.4(a)(1) - Safety-related," states that 10 CFR 54.4(a)(1) requires that plant system, structure, and components (SSCs) within the scope of license renewal include safety-related SSCs which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49(b)(1)) to ensure the following functions:

(i) The integrity of the reactor coolant pressure boundary;

(ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or

(iii) The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the guidelines in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.

LRA Section 2.1.2.1 also states that safety-related classifications for SSCs at the Vogtle Electric Generating Plant (VEGP) are reported in the final safety analysis report (FSAR) or in design-basis documents such as engineering drawings, evaluations, or calculations. Safety-related classifications for components are documented on engineering drawings and in the VEGP Q-List. The safety-related classification as reported in these source documents has been relied upon to identify SSCs satisfying one or more of the criteria of 10 CFR 54.4(a)(1). These SSCs have been identified as within the scope of license renewal.

During the audit, however, the staff noted that source documents used to identify the SSCs which met the scoping criteria of 10 CFR 54.4(a)(1), including the VEGP updated safety analysis report Section 3.2, and procedures AP 05-007, Section 6.1.4, and AP 23M-001, Section 4.17.1, have differing definitions of safety-related and also currently cite superseded regulatory text in establishing the scoping criteria to be used in identifying VEGP SSCs in accordance with 10 CFR 54.4(a)(1) requirements.

Therefore, the staff requests that the applicant provide a written evaluation that addresses the impact, if any, of the use of a differing definition of safety-related and of not having explicitly considered in its scoping methodology for VEGP those SSCs that are relied upon to ensure "the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guidelines in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11 of this chapter, as applicable," consistent with the facility's current licensing basis (CLB).

VEGP Response:

The VEGP definition of safety related for current design activities is defined in procedure ENG-016 which reads:

Any structure, system, component, or part used in a nuclear power plant that is relied upon during or following design basis events to assure:

- *The integrity of the reactor coolant pressure boundary,*
- *The capability to shut down the reactor and maintain it in safe shutdown condition, or*

- *The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures of 10 CFR 100.11.*

As noted in the question, wording in historic procedures has not always been section specific, but the intent and application was consistent. The CLB classification of VEGP SSCs was based on design criteria documents. The governing procedure for creation of these documents (PS-VS-001) was the primary source of the wording discrepancy in that it defined safety related as:

Equipment, components, or structures perform a safety-related function if that function is required to:

- *Maintain the integrity of the reactor coolant pressure boundary.*
- *Shut down the plant and maintain the plant in a safe shutdown condition.*
- *Prevent accidents or mitigate their consequences.*

This definition could not be used without further clarification because it did not define what accidents or consequences. However, it was understood that this paragraph implied accidents defined by limits in 10 CFR 100. This inference was demonstrated in DC-1010, which was the section of the design manual that defined the safety classification of the VEGP SSCs. This section defined safety related as:

Systems, structures, and components important to safety are defined as those items necessary to ensure:

- *The integrity of the reactor coolant pressure boundary.*
- *The capability to shut down the reactor and maintain it in a safe shutdown condition.*
- *The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures of 10 CFR 100.*

While this reference does not include the specific section (10 CFR 100.11), the section of the 10 CFR 100 that defined "potential offsite exposures" during initial classification of VEGP SSCs was section 11. Therefore, the CLB definition of safety related SSCs for VEGP has been consistently applied and meets the criteria of 10 CFR 54.4(a)(1). (As noted in the VEGP license renewal application, 10 CFR 50.34(1)(1) and 10 CFR 50.67(b)(2) do not apply to VEGP.)

Vogtle License Renewal Audit Questions and Answers

RAI - 2.1-2

10 CFR 54.4 (a)(2) requires, in part, that all nonsafety-related SSCs, whose failure could prevent the satisfactory accomplishment of any of the function identified in paragraphs 54.4(a)(1), are to be included within the scope of license renewal.

LRA Section 2.4.4 indicates the following:

"Although not defined as essential, the Turbine Building includes components classified as safety-related that are used as sensors for providing input signals to, and as actuation devices for, the reactor trip and engineered safety features actuation systems (e.g., anticipatory reactor trip function on a turbine trip, turbine impulse pressure signal, steam dump solenoids, and turbine trip actuation on a reactor trip). The associated supports and raceways are classified in the CLB consistent with the components and are in the scope of license renewal under the 10 CFR 54.4(a)(1) criterion and scoped and evaluated under Section 2.4.12, Component Supports and Bulk Commodities."

LRA Section 2.1.2.2, "10 CFR 54.4(a)(2) - Nonsafety-Related SSCs Affecting Safety-Related SSCs," does not specifically address the use of the CLB to exclude nonsafety-related SSCs in the vicinity of safety-related SSCs in the turbine building from within the scope of license renewal.

During the U.S. Nuclear Regulatory Commission's audit, the staff reviewed the applicant's technical evaluation for nonsafety-related affecting safety-related SSCs which discussed the consideration of components located in the turbine building and identified as safety-related in the VEGP FSAR, a portion of the applicant's CLB. The applicant concluded in the technical evaluation that, although the turbine building contains components identified as safety-related in the FSAR, these components are not vulnerable to the effects of a failure of nonsafety-related SSCs in the non-seismic areas within the limits of the CLB. Therefore, no additional SSCs were included within the scope of license renewal based on the requirements of 10 CFR 54.4(a)(2).

The staff requests that the applicant provide the rationale and basis for not including nonsafety-related SSCs in the vicinity of safety-related SSCs in the turbine building within the scope of license renewal. Indicate the extent of condition by providing a description of the safety-related SSCs, the safety-related intended functions, the locations within the turbine building, and the CLB information used to make the determination.

In addressing this issue, indicate if your review concludes that use of the scoping methodology precluded the identification of nonsafety SSCs that could interact with safety-related SSCs and were not specifically exempted by your CLB and, therefore, should have been considered within the scope of license renewal. Describe any additional scoping evaluations to be performed to address the 10 CFR 54.4(a)(2) criteria.

As part of your response, list any additional SSCs included within the scope as a result of your efforts, and list those SSCs for which aging management reviews were conducted. For each SSC, describe the aging management programs, as applicable, to be credited for managing the identified aging effects.

VEGP Response:

The following components in the turbine building are classified as safety related:

- Turbine Impulse Pressure Transmitters
- Turbine Steam Bypass Valve (steam dump valve) Air Supply Solenoid Valves
- High Pressure Turbine Steam Stop Valve Limit Switches
- High Pressure Turbine Steam Control Valve EHC Oil Pressure Transmitters and manual isolation valves

Since these components are safety related, they are in scope for license renewal and will be age-managed in accordance with the screening and aging management review processes which will be performed for VEGP. It was determined that these components do not provide input to and are not linked to the engineered safety features actuation system. The license renewal application will be amended to remove reference to this system.

Scoping methodology did not systematically result in the conclusion that no additional non-safety related components in the turbine building would be included in scope under 10CFR54.4(a)(2). Instead, each of these components was evaluated for its intended function specifically. The sum of these evaluations concluded that no additional non-safety related components in the turbine building were in the scope of license renewal.

The following summarizes the results of the evaluation for each of these components.

Turbine Impulse Pressure Transmitters

The turbine impulse pressure transmitters provide input to the solid state protection system. These transmitters are used to provide a turbine power input to the RPS and to AMSAC.

As noted in VEGP FSAR 7.2.1.1.3.B, the Turbine Impulse Pressure Transmitter circuits are designed to similar criteria as the reactor trip on turbine trip circuits. BTP ICSB 26 stated that: "All reactor trips incorporated in the reactor protection system should be designed to meet the requirements of IEEE Std 279. This position applies to the entire trip function from the sensor to the final actuation device. For sensors located in non-seismic areas the installation (including circuit routing) and design should be such that the effects of credible faults (i.e. grounding, shorting, application of high voltage, or electromagnetic interference) or failures in these areas could not be propagated back to the RPS and degrade the RPS performance or reliability. The sensors should be qualified to operate in a seismic event, i.e., not fail to initiate a trip for conditions which would cause a trip."

While VEGP conservatively classified these components as safety related, these components are strictly anticipatory, and the VEGP current licensing basis only requires them to meet the requirements of IEEE Std 279 to prevent failures or faults from propagating back to the RPS. Neither the Branch Technical Position or the IEEE Standard require the components which provide the anticipatory trips to be safety related. In NUREG-1137, "Safety Evaluation Report related to the operation of Vogtle Electric Generating Plant, Units 1 and 2," June 1985, Section 7.2.3, the NRC concluded that the VEGP design "... satisfies the requirements of IEEE 279 with regard to control and protection system interaction."

Part 54 of the Code of Federal Regulations, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," paragraph 54.4(a)(2), requires that all non-safety related systems, structures, and components whose failure could prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii) be included in the scope of license renewal.

Since the turbine impulse pressure transmitters (1) perform no safety function, (2) are not credited in

the accident analysis, and (3) meet the VEGP current licensing basis for preventing interactions from propagating back into the RPS, they can not prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii). Therefore VEGP determined the provisions of 10 CFR 54.4, paragraph (a)(2) do not apply.

Turbine Steam Bypass Valve (steam dump valve) Air Supply Solenoid Valves

The turbine bypass system contains 12 air-actuated globe valves. The valves are pilot operated, spring opposed, and fail closed on loss of air or loss of power to the control system. FSAR section 10.4.4.2.3 states that during normal operating transient the turbine bypass system is automatically regulated by the reactor coolant temperature control system to maintain the programmed coolant temperature. The programmed coolant temperature is derived from the high pressure turbine first-stage pressure, which is a load reference signal. The difference between programmed reactor coolant average temperature and measured reactor coolant average temperature is used to activate the steam dump valves under automatic control. This function requires the use of air operated solenoid valves which are listed as follows:

While the solenoid valves are conservatively classified as safety related, FSAR sections 10.4.4.1.1 (Safety Design Bases) and 10.4.4.3 (Safety Evaluation) state that the turbine bypass system serves no safety function and has no safety design basis. Furthermore, there are no safety related equipment in the vicinity of the turbine bypass system.

As noted in VEGP FSAR 7.2.1.1.2.F, the criteria of IEEE Std 279 are also applicable to the Turbine Steam Bypass solenoid valves. These criteria are intended to prevent failures or faults from propagating back to the RPS.

Part 54 of the Code of Federal Regulations, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," paragraph 54.4(a)(2), requires that all non-safety related systems, structures, and components whose failure could prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii) be included in the scope of license renewal.

Since the turbine steam bypass valve air supply solenoid valves (1) perform no safety function, (2) are not credited in the accident analysis, and (3) meet the VEGP current licensing basis for preventing interactions from propagating back into the RPS, they can not prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii). Therefore VEGP determined the provisions of 10 CFR 54.4, paragraph (a)(2) do not apply.

High Pressure Turbine Steam Stop Valve Limit Switches

The high pressure turbine steam stop valve limit switches provide inputs to the solid state protection system.

The reactor trip on a turbine trip is actuated by two- out-of-three logic from emergency trip fluid pressure signals or by all closed signals from the turbine steam stop valves. A turbine trip causes a direct reactor trip above P-9. The reactor trip on turbine trip provides additional protection and conservatism beyond that required for the health and safety of the public. This trip is included as part of good engineering practice and prudent design and satisfies the requirement of TMI Action Items II.K.3.10 and II.K.3.12.

In earlier designs, the anticipatory trips were not designed to the requirements of ANSI/IEEE Std. 279,

"Criteria for Protection Systems for Nuclear Power Generating Stations." Those earlier designs introduced non-safety grade equipment into the Reactor Protection System. Branch Technical Position ICSB 26, "Requirements for Reactor Protection System Anticipatory Trips," provides guidance intended to protect the RPS from failures in non-safety related systems which could propagate back into the RPS. Consistent with BTP ICSB 26, VEGP takes no credit for a direct reactor trip caused by a turbine trip (FSAR 15.2.3).

BTP ICSB 26 stated that: "All reactor trips incorporated in the reactor protection system should be designed to meet the requirements of IEEE Std 279. This position applies to the entire trip function from the sensor to the final actuation device. For sensors located in nonseismic areas the installation (including circuit routing) and design should be such that the effects of credible faults (i.e. grounding, shorting, application of high voltage, or electromagnetic interference) or failures in these areas could not be propagated back to the RPS and degrade the RPS performance or reliability. The sensors should be qualified to operate in a seismic event, i.e., not fail to initiate a trip for conditions which would cause a trip."

While VEGP conservatively classified these components as safety related, these components are strictly anticipatory, and the VEGP current licensing basis only requires them to meet the requirements of IEEE Std 279 to prevent failures or faults from propagating back to the RPS. Neither the Branch Technical Position or the IEEE Standard require the components which provide the anticipatory trips to be safety related. In NUREG-1137, "Safety Evaluation Report related to the operation of Vogtle Electric Generating Plant, Units 1 and 2," June 1985, Section 7.2.3, the NRC concluded that the VEGP design "... satisfies the requirements of IEEE 279 with regard to control and protection system interaction."

Part 54 of the Code of Federal Regulations, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," paragraph 54.4(a)(2), requires that all non-safety related systems, structures, and components whose failure could prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii) be included in the scope of license renewal.

Since the turbine impulse pressure transmitters (1) perform no safety function, (2) are not credited in the accident analysis, and (3) meet the VEGP current licensing basis for preventing interactions from propagating back into the RPS, they can not prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii). Therefore VEGP determined the provisions of 10 CFR 54.4, paragraph (a)(2) do not apply.

<u>High Pressure Turbine Steam Control Valve EHC Oil Pressure Transmitters</u>

The high pressure turbine steam control valve EHC oil pressure transmitters provide inputs to the solid state protection system. .

The reactor trip on a turbine trip is actuated by two- out-of-three logic from emergency trip fluid pressure signals or by all closed signals from the turbine steam stop valves. A turbine trip causes a direct reactor trip above P-9. The reactor trip on turbine trip provides additional protection and conservatism beyond that required for the health and safety of the public. This trip is included as part of good engineering practice and prudent design and satisfies the requirement of TMI Action Items II.K.3.10 and II.K.3.12.

In earlier designs, the anticipatory trips were not designed to the requirements of ANSI/IEEE Std. 279, "Criteria for Protection Systems for Nuclear Power Generating Stations." Those earlier designs introduced non-safety grade equipment into the Reactor Protection System. Branch Technical Position

ICSB 26, "Requirements for Reactor Protection System Anticipatory Trips," provides guidance intended to protect the RPS from failures in non-safety related systems which could propagate back into the RPS. Consistent with BTP ICSB 26, VEGP takes no credit for a direct reactor trip caused by a turbine trip (FSAR 15.2.3).

