Vogtle PEmails

From: Gleaves, Billy
Sent: Friday, November 1, 2019 10:13 AM
To: Vogtle PEmails
Subject: FW: LAR-19-010: Draft to Support Nov. 14, 2019 Pre-submittal Meeting
Attachments: LAR-19-010 draft for 20191114 PSM.pdf

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From: Humphrey, Mark Phillips <MPHUMPHR@southernco.com>
Sent: Thursday, October 31, 2019 5:58 PM
To: Patel, Chandu <Chandu.Patel@nrc.gov>
Cc: Habib, Donald <Donald.Habib@nrc.gov>; Gleaves, Billy <Bill.Gleaves@nrc.gov>; Grant, Eddie <X2EDGRAN@SOUTHERNCO.COM>; Chamberlain, Amy Christine <ACCHAMBE@southernco.com>; Santos, Cayetano <Cayetano.Santos@nrc.gov>; Agee, Stephanie Y. <SYAGEE@southernco.com>; Arafeh, Yasmeen N. <YNARAFEH@southernco.com>
Subject: [External_Sender] LAR-19-010: Draft to Support Nov. 14, 2019 Pre-submittal Meeting

Chandu –
As communicated by Eddie Grant via email earlier today, SNC is proposing a pre-submittal meeting (PSM) regarding VEGP Units 3 and 4 LAR-19-010 [Auxiliary Building Room Heat-up] on Nov. 14, 2019. Please confirm this date is acceptable to the Staff.

SNC is providing the attached draft LAR enclosures for the Staff's consideration to support a 2-week review in advance of the proposed PSM. SNC plans to submit LAR-19-010 on Nov. 21, 2019 following the proposed PSM.

SNC appreciates the opportunity to discuss the draft LAR with the Staff on Nov. 14, 2019, if that date is acceptable. Please contact me with any questions you may have.

Respectfully,

Mark P. Humphrey
Licensing Supervisor
Nuclear Development
Southern Nuclear
3535 Colonnade Parkway
Birmingham, AL 35243
O: 205.992.6452
C: 205.215.5152
mphumphr@southernco.com

Southern Nuclear

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Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Request for License Amendment:

Auxiliary Building Room Heat-up

(LAR-19-010)

(This Enclosure consists of 20 pages, including this cover page)

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ND-19-0000
Enclosure 1
Request for License Amendment: Auxiliary Building Room Heat-up (LAR-19-010)

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) hereby requests an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

1. SUMMARY DESCRIPTION

The proposed changes would revise the licensing basis documents to address potential effects within AP1000 Auxiliary Building spaces following loss of heating, ventilation and air conditioning (HVAC) or loss of ac power events. The requested amendment requires a departure from the Updated Final Safety Analysis Report (UFSAR) Tier 2 information that involves a change to the plant-specific Tier 1 (and associated COL Appendix C) information in Table 2.2.5-4 identifying the heat loads for the Auxiliary Building rooms containing instrumentation and control (I&C) equipment and dc electrical equipment.

This enclosure requests approval of the license amendment necessary to implement these changes as shown in Enclosure 3. The discussions of changes to the plant-specific Tier 1 information are also understood to impact the corresponding COL Appendix C information.

2. DETAILED DESCRIPTION

Licensing Basis Background

As described in plant-specific Tier 1 and corresponding COL Appendix C Section 3.3, the nuclear island structures (i.e., containment internal structures, shield and auxiliary buildings) provide protection for the safety-related equipment against the consequences of either a postulated internal or external event. The nuclear island structures are designed to withstand the effects of natural phenomena such as hurricanes, floods, tornados, tsunamis, and earthquakes without loss of capability to perform safety functions. The nuclear island structures are designed to withstand the effects of postulated internal events such as fires and flooding without loss of capability to perform safety functions. As described in Updated Final Safety Analysis Report (UFSAR) Subsection 1.2.4.3, Auxiliary Building, the primary function of the auxiliary building is to provide protection and separation for the seismic Category I mechanical and electrical equipment located outside the containment building. The auxiliary building provides protection for the safety-related equipment against the consequences of either a postulated internal or external event. The auxiliary building also provides shielding for the radioactive equipment and piping that is housed within the building. The auxiliary building is a seismic Category I reinforced concrete structure. It shares a common basemat with the containment building and the shield building.

As described in UFSAR Section 6.4, Habitability Systems, the habitability systems are a set of individual systems that collectively provide the habitability functions for the plant. The habitability systems are also designed to service the I&C rooms and dc equipment rooms. The habitability systems are capable of maintaining the temperature in the I&C rooms and dc equipment rooms below the equipment qualification temperature limit throughout the duration of postulated accidents.

The Nuclear Island Nonradioactive Ventilation System (VBS) is a part of the habitability system. The VBS Class 1E electrical room HVAC subsystem is designed to perform the defense-in-depth function of providing ventilation and cooling to the Class 1E instrumentation and equipment, maintaining the rooms' passive cooling heat sinks below the initial design basis temperatures to provide proper heat sink capacity in the event VBS becomes inoperable. The HVAC subsystem also maintains the passive heat sinks at or above the minimum space design temperature to

maintain the battery room temperatures above safety design limits. As described in UFSAR Subsection 6.4.3.1, Normal Mode, the VBS maintains the air temperature within predetermined temperature ranges for the main control room envelope (MCRE) and rooms adjacent to the MCRE to maintain the MCRE habitability system passive heat sinks within design basis initial conditions.

Reason for the Change

The proposed changes would revise the licensing basis documents to address potential effects within AP1000 Auxiliary Building spaces following a loss of HVAC or loss of ac power events. The most common impact of a loss of HVAC event in the Auxiliary Building is an increase in room temperature. These changes were necessary after using finalized design information for performing evaluations regarding plant behavior and room air temperatures in the event of a loss of HVAC, or a loss of ac power resulting in a loss of HVAC. Final design information was also used to analyze room heat-up rate for use in the AP1000 Auxiliary Building Environmental Qualification (EQ) program. The finalized quantitative design information includes final design information based on room sizes, equipment locations, detailed equipment design information, and heat loads affecting the room temperature under postulated loss of ac power or loss of HVAC events.

Change No. 1: Revise Heat Loads for Rooms in Tier 1 Table 2.2.5-4 and UFSAR Table 6.4-3

Plant-specific Tier 1 and associated COL Appendix C Table 2.2.5-4 and UFSAR Table 6.4-3 provide heat load limits during a loss of ac power event for a 72-hour period that are used to verify the temperatures within the rooms remain within limits.

As design details for these systems and rooms were finalized, the total heat loads for the rooms listed in the above tables were re-evaluated and found to differ from the heat loads presented therein for a loss of ac power. Therefore, this change proposes to revise the heat loads in Tier 1 Table 2.2.5-4 and UFSAR Table 6.4-3 to reflect the recent evaluations of the heat loads for the I&C and dc equipment rooms used in the Auxiliary Building design basis accident (DBA) heat-up analysis which demonstrates temperature limits are met.

Change No. 2: Loss of HVAC Event as an Abnormal Condition

A loss of HVAC is identified as a possible plant service abnormality that could lead to short-term changes in the environment. The duration for this abnormal event is currently identified in UFSAR Subsection 3.11.3, "Loss of Ventilation," as 72 hours. As stated in UFSAR Subsection 3D.5.2, abnormal environments are defined to recognize possible plant service abnormalities that lead to short-term changes in environments. Area temperature monitoring and subsequent prompt restoration of adequate temperature control in areas with safety-related equipment or with non-safety post-accident monitoring system (PAMS) equipment make consideration of a 72-hour event unnecessarily restrictive and thus, the loss of HVAC event durations are revised to be no greater than eight (8) hours. Additionally, as design details for these systems and rooms were finalized, the temperature identified for the rooms were re-evaluated for both the loss of HVAC and the loss of ac (which leads to loss of HVAC) events, and revised temperatures are included in the markups of Table 3D.5-4. Finally, the indication of the specific event leading to the maximum abnormal event parameters is not relevant and often different between rooms thus, this is removed for each zone on Table 3D.5-4.

Change No. 3: Abnormal Events in Environmental Zone 10

Changes to UFSAR Table 3D.5-4 are made to separate zone 10 (Room 12306) from zone 8, and to reflect the revised maximum conditions based on loss of normal ventilation systems.

Table 3D.5-4 is revised to show new, separate entries for zone 10. The maximum temperature for zone 10 is listed as 140°F for ten such events of four hours (10x4 hrs) duration similar to zones 4, 5, 6, and 7. The proposed abnormal event temperatures reflect the analyzed temperature value for room 12306 based on finalized design details such as room sizes, equipment locations, and heat loads.

Change No. 4: Abnormal Event Temperatures in Auxiliary Building Rooms

As design details for these systems and rooms were finalized, the abnormal event room temperatures on loss of HVAC and loss of ac power events in the Auxiliary Building were re-evaluated based on finalized design details. These evaluations of room temperatures show that several rooms now exceed the abnormal events temperature currently listed in UFSAR Table 3D.5-4, "Abnormal Operating Environments Outside Containment," for either the loss of HVAC or loss of ac power events. The new analyses are based on revised quantitative design information including finalized information such as room sizes, equipment design and locations, and heat loads under postulated loss of ac power and loss of HVAC events. The current UFSAR values were based on early preliminary studies that were not as detailed as the newer analyses and did not have the same amount of information available to them. The abnormal event auxiliary building room heat-up is an input to the EQ program.

