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52-026

ND-16-0252  
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10 CFR 52.63

U.S. Nuclear Regulatory Commission  
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Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Units 3 and 4  
Request for License Amendment and Exemption:  
Relocation of Air Cooled Chiller Pump 3, VWS-MP-03 (LAR-15-018)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requests an amendment to Combined License (COL) Numbers NPF-91 and NPF-92, for VEGP Units 3 and 4, respectively. The requested amendment relocates Air Cooled Chiller Pump 3 (Equipment Tag No. VWS-MP-03) and associated equipment. The requested amendment proposes changes to the Updated Final Safety Analysis Report (UFSAR) in the form of departures from the incorporated plant-specific Design Control Document (DCD) Tier 2 information and involves related changes to UFSAR Tier 2\* and COL Appendix C information, with corresponding changes to the associated plant-specific Tier 1 information. Pursuant to the provisions of 10 CFR 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is also requested for the plant-specific DCD Tier 1 material departures.

Enclosure 1 provides the description, technical evaluation, regulatory evaluation (including the Significant Hazards Consideration determination), and environmental considerations for the proposed changes in the License Amendment Request (LAR). Enclosure 2 provides the background and supporting basis for the requested exemption. Enclosure 3 identifies the requested changes and provides markups depicting the requested changes to COL Appendix C (and plant-specific Tier 1) and UFSAR text, tables, and figures. This letter contains no regulatory commitments.

The changes proposed in this LAR are consistent in technical content with LAR 13-31, submitted by South Carolina Electric & Gas Company (SCE&G) on October 21, 2015 as supplemented on March 31, 2016 [ADAMS Accession Nos. ML15295A090 and ML16091A380,

respectively]. The NRC accepted the SCE&G LAR 13-31 for review on December 23, 2015 [ADAMS Accession No. ML15338A067].

SNC requests staff approval of the license amendment by April 14, 2017, to support the VEGP Unit 3 construction schedule. Approval by this date will allow sufficient time to implement licensing basis changes prior to affected construction activities. SNC expects to implement the proposed amendment (through incorporation into the licensing basis documents; e.g., the UFSAR) within 30 days of the approval of the requested changes.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this LAR by transmitting a copy of this letter and enclosures to the designated State Official.

Should you have any questions, please contact Mr. Jason Redd at (205) 992-6435.

Mr. B. H. Whitley states that he is the Regulatory Affairs Director 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.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

*B. H. Whitley*

B. H. Whitley

BHW/NH/ljs



Sworn to and subscribed before me this 26<sup>th</sup> day of April, 2016

Notary Public: Lisa Myrick Spears

My commission expires: June 18, 2019

- Enclosures: 1) Request for License Amendment: Relocation of Air Cooled Chiller Pump 3, VWS-MP-03 (LAR-15-018)
- 2) Exemption Request: Relocation of Air Cooled Chiller Pump 3, VWS-MP-03 (LAR-15-018)
- 3) Proposed Changes to the Licensing Basis Documents (LAR-15-018)

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**Southern Nuclear Operating Company**

**ND-16-0252**

**Enclosure 1**

**Vogtle Electric Generating Plant Units 3 and 4**

**Request for License Amendment:**

**Relocation of Air Cooled Chiller Pump 3, VWS-MP-03**

**(LAR-15-018)**

(This enclosure contains 11 pages, including this cover sheet.)

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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 modify the design of the low capacity Central Chilled Water Subsystem (VWS) by relocating Air Cooled Chiller Pump 3 (VWS-MP-03) and its associated equipment, including a new chemical feed tank, from the Auxiliary Building to the Annex Building.

The proposed changes include a change to COL Appendix C (and a corresponding change to plant-specific Tier 1) information and Updated Final Safety Analysis Report (UFSAR) Tier 2\* and Tier 2 information, as presented in the detailed description of these changes as provided in Section 2. This enclosure requests approval of the license amendment necessary to implement these changes. Enclosure 2 of this letter includes a request for the exemption necessary to implement the involved changes to the plant specific DCD Tier 1 information.