BTP ICSB 26 stated that: "All reactor trips incorporated in the reactor protection system should be designed to meet the requirements of IEEE Std 279. This position applies to the entire trip function from the sensor to the final actuation device. For sensors located in nonseismic areas the installation (including circuit routing) and design should be such that the effects of credible faults (i.e. grounding, shorting, application of high voltage, or electromagnetic interference) or failures in these areas could not be propagated back to the RPS and degrade the RPS performance or reliability. The sensors should be qualified to operate in a seismic event, i.e., not fail to initiate a trip for conditions which would cause a trip."

While VEGP conservatively classified these components as safety related, these components are strictly anticipatory, and the VEGP current licensing basis only requires them to meet the requirements of IEEE Std 279 to prevent failures or faults from propagating back to the RPS. Neither the Branch Technical Position or the IEEE Standard require the components which provide the anticipatory trips to be safety related. In NUREG-1137, "Safety Evaluation Report related to the operation of Vogtle Electric Generating Plant, Units 1 and 2," June 1985, Section 7.2.3, the NRC concluded that the VEGP design "... satisfies the requirements of IEEE 279 with regard to control and protection system interaction."

Part 54 of the Code of Federal Regulations, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," paragraph 54.4(a)(2), requires that all non-safety related systems, structures, and components whose failure could prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii) be included in the scope of license renewal.

Since the safety related components in the Turbine Building (1) perform no safety function, (2) are not credited in the accident analysis, and (3) meet the VEGP current licensing basis for preventing interactions from propagating back into the RPS, they can not prevent satisfactory accomplishment of any of the safety related functions discussed in 10 CFR 54.4, paragraphs (a)(1) (i), (ii), or (iii). Therefore the provisions of 10 CFR 54.4, paragraph (a)(2) do not apply.

Based on the above summary of scoping determinations for components classified as safety related in the turbine building, no additional components in the turbine building are considered to be within the scope of license renewal.

A license renewal application amendment is required to remove reference to ESFAS.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.2-1

License renewal application Table 2.2-2 defines the Circulating Water System, System No. 1401, as not within the scope of license renewal. Similar plant designs have identified their Circulating Water systems as being within scope based on 10 CFR 54.4(a)(2). Please provide additional information to justify exclusion of the Circulating Water System with respect to the applicable requirements of 10 CFR 54.4(a).

VEGP Response:

The Circulating Water System components are located entirely within the Turbine Building, or in outside areas remote from any safety related systems, structures, or components (SSCs). The Circulating Water System is not attached to any safety related SSCs. Refer to the answer to RAI 2.1-2 for discussion regarding non-safety related components in the Turbine Building. The Circulating Water System components in the outside areas are physically located such that there is no potential for interaction with a safety related SSC. Therefore, the Circulating Water System is not in scope for the 10 CFR 54.4(a)(2) scoping criteria.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.2-2

License renewal application Table 2.2-2 defines the Turbine Plant Closed Cooling Water System, System No. 1404, as not within the scope of license renewal. However, the Turbine Plant Cooling Water System, License Renewal Application (LRA) section 2.3.3.7, is identified as being within the scope of license renewal based on 10 CFR 54.4(a)(2). It appears these two systems are very similar. Please provide additional information to justify exclusion of the Turbine Plant Closed Cooling Water System with respect to the applicable requirements of 10 CFR 54.4(a).

VEGP Response:

The Turbine Plant Cooling Water System, System No. 1405, is in scope based on 10 CFR 54.4(a)(2) because it supplies cooling water to the CVCS Chiller, the Steam Generator Blowdown Trim Heat Exchangers, and corrosion product monitors which are located in the Auxiliary Building. With certain exceptions based on location, those portions of the Turbine Plant Cooling Water System which are located in the Auxiliary Building are in scope for potential spatial interaction. Please note that mechanical boundary drawings 1X4LD151-2 and 2X4LD151-2 require revision to show that the Turbine Plant Cooling Water System components which are located in Room R-124, CVCS Chiller Pumps Room, are not in scope. Refer to mechanical boundary drawing 1X4LD117, which shows the CVCS Chiller. There are no safety related components in room R-124, therefore there is no potential for spatial interaction, so the components in this room are not in scope for 10 CFR 54.4(a)(2).

The Turbine Plant Closed Cooling Water System, System No. 1404, is not in scope based on 10 CFR 54.4(a)(2) because its components are located entirely within the Turbine Building. Refer to the answer to RAI 2.1-2 for discussion regarding non-safety related components in the Turbine Building.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.1-1

LRA Table 2.3.1.2 lists a "hold-down spring," confirm that this is the same spring described in FSAR 3.9.5.1.2, Upper Core Support Assembly, which restrains axial movements of the upper and lower core support assemblies. If not, identify where the FSAR-referenced spring is included in the LRA.

VEGP Response:

The "hold-down spring" listed in the LRA Table 2.3.1.2 is the same spring described in FSAR 3.9.5.1.2.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.2.2-1

In LRA Drawings 1X4LD122 and 131, the ECCS sump screens are not designated as in-scope components. The staff believes these should be included for filtration. Clarify the status of the sump strains or justify the exclusion.

In FSAR Table 6.3.2-4, the boron injection surge tank is listed as an ECCS component. However, it is not discussed in the LRA. Clarify and support its LRA status.

In LRA Drawing 1X4LD118, the boric acid batching tank is highlighted but not listed in Table 2.3.2.2 or discussed in text. Verify it is included in-scope and identify the location of the discussion in the LRA or justify its exclusion.

In LRA Table 2.3.2.2, the RWST tank liner is listed. In FSAR 6.3.2.2.9; the tank is described as reinforced concrete tank with a stainless steel liner. Justify exclusion of structural support for the liner. Additionally, clarify the status of the filter on the outlet of the tank or justify the exclusion.

VEGP Response:

The ECCS sump screens are in scope components, however they are categorized as Structural components. Refer to LRA section 2.4.1, Table 2.4.1, and Table 3.5.2-1, item 12. These components are not highlighted on drawings 1X4LD122 and 131 because these are strictly mechanical boundary drawings as stated in the drawing title blocks. Structural components are sometimes shown on the mechanical boundary drawings for clarity in describing the mechanical system (for example, to shown where a line passes through the containment wall), but the structural components are not highlighted on the mechanical boundary drawings.

The Boron Injection Surge Tank on Unit 1 has been retired in place. Since it has no functions and is empty it is not in scope. Refer to boundary drawing 1X4LD119. A Boron Injection Surge Tank was never installed on Unit 2. Refer to boundary drawing 2X4LD119.

The Boric Acid Batching Tanks are in scope components. These tanks are listed in LRA Table 2.3.3.10, item 38, and Table 3.3.2-10, items 38a & 38b.

The RWST tank liner is categorized as a mechanical component and is listed in LRA Table 2.3.2.2, item 32. As discussed in LRA section 2.3.2.2, the concrete shell, roof, and base slab which provide structural support for the tank liner are evaluated in the Structural scoping for the Concrete Tank and Valve House Structures, Section 2.4.7. The VEGP design does not include a filter on the outlet of the RWST. On mechanical boundary drawings 1X4LD121 and 2X4LD121, the symbol on the RWST tank outlet line (1204-006-24") that appears as two small circles indicates that the line has redundant electrical heat tracing applied. See Instrumentation Identification & Symbols drawings 1X4DB101 and 2X4DB101, grid C-6.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.4-1

License renewal drawings 1X4LD133-1, 1X4LD133-2, 2X4LD133-1, and 2X4LD133-2, locations G-6, G-7, and G-8 show NSCW cooling tower fans as within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). However, the fan casings and housings are not included in LRA Table 2.3.3.4 as a component type subject to an Aging Management Review (AMR). Provide additional information to explain why the NSCW tower fan casings and housings are not included in LRA Table 2.3.3.4 as component types subject to an AMR.

VEGP Response:

The NSCW fan, composed of the motor driver, gearbox, shaft, hub assembly and blades, is an active assembly, not subject to an AMR. The "stack" that forms the fan's housing for flow direction control is constructed of concrete and is an integral part of the NSCW cooling tower structure. The housing is in scope and is included in Table 2.4.6 as "NSCW cooling tower stack".

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.4-2

License renewal drawings 1X4LD133-1 and 2X4LD133-1 (D-4) show pipe sections 131-1" and 130-1" and LRA drawings 1X4LD133-2 and 2X4LD133-2 (D-4) show pipe sections 132-1" and 369-1" that are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2). None of these pipelines show in-scope anchoring that assures these pipelines are adequately anchored for spatial interaction. Provide additional information explaining how the pipelines listed above are adequately anchored to prevent spatial interaction.

VEGP Response:

The above pipe lines are in scope for attached or connected piping (10 CFR 54.4(a)(2)). In this case, attached piping bounds spatial interaction - the entire lines out to their termination points are in the scope of license renewal and are age managed. These lines terminate at either a blind flange or welded pipe cap and thus the (a)(2) concerns associated with them do not propogate into other systems or to other nonsafety-related segments of the NSCW system. As part of the plant's CLB, these lines are seismically analyzed and seismically supported, with the pipe supports being in the scope of license renewal and age managed. These segments of nonsafety-related piping cannot fail in a way that would compromise safety-related equipment, either by failure of attached piping or a pressure boundary breech resulting in a spatial interaction.

RAI - 2.3.3.4-3

License renewal drawings 1X4LD133-1, 2X4LD133-1, 1X4LD133-2, and 2X4LD133-2 (D-4) show pipe sections 505-2", 057-2", 007-2", and 007-2", respectively, that are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2). None of these pipe sections show in-scope anchoring that assures these pipe sections are adequately anchored for spatial interaction. Provide additional information explaining how all the pipelines listed above are adequately anchored to prevent spatial interaction.

VEGP Response:

The above pipe lines are in scope for attached or connected piping (10 CFR 54.4(a)(2)). In this case, attached piping bounds spatial interaction - the entire lines out to their termination points are in the scope of license renewal and are age managed. These lines terminate at a blind flange and thus the (a)(2) concerns associated with them do not propogate into other systems or to other nonsafety-related segments of the NSCW system. As part of the plant's CLB, these lines are seismically analyzed and seismically supported, with the pipe supports being in the scope of license renewal and age managed. These segments of nonsafety-related piping cannot fail in a way that would compromise safety-related equipment, either by failure of attached piping or a pressure boundary breech resulting in a spatial interaction.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.4-4

License renewal drawing 2X4LD135-1, locations F-4, E-4, and D-2, show pipelines 351-1", 438-1", and 360-1", respectively, that are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) with continuations to LRA drawing 2X4LD144-2. No such matching continuations were found on LRA drawing 2X4LD144-2. It appears that pipelines 351-1", 438-1", and 360-1" continue from LRA drawing 2X4LD135-1 to LRA drawing 2X4LD212 at the respective locations D-7, D-8, and D-7. Provide additional information to explain where the drawing continuations of pipe sections 351-1", 438-1", and 360-1" from LRA drawing 2X4LD135-1 should be identified.

VEGP Response:

Pipe sections 351-1", 438-1", and 360-1" should continue on License Renewal Boundary Drawing 2X4LD212 from Boundary Drawing 2X4LD135-1. The drawing continuation flag/reference on drawing 2X4LD135-1 should be 2X4LD212 for the subject pipe sections rather than 2X4LD144-2. The continuation on drawing 2X4LD212 is correct except for the continuation reference flag for one of the relief valves: PSV-11872 should be PSV-11672 at coordinate D-8. The relief valve discharge lines ultimately drain to the floor drain system depicted on 2X4LD144-2. Thus, drawing 2X4LD212 bridges the continuity gap from 2X4LD135-1 to the floor drain system of 2X4LD144-2. It is noted that the NSCW lines do not physically connect to the drain system of 2X4LD212 but rather terminate just above the floor drain. The NSCW lines need not have been shown on 2X4LD212 since there is no physical connection to the floor drain system, but were done so for convenience. The depiction of NSCW lines on 2X4LD212 represents the designer's preferential method of showing where the relief valve drains go, recognizing that other methods would have been just as suitable (see response to RAI 2.3.3.4-5).

RAI - 2.3.3.4-5

License renewal drawings 1X4LD135-2 and 2X4LD135-2, location E-5, show pipe section 451-1" within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) and show a continuation to LRA drawings 1X4LD144-2 (G-8) and 2X4LD144-2 (G-8). The continuations were not found on LRA drawings 1X4LD144-2 or 2X4LD144-2. It appears that the 451-1" pipe section shown on LRA drawing 2X4LD135-2 continues to LRA drawing 2X4LD212 (D-5). However, the continuation drawing location for the 451-1" pipe section shown on LRA drawing 1X4LD135-2 could not be located. Provide additional information identifying the correct continuation drawing(s) and locations for the continuations of the 451-1" pipe sections from LRA drawings 1X4LD135-2 and 2X4LD135-2.

VEGP Response:

1.) For VEGP Unit 2, pipe section 451-1" on License Renewal Boundary Drawing 2X4LD135-2 continues on to Boundary Drawing 2X4LD212 at coordinate D-5. The drawing continuation flag/reference on drawing 2X4LD135-2 should be 2X4LD212 for the subject pipe section rather than 2X4LD144-2. Drawing 2X4LD212 is correct for this pipe section.

2.) For VEGP Unit 1, pipe section 451-1" on drawing 1X4LD135-2 directs relief valve discharge flow to the floor drain system depicted on Boundary Drawing 1X4LD144-2 at coordinate G-8. This NSCW pipe segment is not hard piped to the drain system of 1X4LD144-2 but rather terminates above the floor drain and thus there is no NSCW piping on drawing 1X4LD144-2 and no need for a drawing reference flag. However, a reference to the relief valve (1PSV-11773) from which line 451-1" emanates is made on 1X4LD144-2 at coordinate G-8 for convenience purposes. The correct reference is 1X4LD144-2 in the flag on 1X4LD135-2 for this pipe segment, even though the line does not translate across drawings. See discussion below.