Change No. 5: Loss of HVAC and Heat Dissipation

The text in UFSAR Subsection 3.11.3 discussing heat-up of areas outside of containment was found to be unclear regarding heat dissipation. The UFSAR text indicates that heat generated is absorbed by the surrounding concrete. However, the heat in the heat-up analysis is also absorbed by other structures, systems, and components (SSCs) in the rooms. Thus, a reference to “passive heat sinks” is a more accurate description.

Change No. 6: Accident Event Temperatures in Auxiliary Building Rooms

As design details for these systems and rooms were finalized, the post-accident event room temperatures in the Auxiliary Building were re-evaluated based on finalized design details. The new analyses are based on revised quantitative design information including final design information such as room sizes, equipment locations, and heat loads. Note that temperature changes to Table 3D.5-4 also impact Table 3D.5-5, "Accident Environments," when the zone indicates “Same as Abnormal.”

Each room in the auxiliary building contains some equipment or components that generate heat during a loss of ac power or loss of HVAC event. Because of the loss of additional electrical heat loads, the loss of ac power event is limiting from a minimum temperature and room cool-down perspective. However, some auxiliary building rooms exhibit an increase in temperature. The minimum temperature analyses considered a 72-hour loss of ac power coincident with minimum site temperatures as an initial accident condition. Updates to UFSAR Table 3D.5-5 are required for certain environmental zones.

Description of the Activity

(included with the Technical Evaluation)

Licensing Basis Change Descriptions:

Change No. 1 markups

- Plant-specific Tier 1 and COL Appendix C Table 2.2.5-4 – Separate I&C rooms and dc equipment rooms into details for each room in these areas. Revise the heat load values for I&C rooms and dc equipment rooms.
- UFSAR Table 6.4-3 – Separate I&C rooms and dc equipment rooms into details for each room in these areas. Revise the heat load values for I&C rooms and dc equipment rooms.

Change No. 2 markups

- UFSAR Subsection 3.11.3 – Clarify that loss of HVAC events are evaluated as lasting for 8 hours rather than 72 hours.
- UFSAR Subsection 3.11.3 – Replace the reference to UFSAR Section 6.4 with reference to Subsection 9.4.1.2.3.2.
- UFSAR Table 3D.5-4 - Remove identifiers of Loss of AC Power and Loss of HVAC from each zone.
- UFSAR Subsection 9.4.1.2.3.2 – Add amplifying information about duration and mitigation of loss of HVAC.

Change No. 3 markups

- UFSAR Table 3D.5-4 - Changes to UFSAR Table 3D.5-4 are made to separate room 12306 (zone 10) into its own line item/section (previously grouped with zone 8) and include a change to the abnormal event temperature for zone 10.

Change No. 4 markups

- UFSAR Table 3D.5-4 - Changes to abnormal event temperatures for zones 2, 4, 6, and 7.
- UFSAR Table 3D.5-4 - Clarify in Note 3 that Sheet 2 refers to UFSAR Figure 3D.5-1.

Change No. 5 markups

- UFSAR Subsection 3.11.3 – Change to identify that the heat generated by equipment is absorbed by “passive heat sinks.”

Change No. 6 markups

- UFSAR Table 3D.5-5 –
  - > Zones 2 and 4, split into separate entries.
  - > Zones 6 and 11, split into separate entries.
  - > In zones 2, 7, and 11, change post-accident event temperatures.

3. TECHNICAL EVALUATION

Change No. 1: Change to Heat Loads for Rooms in Tier 1 Table 2.2.5-4 and UFSAR Table 6.4-3

The proposed change is to revise the loss of ac power heat loads in plant-specific Tier 1 and associated COL Appendix C Table 2.2.5-4 and UFSAR Table 6.4-3, LOSS OF AC POWER HEAT LOAD LIMITS, to reflect the heat load summary used in the heat-up analysis of the rooms listed on the tables due to the loss of ac and subsequent loss of HVAC. This maintains consistency

between the license, design, design analysis, and equipment by conveying environmental conditions that are bounding, considering revised heat load definitions for rooms as design was completed. The revised temperatures in the I&C rooms and dc equipment rooms following a loss of ac remain within acceptable limits as discussed in Subsection 6.4.4. As described in UFSAR Subsection 1.9.5.4, after 72 hours, ventilation and cooling of the I&C rooms, and the dc equipment rooms is provided by operator actions such as opening doors and providing cooling with ancillary fans or portable fans.

As in the MCRE, sufficient thermal mass is provided surrounding these rooms to absorb the heat generated by the equipment during the first 72 hours of the event. After 72 hours, the I&C rooms are cooled by drawing in outside air and circulating it through the room, as discussed in UFSAR Subsection 6.4.2.2. As described in UFSAR Subsection 9.4.1.2.3.2, when ac power is lost, division B and C I&C rooms' temperatures are maintained by operating their respective ancillary fan (VBS-MA-11 and VBS-MA-12) to supply outside air to the I&C rooms. Cooling by ancillary fans is not considered in the design of the dc equipment rooms. Outside air is supplied within 72 hours following a radiological release through the nonradioactive ventilation system outside air intake opening on the roof, the mechanical room at floor elevation 135′-3″, stairway No. 1 doors at elevation 135′-3″ and 82′-6″, the access corridor at floor elevation 82′-6″, and the divisional battery rooms. The warm air is vented to the annex building through the clean access corridor at elevation 100′-0″. The outside air supply provides cooling and maintains room temperature within the qualification temperature of the I&C equipment. The ancillary fans and flow path are located within the auxiliary building which is a seismic Category I structure. The normal temperatures and maximum abnormal temperatures for rooms surrounding the MCRE are not changed by this activity. There is no impact to the initial temperatures assumed in the MCRE heat-up analysis. Equipment located in the I&C rooms and dc equipment rooms is qualified for the normal, abnormal and accident environments in the rooms.

The proposed heat loads are the battery supported electrical equipment power, in Btu/second, and are the bounding heat loads for the rooms. The heat loads were developed on a component/equipment level basis within each of the I&C rooms and dc equipment rooms and uses the latest design information of the electrical equipment. The heat load for each room is calculated by summing the heat loads for the individual components in the room.

The heat load profiles for the Class 1E dc and Uninterruptible Power Supply System (IDS) dc equipment rooms and I&C rooms are the latest heat loads for a loss of ac power in rooms 12201, 12203, 12207, 12205, 12301, 12302, 12304, and 12305. For the PMS I&C rooms, the major change includes a reduction in heat loads at 24 hours. The reduction comes from disconnecting the Protection and Safety Monitoring System (PMS) cabinets at 24 hours which accounts for a majority of the total heat loads in the I&C rooms.

The justification for disconnecting the heat loads at 24 hours is as follows:

1. In a DBA that results in stable closed loop cooling (i.e. no actuation of Stage 4 of the Automatic Depressurization System (ADS)), the operators disconnect the 24-hour divisional IDS batteries prior to the 22-hour timer reaching its automatic actuation limit. This applies both in the event of an independent loss of ac power scenario, and a loss of ac power concurrent with another DBA scenario.
2. In a DBA that results in open loop cooling (i.e. ADS Stage 4 has actuated prior to or due to the 22-hour ADS timer), the operators are directed to disconnect the 24-hour divisional IDS batteries prior to 24 hours to reduce the heat generation rate in the PMS I&C rooms. This is an additional entry criterion for this operator action added by this proposed change.

Procedures provide directions to operators for responding to a prolonged loss of ac power event. A 21-hour alert is based on a loss of IDS battery chargers and is generated regardless of ADS actuation. After the alert has gone off at 21 hours, the operators would be instructed to check the air temperature of the I&C rooms (Room 12301, 12302, 12304, and 12305) to determine if the room temperatures are greater than 105°F. Should one or more rooms read higher than 105°F, the operators would continue with the next steps to remove loads from the IDS batteries. Note that if room air temperatures remain below 105°F after ADS actuation, IDS load removal would not be required. A prolonged temperature below 105°F is less limiting than the scenario analyzed and described above (i.e., temperature greater than 105°F with IDS power removal).

For a loss of ac power event, even coincident with a design basis accident, there are no safety-related operator actions as defined by ANSI-ANS 58.8-1984 that are required to be performed following the cumulative timer alert at 21 hours. While the ability to monitor plant conditions and performance of safety-related systems is required, it is not a safety-related action for design basis events because even with a single failure, the automatic actions of the PMS achieves and maintains the plant in a safe condition (i.e., the core is maintained in a coolable geometry and the fuel acceptance criteria are met). Operator actions are needed to maintain post-accident monitoring capability, to comply with regulations, and to support unplanned actions or severe/beyond design basis events but are not considered nuclear-safety-related actions for design basis events.

The heat loads in the I&C rooms and dc equipment rooms are changed as shown in Enclosure 3.

With the proposed heat loads listed for the I&C rooms or dc equipment rooms do not exceed the 120°F maximum temperature limit following a 72-hour loss of ac event. The equipment in the rooms is qualified to operate in the room temperatures experienced during the loss of ac power condition.