## **2. DETAILED DESCRIPTION**

The current AP1000 plant design includes two low capacity air cooled chiller pumps, VWS-MP-02 and VWS-MP-03, with both pumps installed on a common skid in Auxiliary Building Room 12501 (Nuclear Island Nonradioactive Ventilation System (VBS) Main Control Room/A&C Equipment Room). Evolution of the system design has resulted in an increase in the footprint of the VWS low capacity air cooled chiller pump module, such that the module is larger than the space provided in Room 12501. To alleviate the congestion and inaccessibility of equipment in Room 12501, a change to separate the VWS low capacity air cooled chiller pump module into two skids is proposed, with each skid including one air cooled chiller pump. One of the pump skids and its associated equipment (including an expansion tank, a new chemical feed tank, valves, and piping) will be relocated to Annex Building Room 40500 (North Air Handling Equipment Room), while the other pump skid will remain in Auxiliary Building Room 12501.

Relocation of the air cooled chiller pump to Annex Building Room 40500 requires a change to plant-specific Tier 1 (and COL Appendix C) Table 2.7.2-3 to indicate that Air Cooled Chiller Pump 3, VWS-MP-03, is located in the Annex Building rather than the Auxiliary Building. The air cooled chiller pump relocation also necessitates a change to Tier 2\* information in UFSAR Subsection 3H.2.1 to amend the general description of the equipment loading on Elevation 135'-3" in the Auxiliary Building from "chiller pumps" to "chiller pump equipment." Additionally, changes to UFSAR Tier 2 UFSAR Subsection 9.2.7.2.1 and Figure 9.2.7-1 (Sheets 1 and 2) are necessary to reflect the relocation of VWS-MP-03 and its associated equipment to the Annex Building.

### Licensing Basis Change Descriptions

The following changes to COL Appendix C (and corresponding plant-specific Tier 1), UFSAR Tier 2\*, and UFSAR Tier 2 text, tables, and figures are proposed:

#### COL Appendix C (and Tier 1) Table 2.7.2-3

- Revise the component location column to indicate that the Air Cooled Chiller Pump 3, VWS-MP-03, is located in the Annex Building rather than the Auxiliary Building.

#### UFSAR Subsection 3H.2.1 (Tier 2\*)

- Revise the Tier 2\* information in the second paragraph to indicate that “chiller pump equipment” versus the “chiller pumps” is carried on the floor at Elevation 135’-3” of the Auxiliary Building. This change is made to reflect the relocation of the one of the chiller pumps from the Auxiliary Building to the Annex Building.

#### UFSAR Subsection 9.2.7.2.1 (Tier 2)

- Revise the third paragraph to reflect that each low capacity VWS subsystem loop has its own chemical feed tank versus a common chemical feed tank.
- Revise the third paragraph to remove the sentence describing the location of the air cooled chiller pumps and expansion tanks relative to the chillers.

#### UFSAR Figure 9.2.7-1 (Sheets 1 and 2 of 4), Simplified Central Chilled Water System Piping and Instrumentation Diagram (Tier 2)

- Revise Figure 9.2.7-1 (Sheets 1 and 2 of 4) to:
  - Indicate that pump VWS-MP-03 and its associated equipment are located in the Annex Building.
  - Depict the revised configuration of the equipment associated with the relocation of the expansion tank and the new chemical feed tank, valves, and piping associated with VWS-MP-03.

### **3. TECHNICAL EVALUATION**

The Central Chilled Water System (VWS) supplies chilled water to the plant heating, ventilation, and air conditioning (HVAC) systems and is functional during reactor power and shutdown operations. The VWS low capacity subsystem, consisting of two 100-percent capacity loops, is a closed system that performs nonsafety-related defense-in-depth functions in providing a source of chilled water to the main control room (MCR) and control support area (CSA) HVAC subsystem, the Class 1E electrical equipment room HVAC subsystem, and the chemical and volume control system makeup pump and normal residual



heat removal pump compartment unit coolers. The only safety-related function of the VWS is to provide isolation of the VWS lines penetrating the containment. The VBS is supported by the VWS. The low capacity VWS subsystem is non-seismically designed.

The VWS system defense-in-depth functions are not affected by this change. The relocation of VWS-MP-03 and associated equipment and the addition of a new chemical feed tank do not affect the ability of the VWS to perform its specified design functions.

The safety function of the VWS to provide isolation of the VWS lines penetrating containment is not affected by relocation of VWS-MP-03 and associated equipment or the addition of a new chemical feed tank because these portions of the VWS are spatially and functionally separate from the portions of the VWS line credited with containment isolation.