It is noted that there is a difference in the way VEGP Unit 1 and Unit 2 depict these relief valve discharge lines on the design drawings. VEGP Unit 2 utilizes drawing 2X4LD212 to bridge the continuity gap from 2X4LD135-2 to the floor drain system of 2X4LD144-2. Although drawing 2X4LD212 shows NSCW system (1202) piping, NSCW piping actually terminates before the floor drain system, has no hard piped connections to the floor drain system, and is not depicted as connecting to the floor drain system. NSCW piping need not have been shown on 2X4LD212, but was done so for convenience. VEGP Unit 1, on the other hand, shows that pipe section 451-1" on drawing 1X4LD135-2 directs relief valve discharge flow to the floor drain system depicted on Boundary Drawing 1X4LD144-2 at coordinate G-8, thus bypassing drawing 1X4LD212. Drawing 1X4LD212 shows no NSCW system (1202) piping because no NSCW lines translate from other drawings to this drawing. Drawing 1X4LD144-2 does not reference the NSCW drawing because line 451-1" terminates before the floor drain system and there is no hard pipe connection to the drain system. However, 1X4LD144-2 does reference the discharge line's (451-1") relief valve tag number (1PSV-11773) in order to help identify which floor drain the discharge line dumps to. These design depiction methods represent different preferences in the way the plant design is shown. Both depict the design intent, and are correct from a design perspective. See response to RAI 2.3.3.4-4.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.6-1

License renewal drawing 1X4LD139 (F-7) shows a drawing continuation of 004-2" piping and 005-2" piping that is within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) to drawing 1X4LD110 (B-8). Instead, the actual drawing continuation location appears to be G-8 on drawing 1X4LD110 for both pipelines. Provide additional information to clarify the correct drawing 1X4LD110 location for the continuation of the 004-2" piping and 005-2" piping with drawing 2X4DL139.

VEGP Response:

The correct drawing continuation location shown on 1X4LD139 (F-7) for piping line numbers 004-2" and 005-2" should be 1X4LD110 (G-8) as noted in the question.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.6-2

License renewal drawing 2X4LD138-1 (D-1) shows a drawing continuation of 177-8" piping within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) to drawing 2X4LD139 (B-7). Instead, the actual drawing continuation location appears to be G-3 on drawing 2X4LD139. Provide additional information to clarify the correct drawing 2X4LD139 location for the drawing continuation of the 177-8" piping with drawing 2X4LD138-1.

VEGP Response:

The correct drawing continuation location shown on 2X4LD138-1 (D-1) for piping line number 177-8" should be 2X4LD139 (G-3) as noted in the question.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.12-1

Scope Determination Summary states that Nonsafety-related fan housing in this system are relied upon as missile barriers (for the fan element). Please clarify why the fan housings for AB Normal A/C Unit Fan, (1(2)-1551-A7-001 & 1(2)-1551-A7-002), are not indicated as in scope as boundary endpoint C2 on drawings 1X4LD208-1 and 2X4LD208-1.

VEGP Response:

Carrier, the fan vendor, certified that there were zero catastrophic failures of the airfoil fan blade design over the previous ten-year operating period prior to installation at Vogtle. Indeed, the past 20 years of Carrier fan operation at Plant Vogtle has similarly yielded zero catastrophic failures. Furthermore, Carrier asserts that the airfoil fan blade design used for these fans does not fail catastrophically in such a manner that a missile could be ejected. Therefore, the associated fan housings are not considered in scope under 10 CFR Part 54.4(a)(2) criterion as missile barriers.

The Scoping Determination Summary (Page 2.3-70) in the License Renewal Application will be revised to qualify that only certain fan housings perform a missile barrier function.

A License Renewal Application amendment is required to correct these discrepancies.

RAI - 2.3.3.13-1

The licensee has indicated in other areas that the housings for some fans in the containment building are considered in scope under 10 CFR Part 54.4(a)(2) criterion as missile barriers. This classification has included centrifugal fans as well as propeller of vane-axial. Please explain why the CRDM unit fan housings are not needed as missile barriers.

VEGP Response:

The housings for the CRDM unit fans, 1(2)1509B7001000 through 1(2)1509B7004000, perform a missile barrier function in accordance with 10 CFR 54.4(a)(2) and should have been shown as in scope on boundary drawings 1X4LD214-1 and 2X4LD214-1. Therefore, Containment Building CRDM Cooling System will be removed from LRA Table 2.2-2, "Systems and Structures Not Within the Scope of License Renewal," and added to Table 2.2-1. A description of the system will also be added to the Auxiliary System Description in LRA Section 2.3.3.13. This system description will describe the basis for the Containment Building CRDM Cooling System meeting 10 CFR 54.4(a)(2) criterion.

The commodity type Fan Housings (ID No. 7d and 7e) in LRA Table 3.3.2-13 provide the AMR for these fan housings.

A License Renewal Application amendment is required to correct these discrepancies.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.14-1

The Scope Determination Summary states that Nonsafety-related fan housings associated with system are relied upon as missile barriers (for the fan element). The Fuel Handling Building Normal AC Unit fans,
A-1541-A7-001-000 & A-1541-A7-002-000, and the Fuel Pool Area Recirculating Air Handling Unit fans,
A-1541-A7-003-000 and A-1541-A7-004-000, as shown on drawing AX4LD204-1 are not marked as in scope. Please explain why the housings for these fans are not needed as missile barriers as indicated in the Scope Determination Summary.

VEGP Response:

Fuel Handling Building Normal AC Unit fans, A-1541-A7-001-000 and A-1541-A7-002-000, are not located in a space which contains safety related equipment. The fan blades for Fuel Pool Recirculating Air Handling Unit fans, A-1541-A7-003-000 and A-1541-A7-004-000, are of the Carrier airfoil design. Carrier, the fan vendor, has certified that there were zero catastrophic failures over the previous ten-year operating period prior to installation at Vogtle. Indeed, the past 20 years of Carrier fan operation at Plant Vogtle has similarly yielded zero catastrophic failures. Furthermore, Carrier asserts that the airfoil fan blade design used for these fans does not fail catastrophically in such a manner that a missile could be ejected into the fan housing. Therefore, the associated fan housings are not considered in scope under 10 CFR Part 54.4(a)(2) criterion as missile barriers.

The Scoping Determination Summary (Page 2.3-86) in the License Renewal Application will be revised to qualify that only certain fan housings perform a missile barrier function.

A License Renewal Application amendment is required to correct these discrepancies.

RAI - 2.3.3.14-2

The Scope Determination Summary states that certain ductwork and dampers associated with the Fuel Handling Building Normal HVAC System interface with the Fuel Handling Building Post-Accident Exhausts System and must maintain integrity in order to maintain negative pressure in the Fuel Handling Building post-accident. Drawing AX4LD204-2 shows ductwork from PASS 1-2702-P5-SAP that is not in scope connecting to duct that is in scope (System 1-1541 line number 060). Please explain why the non-scope duct does not effect the integrity of the in scope duct and its ability to maintain negative pressure in the Spent Fuel Pit Heat Exchanger Train A area A53.

VEGP Response:

Ductwork from PASS 1-2702-P5-SAP does not perform an in-scope function. NEI 95-10 Appendix F section 5.2.2.1 provides the basis for air and gas systems not being a hazard to other plant equipment. Specifically, it states that industry operating experience has shown no failures due to aging that have adversely impacted the accomplishment of a safety function. It bases this in part on there being no credible aging mechanisms for air/gas systems with dry internal environments. A review of site specific operating experience at VEGP confirmed this determination. As such, the failure of the nonsafety related portion of ductwork is not a credible event which could impact the portion of duct that is in-scope for 10 CFR Part 54.4(a)(1). Therefore, the ductwork from PASS 1-2702-P5-SAP is not considered in scope under 10 CFR Part 54.4(a)(2) criterion.

RAI - 2.3.3.14-3

The Scope Determination Summary states that certain ductwork and dampers associated with the Fuel Handling Building Normal HVAC System interface with the Fuel Handling Building Post-Accident Exhaust System and must maintain integrity in order to maintain negative pressure in the Fuel Handling Building post-accident. Drawing AX4LD204-2 shows ductwork from PASS 2-2702-P5-SAP and Booster Fan 2-1541-B7-001-000 that are not in scope and are connecting to duct that is in scope (System 2-1541 line number 058). Please explain why the non-scope duct does not effect the integrity of the in scope duct and its ability to maintain negative pressure in the Spent Fuel Pit Heat Exchanger Train A area A91.

VEGP Response:

Ductwork from PASS 2-2702-P5-SAP and Booster Fan 2-1541-B7-001-000 does not perform an in-scope function. NEI 95-10 Appendix F section 5.2.2.1 provides the basis for air and gas systems not being a hazard to other plant equipment. Specifically, it states that industry operating experience has shown no failures due to aging that have adversely impacted the accomplishment of a safety function. It bases this in part on there being no credible aging mechanisms for air/gas systems with dry internal environments. A review of site specific operating experience at VEGP confirmed this determination. As such, the failure of these nonsafety related portions of ductwork is not a credible event which could impact the portion of duct that is in-scope for 10 CFR Part 54.4(a)(1). Therefore, the ductwork from PASS 2-2702-P5-SAP and Booster Fan 2-1541-B7-001-000 is not considered in scope under 10 CFR Part 54.4(a)(2) criterion.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.15-1

Scope Determination Summary for the Containment Building Lower Level Air Circulating System states that non-safety-related fan housing in this system are relied upon as missile barriers (for the fan element). Drawing 1(2)X4LD212 show propeller blade fans as the fan element style of concern for missiles. Please clarify why fan housings with propeller blades such as unit heaters and non-ESF Exhaust fan housings
(1-1566-B7-005-000 and 1-1566-B7-006-000) (Drawing 1X4LD217) do not have to be considered as missile barriers for the fan elements and therefore to be in scope in accordance with 10 CFR 54.4(a)(2).

VEGP Response:

Non-ESF Exhaust fan housings, 1(2)-1566-B7-005-000, 1(2)-1566-B7-006-000, 1(2)-1566-B7-007-000, and 1(2)-1566-B7-008-000 perform a missile barrier function per 10 CFR 54.4(a)(2), and should have been shown as in scope on boundary drawings 1X4LD217 and 2X4LD217. Unit heaters, 1(2)-1566-U7-001-000 through 1(2)-1566-U7-020-000, also perform a missile barrier function per 10 CFR 54.4(a)(2). The commodity type Fan Housings (ID No. 4) in LRA Table 3.3.2-15 provide the AMR for the Fan Housings, and a new commodity type Heater Housings will be added to tables 2.3.3-15 and 3.3.2-15, the latter of which will provide the AMR for the Heater Housings. The scoping determination (LRA Page 2.3-89) is also revised to reflect the added 10 CFR54.4(a)(2) scope.

A License Renewal Application amendment is required to correct these discrepancies.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.16-1

Scope Determination Summary for the Containment Building Lower Level Air Circulating System states that Nonsafety-related fan housing in this system are relied upon as missile barriers (for the fan element). Drawing 1(2)X4LD212 show propeller blade fans as the fan element style of concern for missiles. Please clarify why fan housings with propeller blades such as shown as part of the unit heaters (Drawing 1(2)X4LD227) do not have to be considered as missile barriers for the fan element and therefore to be in scope is not required in accordance with 10 CFR 54.4(a)(2).

VEGP Response:

Housings for unit heaters, 1(2)-1593-U7-001-000 through 1(2)-1593-U7-007-000, perform a missile barrier function per 10 CFR 54.4(a)(2), and should have been shown as in scope on boundary drawings 1X4LD227 and 2X4LD227. The commodity type Heater Housings will be added to LRA tables 2.3.3-16 (Item 5) and 3.3.2-16 (Items 5a and 5b). Table 3.3.2-16 will also present the results of the Heater Housing AMR. In addition, fan housings for supply fans 1(2)-1593-B7-003-000 are in scope for missile barrier function per 10 CFR54.4(a)(2), and should have been shown as in scope on boundary drawings 1X4LD227 and 2X4LD227. As a result, the Fan Housings component type, shown in LRA tables 2.3.3-16 (Item 4) and 3.3.2-16 (Items 4a and 4b), will be revised to include the "missile barrier" function. The scoping determination (LRA Page 2.3-91) is also revised to reflect the added 10 CFR54.4(a)(2) scope.

A License Renewal Application amendment is required to correct these discrepancies.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.17-1

The Electrical Tunnel Ventilation System shows that the exhaust duct and fan are in scope but the makeup air duct for this space is not in scope. This is indicated on Drawing 1(2)X4LD238. Please clarify why the duct needed to provide makeup air for the air exhausted is not required to be in scope in accordance with 10 CFR 54.4(a)(2).

VEGP Response:

The makeup air passageway and associated components perform a pressure boundary function for makeup air to the tunnels and should have been shown as in scope for 10 CFR 54.4(a)(2) on boundary drawings 1X4LD238 and 2X4LD238. The makeup air components included are Closure Bolting, Concrete, Damper Housings, Ductwork and Fittings, and Filter Housings - Tunnel Supply Air. The AMR for these component types are provided in License Application Table 3.5.2-5 (Component Type IDs 1-4) and Table 3.3.2-17 (Component Type IDs 1, 2, 3 and 5). The "pressure boundary" intended function will be added to the concrete components (IDs 1-4) in License Application tables 2.4.5 and 3.5.2-5 to account for the concrete portion of the passageways which serves a pressure boundary function for the makeup air.

A License Renewal Application amendment is required to correct these discrepancies.

RAI - 2.3.3.17-2

The Electrical Tunnel Ventilation System Drawing 1(2)X4LD238 shows that the Turbine Building and Auxiliary Building Train A Supply Fan (1(2)-1540-F7-005-000) and associated ducts are in scope yet the "N-S" Turbine Building Chase to "C.B." Tunnel Ventilation Fan (1(2)-1540-B7-007-000) and associated duct are not in scope. This is indicated on Drawing 1(2)X4LD238. Please clarify why the fan and duct needed to exhaust the air provided by the supply air fan is not required to be in scope in accordance with 10 CFR 54.4(a)(2).

VEGP Response:

The "N-S" Turbine Building Chase to "C.B." Tunnel Ventilation Fan 1(2)-1540-B7-007-000 and associated ductwork are not credited in the design calculations for exhausting the Turbine Building and Auxiliary Building Train A Tunnel. The purpose of these fans is to recirculate and thereby prevent a stagnant air condition in the adjoining TB Chase to CB Tunnel during normal plant conditions. Therefore, the "N-S" Turbine Building Chase to "C.B." Tunnel Ventilation Fan 1(2)-1540-B7-007-000 and associated ductwork are not in scope for license renewal.