The design functions of the equipment in the affected rooms and the rooms themselves in not changed. Therefore, there are no adverse effects on the SSCs.

Change No. 2: Loss of HVAC Event as an Abnormal Condition

As discussed in UFSAR subsection 3D.5.2.2, "Abnormal Environments Outside Containment," UFSAR Table 3D.5-4, "Abnormal Operating Environments Outside Containment," defines the abnormal environments in the auxiliary building as a function of equipment location in specific environmental zones. The rooms included in each environmental zone are identified in UFSAR Table 3D.5-1, "Normal Operating Environments." UFSAR Table 3D.5-4 provides the temperatures for the different environmental zones in the auxiliary building under abnormal conditions such as the loss of ac power or loss of HVAC.

Change number 2 revises UFSAR Table 3D.5-4 and UFSAR subsection 3.11.3, "Loss of Ventilation," to recognize that the possibility that a loss of HVAC event may be a more limiting abnormal event than a loss of ac event with a resulting loss of HVAC. Currently, UFSAR Table 3D.5-4 identifies the loss of ac power event as limiting for most zones, even though (in several cases and from a room heat-up perspective) a loss of HVAC event can be more limiting. Currently, the various rooms in zones 4, 5, 6, 7 and 8 could experience the listed abnormal events temperature on either a loss of HVAC or a loss of ac power. Therefore the "Loss of AC Power" label in Table 3D.5-4 for zones 4, 5, 6, 7, and 8 is removed to avoid indicating that temperatures are only for loss of ac power events. The eight-hour time is consistent with the conservative expectations for restoration of temperature control. Additionally, the indication of the specific abnormal event leading to the listed parameter values is also removed for the other zones in

Table 3D.5-4 (zone 2, 3, 9, 10 and 11) since the specific causal event is not pertinent to how the information is used in equipment qualification.

This change also includes a revision to the text of UFSAR Subsection 3.11.3 (second paragraph) to reference an added discussion in UFSAR Subsection 9.4.1.2.3.2, instead of Section 6.4. The added discussion clarifies that an extended loss of HVAC event is mitigated using ancillary or portable fans and opening doors. These revisions are justified in the following discussions.

UFSAR Subsection 3.11.3 and Appendix 3D, Subsection 3D.5.2.2, identify the loss of ventilation as an abnormal event, and the various zone environments are identified in UFSAR Table 3D.5-4, "Abnormal Operating Environments Outside Containment."

As discussed in UFSAR Subsection 3.11.3, the equipment areas outside of containment and the MCRE are maintained at normal conditions by the non-safety-related HVAC systems and if the systems are disabled, the heat generated by equipment is absorbed by the surrounding passive heat sinks (see change 5 below) and the temperature rise is not expected to exceed the abnormal temperature limit for up to 72 hours. This section of the UFSAR states that if non-safety-related HVAC is lost, within 72 hours the HVAC is restored but does not mention any other compensatory actions that can be taken to maintain the abnormal temperature limits within limits for an unlikely loss of HVAC for up to 72 hours. The loss of HVAC event is currently defined in Subsection 3D.5.2.2 of the UFSAR as an abnormal event for areas outside containment. This event may be a more limiting room heat-up event compared to the loss of ac event due to non-safety heat loads remaining in service during a loss of HVAC in addition to the safety-related heat loads that remain on during a loss of ac event.

Note that this change makes the presentation of information in UFSAR Table 3D.5-4 consistent with the presentation of abnormal conditions for within containment in UFSAR Table 3D.5-3, "Abnormal Operating Environments Inside Containment." With change number 2, both tables now present only abnormal condition information and allow the text descriptions (in UFSAR Subsections 3.11 and UFSAR Appendix 3D) to provide a description of the events considered as abnormal events.

Loss of HVAC Abnormal Event Duration of 8 hours

Abnormal events are an aging mechanism considered in the AP1000 plant design for some EQ programs to address investment protection considerations by adding margin to the equipment qualification testing performed as part of the AP1000 standard plant design. This added margin also provides a basis to disposition short term abnormal events that are likely to occur over life of the plant. The safety, and thus the regulatory basis of the equipment qualification program, hinges upon accident conditions which bound and envelope the abnormal event conditions. Subsection 3D.5.2 of the UFSAR states that, “abnormal environments are defined to recognize possible plant service abnormalities that lead to short-term changes in environments.” Thus, the loss of HVAC scenario is clarified to be a duration of no greater than 8 hours.

Also, in the case of the eight-hour time, other considerations are the duration of plant work shifts and industry maintenance and repair experience. Evaluations also consider a conservative, constant 115°F external environment on the auxiliary building and constant heat loads in the rooms. Additionally, the auxiliary building is served by multiple separate HVAC systems. The loss of HVAC scenario assumes the simultaneous independent failure of the ventilation systems and subsystems for eight hours.

The relevant results of the analyses are the temperatures at the end of eight hours for loss of HVAC and 72 hours for loss of ac power. The temperatures at the end of an 8-hour loss of HVAC

abnormal event are considered for environmental qualification purposes. Operator actions mitigate the temperature increase beyond 8 hours following a loss of HVAC.

The analyses supporting the abnormal event temperatures presented in UFSAR Table 3D.5-4 assume a duration of eight hours for a loss of HVAC abnormal event, with longer duration events mitigated by operator activities. Similar to the post-72-hour support actions identified in UFSAR Subsection 1.9.5.4, the plant design and procedures allow for restoring adequate ventilation and cooling by opening doors and putting portable fans in appropriate locations.

These administrative controls mitigate room temperatures during an unlikely, extended loss of HVAC event for 72 hours during plant operation in areas with safety-related equipment or with non-safety PAMS equipment. The results of the analyses conclude that there are no safety-related components or PAMS that are adversely affected by the temperature changes to the auxiliary building rooms due to an extended loss of HVAC event.

Specifically, the analyses show that the rooms remain below their equipment qualification acceptance criteria of 120°F, following an extended loss of HVAC for 72 hours assuming the above identified operator actions occur at or before 8 hours into the event.

Consistent with Appendix 3D of the UFSAR for analyzing abnormal events, the analyses for the extended loss of HVAC assume a “nominal” or “better estimate” initial temperature/humidity of the rooms of interest. Note, this evaluation conservatively considers that the HVAC systems and subsystems (VBS, Radiologically Controlled Area Ventilation System (VAS), Annex/Auxiliary Non-Radioactive Ventilation System (VXS), etc.) independently fail simultaneously and are not restored within 72 hours as described in UFSAR Subsection 3.11.3. A more realistic scenario is one in which a single HVAC system fails so the loss of HVAC only applies to the subset of rooms within the nuclear island served by that particular system. In such a scenario, only a subset of doors (i.e., those in the rooms without active HVAC as a result of the event) would be required to be opened.

Summary for Change No. 2

The loss of HVAC events are acknowledged in the UFSAR with abnormal event temperature durations of eight hours (as noted in UFSAR Subsection 3.11.3). No design function of an SSC is affected by change number 2 change activities. Therefore, there is no adverse effect to any SSC design function described in the UFSAR.

Change No. 3: Abnormal Events in Environmental Zone 10

Changes to UFSAR Table 3D.5-4 are made to indicate that loss of HVAC and loss of AC power events apply to room 12306 (zone 10). New rows are added to UFSAR Table 3D.5-4 for the abnormal conditions experienced in zone 10.

Prior to this change, both zones 8 and 10 were reported together in UFSAR Table 3D.5-4 and the environmental parameters were noted as "same as normal." Zone 8 consists of several rooms in the north bays of the turbine building. Zone 10 consists of room 12306 in the auxiliary building non-radiological area, located at the northwest corner at grade level. The west wall of room 12306 is an exterior wall of the auxiliary building. As a result of influence from the external environment, the maximum temperature under abnormal operating conditions (in this case, long-term loss of ac power) for zone 10 is ≤ 140°F. For zone 8, environmental conditions design does not provide abnormal or accident environmental conditions because equipment qualification environmental conditions are not applicable since there is no safety-related equipment in zone 8.

For abnormal events outside containment, a duration of 40 hours is used in environmental conditions design as a bounding time period in which elevated temperatures exist. Temperature values are based upon consideration of at least a four-hour loss of ac power event, or eight-hour loss of HVAC. The duration is specified for equipment qualification purposes as 10 occurrences of four hours each or 10x4 hrs. This 10x4 hrs duration is the same as currently reported in UFSAR Table 3D.5-4 for zones 4, 5, 6, and 7. Therefore, zone 10, consisting of room 12306 in the auxiliary building (non-radiological area, valve /piping penetration room), is reported separately from zone 8 (the turbine building north bay rooms).

Note that the rows containing information on pipe rupture and submergence and spray conditions are removed from the zone 8 rows and placed with the new zone 10 rows. Pipe rupture and submergence and spray conditions are not considered for zone 8 (turbine building north bays) because, for equipment qualification purposes, abnormal or accident conditions are not applicable to the turbine building north bay rooms since there is no safety-related equipment in this zone. Therefore, only normal conditions apply to zone 8 for equipment qualification purposes.