Relocating VWS-MP-03 from the seismic Category I Auxiliary Building to the seismic Category II Annex Building does not have an adverse impact on any structure, system, or component (SSC), because the VWS is a non-seismic system and is not designed to remain functional following a seismic event. The proposed change does not adversely affect the response of any SSC to anticipated transient or postulated accident conditions, because the portions of the VWS affected by this change do not serve a safety-related function, and are therefore not credited in the response to these conditions. The current Annex and Auxiliary Building flooding analyses address flooding from the chilled water system and the changes proposed by this activity do not alter the conclusions of these analyses. Therefore, the relocation of VWS-MP-03 and the associated piping changes have no adverse impact on these flooding analyses.

The VWS design does not provide any functions associated with containing, controlling, channeling, monitoring, or processing radioactive or non-radioactive materials. No effluent release path is associated with the VWS. The types and quantities of expected plant effluents are not changed. Therefore, neither radioactive nor non-radioactive material effluents are affected by this activity.

The portions of the VWS modified by the proposed changes are not located in a radiologically controlled zone. Plant radiation zones, radiation controls established to satisfy 10 CFR 20 requirements, and expected amounts and types of radioactive materials are not affected by the proposed changes. Therefore, individual and cumulative radiation exposures are not significantly affected by this change.

### Summary

The above proposed changes to the low capacity VWS subsystem will only affect the configuration of the nonsafety-related, non-seismic VWS and will not affect any safety-related equipment or function, design function, radioactive material barrier or safety analysis.

#### **4. REGULATORY EVALUATION**

##### **4.1 Applicable Regulatory Requirements/Criteria**

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 departure from plant-specific Tier 1 information, and a corresponding change to COL Appendix C, Inspections, Tests, Analyses and Acceptance Criteria information; 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 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. The proposed change affects information in plant-specific Tier 1 Table 2.7.2-3 (and corresponding COL Appendix C information) and Tier 2\* Subsection 3H.2.1, and thus requires NRC approval for the Tier 1, Tier 2\* and involved Tier 2 departures.

10 CFR 50, Appendix A, General Design Criteria (GDC) 19 - Control room. A control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. Equipment at appropriate locations outside the control room shall be provided (1) with a design capability for prompt hot shutdown of the reactor, including necessary instrumentation and controls to maintain the unit in a safe condition during hot shutdown, and (2) with a potential capability for subsequent cold shutdown of the reactor through the use of suitable procedures.

The proposed change does not affect the ability of VWS to provide a reliable source of chilled water to the VBS MCR and CSA subsystem, nor does it involve a change to the control room displays or controls of the VWS, therefore, compliance with GDC 19 is not changed.

10 CFR 50, Appendix A, GDC 54 - Piping systems penetrating containment. Piping systems penetrating primary reactor containment shall be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

The proposed change to the VWS relocates equipment from the Auxiliary Building to the Annex Building. This change does not affect the portion of the VWS that penetrates containment or is associated with the safety-related function of this system to provide isolation of the VWS lines penetrating containment; therefore, compliance with GDC 54 is not changed.

10 CFR 50, Appendix A, GDC 57 – Closed system isolation valves. Each line that penetrates primary reactor containment and is neither part of the reactor coolant pressure boundary nor connected directly to the containment atmosphere shall be provided with containment isolation valves that satisfy the criteria specified by this GDC.

The proposed change to the VWS relocates equipment from the Auxiliary Building to the Annex Building. The change to the VWS does not affect or involve the design of the containment isolation provisions of this system; therefore, compliance with GDC 57 is not affected.

#### **4.2 Precedent**

No precedent is identified.

#### **4.3 Significant Hazards Consideration Determination**

The requested change(s) would revise Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Combined Licenses (COLs) by modifying the low capacity Central Chilled Water System (VWS). This change relocates Air Cooled Chiller Pump 3, VWS-MP-03, and associated equipment, from the Auxiliary Building to the Annex Building and adds a new chemical feed tank. This activity requires changes to Updated Final Safety Analysis Report (UFSAR) Tier 2 information, and involves associated changes to UFSAR Tier 2\* information and VEGP Units 3 and 4 COL Appendix C (and plant-specific Tier 1) information.

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, "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 Central Chilled Water System (VWS) performs the nonsafety-related function of supplying chilled water to the heating, ventilation, and air conditioning (HVAC) systems. The only safety-related function of the VWS is to provide isolation of the VWS lines penetrating the containment. The low capacity VWS subsystem is non-seismically designed.