RAI - 2.3.3.19-1

The following LRA drawings show fire protection system components as out of scope:

LRA drawing CX4LD173-2 shows the following fire protection system's components out of scope (i.e., not colored in red):

- Fire Hydrants
- Fire Protection Piping to Turbine Building, Steam Tunnel, and Radwaste Solidification Building
- Intake Structure

LRA drawing CX4LD173-4 shows the following fire protection system's components out of scope in the following locations (i.e., not colored in red):

- Dry Active Waste Processing Facility
- Dry Active Waste Storage Building

LRA drawing 1X4LD174-1 shows the following Halon 1301 fire protection system's components out of scope in the following locations (i.e., not colored in red):

- Computer Room Level A
- Computer CRT Display and Communication Rooms Level 1
- Radwaste Solidification Building Contamination Oil Room Level 1
- Radwaste Solidification Building Elevation 192'-0"

LRA drawing 2X4LD174-1 shows the following Halon 1301 fire protection system's components out of scope in the following location (i.e., not colored in red):

- Computer Room Level A

The staff requests that the applicant verify whether the above systems and components are in the scope of license renewal in accordance with 10 CFR 54.4(a) and subject to an AMR in accordance with 10 CFR 54.21(a)(1). If these components are excluded from the scope of license renewal and not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

VEGP Response:

Fire protection SSCs that are relied upon in the event of a fire to maintain the ability to perform reactor plant safe shutdown functions at VEGP (including plant SSCs that are relied upon to perform safe shutdown in the event of a fire), or to minimize radioactive releases to the environment in the event of a fire are in-scope for license renewal - see VEGP-LR-TE-007, "Technical Evaluation VEGP Fire Protection Scoping". For the fire protection system, certain SSC's are in scope for license renewal and certain SSC's are not in scope, depending on whether they are relied upon for 10 CFR 50.48 and Branch Technical Position (BTP) CMEB 9.5-1 compliance or not (hereafter referred to as "regulatory compliance"). The following is a breakdown of fire protection SSC's and a discussion of in-scope applicability:

1.) Drawing CX4LD173-2:
The fire hydrants listed in FSAR Table 9.5.1-10D are required for regulatory compliance and are in scope and highlighted as such on the drawing. Those fire hydrants not in FSAR Table 9.5.1-10D are not required for regulatory compliance and are not in scope and thus not highlighted on the drawing.

The fire protection piping to the Turbine Building (including steam tunnels) is not in scope because the fire protection system in the Turbine Building is not relied upon for regulatory compliance (FSAR Appendix 9B, paragraph C.7.h). Refer to the answer to RAI 2.1-2 for discussion regarding non-safety related components in the Turbine Building.

The fire protection system in the Radwaste Solidification Building is not in scope because the building has been abandoned in place and there is no radioactive material stored there (FSAR Section 11.4.2.4).

Since the Intake Structure is not in the scope of license renewal, the fire protection system in this structure is not in scope. See License Renewal Civil Boundary Drawing AX1D45L01.

2.) Drawing CX4LD173-4:
The fire protection systems in the Dry Active Waste Processing Facility and Dry Active Waste Storage Building are in the scope of license renewal. Although these buildings are in the scope of license renewal, they are categorized as structures and are not highlighted on mechanical boundary drawing CX4LD173-4 because this drawing is strictly a mechanical boundary drawing as stated in the drawing title block. Structures are sometimes shown on mechanical boundary drawings for clarity in describing the mechanical system, but the structure itself is not highlighted on the mechanical boundary drawings. For the highlighted in-scope structures, see License Renewal Civil Boundary Drawing AX1D45L01.

3.) Drawing 1X4LD174-1:
The Halon systems in the Computer Room Level A, Computer CRT Display and Communication Rooms Level 1, Radwaste Solidification Building Contamination Oil Room Level 1, and the Radwaste Solidification Building Elevation 192'-0" are shown not highlighted on drawing 1X4LD174-1. FSAR Table 9.5.1-10, paragraph 4.1, lists the fixed Halon systems required for regulatory compliance and these systems are highlighted on drawing 1X4LD174-1. The above listed Halon systems are not in this table because they are not required for regulatory compliance and are thus not in the scope of license renewal. The fire protection system in the Radwaste Solidification Building is not in scope because it has been abandoned in place and there is no radioactive material stored there (FSAR Section 11.4.2.4).

4.) Drawing 2X4LD174-1:
The Halon system in the Computer Room Level A is shown not highlighted on drawing 2X4LD174-1. FSAR Table 9.5.1-10, paragraph 4.1, lists the fixed Halon systems required for regulatory compliance and these systems are highlighted on drawing 2X4LD174-1. The above listed Halon system is not in this table because it is not required for regulatory compliance and is thus not in the scope of license renewal.

RAI - 2.3.3.19-2

LRA Section 2.3.3.19 discusses requirements for the fire water supply system but does not mention trash racks and traveling screens for the fire pump suction water supply. Trash racks and traveling screens are located upstream of the fire pump suctions to remove any major debris from the fresh or raw water. Trash racks and traveling screens are necessary to remove debris from and prevent clogging of the fire protection water supply system. Trash racks and traveling screens are typically considered to be passive, long-lived components. Both trash racks and traveling screens are located in a fresh or raw water/air environment and are typically constructed of carbon steel. Carbon steel in a fresh or raw water environment or water/air environment is subject to loss of material, pitting, crevice formation, and microbiologically influenced corrosion, and fouling. The staff requests that the applicant explain the apparent exclusion of the trash racks and traveling screens that are located upstream of the fire pump suctions from the scope of license renewal in accordance with 10 CFR 54.4(a) and subject to an AMR in accordance with 10 CFR 54.21(a)(1).

VEGP Response:

VEGP's fire pumps take suction from fire water storage tanks and as such, do not have trash racks and traveling screens. See LRA drawing CX4LD173-1.

RAI - 2.3.3.19-3

LRA Table 2.3.3 19 excludes several types of fire protection components that appear in the NUREG-1137 and its supplements and/or the UFSAR, and which also appear in the LRA drawings colored in red. These components are listed below.

- Hose racks
- Yard hose houses
- Interior fire hose stations
- Pipe fittings
- Pipe supports and hangers
- Couplings
- Threaded connections
- Restricting orifices
- Interface flanges
- Dikes for oil spill confinement
- Floor drains and curbs for fire-fighting water
- Filter housing
- Heater housing
- Chamber housing
- Actuator housing
- Halon storage tanks/bottles
- Buried outside diesel fuel storage tanks
- Buried fire protection piping and underground fire main loop
- Heat exchanger (bonnet)
- Heat exchanger (shell)
- Heat exchanger (tube)
- Post-indicator sectional control valves
- Turbocharger
- Tank heater
- Thermowells
- Expansion joints
- Gear box housing
- Lubricating oil collecting system components (reactor coolant pump)
- Engine intake and exhaust silencers/muffler (diesel driven fire pump)
- Backflow prevention devices
- Flame retardant coating for cables
- Fire retardant coating for structural steel supporting walls and ceilings
- Fire barrier penetration seals
- Fire barrier walls, ceilings, floor, and slabs
- Fire doors
- Fire rated enclosures

The staff requests that the applicant verify whether the components listed above should be included in LRA Table 2.3.3.19. If they are excluded from the scope of license renewal and not subject to an AMR, the staff requests that the applicant provide justification for the exclusion

VEGP Response:

For the most part, the above listed fire protection components are in the scope of license renewal. In some cases, the item is not specifically listed in Table 2.3.3.19 but is included as one of the component types listed in the table. For example, "pipe fittings" and several other components listed above are included as "piping components" in Table 2.3.3.19. This is consistent with the guidance provided in NEI 95-10, Revision 6, Appendix B. The following is a breakdown of how each component is treated in license renewal:

1.) Hose racks are in scope and form part of a hose station, and as such, are included as "hose stations" in Table 2.3.3.19.
2.) Yard hose houses are not in the scope of license renewal because they are not required for regulatory compliance and are a second level support system for yard fire hydrants and fire hydrant fire hoses. These structures are small sheds associated with yard fire hydrants and serve as a convenient location for storing tools and the accompanying fire hydrant fire hoses. These structures also afford limited protection from the weather for the fire hydrants and fire hoses. However, convenience of fire hydrant accessory storage and limited protection from the weather for the fire hydrants and fire hoses are not credited in license renewal and not required for regulatory compliance. Hypothetical failure of a hose house, which is a second level support system, need not be considered in determining the SSCs within the scope of the rule under 10 CFR 54.4(a)(3) - see NUREG-1800, Revision 1, Section 2.1.3.1.3. The cast iron fire hydrants are in scope and age managed in the outdoor environment ("fire hydrants" in Table 2.3.3.19) and the fire hoses are in scope but are short-lived, being subject to periodic replacement and as such, do not require an AMR.
3.) Interior fire hose stations are in scope and included in "hose station nozzles and hose connections" and "hose stations" in Table 2.3.3.19.
4.) Pipe fittings are in scope and included in "piping components" in Table 2.3.3.19.
5.) Pipe supports and hangers are in scope and considered structural components and covered in Table 2.4.12.
6.) Couplings are in scope and included in "piping components" in Table 2.3.3.19.
7.) Threaded connections are in scope and included in "piping components" in Table 2.3.3.19.
8.) Restricting orifices are in scope and included in "flow orifice/element" in Table 2.3.3.19.
9.) Interface flanges are in scope and included in "piping components" in Table 2.3.3.19.
10.) Dikes for oil spill confinement are considered to be part of the in-scope structure in which they are located and are included in structural concrete commodities in LRA section 2.4.
11a.) Curbs for containment of spilled water, including fire fighting water, are considered to be part of the in-scope structure in which they are located and are also included in structural concrete commodities in LRA section 2.4.
11b.) Floor drains for processing spilled water, including fire fighting water, are included in the "Drains Systems" and are found in Table 2.3.3.23. The structures for which the drain systems are in scope include the containment building, the auxiliary building, the control building, and the fuel handling building. The Nuclear Service Cooling Water (NSCW) structure has a leak detection system with associated level switches and alarms. The drain or leak detection features for these structures are in scope primarily for mitigation of flooding due to a line break. However, release of fire protection system water in these structures would also be processed by these in-scope drains. The drain systems for the other structures that contain in-scope fire protection systems are not credited in the CLB for mitigation of flooding and are therefore not in the scope of license renewal. Flooding analyses have determined that flooding in these structures will not impact any safety-related equipment. References: VEGP-LR-TE-010, "Scoping Methodology for Nonsafety Related Equipment that Could Affect Safety Related Equipment", Section 5.3.2; FSAR Sections 3F.2.4, 3.4.1, and 9.3.3.
12.) Filter housings are in scope and included as "strainer housings" in Table 2.3.3.19.

13.) Heater housings are associated with the fire water pump diesel engines' on-skid heat exchangers. The fire pump diesel engines and the on-skid equipment are in scope but are complex active assemblies, not subject to an AMR.
14.) Chamber housings include retard chambers in fire suppression systems. Chambers are in scope and included as "piping components" in Table 2.3.3.19.
15.) Actuator housings include dry pilot actuator housings in fire suppression systems. Actuator housings are in scope and included as "valve bodies" in Table 2.3.3.19.
16.) Halon storage bottles are in scope and are short-lived, being subject to periodic replacement and as such, do not require an AMR.
17.) The fire pump diesel fuel oil storage tanks are in scope but are not buried, being located outside, above ground level. They are included in Table 2.3.3.19 as "tanks - F. O. storage tanks (fire pump diesel)".
18.) The buried fire protection piping and underground fire main loop are in scope and included in Table 2.3.3.19 as follows: piping components; fire hydrants; valve bodies; closure bolting.
19.) Heat exchanger bonnets are associated with the fire water pump diesel engines' on-skid heat exchangers. The fire pump diesel engines and the on-skid equipment are in scope but are complex active assemblies, not subject to an AMR.
20.) Heat exchanger shells are associated with the fire water pump diesel engines' on-skid heat exchangers. The fire pump diesel engines and the on-skid equipment are in scope but are complex active assemblies, not subject to an AMR.
21.) Heat exchanger tubes are associated with the fire water pump diesel engines' on-skid heat exchangers. The fire pump diesel engines and the on-skid equipment are in scope but are complex active assemblies, not subject to an AMR.
22.) The post-indicator sectional control valves are in scope and included as "valve bodies" in Table 2.3.3.19.
23.) The turbochargers are associated with the fire water pump diesel engines and are mounted on the engines. The fire pump diesel engines, their appurtenances, and the on-skid equipment are in scope but are complex active assemblies, not subject to an AMR.
24.) There are no tank heaters associated with the fire protection system tanks - fire water storage tanks or fire pump diesel fuel oil storage tanks.
25.) Thermowells are in scope and included as "piping components" in Table 2.3.3.19.
26.) Expansion joints are in scope and included as "flexible connectors" in Table 2.3.3.19.
27.) Gear box housings for such components as electric motor driven equipment are in scope but are part of the complex active assembly and not subject to an AMR.
28.) The lubricating oil collecting system components (reactor coolant pump) are in scope and included in the Reactor Coolant System in Table 2.3.1.3 as follows: RCP lube oil drain tank; RCP lube oil drain tank flame arrestor element; RCP lube oil drain tank flame arrestor housing; RCP lube oil drip pans and enclosure; piping components.
29.) The engine intake and exhaust silencers/mufflers (diesel driven fire pump) are in scope. The mufflers are mounted on the fire pump house roof and are included in Table 2.3.3.19 as "silencers". The intake silencers are mounted on the engine skids and are part of the complex active engine assembly and as such, do not require an AMR.
30.) The backflow prevention devices include check valves and are included in Table 2.3.3.19 as "valve bodies".
31.) Flame retardant coatings are not used at VEGP for cables.
32.) Fire retardant coatings for structural steel supporting walls and ceilings are in scope and included in LRA Section 2.4.12 and Table 2.4.12, item 13.
33.) Fire barrier penetration seals are in scope and included in LRA Section 2.4.12 and Table 2.4.12, item 18.
34.) Fire barrier walls, ceilings, floors, and slabs are in scope and included in LRA Section 2.4.12 and Table 2.4.12, items 14 and 15.

35.) Fire doors are in scope and included in LRA Section 2.4.12 and Table 2.4.12, item 16.
36.) Fire rated enclosures are in scope and included in LRA Section 2.4.12 and Table 2.4.12, items 12 and 17.