For the new rows of zone 10 in UFSAR Table 3D.5-4, the temperature value is revised to be 140°F maximum and the duration is shown as 10x4 hrs. Only the temperature and duration values have changed, corresponding to the loss of ac power event. The other parameters remain unchanged from normal operations; the same as when zones 8 and 10 were reported together.

Summary for Change No .3

The acknowledgement of abnormal events in zone 10 resulting in the revision of UFSAR Table 3D.5-4 is not the result of any physical design change. The change activities are made to update the UFSAR to maintain consistency with supporting technical analyses. No design function of an SSC is affected by change number 3 change activities. Therefore, there is no adverse effect to an SSC design function described in the UFSAR.

Change 4: Abnormal Event Temperatures in Auxiliary Building Rooms

The loss of HVAC event is considered in defining EQ parameters for safety-related equipment and non-safety-related PAMS equipment. The UFSAR identified inputs from such loss of cooling events were previously established based upon preliminary analyses. These preliminary analyses and resulting EQ parameters are revised using GOTHIC analyses with information that was not available at the time the preliminary analyses were performed. The information includes finalized values of room sizes, equipment locations, and heat loads under postulated loss of ac power and loss of HVAC events. The analyses calculate room air temperatures for use in the auxiliary building EQ. Updated analyses based on the finalized design are complete and the results of the analyses indicate changes are needed to the information presented in the UFSAR.

The temperature changes to UFSAR Table 3D.5-4 bound the results of the heat-up analyses at the end of either eight hours for loss of HVAC or 72 hours for loss of ac power, whichever results in a higher temperature

The heat-up analyses conservatively assume many of the heat loads are constant throughout the duration of the abnormal event. However, the overall heat generation in the auxiliary building actually decreases with increasing abnormal event duration because of power source reduction. The analyses also assume a constant 115°F exterior (outdoor air) environment temperature.

The results of the analysis conclude that there are no safety-related components that would be adversely affected by the temperature changes to the auxiliary building rooms due to a 72-hour loss of ac power or an 8-hour loss of HVAC. To summarize, safety-related equipment in the

auxiliary building is qualified to a temperature that bounds the maximum temperature predicted by the heat-up analyses given a conservative set of inputs and assumptions.

The changes to the abnormal event temperatures presented in UFSAR Table 3D.5-4 are shown in the table below.

Abnormal Condition Temperature Changes for Environmental Zones

Environmental Zone	Room Description	Room Number	Revised Abnormal Condition Temperature Range
Zone 2	Battery Rooms	12101, 12102, 12103, 12104, 12105, 12202, 12204	60 – 120°F
	DC Equipment Rooms, I&C Rooms, Switchgear Rooms	12113, 12201*, 12203*, 12205*, 12207*, 12212, 12301*, 12302*, 12303, 12304*, 12305*, 12312, 12313, 12411, 12412	40 – 120°F
	Corridors and Spare Rooms	12111, 12112, 12211, 12213, 12300, 12311	67 – 120°F
	VBS Equipment Rooms	12405, 12501, 12505	50 – 120°F
Zone 4	Aux Building – Non-Radiological – Accessible	all rooms	50 – 120°F
Zone 6	Aux Building – Radiological – Inaccessible	12256	150°F max
		other rooms	140°F max (no change)
Zone 7	Aux Building – Radiological – Accessible	12241, 12341, 12343, 12344, 12345	200°F max
		12252	155°F max
		12451, 12554	150°F max
		12561	130°F max
		other rooms	114°F max (no change)

* - The heat loads for rooms 12201, 12203, 12205, 12207, 12301, 12302, 12304, and 12305 are presented in plant-specific Tier 1 and associated COL Appendix C Table 2.2.5-4 and UFSAR Table 6.4-3. The changes to the heat loads that results in the temperature changes for these rooms are assessed in Change No. 1.

The rows of UFSAR Table 3D.5-4 for zones 2, 4, 6, and 7 are separated into groups of rooms which share minimum and maximum abnormal temperatures. The abnormal temperatures are changed from referring to UFSAR Figure 3D.5-1 for the abnormal event temperatures to be specific to rooms in each environmental zone. The temperature values in UFSAR Table 3D.5-4 originally were based on preliminary information early in the AP1000 design. These original results are revised with the results of new analyses using GOTHIC based on information that was not available at the time the preliminary analyses were performed such as finalized room sizes,

equipment locations, and heat loads under postulated loss of ac power and loss of HVAC events. The revised analyses calculate room air temperatures for use in the AP1000 auxiliary building EQ analyses. The 7-day duration and Note 3 identification are unchanged for the rooms in zone 2. The reference to Figure 3D.5-1 remains with the rooms to which it applies, via Note 3 which is only applicable to the rooms it addresses, i.e., the I&C rooms and the dc equipment rooms. Because the change to zone 2 removes information specifying that abnormal extreme temperature is found on UFSAR Figure 3D.5-1, Sheet 2; clarification is added in Note 3 that Sheet 2 refers to UFSAR Figure 3D.5-1, Sheet 2. This is an administrative change to increase clarity and increase reader understanding.

Summary for Change No. 4

The change in the temperatures for the rooms in the auxiliary building updates equipment qualification criteria for SSCs and thermal analysis for structures to include the design temperature for the spaces. The EQ and thermal analysis provide assurance SSCs perform their design functions in the anticipated normal, abnormal, and accident environments to which the SSCs are exposed.

Change No. 5: Loss of HVAC and Heat Dissipation

UFSAR Subsection 3.11.3 is revised to clarify the heat generated by equipment is absorbed by surrounding passive heat sinks. The unrevised UFSAR text indicates that heat generated in areas outside containment is absorbed by the surrounding concrete. However, any other SSCs present in the auxiliary building also absorb thermal energy as the environment heats up. Indicating that the heat is absorbed by the surrounding concrete alone neglects other credited heat absorbing media. The text is changed in UFSAR Subsection 3.11.3 to show the heat generated is absorbed by the “passive heat sinks” and not just concrete.

Summary for Change No. 5

No design function of an SSC is affected by acknowledging that heat generated by equipment is not only absorbed by concrete, but also by the air as well as other SSCs. The text change in UFSAR subsection 3.11.3 to show the heat generated in areas outside containment is absorbed by other passive heat sinks provides further assurance of equipment operability, function, and qualification during heat-up events. Therefore, there is no adverse effect to an SSC design function described in the UFSAR.

Change No. 6: Accident Event Temperatures in Auxiliary Building Rooms

To establish consistency with the plant design bases and with analyses performed for areas within containment, a 72-hour loss of ac power event is also considered as an accident condition in the auxiliary building. Heat-up and cool-down cases were considered for a 72-hour loss of ac power. The analyses demonstrate that the temperatures from these events remain within the established limits of abnormal or post-accident events with several exceptions noted below. After 72 hours or three days of an extended loss of ac power, it is assumed that the use of ancillary fans restores cooling for those I&C rooms without ac power. Similar to the post-72-hour support actions identified in UFSAR Subsection 1.9.5.4, the plant design and procedures allow for restoring adequate ventilation and cooling by opening doors and putting portable fans in appropriate locations.

The change activity is found to be necessary after updating the GOTHIC analyses and performing evaluations regarding plant behavior and room air temperatures in the event of a loss of HVAC (or a loss of ac power resulting in a loss of HVAC), to analyze room heat-up for use in the AP1000 auxiliary building EQ analyses. Inputs to the GOTHIC analyses include room sizes, detailed equipment design and locations, and heat loads affecting the room temperature under postulated loss of ac power or loss of HVAC events.

This change activity revises post-accident temperatures listed in UFSAR Table 3D.5-5 for zones 2, 7, and 11. The change activity requires changes to the way UFSAR Table 3D.5-5 displays the information for zones 2, 4, 6, 7, and 11. The information for zones 2 and 4, and for zones 6 and 11 are split into separate line items in the table to allow differentiation between rooms in those environmental zones. It is also noted that temperature changes to Table 3D.5-4 also impact Table 3D.5-5, "Accident Environments," when the zone indicates “Same as Abnormal.” However, there is no impact to the EQ considerations as the temperatures previously considered for equipment qualification envelope the revised, higher temperatures and safety-related equipment in these areas were already qualified for more severe accident conditions due to similar equipment being located in areas with harsher environmental conditions.

Accident Condition Temperature Changes for Environmental Zones

Environmental Zone	Description of Analysis Results
Maximum Temperature Changes:	
Zone 6	The abnormal conditions (UFSAR Table 3D.5-4) bound the accident conditions with respect to temperature. No temperature change is required to UFSAR Table 3.D.5-5. Change No. 4 changed the abnormal maximum temperature of Zone 6 Room 12256 from 140°F to 150°F in Table 3D.5-4. Table 3D.5-5 maintains “same as abnormal” for Zone 6. Therefore, technically, there is change to the accident environment temperature for Zone 6, Room 12256. Accident increased because abnormal increased and the accident is “same as abnormal.”
Zone 7	Established a maximum accident temperature of 120°F to bound the increase in temperature experienced by Room 12151. The limit was previously 114°F. This is applied only to Room 12151 in zone 7 of UFSAR Table 3D.5-5.
Zone 7	Rooms 12241, 12341, 12343, 12344, 12345, 12252, 12451, 12554, and 12561 had an increased accident temperature because they are "same as abnormal" and the abnormal increased.
Minimum Temperature Changes:	
Zone 2	Established a minimum accident temperature of 60°F to bound the decrease in temperature experienced by Room 12300. The limit was previously 67°F. The results of the analysis support the conclusion this minimum temperature is appropriate and bounding for zone 2.
Zone 7	Established a minimum accident temperature of 50°F to bound the decrease in temperature experienced by Room 12555. The limit was previously 60°F. This is applied only to Room 12555 in zone 7 of UFSAR Table 3D.5-5.
Zone 11	Established a minimum accident temperature of 40°F. The limit was previously 50°F. Analyses support the conclusion the limit could be maintained at 50°F however due to the large surface area interfacing with the environment the limit is conservatively decreased.