The change to relocate an air cooled chiller pump and associated equipment and add a chemical feed tank to this pump does not adversely affect the

capability of either low capacity VWS subsystem loop to perform the system design function. This change does not have an adverse impact on the response to anticipated transient or postulated accident conditions because the low capacity VWS subsystem is a nonsafety-related and non-seismic system. No safety-related structure, system, component (SSC) or function is involved with or affected by this change. The changes to the low capacity VWS subsystem do not involve an interface with any SSC accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the plant-specific UFSAR are not affected. The proposed VWS change does not involve a change to the predicted radiological releases due to postulated accident conditions, thus, the consequences of the accidents evaluated in the UFSAR are not affected.

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 changes to the nonsafety-related low capacity VWS subsystem do not affect any safety-related equipment, nor do they add any new interfaces to safety-related SSCs. No system or design function or equipment qualification is affected by these changes. The changes do not introduce a new failure mode, malfunction or sequence of events that could affect 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 VWS is a nonsafety-related system that performs the defense-in-depth function of providing a reliable source of chilled water to various HVAC subsystems and unit coolers and the safety-related function of providing isolation of the VWS lines penetrating the containment. The changes to the VWS do not affect the VWS containment penetrations or any other safety-related equipment or fission product barriers. The requested changes will not affect any design code, function, design analysis, safety analysis input or result, or design/safety margin. 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. The above evaluations demonstrate that the requested changes can be accommodated without an increase in the probability or consequences of an accident previously evaluated, without creating the possibility of a new or different kind of accident from any accident previously evaluated, and without a significant reduction in a margin of safety. Having arrived at negative declarations with regard to the criteria of 10 CFR 50.92, this assessment determined that the requested change does not involve a significant hazards consideration.

### **5. ENVIRONMENTAL CONSIDERATIONS**

This review supports a request to amend Combined License (COL) Numbers NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively, to allow departure from various elements of the certification information in Tier 1 of the generic AP1000 DCD and COL Appendix C, and associated changes to Tier 2\* and Tier 2 information in the Updated Final Safety Analysis Report (UFSAR).

The proposed changes modify the design of the low capacity Central Chilled Water System (VWS) subsystem by relocating Air Cooled Chiller Pump 3 (VWS-MP-03) and its associated equipment, including a new chemical feed tank, from the Auxiliary Building to the Annex Building.

The current design for the VWS low capacity air cooled chiller pumps, equipment tag numbers VWS-MP-02 and VWS-MP-03, involves both pumps installed on a common skid in Auxiliary Building Room 12501 (Nuclear Island Nonradioactive Ventilation System (VBS) Main Control Room/A&C Equipment Room). Evolution of the system design has resulted in an increase in the footprint of the VWS chiller pump module, such that the module is larger than the space provided in Room 12501. To alleviate the congestion and inaccessibility of equipment in Room 12501, a change to separate the VWS air cooled chiller pump module into two skids is proposed, with each skid including one air cooled chiller pump. One of the pump skids and its associated equipment (including an expansion tank and a new chemical feed tank) will be relocated to Annex Building, Room 40500 (North Air Handling Equipment Room) while the other will remain in Auxiliary Building Room 12501.

This review has determined that the proposed change to COL Appendix C (and the corresponding plant-specific Tier 1 departure), UFSAR Tier 2\* change, and involved Tier 2

changes would require an amendment from the COL; however, a review of the anticipated construction and operational effects of the proposed amendment has determined that the proposed 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 Determination, 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 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 amendment changes are unrelated to any aspects of plant construction or operation that would introduce any changes 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. The VWS performs a nonsafety-related defense-in-depth function of providing a source of chilled water to the VBS and the chemical and volume control system makeup pump and normal residual heat removal pump compartment unit coolers. The VWS is a closed system and does not interface with any effluents or effluent streams. Furthermore, these changes do not 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 portions of the low capacity VWS subsystem modified by the proposed change are not located in a radiologically controlled zone. The VWS does not perform any function associated with the method of controlling the spread of radioactivity. Plant radiation zones, radiation control established to satisfy 10 CFR 20 requirements, and expected amounts and types of radioactive materials are not affected by the proposed changes. Therefore, it is concluded that 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 do 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), an environmental impact statement or environmental assessment of the proposed amendment is not required.

## **6. REFERENCES**

None.

**Southern Nuclear Operating Company**

**ND-16-0252**

**Enclosure 2**

**Vogtle Electric Generating Plant Units 3 and 4**

**Exemption Request:**

**Relocation of Air Cooled Chiller Pump 3, VWS-MP-03**

**(LAR-15-018)**

(This enclosure contains six pages, including this cover sheet.)