RAI - 2.3.3.19-4

NUREG-1137 and its supplements listed various types of fire suppression systems provided in the plant areas for fire suppression activities. The fire suppression systems in various areas are:

- Total flooding Halon 1301 systems for two shutdown panel rooms, computer room, and five non-safety-related areas in the control building.
- Dry standpipe for the control building, containment building, and auxiliary building.
- Deluge systems for charcoal filter assemblies.
- Dry pre-action sprinkler systems below the reactor coolant pumps and in areas of high cable tray concentrations.
- Cable spreading room automatic pre-action sprinkler system.
- Wet standpipe and hose system throughout the plant.

The staff requests that the applicant verify whether the above fire suppression systems installed in various areas of the plant are in the scope of license renewal in accordance with 10 CFR 54.4(a) and subject to an AMR in accordance with 10 CFR 54.21(a)(1). If they are excluded from the scope of license renewal and not subject to an AMR, the staff requests that the applicant provide justification for the exclusion.

VEGP Response:

The above listed fire protection systems are in the scope of license renewal as follows:

1.) The total flooding Halon 1301 systems required for regulatory compliance are in scope. See response to 2.3.3.19-1 for details.
2.) The dry standpipe systems for the control building, containment building, and auxiliary building are in scope. See License Renewal Boundary Drawings 1X4LD174-6 and 2X4LD174-6.
3.) The deluge systems for charcoal filter assemblies are in scope. See License Renewal Boundary Drawings 1X4LD205-1, 1X4LD208-1, 1X4LD209, 1X4LD213-1, 1X4LD213-2, AX4LD204-1, AX4LD206-1, AX4LD206-3, AX4LD215, AX4LD235, 2X4LD205-1, 2X4LD208-1, 2X4LD213-1, and 2X4LD213-2. It is noted that two charcoal filters (1-1562-N7-001 & 002) on boundary drawing 1X4LD209 in the control building on Unit 1 have been abandoned in place and the charcoal removed from the filter units. The manual fire protection spray systems for these two filters are not required and are not in-scope. The fire protection in-scope boundary terminates at the first isolation valve in each filter unit's fire water supply header. The high temperature fire alarm that was in each filter's charcoal bed has been disabled.
4.) The dry pre-action sprinkler systems below the reactor coolant pumps and in areas of high cable tray concentrations in the containment building were never installed. See NUREG-1137, Supplement No. 2, Section 9.5.1.6.
5.) The cable spreading room automatic pre-action sprinkler systems are in scope. See License Renewal Boundary Drawings 1X4LD174-3, rooms R-A44 and R-225 at coordinates D-2 and G-3 respectively; 2X4LD174-3, rooms R-A23 and R-224 at coordinates D-2 and G-3, respectively.
6.) The wet standpipe and hose system throughout the plant is in scope. See License Renewal Boundary Drawings 1X4LD174-2, 1X4LD174-3, 1X4LD174-4, 2X4LD174-2, 2X4LD174-3, and 2X4LD174-4.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.20-1

License renewal drawings 1X4LD170-1, 1X4LD170-2, 2X4LD170-1, and 2X4LD170-2 (G-7) indicate jacket water standpipes that are within the scope for license renewal based on criterion 10 CFR 54.4(a)(1). Provide additional information explaining why the standpipes are not listed in LRA Table 2.3.3.20 as a component subject to an AMR.

VEGP Response:

The Emergency Diesel Generator System jacket water system standpipe is not listed in LRA Table 2.3.3.20 as a separate component type subject to an AMR. However, the standpipes are included in the component type, "Piping Components" as shown in Table 2.3.3.20 Item No. 20 and Table 3.3.2-20 Items 20c, 20d and 20k. The standpipes are vertical, cylindrical piping components constructed of carbon steel; therefore, they have been classified in the LRA as piping components.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.20-2

License renewal drawings 1X4LD170-1, 1X4LD170-2, 2X4LD170-1, and 2X4LD170-2 (E-6) and as described in the FSAR Section 9.5.8.2.3 indicate that the housings for the turbocharger and aftercooler form a pressure boundary for intake air going to the engine intake manifolds and should be in scope for license renewal based on criterion 10 CFR 54.4(a)(1). Provide additional information explaining why the turbocharger/aftercooler housings with their pressure boundary and heat exchange functions are not listed in LRA Table 2.3.3.20 for components subject to an AMR.

VEGP Response:

The turbocharger and aftercooler are skid mounted equipment of the Emergency Diesel Generators assembly and thus considered part of this complex assembly - emgergency diesel generator engine. Therefore, no aging management review of the housing for these components is required due to the complex active assembly classification of this assembly, i.e.; this component/assembly does not meet the AMR criteria for an integrated plant assessment per 10 CFR 54.21(a)(1)(i). Consequently, the turbocharger/aftercooler housings with their pressure boundary and heat exchange functions are not listed in LRA Table 2.3.3.20 for components subject to an AMR.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.20-3

License renewal drawings 1X4LD170-1, 1X4LD170-2, 2X4LD170-1, and 2X4LD170-2 (E-3) and (B-3) indicate respectively that manhole covers which provide a pressure boundary for the diesel fuel oil day and storage tanks are within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). Provide additional information explaining why the manhole covers are not listed in LRA Table 2.3.3.20 for components subject to an AMR.

VEGP Response:

Tank Manways were not identified as a separate component type for tanks in mechanical systems. The manways for the diesel fuel oil day and fuel oil storage tanks were included as part of the tank. In the LRA Table 2.3.3.20, the manway covers for the diesel fuel oil day and storage tanks are covered under item 31 and 33 respectively.

In the LRA Table 3.3.2-20, the aging management review of the the diesel fuel oil day tank manways are covered by items 31a and 31c. The aging management review of the the diesel fuel oil storage tank manways and covers are covered by items 33a and 33c of this table as well.

RAI - 2.3.3.20-4

License renewal drawings 1X4LD170-1, 1X4LD170-2, 2X4LD170-1, and 2X4LD170-2 locations (H-7), (C-8), (D-2), (C-2), and (E-3) indicate tank vents that are within the scope of license renewal. The LRA Table 2.3.3.20 lists tank vent screens as a component that provides debris protection for a vent, but none of the vents show a debris screen. Provide additional information explaining which tank vents on the LRA drawings do or do not have the tank vent screen component that is listed as item 36 in LRA Table 2.3.3.20.

VEGP Response:

Vent screens that cover tank vents for debris/ bird protection on the various EDG System atmospheric vents to outdoors have been put in scope. Since no equipment tag numbers apply and no material documentation could be found, the vent screens are assumed to be carbon steel based on the piping material. Piping and instrument diagrams used to develop the referenced LRA boundaries did not show screens for tank vents; although, area physical drawings do identify screen covers for the diesel fuel oil storage tank vents; no screen covers were identified for the diesel fuel oil day tank vents. Since the vents for both tanks provide the same function, it was assumed that screen covers were installed on the diesel fuel day tank vents as well.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.20-5

License renewal drawings 1X4LD170-1, 1X4LD170-2, and 2X4LD170-1 (D-4) indicate that the concrete vault roof has a vent that is within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). Those drawings cover the diesel generator trains A and B for plant unit #1 and train A for plant unit #2. However, the LRA drawing 2X4LD170-2 for train B of plant unit #2 does not show a vent for the concrete vault roof. Provide additional information explaining why the concrete vault roof vent is missing on LRA drawing 2X4LD170-2 for diesel generator plant unit #2 train B.

VEGP Response:

It has been determined from review of domestic supporting drawings that the concrete vault roof vent missing on LRA drawing 2X4LD170-2 is an error and the vent should be shown as on 2X4LD170-1. The diesel fuel oil storage tank pump house forming plans sections and details show the roof vents for both trains of both units.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.20-6

License renewal drawing 2X4LD170-2 (F/G-6) indicates the 343-3/4" pipeline and associated drain are within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). However, LRA drawings 1X4LD170-1, 1X4LD170-2, and 2X4LD170-1 for the same location indicates that the similar 343-3/4" and 339-3/4" pipelines are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2), rather than 10 CFR 54.4(a)(1), and the drain is not within the scope of license renewal. Provide additional information to define the correct criterion to use for all four of these LRA drawings for the 343-3/4" and 339-3/4" drain pipelines and their respective drains.

VEGP Response:

License renewal drawing 2X4LD170-2 (F/G-6) inadvertently shows the 343-3/4" pipeline and associated drain within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). This pipeline 343-3/4" is within the scope of license renewal based on criterion 10 CFR 54.4(a)(2), rather than 10 CFR 54.4(a)(1) which is the same inscope bases as pipeline 339-3/4"shown on 2X4LD170-2 (F/G-6). These lines function as drain piping from the diesel generator spill collection trough and are classified as non-safety related.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.20-7

License renewal drawing 2X4LD170-1 (C/D-8), indicates a lube oil press fill pipeline located outside the engine piping boundary and connected to a three-inch pipeline within the engine piping boundary that is entirely within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). However, LRA drawings 1X4LD170-1, 1X4LD170-2, and 2X4LD170-2, for the same general location and pipeline characteristics, indicate the lube oil press fill piping is not within the scope of license renewal. Provide additional information to define the correct criterion to be applied to the lube oil press fill pipeline outside the engine piping boundary on all four LRA drawings referenced above.

VEGP Response:

Per review of the License Renewal drawing 2X4LD170-1 at (C/D-8) regarding scoping of the lube oil press fill pipeline, the boundary line for this pipeline should have been shown as red not gray for LRA drawings 1X4LD170 -1 & 2 and 2X4LD170-2. The lube oil press fill piping is within the scope of license renewal based on criterion 10CFR 54.4(a)(1).

RAI - 2.3.3.20-8

License renewal drawing 2X4LD170-1 (E-8) shows sections of 037-10" and 035-10" piping within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) with a continuation to LRA drawing 2X4LD135-1 (G-6). The continuation location G-6 on LRA drawing 2X4LD135-1 indicates the 037-10" and 035-10" piping are within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). It appears that the sections of 037-10" and 035-10" piping shown on LRA drawing 2X4LD170-1 between the engine piping boundary and the continuation marker to LRA drawing 2X4LD135-1 should also be in-scope based on criterion 10 CFR 54.4(a)(1) as are the other emergency diesel generators shown in LR drawings 2X4LD170-2, 1X4LD170-1, and 1X4LD170-2. Provide additional information clarifying why the subject piping on LRA drawing 2X4LD170-1 (E-8) meets the requirements of criterion 10 CFR 54.4(a)(2), rather than 10 CFR 54.4(a)(1).

VEGP Response:

From a review of the LRA drawings 2X4LD170-1 and 2X4LD135-1 and a re-visit of the 10 CFR 54.4(a)(1) criterion against the function of the pipelines, 037-10" and 035-10", it is concluded that the sections of piping shown on LRA drawing 2X4LD170-1 between the engine piping boundary and the continuation marker to LRA drawing 2X4LD135-1 are in-scope based on criterion 10 CFR 54.4(a)(1), and should have been indicated as the other pipelines are for this function shown on LR drawings 2X4LD170-2, 1X4LD170-1, and 1X4LD170-2.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.21-1

License renewal drawing AX4LD190-2 (E-3) shows pipe section 172-1" in-scope for 10 CFR 54.4(a)(2). The continuation to AX4LD123-2 (A-6) is not shown as in-scope for license renewal. Provide additional information detailing the license renewal boundary for pipe section 172-1" on drawing AX4LD123-2 (A-6).

VEGP Response:

The segment of line A-1210-172-1" which appears on mechanical boundary drawing AX4LD123-2 was inadvertently not shown as being in scope for 10 CFR 54.4(a)(2). This line segment is in scope for 10 CFR 54.4(a)(2).

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.23-1

License renewal drawing 2X4LD144-1, location A-4, shows pipe section 286-3" within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) with a continuation to LRA drawing 2X4LD145-1 (E-2). The continuation to LRA drawing 2X4LD145-1 (E-2) could not be located. The correct drawing continuation appears to be to LRA drawing 2X4LD146-1 (E-2). Provide additional information for the correct continuation LRA drawing number and location.

VEGP Response:

Line 1215-286-3" on mechanical boundary drawing 2X4LD144-1 continues to drawing 2X4LD146-1 (F-2), not 2X4LD145-1 (E-2).

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.23-2

License renewal drawings 1X4LD145-6 and 2X4LD145-6 (B-2) show pipe 256-4" as not within the scope of license renewal. License renewal drawings 1X4LD145-5 and 2X4LD145-5 (D-4) show pipe 256-4" within the scope of license renewal based on criterion 10 CFR 54.4(a)(2). Provide additional information clarifying why pipe 256-4" on drawings 1X4LD145-6 and 2X4LD145-6 (B-2) is not within the scope of license renewal.

VEGP Response:

Line 1215-256-4" as shown on drawings 1X4LD145-6 and 2X4LD145-6 is in scope for 10 CFR 54.4(a)(2). Drawings 1X4LD145-6 and 2X4LD145-6 should have shown this line highlighted as in scope for 10 CFR 54.4(a)(2).

RAI - 2.3.3.23-3

License renewal drawings 1X4LD179-2 and 2X4LD179-2 (D-7) show pipeline 097-2" within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) continuing to LRA drawings 1X4LD124-2 (F-4) and 2X4LD124-2 (G-4). Drawings 1X4LD124-2 and 2X4LD124-2 could not be located in the LRA boundary drawing package. Provide additional information to verify that the continuation from LRA drawings 1X4LD179-2 and 2X4LD179-2 has been made to the correct drawings and locations and provide the drawings.

VEGP Response:

Line 1407-097-2" on mechanical boundary drawings 1X4LD179-2 and 2X4LD179-2 continues to P&ID AX4DB124-2. P&ID AX4DB124-2 shows the point where this line exits the Auxiliary Building into the Radwaste Transfer Tunnel. There are no safety related components in the Radwaste Transfer Tunnel, so potential spatial interactions are not a concern and the in-scope portion of the line ends at the Auxiliary Building to Radwaste Transfer Tunnel boundary. However, P&ID AX4DB124-2 was not redrawn into a license renewal mechanical boundary drawing. To resolve this discrepancy, mechanical boundary drawings 1X4LD179-2 and 2X4LD179-2 should have been revised to include the Auxiliary Building to Radwaste Transfer Tunnel boundary for clarity.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.25-1

License renewal drawings 1X4LD133-1, 1X4LD133-2, 2X4LD133-1, and 2X4LD133-2 (H-3), and drawings 1X4LD136 and 2X4LD136 (A-3) and (E-3) show radiation monitors that are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) between sections of pipe categorized within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). Also note that for similar equipment on drawings 1X4LD213-2 and 2X4LD213-2 (D-1) radiation monitors are within the scope of license renewal based on criterion
10 CFR 54.4(a)(2) but have equivalent anchors on each end. Provide additional information explaining why the radiation monitors on LRA drawings 1X4LD133-1, 1X4LD133-2, 1X4LD136, 2X4LD133-1, 2X4LD136, and 2X4LD133-2 are not within the scope of license renewal based on criterion 10 CFR 54.4(a)(1) as are the connecting pipe sections.