The change activity for change number 7 shown on the markups for UFSAR Table 3D.5-5 is summarized as follows:

Environmental Zone 2:

- Change the minimum temperature from the value indicated in UFSAR Figure 3D.5-1 to 60°F for zone 2. There is no change to the maximum temperature of 120°F.

Environmental Zone 4

- No change to temperature values (same as abnormal; reported separately from those of zone 2)

Environmental Zone 6

- No change to temperature values (same as abnormal; reported separately from those of zone 11)

Environmental Zone 7:

- Make the temperature for the separate list of rooms less than or equal (≤) to 200°F instead of "less than" (<).
- Set the minimum temperature for room 12555 to 50°F
- Increase the maximum for room 12151 to 120°F.

Environmental Zone 11:

- Set 40°F as the minimum temperature.

As noted above, the temperature changes to Table 3D.5-4 also result in application impacts to Table 3D.5-5, "Accident Environments," when the zone indicates “Same as Abnormal” since the abnormal environment temperature was changed. However, these changes to not show in the markups of Table 3D.5-5 and there is no impact to the EQ considerations as the temperatures previously considered for equipment qualification envelope the revised, higher temperatures and safety-related equipment in these areas were already qualified for more severe accident conditions due to similar equipment being located in areas with harsher environmental conditions.

The change in the temperatures for the rooms in the auxiliary building updates EQ criteria for SSCs and thermal analysis for structures to include the design temperature for the spaces. The equipment in these rooms remains qualified for the environments. The EQ and thermal analysis provide assurance that SSCs perform their design functions in the anticipated accident environments to which the SSCs are exposed.

Summary for Change No. 6

No design function of an SSC is adversely affected by the change in accident temperatures in various rooms of the auxiliary building. The revised temperatures have been included in updated EQ criteria, which provide assurance of equipment operability, function, and qualification during anticipated events. Therefore, there is no adverse effect to an SSC design function described in the UFSAR.

Additional Impact Evaluation

The proposed changes do not adversely affect or require any change to the AP1000 probabilistic risk assessment (PRA) presented in UFSAR Chapter 19, including the Fire PRA, insights and results (e.g., core damage frequency and large release frequency). The proposed changes do not result in any changes to the failures currently included in the PRA model, and no new

postulated failures are required in the PRA model. Therefore, there are no changes required to initiating event frequencies and system logic models of the PRA. The existing PRA risk significance investment protection determination for the system is not affected.

The proposed changes do not adversely affect an SSC, function or feature used for the prevention or mitigation of accidents or their safety / design analyses. The changes do not affect any SSC accident initiator or initiating sequence of events, or adversely affect any safety-related SSC or function used to mitigate an accident.

The proposed changes do not involve a change to a fission product barrier. The changes cannot result in a new failure mode, malfunction or sequence of events that could affect safety. The changes would not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in significant fuel cladding failures.

The proposed changes do not adversely affect any safety-related equipment, design code limit, safety-related function, safety-related design analysis, safety analysis input or result, or design or safety margin. No safety analysis or design basis acceptance limit or criterion would be challenged or exceeded. The proposed changes do not revise any aspects of the plant that could have an adverse effect on safety or security, including the site emergency plan.

There are no radiation zone changes or radiological access control changes required because of these proposed changes. The physical design and operation of the system, as described in the UFSAR, is not changed, and thus there are no changes required to the radiation protection design features described in UFSAR Section 12.3.

The proposed changes do not affect the containment, control, channeling, monitoring, processing or releasing of radioactive and non-radioactive materials. The proposed changes do not adversely affect the containment or control of radioactive and non-radioactive materials inside containment, and do not adversely affect the containment boundary.

The proposed changes do not adversely affect the design functions of any SSC to prevent the unmonitored release of airborne radioactivity to the atmosphere or adjacent plant areas. Therefore, no effluent release path is affected by these changes. In addition, the types and quantities of expected effluents are not changed by the proposed changes. Therefore, radioactive or non-radioactive material effluents are not affected by these changes.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 52.98 requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a Combined License (COL). This activity involves a departure from COL Appendix A Technical Specifications and COL Appendix C ITAAC; therefore, this activity requires a proposed amendment to the COL.

10 CFR Part 52, Appendix D, Section VIII.B.5.a allows an applicant or licensee who references this appendix to depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2* information, or the Technical Specifications, or requires a license amendment under paragraphs B.5.b or B.5.c of the section. This activity involves changes to plant-specific Tier 1 information, and thus requires prior NRC approval prior to making the UFSAR Tier 2 changes identified in this license amendment request.

10 CFR 52.98(f) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a COL. This activity involves a change to COL Appendix C and plant-specific Tier 1 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC), and to COL Appendix A plant-specific Technical Specifications. Therefore, this activity requires a proposed amendment to the COL. Accordingly, NRC approval is required prior to making the plant-specific changes in this license amendment request.

10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criterion (GDC) 4, *Environmental and dynamic effects design bases*, states: "Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents." The proposed changes control the heat loads in the zones containing safety-related equipment within the MCRE, the Class 1E I&C rooms, and the Class 1E dc equipment rooms to less than the limits used in qualifying the equipment for their required operating times following a DBA, thus this criterion remains satisfied.

The proposed changes have been evaluated to determine whether applicable 10 CFR 50 Appendix A GDC continue to be met. It was determined that the proposed changes do not affect conformance with the GDC differently than described in the plant-specific DCD or UFSAR.

4.2 Precedent

No precedent is identified.

4.3 Significant Hazards Consideration

Southern Nuclear Operating Company (SNC) is requesting an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively. The proposed changes would revise the Updated Final Safety Analysis Report (UFSAR) Tier 2 information, which involves a change to plant-specific Tier 1 information and the corresponding COL Appendix C information to reflect auxiliary building room heat-up revisions in the heat load limits associated with a loss of ac event in instrumentation and control (I&C) rooms and dc equipment rooms, and with the defined abnormal events considered for equipment qualification.

An evaluation to determine whether or not a significant hazards consideration is involved with the proposed amendment was completed by focusing on the three standards set forth in 10 CFR 50.92(c), "Issuance of amendment," as discussed below.

4.3.1 Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed revisions related to auxiliary building room heat-up descriptions and results have been found to continue to provide the required functional capability of the safety systems for previously evaluated accidents and anticipated operational occurrences. The auxiliary building room heat-up is not an initiator of any accident

analyzed in the Updated Final Safety Analysis Report (UFSAR), nor do the changes involve an interface with any structure, system or component (SSC) accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the UFSAR are not affected. The proposed changes do not involve a change to any mitigation sequence or the predicted radiological releases due to postulated accident conditions, thus, the consequences of the accidents evaluated in the UFSAR are not affected.

The UFSAR describes the analyses of various design basis transients and accidents to demonstrate compliance of the design with the acceptance criteria for these events. The acceptance criteria for the various events are based on meeting the relevant regulations, general design criteria, and the Standard Review Plan, and are a function of the anticipated frequency of occurrence of the event and potential radiological consequences to the public. The accident analyses maintain their plant conditions, and thus their frequency designation and consequence level as previously evaluated.

Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

4.3.2 Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed revisions to the auxiliary building room heat-up descriptions and results have been found to continue to provide the required functional capability of the safety systems for previously evaluated accidents and anticipated operational occurrences. The proposed revisions do not change the function of the related systems, and thus, the changes do not introduce a new failure mode, malfunction or sequence of events that could adversely affect safety or safety-related equipment.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

4.3.3 Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed revisions to the auxiliary building room heat-up descriptions and results have been found to continue to provide the required functional capability of the safety systems for previously evaluated accidents and anticipated operational occurrences. The proposed revisions do not change the function of the related systems nor significantly affect the margins provided by the systems. No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the requested changes.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

4.4 Conclusions

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. Therefore, it is concluded that the requested amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5. ENVIRONMENTAL CONSIDERATIONS

The proposed changes would revise the Updated Final Safety Analysis Report (UFSAR) Tier 2 information, which involves a change to the plant-specific Tier 1 information and the corresponding COL Appendix C information to reflect revisions to the auxiliary building room heat-up descriptions and results. This review supports a request to amend the licensing basis to allow a departure from the UFSAR incorporated AP1000 plant-specific design control document information.

A review has determined that the proposed changes require an amendment to the licensing basis. However, a review of the anticipated construction and operational effects of the requested amendment has determined that the requested amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), in that:

(i) There is no significant hazards consideration.