## **1.0 Purpose**

Southern Nuclear Operating Company (SNC), the Licensee, requests a permanent exemption from the provisions of 10 CFR 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 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 the Appendix, 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 relocate Air Cooled Chiller Pump 3 to the Annex Building from the Auxiliary Building.

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 52, Appendix D, Section VIII.A.4 to allow departures from generic Tier 1 information in Table 2.7.2-3 to revise the Component Location of Air Cooled Chiller Pump 3 (Equipment Tag No. VWS-MP-03) from "Auxiliary Building" to "Annex Building."

## **2.0 Background**

SNC 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.

Relocation of the air cooled chiller pump to Annex Building Room 40500 requires a change to plant-specific Tier 1 (and COL Appendix C) Table 2.7.2-3 to indicate that Air Cooled Chiller Pump 3, VWS-MP-03, is located in the Annex Building rather than the Auxiliary Building.

The current AP1000 plant design includes two low capacity air cooled chiller pumps, VWS-MP-02 and VWS-MP-03, with both pumps installed on a common skid in Auxiliary Building Room 12501 (Nuclear Island Nonradioactive Ventilation System (VBS) Main Control Room/A&C Equipment Room). Evolution of the system design has resulted in an increase in the footprint of the VWS air cooled chiller pump module, such that the module is larger than the space provided in Room 12501. To alleviate the congestion and inaccessibility of equipment in Room 12501, a change to separate the Central Chilled Water System (VWS) air cooled chiller pump module into two skids is proposed, with each skid including one air cooled chiller pump. One of the pump skids and its associated equipment (including an expansion tank and a new chemical feed tank) will be relocated to Annex Building, Room 40500 (North Air Handling Equipment Room) while the other will remain in Auxiliary Building Room 12501.

## **3.0 Technical Justification of Acceptability**

The VWS supplies chilled water to the plant heating, ventilation, and air conditioning (HVAC) systems and is functional during reactor power and shutdown operations. The low capacity subsystem, consisting of two 100-percent capacity loops, is a closed system that performs nonsafety-related defense-in-depth functions in providing a source of chilled water to the main control room (MCR) and control support area (CSA) HVAC subsystem, the Class 1E electrical equipment room HVAC subsystem, and the chemical and volume control system makeup pump and normal residual heat removal pump compartment unit coolers. The only safety-related

function of the VWS is to provide isolation of the VWS lines penetrating the containment. The low capacity VWS subsystem is non-seismically designed.

The VWS defense-in-depth functions are not affected by this change. The relocation of VWS-MP-03 and associated equipment or addition of a new chemical feed tank does not affect the ability of the VWS to perform its specified design functions.

The safety function of the VWS to provide isolation of the VWS lines penetrating containment is not affected by relocation of VWS-MP-03 and associated equipment or the addition of a new chemical feed tank because these portions of the VWS are spatially and functionally separate from the portions of the VWS line credited with containment isolation.

Relocating VWS-MP-03 from the seismic Category I Auxiliary Building to the seismic Category II Annex Building does not have an adverse impact on any structure, system, or component (SSC), because the VWS is a non-seismic system and is not designed to remain functional following a seismic event. The proposed change does not adversely affect the response of any SSC to anticipated transient or postulated accident conditions, because the portions of the VWS affected by this change do not serve a safety-related function, and are therefore not credited in the response to these conditions. The current Annex and Auxiliary Building flooding analyses address flooding from the chilled water system and the changes proposed by this activity do not alter the conclusions of these analyses. Therefore, the relocation of VWS-MP-03 and the associated piping changes have no adverse impact on these flooding analyses.

The VWS design does not provide any functions associated with containing, controlling, channeling, monitoring, or processing radioactive or non-radioactive materials. No effluent release path is associated with the VWS. The types and quantities of expected plant effluents are not changed. Therefore, neither radioactive nor non-radioactive material effluents are affected by this activity.

The portions of the VWS modified by the proposed change are not located in a radiologically controlled zone. Plant radiation zones, radiation controls established to satisfy 10 CFR 20 requirements, and expected amounts and types of radioactive materials are not affected by the proposed changes. Therefore, individual and cumulative radiation exposures are not significantly affected by this change.

#### **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 the Licensee has identified changes (as discussed in Enclosure 1 of the accompanying License Amendment Request) that impact Tier 1, an exemption to 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)(ii)]; 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.1].

The requested exemption to change the design of the VWS satisfies the six criteria for granting specific exemptions, as described below.