VEGP Response:

The radiation monitors on mechanical boundary drawings 1X4LD133-1, 1X4LD133-2, 1X4LD136, 2X4LD133-1, 2X4LD136, 2X4LD133-2, 1X4LD213-2 and 2X4LD213-2 are not in scope for 10 CFR 54.4(a)(1) scoping criteria because they do not ensure the integrity of the reactor coolant pressure boundary; ensure the capability to shut down the reactor and maintain it in a safe shutdown condition; or ensure the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the guidelines in
10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11, as applicable.

The safety classifications of both the radiation monitors and the connecting pipe sections are established in the current licensing basis in accordance with regulatory guidance. Refer to LRA section 2.1, Scoping and Screening Methodology, for additional discussion.

Also note that the radiation monitors on mechanical boundary drawings 1X4LD213-2 and 2X4LD213-2 do not have equivalent anchors on each end. Boundary endpoint clarification note # 4 indicates that the radiation monitors are the equivalent anchors. However, given that there is no piping endpoint at the radiation monitors, it would be more appropriate to describe these radiation monitor packages as non-safety related piping that is connected at both ends to safety related piping. Boundary endpoint clarification note # 4 on mechanical boundary drawings 1X4LD213-2 and 2X4LD213-2 is unnecessary and should not have been included.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.26-1

License renewal drawing 1X4LD184 (A-8) shows a drawing continuation of pipe section 170-1" within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) to drawing 1X4LD125 (B-3). The continuation at 1X4LD125 (B-3) could not be located. The drawing continuation appears to be 1X4LD125 (D-7). Provide additional information to clarify the correct drawing 1X4LD125 location for the continuation of pipe section 170-1" to drawing 1X4LD125.

VEGP Response:

Line 1228-170-1" enters mechanical boundary drawing 1X4LD125 at grid D-7. The reference on 1X4LD184 (A-8) should have been 1X4LD125 (D-7).

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.26-2

License renewal drawing 1X4LD184 (C-8) shows a drawing continuation of 163-1" piping, within the scope of license renewal based on criterion 10 CFR 54.4(a)(2), to drawing 1X4LD129 (G-6). Part of the 163-1" piping on 1X4LD129 (G-6) to In-Scope Boundary Endpoint Clarification Symbol A11 is shown as not in scope for license renewal. Provide additional information justifying the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

VEGP Response:

Mechanical boundary drawing 1X4LD129 shows the in scope portion of line 1228-163-1" ending at an anchor, and refers to endpoint clarification note # 11. Note # 11 indicates that the pipe is in scope for attached pipe considerations up to the identified anchor. Note # 11 also states that the spatial interaction boundary extends beyond the identified anchor. No endpoint should have been shown at this location. Where spatial interaction concerns bound the attached pipe endpoint, the line should have been shown as in scope all the way to the spatial interaction endpoint.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.26-3

License renewal drawing 1X4LD129 (H-2) shows pipe section 172-1" splits and connects to a 172-3/4" line and a 172-1" line. The drawing also shows that part of the 172-1" line before the split, as well as the 172-3/4" line, as nonsafety-related and within the scope of license renewal for spatial effects. Yet no portion of the continuing 172-1" line that is connected to the catalytic hydrogen re-combiner is within the scope of license renewal. Please provide additional information to clarify why this line is not included in the scope of license renewal as per requirements of 10CFR 54.4(a) (2).

VEGP Response:

On mechanical boundary drawing 1X4LD129 the Reactor Makeup Water (RMW) System piping was put in scope up to the boundaries of that system. After additional review of this drawing, the RMW System boundaries do not clearly coincide with 10 CFR 54.4(a)(2) endpoints as defined in NEI 95-10, Appendix F. The mechanical boundary drawings 1X4LD129 and 2X4LD129 should have shown the RMW System piping to the catalytic hydrogen recombiners as in scope for 10 CFR 54.4(a)(2) up to the connections to the recombiners. The catalytic hydrogen recombiners are already in scope for 10 CFR 54.4(a)(2) as equivalent anchors.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.27-1

The function of the Turbine Plant Sampling System is to collect, cool, analyze, control, alarm, and record water quality from various sampling points in the secondary plant systems. Certain nonsafety-related piping associated with this system has the potential for spatial interaction with safety-related components; therefore, this system meets the 10 CFR 54.4(a)(2) criterion. License renewal drawing 2X4LD171-8 (E-5), turbine plant sampling system, pipe section 139-1½" downstream of valve 094 is shown as not within the scope of license renewal for criterion 10 CFR 54.4(a)(2). While license renewal drawing 1X4LD171-8 (E-5), Turbine Plant Sampling System, shows this piping within the scope of license renewal. Provide additional information to justify the omission of the 2X4LD171-8 pipe section 139-1½" from the applicable requirements of 10 CFR 54.4(a)(2) and provide the license renewal boundary for 139-1½".

VEGP Response:

Line 1305-139-1½" downstream of valve 094 on mechanical boundary drawing 2X4LD171-8 was inadvertently omitted from scope. This drawing should have shown all of line 1305-139-1½" in scope for 10 CFR 54.4(a)(2).

RAI - 2.3.3.27-2

The function of the Turbine Plant Sampling System is to collect, cool, analyze, control, alarm, and record water quality from various sampling points in the secondary plant systems. Certain nonsafety-related piping associated with this system has the potential for spatial interaction with safety-related components. License renewal drawings 1X4LD171-8 and 2X4LD171-8 have 16 within the scope of license renewal to not within the scope of license renewal transitions identified for 3/8" piping downstream of the steam generator main steam sample coolers that meets the 10 CFR 54.4(a)(2) criterion. There is not enough information provided to identify the transition location. Provide additional information to identify these LR boundaries and to justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a)(2) for the following locations on both drawings:

- Location D-3, downstream of valve 008.
- Location E-3, downstream of valve 007.
- Location F-3, downstream of valve 006.
- Location G-3, downstream of valve 005.
- Location D-6, downstream of valve 010.
- Location E-6, downstream of valve 011.
- Location F-7, downstream of valve 012.
- Location G-8, downstream of valve 009.

VEGP Response:

The sample lines described above are shown as in scope for 10 CFR 54.4(a)(2) criteria up to the point where they exit from the Auxiliary Building into Main Steam and Feedwater Tunnel 1T1 (2T1 on Unit 2). The sample lines downstream of the sample coolers are only in scope for potential spatial interaction effects. There are no safety related systems or components in Tunnels 1T1 or 2T1, therefore the 10 CFR 54.4(a)(2) spatial interaction criteria do not apply once the sample lines have exited the Auxiliary Building. Refer to the answer to RAI 2.1-2 for non-safety related components in the Turbine Building.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.27-3

The Post-Accident Sampling System (PASS) provides the capability to take and return a post-accident containment atmosphere sample via PASS piping and skid-mounted equipment. The original design of the PASS included the capability to obtain fluid samples from the Reactor Coolant System and the containment sumps. That capability has been eliminated. Certain lines and valves associated with this system are relied upon for containment isolation and integrity. License renewal drawing 1X4LD110 and 2X4LD110 (F-8), Post Accident Sampling System, show the associated piping with penetration 86C as not within the scope of license renewal based on criterion 10 CFR 54.4(a). Provide additional information to justify the omission of this piping from the applicable requirements of 10 CFR 54.4(a).

VEGP Response:

Line 2702-008-1" which is associated with penetration 86C on mechanical boundary drawings 1X4LD110 and 2X4LD110 is in scope. These drawings should have shown line 2702-008-1" in scope for 10 CFR 54.4(a)(1).

RAI - 2.3.3.29-1

License renewal drawings 1X4LD233, 2X4LD233, 1X4LD234, and 2X4LD234 show numerous essential chilled water cooling coils that are within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). Also, license renewal drawings AX4LD231 and AX4LD232 show numerous normal chilled water cooling coils that are within the scope of license renewal based on criterion 10 CFR 54.4(a)(2). Provide additional information explaining why the cooling coil component type was omitted from LRA Table 2.3.3.29 for components subject to an AMR

VEGP Response:

The cooling coil component type(s) are included within the LRA ventilation system which corresponds to their associated component tag number. For instance, essential and normal chilled water cooling coil component types are included in the control and auxiliary building ventilation component type tables, 2.3.3.11 and 2.3.3.12, respectively. Therefore, the component types will not be duplicated in the chilled water system Table 2.3.3.29.

RAI - 2.3.3.29-2

The license renewal AMR Table 2.3.3.29 did not include some of the typical components that are listed in AMR tables of other plant LRAs, including the housings for the chiller compressor/motor, compressor oil cooler, oil filter, oil pump, and the refrigerant dryer filter. Provide additional information to explain why these components are not included in LRA Table 2.3.3.29 as components subject to an AMR.

VEGP Response:

The chiller compressor oil is cooled as the lube oil piping passes through the refrigerant filled motor, therefore the chiller compressor does not have a separate sub-component which functions as an oil cooler.

The oil pump is listed in LRA Table 2.3.3.29, Item No. 17, as "Pump Casings - Chiller Motor Driven Oil Pumps."

The chiller compressor housings, chiller compressor lube oil filters, and refrigerant filter dryers were omitted from the application and will be added to LRA Table 2.3.3.29. In addition, the chiller compressor purge tanks were omitted from the application and will be added to LRA Table 2.3.3.29.

LRA Table 3.3.2-29 will be revised to include aging management review results for the chiller compressor housings, chiller compressor lube oil filters, refrigerant filter dryers, and chiller compressor purge tanks. In addition, LRA Table 3.3.2-29 will be revised to include aging management review results for the following components in the chiller compressor lube oil and refrigerant sub-systems that were not included in the initial aging management review results:

- Closure Bolting (copper alloy)
- Flow Orifice / Elements
- Piping Components
- Sight Glasses
- Strainer Elements
- Strainer Housings
- Valve Bodies

A License Renewal Application amendment is required to correct these discrepancies.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.30-1

License renewal drawing 1X4LD111 (H-7) shows pipe section 314-2" as within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) with the license renewal boundary identified by note A2 and the continuation portion not within the scope of license renewal. However, the continuation of pipe 314-2" on 1X4LD127 (A-8) is also identified as within the scope of license renewal. Provide additional information detailing the license renewal boundary for pipe section 314-2" on drawings 1X4LD111 (H-8) and 1X4LD127 (A-8).

VEGP Response:

A detail review of the piping isometrics that identify the equivalent anchors for the pipe section 314-2" shown on License Renewal drawing 1X4LD111 (H-7) which continues to drawing 1X4LD127 (A-8) confirms that this line should have been shown inscope per criterion 10CFR 54.4(a)(2). This discrepancy represents a duplication in identifying equivalent anchors for this section of pipe. It has been determined that the inscope pipe section (314-2") per criterion (a)(2) should continue to drawing 1X4LD127 (A-8) and terminate at note 8 downstream.

RAI - 2.3.3.30-2

License renewal drawings 1X4LD111 (H-3) and 1X4LD127 (F-7) show pipe sections 376-1/2" not within the scope of license renewal. This line connects to 255-3/4" inside the 10 CFR 54.4(a)(2) boundary identified on 1X4LD127. Additionally, 376-1/2" connects to 048-3" valve 025 on drawing 1X4LD111 which is identified within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). Provide additional information detailing the license renewal boundary for pipe sections 376-1/2" on drawings 1X4LD111 (H-3) and 1X4LD127 (F-7).

VEGP Response:

Mechanical boundary drawing 1X4LD127 should have taken credit for existing pipe supports so that the end point of the in-scope portion of line 1901-199-3/8" terminated before the connection to line 1901-001-3." This removes part of line 1901-199-3/8," all of line 1901-001-3," and all of line 1901-255-3/4" from scope. Refer to the answer to RAI 2.3.3.30-4 for additional discussion of line 1901-376-1/2."

RAI - 2.3.3.30-3

License renewal drawing 1X4LD114 (G-3) shows pipe section 369-1/2" within the scope of license renewal based on criterion for 10 CFR 54.4(a)(2). However, the continuation of pipe section 369-1/2" on license renewal drawing 1X4LD127 (G-7) shows it is not within the scope of license renewal. Provide additional information detailing the license renewal boundary for pipe sections 369-1/2" on drawings 1X4LD114 (G-3) and 1X4LD127 (G-7).

VEGP Response:

Mechanical boundary drawing 1X4LD114 inadvertently showed lines 1901-382-1/2" and 1901-369-1/2" as being in scope for 10 CFR 54.4(a)(2). However, these lines are not in scope. Mechanical boundary drawing 1X4LD127 correctly shows line 1901-369-1/2" as not in scope. Refer to the answer to RAI 2.3.3.30-4 for additional discussion.

RAI - 2.3.3.30-4

License renewal drawing 1X4LD114, (G-3) and (F-3), show pipe sections 369-1/2" within the scope of license renewal based on criterion 10 CFR 54.4(a)(2) and 428-1/2" within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). The following pipe sections which also continue to the reactor coolant drain tanks are not within the scope of license renewal:

- 1X4LD114 and 2X4LD114 (F-5) 364-1/2"
- 1X4LD114 and 2X4LD114 (G-5) 363-1/2"
- 1X4LD114 and 2X4LD114 (G-5) 365-1/2"
- 1X4LD114 and 2X4LD114 (F-5) 366-1/2"
- 1X4LD114 and 2X4LD114 (G-6) 362-1/2"
- 1X4LD114 and 2X4LD114 (G-7) 370-1/2"
- 1X4LD114 and 2X4LD114 (G-7) 375-1/2"
- 1X4LD114 (G-8) 370-1/2"
- 1X4LD114 and 2X4LD114 (E-3) 371-1/2"
- 2X4LD114 (F-4) 428-1/2", Note 428-1/2" is in scope for 10 CFR 54.4(a)(1) on 1X4LD114 (F-4).
- 2X4LD114 (G-3) 369-1/2", Note 369-1/2" is in scope for 10 CFR 54.4(a)(2) on 1X4LD114 (G-3).
- 2X4LD114 (G-4) 382-1/2", Note 382-1/2" is in scope for 10 CFR 54.4(a)(2) on 1X4LD114 (G-4).