As documented in Section 4.3, Significant Hazards Consideration, of this license amendment request, an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." The Significant Hazards Consideration evaluation determined that (1) the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the proposed amendment does not involve a significant reduction in a margin of safety. Therefore, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

(ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed changes are unrelated to any aspect of plant construction or operation that would introduce any change to effluent types (e.g., effluents containing chemicals or biocides, sanitary system effluents, and other effluents) or affect any plant radiological or non-radiological effluent release quantities. Furthermore, the proposed changes do not affect any effluent release path or diminish the functionality of any design or operational features that are credited with controlling the release of effluents during plant operation. Therefore, it is concluded that the proposed amendment does not involve a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes in the requested amendment do not adversely affect the shielding capability of, or adversely alter any walls, floors, or other structures that provide shielding. Plant radiation zones and controls under 10 CFR 20 preclude a significant increase in occupational radiation exposure. Therefore, the proposed amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the proposed amendment, it has been determined that anticipated construction and operational effects of the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment and proposed exemption.

6. REFERENCES

None.

Southern Nuclear Operating Company

ND-19-1142

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Exemption Request:

Auxiliary Building Room Heat-up

(LAR-19-010)

(This Enclosure consists of 9 pages, including this cover page**)**

1.0 Purpose

Southern Nuclear Operating Company (the Licensee) requests a permanent exemption from the provisions of 10 CFR Part 52, Appendix D, Section III.B, *Design Certification Rule for the AP1000 Design, Scope and Contents*, to allow a departure from elements of the certification information in Tier 1 of the generic AP1000 Design Control Document (DCD). The regulation, 10 CFR Part 52, Appendix D, Section III.B, requires an applicant or licensee referencing Appendix D to 10 CFR Part 52 to incorporate by reference and comply with the requirements of Appendix D, including certified information in DCD Tier 1. The Tier 1 information for which a plant-specific departure and exemption is being requested includes changes to reflect revisions in the auxiliary building room heat-up results due to a loss of ac event.

This request for exemption provides the technical and regulatory basis to demonstrate that 10 CFR 52.63, §52.7, and §50.12 requirements are met and will apply the requirements of 10 CFR Part 52, Appendix D, Section VIII.A.4 to allow departures from generic Tier 1 information due to proposed change to Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) related Table 2.2.5-4 for the auxiliary building room heat-up results due to a loss of ac event.

2.0 Background

The Licensee is the holder of Combined License Nos. NPF-91 and NPF-92, which authorize construction and operation of two Westinghouse Electric Company AP1000 nuclear plants, named Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

As described in plant-specific Tier 1 Section 3.3, the nuclear island structures (i.e., containment internal structures, shield and auxiliary buildings) provide protection for the safety-related equipment against the consequences of either a postulated internal or external event. The nuclear island structures are designed to withstand the effects of natural phenomena such as hurricanes, floods, tornados, tsunamis, and earthquakes without loss of capability to perform safety functions. The nuclear island structures are designed to withstand the effects of postulated internal events such as fires and flooding without loss of capability to perform safety functions. As described in Updated Final Safety Analysis Report (UFSAR) Subsection 1.2.4.3, Auxiliary Building, the primary function of the auxiliary building is to provide protection and separation for the seismic Category I mechanical and electrical equipment located outside the containment building. The auxiliary building provides protection for the safety-related equipment against the consequences of either a postulated internal or external event. The auxiliary building also provides shielding for the radioactive equipment and piping that is housed within the building. The auxiliary building is a seismic Category I reinforced concrete structure. It shares a common basemat with the containment building and the shield building.

As described in UFSAR Section 6.4, Habitability Systems, the habitability systems are a set of individual systems that collectively provide the habitability functions for the plant. The habitability systems are also designed to service the I&C rooms and dc equipment rooms. The habitability systems are capable of maintaining the temperature in the I&C rooms and dc equipment rooms below the equipment qualification temperature limit throughout the duration of postulated accidents.

The Nuclear Island Nonradioactive Ventilation System (VBS) is a part of the habitability system. The VBS Class 1E electrical room heating, ventilation and air conditioning (HVAC) subsystem is designed to perform the defense-in-depth function of providing ventilation and cooling to the Class 1E instrumentation and equipment, maintaining the room passive cooling heat sinks below the initial design basis temperatures to provide proper heat sink capacity in the event VBS becomes inoperable. The HVAC subsystem also maintains the passive heat sinks at or above the minimum space design temperature to maintain the battery room temperatures above safety design limits.

Plant-specific Tier 1 and associated COL Appendix C Table 2.2.5-4 and UFSAR Table 6.4-3 provide heat load limits during a loss of ac power event for a 72-hour period that are used to verify the temperatures within the rooms remain within limits.

As design details for these systems and rooms were finalized, the total heat loads for the rooms listed in the above tables were re-evaluated and found to differ from the heat loads presented therein for a loss of ac power. Therefore, this change proposes to revise the heat loads in Tier 1 Table 2.2.5-4 and UFSAR Table 6.4-3 to reflect the recent evaluations of the heat loads for the I&C rooms and control and dc equipment rooms used in the Auxiliary Building design basis accident (DBA) heat-up analysis which demonstrates temperature limits are met.

3.0 Technical Justification of Acceptability

The changes described in this exemption request would revise the plant-specific Tier 1 information in Table 2.2.5-4 to reflect revisions in the auxiliary building room heat-up results due to a loss of ac event. Related consistency revisions in the safety analysis information are proposed in the accompanying license amendment request (Enclosure 1 of this letter).

The proposed change is to revise the loss of ac power heat loads in plant-specific Tier 1 Table 2.2.5-4 to reflect the heat load summary used in the heat-up analysis of the rooms listed on the tables due to the loss of ac and subsequent loss of HVAC. This maintains consistency between the license, design, design analysis, and equipment by conveying environmental conditions that are bounding, considering revised heat load definitions for rooms as design was completed. The revised temperatures in the I&C rooms and dc equipment rooms following a loss of ac remain within acceptable limits as discussed in Subsection 6.4.4. As described in UFSAR Subsection 1.9.5.4, after 72 hours, ventilation and cooling of the I&C rooms, and the dc equipment rooms is provided by operator actions such as opening doors and providing cooling with ancillary fans or portable fans.

As in the main control room envelope (MCRE), sufficient thermal mass is provided surrounding these rooms to absorb the heat generated by the equipment during the first 72 hours of the event. After 72 hours, the I&C rooms are cooled by drawing in outside air and circulating it through the room, as discussed in UFSAR Subsection 6.4.2.2. As described in UFSAR Subsection 9.4.1.2.3.2, when ac power is lost, division B and C I&C rooms' temperatures are maintained by operating their respective ancillary fan (VBS-MA-11 and VBS-MA-12) to supply outside air to the I&C rooms. Cooling by ancillary fans is not considered in the design of the dc equipment rooms. Outside air is supplied within 72 hours following a radiological release through the nonradioactive ventilation system outside air intake opening on the roof, the mechanical room at floor elevation 135′-3″,

stairway No. 1 doors at elevation 135′-3″ and 82′-6″, the access corridor at floor elevation 82′-6″, and the divisional battery rooms. The warm air is vented to the annex building through the clean access corridor at elevation 100′-0″. The outside air supply provides cooling and maintains room temperature within the qualification temperature of the I&C equipment. The ancillary fans and flow path are located within the auxiliary building which is a seismic Category I structure. The normal temperatures and maximum abnormal temperatures for rooms surrounding the MCRE are not changed by this activity. There is no impact to the initial temperatures assumed in the MCRE heat-up analysis. Equipment located in the I&C rooms and dc equipment rooms is qualified for the normal, abnormal and accident environments in the rooms.

The proposed heat loads are the battery supported electrical equipment power, in Btu/second, and are the bounding heat loads for the rooms. The heat loads were developed on a component/equipment level basis within each of the I&C rooms and dc equipment rooms and uses the latest design information of the electrical equipment. The heat load for each room is calculated by summing the heat loads for the individual components in the room.

The heat load profiles for the Class 1E dc and Uninterruptible Power Supply System (IDS) dc equipment rooms and I&C rooms are the latest heat loads for a loss of ac power in rooms 12201, 12203, 12207, 12205, 12301, 12302, 12304, and 12305. For the Protection and Safety Monitoring System (PMS) I&C rooms, the major change includes a reduction in heat loads at 24 hours. The reduction comes from disconnecting the PMS cabinets at 24 hours which accounts for a majority of the total heat loads in the I&C rooms.

The justification for disconnecting the heat loads at 24 hours is as follows:

1. In a DBA that results in stable closed loop cooling (i.e. no actuation of Stage 4 of the Automatic Depressurization System (ADS)), the operators disconnect the 24-hour divisional IDS batteries prior to the 22-hour timer reaching its automatic actuation limit. This applies both in the event of an independent loss of ac power scenario, and a loss of ac power concurrent with another DBA scenario.
2. In a DBA that results in open loop cooling (i.e. ADS Stage 4 has actuated prior to or due to the 22-hour ADS timer), the operators are directed to disconnect the 24-hour divisional IDS batteries prior to 24 hours to reduce the heat generation rate in the PMS I&C rooms. This is an additional entry criterion for this operator action added by this proposed change.