Provide additional information detailing the license renewal boundaries for the above pipe sections and explain the apparent difference in scoping methodologies.

VEGP Response:

Mechanical boundary drawing 1X4LD114 inadvertently showed lines 1901-382-1/2" and 1901-369-1/2" as being in scope for 10 CFR 54.4(a)(2). Refer to the answer to RAI 2.3.3.30-3. These lines are not in scope. See below for 10 CFR 54.4(a)(2) criteria discussion.

Mechanical boundary drawing 1X4LD114 inadvertently showed line 1901-428-1/2" as being in scope for
10 CFR 54.4(a)(1). Line 1901-428-1/2" is Project Classification 427, which is non-safety related and therefore not in scope for
10 CFR 54.4(a)(1). See below for 10 CFR 54.4(a)(2) criteria discussion.

Lines 1901-362-1/2," 1901-363-1/2," 1901-364-1/2," 1901-365-1/2," 1901-366-1/2," 1901-369-1/2," 1901-370-1/2," 1901-371-1/2," 1901-375-1/2," 1901-382-1/2," and 1901-428-1/2" on each unit are non-safety related valve packing leakoff lines. Because they are non-safety related they are not in scope for 10 CFR 54.4(a)(1).

These lines are not in scope for 10 CFR 54.4(a)(2) connected pipe criteria because the CLB therefore considers that the non-safety related small bore line can not affect the large bore safety related line. In general, the stress calculations consider the loads imposed on a large bore line by 1/2" or 3/4" tubing to be insignificant and those loads are neglected. The small bore line is considered to be decoupled. Therefore the 10 CFR 54.4(a)(2) connected pipe criteria does not apply.

These lines are not in scope for 10 CFR 54.4(a)(2) spatial interaction criteria because all safety related SSCs inside containment are assumed to be qualified for spray effects or submergence, where required, to address a high energy line break or LOCA. Furthermore, the pipe supports for these lines are in scope so seismic 2/1 is not a concern, and the lines operate at low pressure so pipe whip is not a

concern.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.3.30-5

License renewal drawing 2X4LD124 (A-5) shows the license renewal boundary for pipe section 045-2" from the Boron Recycle System (BRS) recycle evaporator as within the scope of license renewal based on criterion
10 CFR 54.4(a)(2). This in-scope line is continued from license renewal drawing AX4LD123-1. However, the same section of pipe on Unit 1 is identified as not within the scope of license renewal in drawing 1X4LD124 (A-5). Provide additional information explaining the apparent difference in scoping methodologies for pipe section 045-2" on drawings 1X4LD124 (A-5) and 2X4LD124 (A-5).

VEGP Response:

The scoping methodologies for Unit 1 and Unit 2 piping line number 045-2" are the same. A section of Unit 2 piping line number 2-1901-045-2" is located on Level B of the auxiliary building in the vicinity of safety related components that are within the scope of license renewal based on criterion 10 CFR 54.4(a)(1). The corresponding section of Unit 1 piping (line number 1-1901-045-2") is located in a separate area of the auxiliary building such that there is no potential for spatial interaction with safety related components. Therefore, only the Unit 2 piping section is within the scope of license renewal based on criterion 10 CFR 54.4(a)(2).

Vogtle License Renewal Audit Questions and Answers

RAI - 2.3.4.4-1

License renewal drawings 1X4LD161-1 and 2X4LD161-1 (E-7) downstream of valve HV5089 is shown as within the scope of license renewal based on criterion 10 CFR 54.4(a)(2), up to an equivalent anchor A1/A4, whereas, there is no annotation if there is an equivalent anchor for the 153-10" line at HV5103. Provide additional information justifying the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

VEGP Response:

Downstream of HV5103 on 1X4LD161-1 and 2X4LD161-1 is a spool piece identified as line 1302-104-10." This spool piece is shown as not in scope (colored gray) and in phantom on these boundary drawings because it is a removable spool piece that is only installed for hydrostatic testing of the main condenser. The lines on either side of the spool piece (1302-153-10" and 1302-010-10") terminate at the blind flanges. The end point of line 1302-153-10" is therefore defined in accordance with the guidance provided in NEI 95-10, Appendix F, as the free end of the non-safety related piping. An equivalent anchor is not required.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.4.1-1

Under the title "Containment Building Structure and Foundation" in Section 2.4.1 of the license renewal application (LRA), it is stated that "A tendon access gallery is located beneath the perimeter of the base slab for the installation and inspection of the U-shaped tendons." Please confirm that the tendon access gallery and its associated vertical access shafts are in scope and subject to an AMR. If the tendon access gallery and its associated vertical access shafts are not included in the scope of license renewal, please provide justification for their exclusion.

VEGP Response:

Though NUREG-1800 Rev. 1 Table 2.4-1 states "The tendon gallery itself does not perform an intended function, it is not WSLR." VEGP conservatively included the tendon access gallery and its associated vertical access shafts in scope and subject to an AMR. Table 2.4.1 ID 2 and 3 and Table 3.5.2-1 ID 2 and 3 include these components.

RAI - 2.4.1-2

From LRA Table 2.4.1, it is not clear if the following components of the Containment Structures have been screened-in as components subject to an AMR.

(i) Control rod drive missile shield
(ii) Polar crane support brackets
(iii) Reactor cavity manipulator crane (only containment polar bridge crane, spent fuel cask bridge crane, refueling machine inside the containment building, and the fuel handling machine bridge crane in the fuel building have been addressed in 2.3.3.3.)

Please confirm and explicitly clarify their inclusion in Table 2.4.1 or justify their exclusion. For those that are included in-scope and subject to an AMR, ensure that the appropriate AMR results are identified.

VEGP Response:

(i) Control rod drive missile shield has been screened-in as a component subjected to an AMR. This item is included in Table 2.4.1 ID 13 'Steel Components: Integrated Reactor Head Steel Assemblies'.
(ii) Polar crane support brackets have been screened-in as a component subjected to an AMR. This item is included in Table 2.4.1 ID 11 'Steel Components: All Structural Steel'.
(iii) Reactor cavity manipulator crane is part of 'Refueling Machine' at VEGP and it has been screened-in as a component subjected to an AMR. This item is included in section 2.3.3.3 under 'Fuel Handling and RV Servicing Equipment'.

RAI - 2.4.1-3

Under the title "Steel Containment Liner" in Section 2.4.1, it is stated that "The floor liner plate is installed on top of the foundation slab and is then covered with concrete." Please confirm that the inaccessible floor liner plate of the base mat including the leak chase system and the concrete fill slab above this liner are included in the components listed in Table 2.4.1 and are subject to an AMR. If they are not included, please provide justification for their exclusion.

VEGP Response:

It is confirmed that the inaccessible floor liner plate on the top of the base mat including the leak chase system and the concrete fill slab above this liner are included in the components listed in Table 2.4.1 and are subject to an AMR. This steel liner is included in Table 2.4.1 ID 14 'Steel Components: Liner (Containment); liner anchors; integral attachments', and concrete is included in Table 2.4.1 ID 4 'Concrete: Internal Structures'.

RAI - 2.4.1-4

To clarify the component identified as "Steel Components: All Structural Steel" in various LRA Tables 2.4.XX, please confirm that the connection components (gusset plates, welds, bolts, etc.) are in-scope and subject to an AMR.

VEGP Response:

It is confirmed that the connection components (gusset plates, welds, bolts, etc.) are in-scope and subject to an AMR. These connection components are included in Table 2.4.1 ID 11 'Steel Components: All Structural Steel'.

RAI - 2.4.1-5

As described in Section 3.8.3 of the VEGP FSAR, containment internal structures provide radiation shielding. Please provide justification why radiation shielding should not be identified as an intended function to Item 4 of LRA Table 2.4.1 (Concrete: internal structures).

VEGP Response:

Radiation shielding is an intended function of concrete internal structures. This is an inadvertent omission. 'Radiation Shielding' will be added to Item 4 of LRA Table 2.4.1 (Concrete: internal structures) and similar changes to Table 3.5.2-1 ID 4.

A license renewal application amendment is required.

RAI - 2.4.1-6

LRA Table 2.4.1 lists the Equipment Hatch and Personnel Airlocks as Containment components subject to an AMR. Please confirm that the hatch locks, hinges and closure mechanisms that help prevent loss of sealing/leak-tightness for these listed hatches are included in the scope of license renewal and subject to an AMR (NOTE: Table 2.4.12 does not specifically address these items either). As appropriate, please provide a description of their scoping and aging management review or provide the basis for their exclusion.

VEGP Response:

Locks, hinges, and closure mechanisms for the containment hatches and airlocks are active components, not subject to an AMR. Furthermore, these components are operated infrequently such that mechanical wear is not considered to be an aging mechanism that results in an aging effect requiring management.

Operation of the hatches and airlocks is governed by VEGP Technical Specifications. The VEGP 10 CFR 50 Appendix J Program manages any loss of leak tightness in closed position. Reviews of plant operational experience did not identify any mechanical wear issues resulting in loss of leak tightness.

RAI - 2.4.1-7

Please confirm if there are any channel/angle shrouds that may have been used at liner welded joints (including those at penetrations). If yes, please state so explicitly and include them as in scope components and subject to an AMR.

VEGP Response:

The inside face of the containment is lined with steel plates welded together to form a leak tight barrier. The liner plate, including the thickened plate areas, is anchored to the concrete. Leak chase channels are provided at seam welds which are inaccessible after construction. Channel, angle and WT sections have been used as inserts inside concrete and unistrut has been welded to liner plate at the angle stiffener location. All these miscellaneous items are in scope and subject to an AMR. These miscellaneous components are included in Table 2.4.1 ID 14 'Steel Components: Liner (Containment); liner anchors; integral attachments'.

RAI - 2.4.1-8

Please confirm that the isolation valve encapsulation vessel assemblies (noted in Section 3.8.2.1.4 of VEGP FSAR) and their supports/anchorages are screened-in and subject to an AMR. If not, provide justification for their exclusion.

VEGP Response:

The encapsulation vessels for the containment spray isolation valves are in scope and are included in LRA Table 2.3.2.1, Item 4. The encapsulation vessels for the residual heat removal isolation valves are in scope and are included in LRA Table 2.3.2.2, Item 4. The supports/anchorages for these encapsulation vessels are in scope and are included in LRA Table 2.4.2, Item 7. LRA Tables 2.3.2.1, 2.3.2.2, and 2.4.2 list the component types which are subject to an aging management review for their respective systems.

RAI - 2.4.1-9

Please confirm that the insulation and cooling system provided to limit the inside face temperature of primary shield wall and reactor cavity to 150 F (as noted in Section 3.8.3.4.4 of VEGP FSAR) are screened-in and subject to an AMR. Please note that Section 2.3.3.31, "Thermal Insulation", of the LRA mainly focuses on insulation for piping/penetrations to keep the local concrete temperature below 200 F.

VEGP Response:

The insulation installed on the reactor vessel, Reactor Coolant System piping, and other components inside the containment building with high operating temperatures is credited for reducing the thermal loading inside the containment building, including thermal loading of the primary shield wall and reactor cavity.

The cooling systems provided to limit the inside face temperature of primary shield wall and reactor cavity consist of the Containment Building Cavity Cooling System and the Containment Building Reactor Support Cooling System.

The cooling systems should have been shown on boundary drawings 1(2)X4LD214-1 as in scope under criterion 10 CFR54.4(a)(2), and the Scoping Determinations for Insulation, and the Containment Building Cavity Cooling System and Containment Building Reactor Support Cooling System should have described this in-scope function.

Therefore, Scoping Determination in LRA 2.3.3.31 will be revised to note the criterion 10 CFR54.4(a)(2) in-scope function for the insulation system to limit primary shield wall and reactor cavity concrete face temperature to 150F. Likewise, LRA Section 2.3.3.13 will be revised to identify the criterion 10 CFR54.4(a)(2) in-scope functions of the Containment Building Cavity Cooling System and Containment Building Reactor Support Cooling System to limit primary shield wall and reactor cavity face temperature to 150F.

The required component types for the Containment Building Cavity Cooling System and Containment Building Reactor Support Cooling System are Closure Bolting, Cooling Coils (NSCW), Damper Housings, Ductwork & Fittings, Fan Housings, and Flexible Connectors. These components and their intended functions, Pressure Boundary and Exchange Heat, have already been identified in LRA Tables 2.3.3.13 and 3.3.2-13. Likewise, LRA Tables 2.3.3.31 and 3.3.2-31 have identified thermal insulation and its environmental control function.

A License Renewal Application amendment is required to correct these discrepancies.

RAI - 2.4.1-10

Section 2.4.1 states the equipment hatch concrete external shield door is evaluated as a reactor building concrete element. Please include the equipment hatch concrete external shield door in Table 2.4.1 to ensure appropriate evaluation of this component in Section 3.5.2.1.1 and Table 3.5.2-1.

VEGP Response:

The equipment hatch concrete external shield door is part of ID 8 of Table 2.4.1 'Personnel Airlocks and Equipment Hatches'. To clarify further we will add "including concrete external shield door" in the parenthesis. Table 3.5.2-1 ID 8 will also be revised to add a new line for concrete.

A license renewal application amendment is required.

RAI - 2.4.1-11

The makeup water wells have not been considered in the scope of license renewal as noted in Table 2.2-2. According to VEGP FSAR Section 2.4.12.1.3.1, ground water is the primary source of supply for reactor cooling water makeup, normal makeup to the nuclear service cooling towers, and fire protection. Please provide justification for the exclusion of makeup water wells from the scope of license renewal.

VEGP Response:

The Plant Makeup Well Water System is a non-safety related system that does not perform any safety related functions, nor can failure of this system prevent any safety related system from performing its functions.

Reactor cooling water makeup that is credited in the safety analyses is supplied by the Refueling Water Storage Tanks, Boric Acid Storage Tanks, and Reactor Makeup Water Storage Tanks. Well water is used to provide normal operational makeup water to these tanks only after processing through the water treatment plant. The processed water is stored in the Demineralized Water Storage Tank until needed. Because the Plant Makeup Well Water System does not provide a direct supply for reactor cooling water makeup, the Plant Makeup Well Water System is not credited as a source of makeup water. Therefore the Plant Makeup Well Water System does not perform any functions that meet the criteria of 10 CFR 54.4(a)(1) or 10 CFR 54.4(a)(2) and is not in scope for license renewal.

The Plant Makeup Well Water System provides normal operational makeup water to the nuclear service cooling towers. However, the safety analyses consider only the water contained in the cooling tower basins when evaluating the ability of the nuclear service cooling towers to perform their safety function. No credit is taken for well water makeup to the cooling towers, therefore the Plant Makeup Well Water System does not perform any functions that meet the criteria of 10 CFR 54.4(a)(1) or 10 CFR 54.4(a)(2) and is not in scope for license renewal.

The Plant Makeup Well Water System provides normal operational makeup water to the Fire Protection Water Storage Tanks. The Fire Protection System is in scope for license renewal for 10 CFR 54.4(a)(3) criteria, with the exception of the containment penetrations which meet the criteria of 10 CFR 54.4(a)(1) in order to maintain the containment pressure boundary. The non-safety related Plant Makeup Well Water System is not in scope for supporting the Fire Protection System because the 10 CFR 54.4(a)(2) criteria do not apply to non-safety related systems or components which support other non-safety related systems or components.

RAI - 2.4.1-12

Please confirm that support anchorages and mechanical components of jib cranes (noted in Section 2.4.1 - containment internal structures) are in-scope and subject to an AMR.

VEGP Response:

We confirm that support anchorages and other passive components of jib cranes are in-scope and subject to an AMR. The jib crane and associated passive components are included in Table 2.4.12 ID 21 'Miscellaneous Cranes including Monorails'; and support anchorages are included in Table 2.4.12 ID 35 'Supports for EDGs, HVAC Components, and Misc. Mechanical Equipment: Support Members; welds; bolted connections; support anchorage to building structure'

Vogtle License Renewal Audit Questions and Answers

RAI - 2.4.2-1

Please confirm that the leak chase system for the spent fuel pool liner is in-scope and subject to an AMR.

VEGP Response:

We confirm that the leak chase system for the spent fuel pool liner is in-scope and subject to an AMR. Table 3.5.2-2 ID 9 addresses component type 'Steel Components: Spent Fuel Pool Liners' and note 515 states "The spent fuel pool water level, and the refueling cavity water level during core alterations, are monitored in accordance with the technical specifications. Leakage from the spent fuel pool leak chase channels is also monitored."

RAI - 2.4.4-1

Section 2.4.4 of the LRA states the turbine building foundation system consists of a mat foundation which also supports the turbine pedestal. This statement indicates that an integral foundation system is provided for both turbine building and turbine pedestal. This section also states that the turbine generator pedestal is isolated from the turbine building structure and is not in the scope of license renewal. These two statements are not consistent. Please clarify and provide justification for excluding the turbine pedestal from the scope of the license renewal. In addition, considering the plant's current licensing basis, please discuss the ATWS and SBO systems/components identified in Section 2.4.4 and their spatial interaction with the turbine pedestal.

VEGP Response:

This is true that an integral foundation system is provided for both turbine building and turbine pedestal. The turbine generator pedestal is isolated from the turbine building structure above the foundation. The Turbine building is in scope because of its proximity to class I structures. The turbine-generator pedestal has no license renewal intended function. Cascading effect of Turbine pedestal on main turbine building is not required to be considered. So, turbine pedestal is not in the scope of license renewal. However, turbine generator pedestal is in scope under maintenance rule and inspected under Structural Monitoring Program.

LRA section 2.4.4 states "the structural SSCs supporting the turbine impulse input signal to the AMSAC system and the output signal to the turbine trip solenoids are in the scope of license renewal." VEGP drawings show raceways in the turbine building that contain these circuits. Some of these raceways and supports that are mounted to the turbine pedestal are in LR scope. As per NUREG-1800 for 10 CFR 54.4(a)(3), an applicant need not consider second level support systems. This condition does not need the turbine pedestal to be included in scope of license renewal because as per NUREG-1800 for 10 CFR 54.4(a)(3), an applicant need not consider second level support systems.

Vogtle License Renewal Audit Questions and Answers

RAI - 2.4.4-2

In Section 2.4.4 of the LRA, Turbine building and a selected SBO and ATWS SSCs have been considered in-scope of the license renewal. The turbine building bridge crane has not been considered in the scope of license renewal as noted in Table 2.2-2. Considering the plant's current licensing basis, please provide justification for excluding the turbine building bridge crane from the scope of license renewal.

VEGP Response:

The Turbine Building structure is classified as a nonsafety-related structure under the current licensing basis, and the associated structural features (concrete elements, structural steel, etc.) are in the scope of license renewal under the 10 CFR 54.4(a)(2) criterion. The turbine building bridge crane is in a seismic Category 2 structure and does not have any license renewal intended function. That is the rationale for excluding the turbine building bridge crane from the scope of license renewal. Refer to the response to RAI 2.1-2.

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RAI - 2.4.9-1

As shown on Drawing AX1D45L01, the demineralized water storage tank is not considered in the scope of license renewal. Considering the plant's current licensing basis, please provide discussion relative to proximity (spatial interaction) of the demineralized water storage tank and the electrical fire pump house number 1 which is considered in scope in Section 2.4.9.

VEGP Response:

The Fire Protection System components contained in electrical fire pump house number 1, including the pump house structure, are non-safety related components that are in scope for license renewal for 10 CFR 54.4(a)(3) criteria. The non-safety related Demineralized Water Storage Tank is not in scope for 10 CFR 54.4(a)(2) spatial interaction criteria relative to electrical fire pump house number 1 because those criteria do not apply to non-safety related systems or components which could affect other non-safety related systems or components.

RAI - 2.4.12-1

Referring to LRA Table 2.4.12,

Please confirm if the following component types apply to the VEGP LRA and should be screened in and subject to an AMR or justify their exclusion. If they are in-scope, include them in Table 2.4.12 and provide AMR results.

Grout pads for building structural column base plates
Vibration isolators
Floor and wall embedded plates/anchorages for RCS primary equipment
Fluid containment curbs/walls/dikes
Waterproofing membrane in general (Item 28 only addresses roof membrane)
Any other hoists or lifting devices (e.g. Reactor Vessel Head Lifting Device, Reactor Internals Lifting Device)

Item 21, "Miscellaneous cranes including monorails" - It is not clear to the staff which specific crane or monorails have been determined to be within the scope of license renewal and if all relevant sub-components (including bridge and trolley, rails/hardware, girders, etc.) of the cranes and monorails are in-scope items and have been screened in as items requiring an AMR. Please identify the specific crane or monorails that are included within the above component type as in-scope and subject to AMR and those that are excluded with technical bases. 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 AMR. Also, confirm if fasteners and rail hardware associated with this component type are in-scope and subject to AMR. If not, please provide the technical bases for their exclusion.

VEGP Response:

i) Grout pads for building structural column base plates: This item is in scope and subjected to an AMR and included in Table 2.4.12 ID 4 and Table 3.5.2-12 ID 4 "Concrete: Equipment Pads, Foundations, Pedestals".

ii) Vibration isolators: This item is not applicable to VEGP. VEGP does not have any supports with vibration isolation elements which require an AMR. The vibration isolation elements identified by the VEGP integrated plant assessment were determined to be integral parts of active equipment.

iii) Floor and wall embedded plates/anchorages for RCS primary equipment: This item is in scope and subjected to an AMR and included in Table 2.4.12 ID 39 and Table 3.5.2-12 ID 39 "Supports for RCS Primary Equipment (includes RPV, SG, Pressurizer, RCP)".

iv) Fluid containment curbs/walls/dikes: Concrete curbs/walls/dikes are present in some of the VEGP in-scope structures. These components are in scope and subject to an AMR. This component is included under a broad component type "Concrete: Interior" identified in individual structures e.g., ID 3 of Table 2.4.3.

v) Waterproofing membrane in general (Item 28 only addresses roof membrane): Waterproofing membrane is predominantly present at roof that is why ID 28 of Table 2.4.12 called out 'Roof Membrane' though all membranes located in in-scope structures are in scope and subjected to an AMR. The component type 'Roof Membrane' will be changed to

'Waterproofing Membrane' in Table 2.4.12.

vi) Any other hoists or lifting devices (e.g. Reactor Vessel Head Lifting Device, Reactor Internals Lifting Device):

Lifting devices (e.g. Reactor Vessel Head Lifting Device, etc.) are tools/rigging that is not within License Renewal scope at VEGP.

vii) The following is a list of License Renewal in-scope Cranes, Monorails, Hoists and Miscellaneous Cranes for VEGP that are included in Item 21 and not within NUREG-0612.

Building/Structure	Description
Containment Structure	Jib Crane
Various in-scope Structures (e.g., DG Building, Auxiliary Building, etc.)	Miscellaneous monorails/hoists within in-scope structures

The intent of this component type is to include all the cranes within in-scope structures unless otherwise stated as not in scope (e.g., Turbine Building Overhead crane).

Relevant sub-components (including bridge and trolley, rails/hardware, girders, etc.) are in the scope of License Renewal for VEGP and subject to an aging management review. These components are listed in LRA Table 2.3.3.3. Fasteners and rail hardware associated with this component type are in-scope and subject to an AMR. At VEGP fasteners and anchorage to building structure are considered an inherent part of the structure.

A license renewal application amendment is required.

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RAI - 4.2-1

In Section 4.2.1 the LRA discusses Neutron Fluence. The following information is required to complete the review of this section:

- specify the method used to determine the End of Life (EOL) Pressure Vessel fluence. Has this method been benchmarked? If so, please describe methods used to benchmark results.
- Assuming the method is referenced in the Pressure Temperature Limits Report (PTLR), please make the PTLR available to the staff.
- If plant specific measured values (from the surveillance capsules) are used, please make the capsule report available to the staff.

VEGP Response:

- The EOL PV fluence values for the Vogtle Units 1 and 2 LRA were calculated using the NRC approved methodology described in WCAP-14040-A, Revision 4, "Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves. As discussed in the body of WCAP-14040-A, Revision 4 as well as in the NRC Safety Evaluation included in that report, the methodology has been benchmarked following the Guidance of Regulatory Guide 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," March 2001. The methodology benchmarking included the following components:

    1. Comparison to Pool Critical Assembly (PCA) simulator results.

    2. Comparisons to measurements from the H. B. Robinson benchmark.

    3. Comparisons to a measurement database from PWR surveillance capsules.

    4. An analytical sensitivity study addressing the uncertainty components of the transport calculations.

  The results of these benchmarking studies are discussed in WCAP-14040-A, Revision 4.

- The VEGP PTLR does not mention the method other than to reference WCAP-14040 which was discussed above. For reference, the current VEGP PTLR is available in ADAMS, Ascension Number ML051310203.

- The EOL PV fluence for Vogtle Units 1 and 2 was taken from the results of discrete ordinates transport calculations using the methodology described in WCAP-14040-A, Revision 4. Plant specific capsule measurements were not used to change or adjust these analytical results.

  However, to date, eight surveillance capsules (four from each unit) have been withdrawn from Vogtle Units 1 and 2. Comparisons of the transport calculations with dosimetry results from these capsules were used to verify that the uncertainty criterion specified in Regulatory Guide 1.190 was met and that the calculation/dosimetry comparisons for Vogtle Units 1 and 2 were consistent with the overall PWR surveillance capsule dosimetry database. These capsule evaluations were documented in the following reports, which have previously been submitted to the staff:

  WCAP-16278-NP, Revision 0, "Analysis of Capsule X from the Southern Nuclear Operating Company, Vogtle Unit 1 Reactor Vessel Radiation Surveillance Program," July 2004

(ML050840318).

WCAP-16382-NP, Revision 0, "Analysis of Capsule W from the Southern Nuclear Operating Company, Vogtle Unit 2 Reactor Vessel Radiation Surveillance Program," January 2005 (ML050840329).

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RAI - 4.2-2

In the LRA on page 4.2-2, Tables 4.2.1-1 and 4.2.1-2 show values for 1/4T and 3/4T. What method was used to calculate the 1/4T and 3/4T values used in these tables?

VEGP Response:

The EOL PV inner radius fluence values for Vogtle Units 1 and 2 were calculated using the methodology described in WCAP-14040-A, Revision 4. The 1/4T and 3/4T fluence values were then calculated using the attenuation function provided in Section 1.1 of Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988.

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RAI - 4.2-3

In the LRA on page 4.2.-2, in table 4.2.1-2, please specify the method, azimuthal location and elevation above the beltline region used to determine the extended beltline peak fluence values.

VEGP Response:

The fluence data provided in Table 4.2.1-2 was calculated using the fluence methodology described in WCAP-14040-A, Revision 4.

The extended beltline includes the following materials:

Nozzle shell to intermediate shell circumferential weld
Nozzle shell
Nozzle shell axial welds
Nozzle body to nozzle shell welds
Inlet and Outlet nozzles

The fluence values listed in Table 4.2.1-2 were intended to represent the maximum neutron exposure experienced by any of these materials. This maximum exposure occurs at the bottom surface of the nozzle shell to intermediate shell circumferential weld at a 1st octant equivalent azimuthal angle of 45°. The bottom surface of this weld at Vogtle Unit 1 is located 21.4 inches above the top of the active fuel. The corresponding weld at Vogtle Unit 2 is located 21.8 inches above the top of the active fuel. Any materials located above these elevations or any materials displaced azimuthally from the 45° axes would experience neutron exposures less than those listed in Table 4.2.1-2.

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RAI - 4.5-1

In Figure 4.5-4a, "Unit 2 Vertical Baseline Tendon V20-92" and Figure 4.5-5a, "Unit 2 Shell Hoop Baseline Tendon H-99" the tendon force in the seventh year is larger than that in the third year. Please discuss this anomaly and its effect on the regression analysis and the corresponding trend line.

VEGP Response:

All the values for Figure 4.5-4a and Figure 4.5-5a have been further verified to be correct. The fact that the tendon force in the seventh year is larger than that in the third year can be attributed to the following:

1) Third year tendon surveillance was performed by vendor VSL Corporation where as seventh year tendon surveillance was performed by a vendor PSC.
2) The actual liftoff method varied between VSL and PSC.

Regression analysis was done based on the data given in the report without any adjustment. The fact that the seventeenth (17^{th}) year value is reasonably lower than the 7^{th} year value gives us confidence about the trend.

To investigate further we drew the trend lines ignoring 3^{rd} year data and then ignoring 7^{th} year data only and in both cases 60 year trend line values came out to be greater than the minimum required values.