Procedures provide directions to operators for responding to a prolonged loss of ac power event. A 21-hour alert is based on a loss of IDS battery chargers and is generated regardless of ADS actuation. After the alert has gone off at 21 hours, the operators would be instructed to check the air temperature of the I&C rooms (Room 12301, 12302, 12304, and 12305) to determine if the room temperatures are greater than 105°F. Should one or more rooms read higher than 105°F, the operators would continue with the next steps to remove loads from the IDS batteries. Note that if room air temperatures remain below 105°F after ADS actuation, IDS load removal would not be required. A prolonged temperature below 105°F is less limiting than the scenario analyzed and described above (i.e., temperature greater than 105°F with IDS power removal).

For a loss of ac power event, even coincident with a design basis accident, there are no safety-related operator actions as defined by ANSI-ANS 58.8-1984 that are required to be

performed following the cumulative timer alert at 21 hours. While the ability to monitor plant conditions and performance of safety-related systems is required, it is not a safety-related action for design basis events because even with a single failure, the automatic actions of the PMS achieves and maintains the plant in a safe condition (i.e., the core is maintained in a coolable geometry and the fuel acceptance criteria are met). Operator actions are needed to maintain post-accident monitoring capability, to comply with regulations, and to support unplanned actions or severe/beyond design basis events but are not considered nuclear-safety-related actions for design basis events.

The heat loads in the I&C rooms and dc equipment rooms are changed as shown in Enclosure 3.

With the proposed heat loads listed for the I&C rooms or dc equipment rooms do not exceed the 120°F maximum temperature limit following a 72-hour loss of ac event. The equipment in the rooms is qualified to operate in the room temperatures experienced during the loss of ac power condition.

The design functions of the equipment in the affected rooms and the rooms themselves in not changed. Therefore, there are no adverse effects on the structures, systems, and components (SSCs).

Changes to the current licensing basis with respect to this change activity include Vogtle plant-specific Tier 1 Table 2.2.5-4 along with conforming changes to UFSAR Table 6.4-3.

Additional details and technical justification supporting this request for exemption are provided in the associated License Amendment Request in Enclosure 1 of this letter.

4.0 Justification of Exemption

10 CFR Part 52, Appendix D, Section VIII.A.4 and 10 CFR 52.63(b)(1) govern the issuance of exemptions from elements of the certified design information for AP1000 nuclear power plants. Since SNC has identified changes to the Tier 1 information as discussed in Enclosure 1 of the accompanying License Amendment Request, an exemption from the certified design information in Tier 1 is needed.

10 CFR Part 52, Appendix D, and 10 CFR 50.12, §52.7, and §52.63 state that the NRC may grant exemptions from the requirements of the regulations provided six conditions are met: 1) the exemption is authorized by law [§50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§50.12(a)(1)]; 4) special circumstances are present [§50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, App. D, VIII.A.4].

The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1. This exemption is authorized by law

The NRC has authority under 10 CFR 52.63, §52.7, and §50.12 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR 50.12 and §52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

Accordingly, this requested exemption is "authorized by law," as required by 10 CFR 50.12(a)(1).

2. This exemption will not present an undue risk to the health and safety of the public

The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific Tier 1 information to depart from the AP1000 certified (Tier 1) design information. The plant-specific Tier 1 information will continue to reflect the approved licensing basis for VEGP Units 3 and 4 and will maintain a consistent level of detail with that which is currently provided elsewhere in the Tier 1 information. Therefore, the affected plant-specific Tier 1 ITAAC related information will continue to serve its required purpose.

The proposed changes do not represent any adverse impact to the design function of the SSCs and the SSCs will continue to protect the health and safety of the public in the same manner. The changes do not introduce any new industrial, chemical, or radiological hazards that would represent a public health or safety risk, nor do they modify or remove any design or operational controls or safeguards intended to mitigate any existing on-site hazards. Furthermore, the proposed change would not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in fuel cladding failures. Accordingly, this change does not present an undue risk from any existing or proposed equipment or systems.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3. The exemption is consistent with the common defense and security

The requested exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow the licensee to depart from elements of the plant-specific Tier 1 design information. The proposed exemption does not alter the design, function, or operation of any structures or plant equipment that is necessary to maintain a safe and secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures.

Therefore, the requested exemption is consistent with the common defense and security.

4. Special circumstances are present

10 CFR 50.12(a)(2) lists six "special circumstances" for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR 50.12(a)(2)(ii). That subsection defines special circumstances as when "Application of the regulation in the

particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule."

The rule under consideration in this request for exemption is 10 CFR Part 52, Appendix D, Section III.B, which requires that a licensee referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information. The VEGP Units 3 and 4 COLs reference the AP1000 Design Certification Rule and incorporate by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D.

The changes continue to show compliance with the requirements in the General Design Criteria. The proposed changes do not significantly affect any function or feature used for the prevention or mitigation of accidents or their safety analyses. The proposed changes neither involve nor interface with any SSC accident initiator or initiating sequence of events related to the accidents evaluated, and therefore, do not have an adverse effect on any SSC's design function. Accordingly, this exemption from the certification information will enable the Licensee to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current generic certified design information in Tier 1 as required by 10 CFR Part 52, Appendix D, Section III.B, in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5. The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

Based on the nature of the changes to the plant-specific Tier 1 information and the understanding that these changes have been determined to not significantly impact the design function of the related SSCs, it is expected that this exemption may be requested by other AP1000 licensees and applicants. However, a review of the reduction in standardization resulting from the departure from the standard DCD determined that even if other AP1000 licensees and applicants do not request this same departure, the special circumstances will continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the structures associated with this request will continue to be maintained. Furthermore, the justification provided in the license amendment request and this exemption request and the associated mark-ups demonstrate that there is a limited change from the standard information provided in the generic AP1000 DCD, which is offset by the special circumstances identified above.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

6. The design change will not result in a significant decrease in the level of safety.

The exemption impacts the plant-specific Tier 1 information by revising the auxiliary building room heat-up results due to a loss of ac event. The revised heat-up results have been evaluated to continue to demonstrate compliance with the requirements in 10 CFR

Appendix A, General Design Criteria, and thus do not impact the design requirements of the related SSCs. Because the SSC functions continue to be met, there is no reduction in the level of safety.

5.0 Risk Assessment

A risk assessment was not determined to be applicable to address the acceptability of this proposal.

6.0 Precedent Exemptions

None

7.0 Environmental Consideration

The Licensee requests a departure from elements of the certified information in Tier 1 of the generic AP1000 DCD. The Licensee has determined that the proposed departure would require a permanent exemption from the requirements of 10 CFR Part 52, Appendix D, Section III.B, *Design Certification Rule for the AP1000 Design, Scope and Contents,* with respect to installation or use of facility components located within the restricted area, as defined in 10 CFR Part 20, or which changes an inspection or a surveillance requirement; however, the Licensee evaluation of the proposed exemption has determined that the proposed exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Based on the above review of the proposed exemption, the Licensee has determined that the proposed activity does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed exemption is not required.

Specific details of the environmental considerations supporting this request for exemption are provided in Section 5 of the associated License Amendment Request provided in Enclosure 1 of this letter.

8.0 Conclusion

The proposed changes are to Tier 1 for the auxiliary building room heat-up results due to a loss of ac event. The revised heat-up results have been evaluated to continue to show compliance with the requirements in the General Design Criteria. The exemption request meets the requirements of 10 CFR 52.63, *Finality of design certifications*, 10 CFR 52.7, *Specific exemptions*, 10 CFR 50.12, *Specific exemptions*, and 10 CFR 52 Appendix D, *Design Certification Rule for the AP1000*. Specifically, the exemption request meets the criteria of 10 CFR 50.12(a)(1) in that the request is authorized by law, presents no undue risk to public health and safety, and is consistent with the common defense and security.

Furthermore, approval of this request does not result in a significant decrease in the level of safety, satisfies the underlying purpose of the AP1000 Design Certification Rule, and does not present a significant decrease in safety as a result of a reduction in standardization.

9.0 References

None

Southern Nuclear Operating Company

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Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Proposed Changes to Licensing Basis Documents

(LAR-19-010)

Insertions Denoted by underlined Blue text and Deletions by ~~Red Strikethrough~~
Omitted text is identified by three asterisks (* * *)
Moved text is identified by Green underline and ~~strikethrough~~.

(This Enclosure consists of 8 pages, including this cover page)

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Enclosure 3
Proposed Changes to Licensing Basis Documents (LAR-19-010)

Revise plant-specific Tier 1 Table 2.2.5-4, and corresponding COL Appendix C Table 2.2.5-4, as shown below.

Table 2.2.5-4			
Room Name	**Room Numbers**	**Heat Load 0 to 24 hours (Btu/s)**	**Heat Load 24 to 72 hours (Btu/s)**
MCR Envelope	12401	. . .	. . .
I&C Rooms ~~I&C Rooms~~	12301~~, 12305~~	~~8.8~~ 3.5	~~0~~ 1.1
	12302~~, 12304~~	~~13.0~~ 3.2	~~4.2~~ 2.5
	12304	~~13.0~~ 4.3	~~4.2~~ 3.2
	12305	~~8.8~~ 4.2	~~0~~ 1.5
dc Equipment Rooms ~~dc Equipment Rooms~~	12201~~, 12205~~	~~3.7 (hour 0 through 1)~~ 2.0 ~~2.4 (hour 2 through 24)~~	~~0~~ 2.0
	12203~~, 12207~~	~~5.8 (hour 0 through 1)~~ 3.3 ~~4.5 (hour 2 through 24)~~	~~2.0~~ 3.3
	12205	~~3.7 (hour 0 through 1)~~ 2.4 ~~2.4 (hour 2 through 24)~~	~~0~~ 2.4
	12207	~~5.8 (hour 0 through 1)~~ 3.5 ~~4.5 (hour 2 through 24)~~	~~2.0~~ 3.5

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Enclosure 3
Proposed Changes to Licensing Basis Documents (LAR-19-010)

Revise UFSAR Section 6.4, Table 6.4-3, LOSS OF AC POWER HEAT LOAD LIMITS, as shown below.

Table 6.4-3
LOSS OF AC POWER HEAT LOAD LIMITS

Room Name	Room Numbers	Heat Load 0 to 24 hours (Btu/s)	Heat Load 24 to 72 hours (Btu/s)
MCR Envelope	12401	. . .	. . .
I&C Rooms ~~I&C Rooms~~	12301~~, 12305~~	~~8.854~~ 3.5	~~0~~ 1.1
	12302~~, 12304~~	~~13.07~~ 3.2	~~4.22~~ 2.5
	12304	~~13.07~~ 4.3	~~4.22~~ 3.2
	12305	~~8.854~~ 4.2	~~0~~ 1.5
dc Equipment Rooms ~~dc Equipment Rooms~~	12201~~, 12205~~	~~3.792 (hour 0 through 1)~~ 2.0 ~~2.465 (hour 2 through 24)~~	~~0~~ 2.0
	12203~~, 12207~~	~~5.84 (hour 0 through 1)~~ 3.3 ~~4.51 (hour 2 through 24)~~	~~2.05~~ 3.3
	12205	~~3.792 (hour 0 through 1)~~ 2.4 ~~2.465 (hour 2 through 24)~~	~~0~~ 2.4
	12207	~~5.84 (hour 0 through 1)~~ 3.5 ~~4.51 (hour 2 through 24)~~	~~2.05~~ 3.5

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Enclosure 3
Proposed Changes to Licensing Basis Documents (LAR-19-010)

Revise UFSAR Subsection 3.11.3, Loss of Ventilation, as shown below.

* * *

equipment areas outside containment and outside the main control room are maintained at normal environmental conditions by nonsafety-related HVAC systems. If these systems are disabled, the heat generated by this equipment is absorbed by the surrounding ~~concrete~~ passive heat sinks with an ambient temperature rise that does not exceed the abnormal condition. Normal HVAC is restored within ~~72~~ 8 hours or ventilation is provided as discussed in ~~Section 6.4~~ Subsection 9.4.1.2.3.2.

If the normal nonsafety-related main control room HVAC is lost, the heat generated by equipment and people is absorbed by the surrounding ~~concrete~~ passive heat sinks. Normal heating, ventilation, and air-conditioning is restored within 72 hours or ventilation is provided as discussed in Section 6.4.

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Enclosure 3
Proposed Changes to Licensing Basis Documents (LAR-19-010)

Revise UFSAR Appendix 3D, Table 3D.5-4, Sheets 1, 2, and 3, Abnormal Operating Environments Outside Containment, as shown below.

Sheet 1

Conditions/Parameter	Abnormal Extreme	Duration	Notes
Zone 2 ~~– Loss of AC Power~~			
~~Temperature~~	~~Figure 3D.5-1 (Sheet 2)~~	~~7 days~~	~~Note 3~~
Temperature (Rooms 12101, 12102, 12103, 12104, 12105, 12202, 12204)	60 to 120°F	7 days	
Temperature (Rooms 12113, 12201, 12203, 12205, 12207, 12212, 12301, 12302, 12303, 12304, 12305, 12312, 12313, 12411, 12412)	40 to 120°F	7 days	Note 3
Temperature (Rooms 12111, 12112, 12211, 12213, 12300, 12311)	67 to 120°F	7 days	
Temperature (Rooms 12405, 12501, 12505)	50 to 120°F	7 days	
* * *	* * *	* * *	* * *
Zone 3 ~~– Loss of HVAC~~			
* * *	* * *	* * *	* * *
Zone 4 ~~– Loss of AC Power~~			
Temperature	50 to 120°F ~~max~~	10x4 hrs	
* * *	* * *	* * *	* * *
Zone 5 ~~– Loss of AC Power~~			
* * *	* * *	* * *	* * *

Sheet 2

Conditions/Parameter	Abnormal Extreme	Duration	Notes
Zone 6 ~~– Loss of AC Power~~			
Temperature	150°F max (Room 12256) 140°F max (Other Rooms)	10x4 hrs	
* * *	* * *	* * *	* * *
Zone 7 ~~– Loss of AC Power~~			
Temperature	150°F max (Rooms 12451, 12554) 155°F max (Room 12252) 130°F max (Room 12561) 200°F max (Rooms 12241, 12341, 12343, 12344, 12345) 114°F max (Other Rooms)	10x4 hrs	
* * *	* * *	* * *	* * *

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Proposed Changes to Licensing Basis Documents (LAR-19-010)

Sheet 3

Conditions/Parameter	Abnormal Extreme	Duration	Notes
Zone 8~~, 10~~			
~~Loss of AC Power~~			
Temperature	Same as normal		
* * *	* * *	* * *	* * *
~~Pipe Rupture~~			~~Note 6~~
~~Submergence and Spray~~	~~12306 36"~~	~~2 weeks~~	~~Notes 5, 7, 8~~
* * *	* * *	* * *	* * *
Zone 9			
~~Loss of AC Power~~			
* * *	* * *	* * *	* * *
Zone 10			
~~Loss of AC Power~~			
Temperature	140°F max	10x4 hrs	
Pressure	Same as normal		
Humidity	Same as normal		
Radiation	Same as normal		
Chemistry/Submergence	None		
Pipe Rupture			Note 6
Submergence and Spray	12306 36"	2 weeks	Notes 5, 7, 8
* * *	* * *	* * *	* * *
Zone 11 ~~Loss of AC Power (Fuel Handling Area)~~			
* * *	* * *	* * *	* * *

Notes:

* * *

3. Test environments resulting from rooms with equipment supplied by 24- and 72-hour batteries are shown on Figure 3D.5-1, Sheet 2, for the dc equipment rooms 12203 and 12207 and for the I&C rooms 12302 and 12304. The 24-hour battery is disconnected at 24 hours. The 72-hour battery is not disconnected. Environments resulting from rooms with equipment supplied by 24-hour batteries only, – that is, dc equipment rooms 12201 and 12205 and I&C rooms 12301 and 12305 – are enveloped by the environments shown on Figure 3D.5-1, Sheet 2.

* * *

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Enclosure 3
Proposed Changes to Licensing Basis Documents (LAR-19-010)

Revise UFSAR Appendix 3D, Table 3D.5-5, Accident Environments, as shown below.

Zone 1 – Inside Containment	
* * *	
Zones 2, 4 – Outside Containment	
Temperature (Zone 2) ~~and pressure~~	Minimum: 60°F Maximum: Same as Abnormal. See Table 3D.5-4.
Temperature (Zone 4)	Same as Abnormal. See Table 3D.5-4.
Pressure	Same as Abnormal. See Table 3D.5-4.
Radiation	TID 1 year ≤ 1E+04 Rads maximum.
* * *	
Zones 6, 11 – Outside Containment	
Temperature (Zone 6) ~~and pressure~~	Same as Abnormal. See Table 3D.5-4.
Temperature (Zone 11)	Minimum: 40°F Maximum: Same as Abnormal. See Table 3D.5-4.
Pressure	Same as Abnormal. See Table 3D.5-4.
Radiation	Same as Abnormal. See Table 3D.5-4.
Zones 7 – Outside Containment	
Temperature	
Rooms 12341, 12343, 12344, and 12345	~~<200°F~~ ≤200°F
Rooms 12156, 12244	135°F max
Other Rooms	Same as Abnormal with exceptions identified below. See Table 3D.5-4. Room 12555 Minimum: 50°F Room 12151 Maximum: 120°F
Pressure	Same as Abnormal. See Table 3D.5-4.
Radiation	TID 1 year ≤ 2E+07 Rads maximum
* * *	

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Enclosure 3
Proposed Changes to Licensing Basis Documents (LAR-19-010)

Revise UFSAR Subsection 9.4.1.2.3.2, Class 1E Electrical Room HVAC Subsystem, to add new paragraph just before existing final paragraph, as shown below.

* * *

When complete ac power is lost, * * *

* * * which is a Seismic Category I structure.

In the unlikely event that the nuclear island nonradioactive ventilation subsystems are disabled for more than 8 hours (for other than a loss of ac event), doors of the affected rooms may be opened to mitigate heat-up until HVAC is restored. Ancillary or portable fans also may be utilized in the event of an extended loss of HVAC in order to maintain the ambient temperature below the qualification temperature of the equipment.

Power supply to the ancillary fans is from the respective division B or C regulating transformers which receive power from the ancillary diesel generators. For post-72-hours power supply discussion see Subsection 8.3.1.1.1.