**1. This exemption is authorized by law**

The NRC has authority under 10 CFR §§ 50.12, 52.7, and 52.63 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 Part 52, Appendix D, Section III.B would allow changes to elements of the plant-specific DCD Tier 1 information to depart from the AP1000 certified design information. The plant-specific Tier 1 DCD will continue to reflect the approved licensing basis for the Licensee and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the plant-specific DCD.

The relocation of Air Cooled Chiller Pump 3 to the Annex Building will not impact the ability of the components to perform their design functions. There is no change to plant systems or the response of systems to postulated accident conditions. There is no change to the predicted radioactive releases due to postulated accident conditions. The plant response to previously evaluated accidents or external events is not adversely affected, and the change described does not create any new accident precursors. Therefore, no adverse safety impact that would present any additional risk to the health and safety of the public is present. The affected Design Description in the plant-specific Tier 1 DCD will also continue to provide the detail necessary to support the performance of the associated ITAAC.

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 proposed exemption from requirements of 10 CFR Part 52, Appendix D, Section III.B would allow changes to elements of the plant-specific DCD Tier 1 information to depart from the AP1000 certified design. The 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 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 proposed change to the VWS to relocate Air Cooled Chiller Pump 3 to the Annex Building maintains the design functions of the VWS. This change does not impact the ability of any structures, systems, or components to perform their functions or negatively impact safety. 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 Part 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 do not adversely impact the function of the VWS, it is likely that other AP1000 licensees will request this exemption. However, if this is not the case, the special circumstances continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the VWS associated with this request will continue to be maintained. This exemption request and the associated marked-up text demonstrate that the functionality of the VWS continues to be maintained following implementation of the change from the generic AP1000 DCD, thereby minimizing the safety impact resulting from any reduction in standardization.

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 requested exemption revises the plant-specific DCD Tier 1 information by relocating Air Cooled Chiller Pump 3 to the Annex Building. The changes do not affect any safety-related equipment or function, and the design function of the VWS continues to be met. Because these functions continue to be met, there is no reduction in the level of safety.

**5.0 Risk Assessment**

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

**6.0 Precedent**

No precedent is identified.

**7.0 Environmental Consideration**

A review of the requested amendment has determined that anticipated construction and operational effects of the proposed amendment do 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 requested 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), an environmental impact statement or environmental assessment of the proposed amendment and exemption is not required.

**8.0 Conclusion**

The proposed changes to Tier 1 information are necessary for the relocation of Air Cooled Chiller Pump 3 to the Annex Building. The exemption request meets the requirements of 10 CFR 52.63, "*Finality of Design Certifications*," 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, presents special circumstances, does not present a significant decrease in safety as a result of a reduction in standardization, and meets the eligibility requirements for categorical exclusion.

**Southern Nuclear Operating Company**

**ND-16-0252**

**Enclosure 3**

**Vogtle Electric Generating Plant Units 3 and 4**

**Proposed Changes to the Licensing Basis Documents  
(LAR-15-018)**

**Note:**

**Added text is shown as Blue Underline**

**Deleted text is shown as ~~Red Strikethrough~~**

(This enclosure contains six pages, including this cover sheet.)

**Tier 1 Table 2.7.2-3; COL Appendix C, Table 2.7.2-3**

**Revise Tier 1 Table 2.7.2-3 to indicate that Air Cooled Chiller Pump 3, VWS-MP-03, is located in the Annex Building rather than the Auxiliary Building.**

Table 2.7.2-3		
Component Name	Tag No.	Component Location
Water Chiller Pump A	VWS-MP-01A	Turbine Building
Water Chiller Pump B	VWS-MP-01B	Turbine Building
Air Cooled Chiller Pump 2	VWS-MP-02	Auxiliary Building
Air Cooled Chiller Pump 3	VWS-MP-03	<del>Auxiliary</del> Annex Building
Water Chiller A	VWS-MS-01A	Turbine Building
Water Chiller B	VWS-MS-01B	Turbine Building
Air Cooled Chiller 2	VWS-MS-02	Auxiliary Building
Air Cooled Chiller 3	VWS-MS-03	Auxiliary Building

**UFSAR Appendix 3H, Subsection 3H.2.1, Description of Auxiliary Building**

Revise Tier 2\* information in the eighth sentence in the second paragraph to indicate the “chiller pump equipment” versus the “chiller pumps” is carried on the floor at Elevation 135’-3” of the Auxiliary Building. (NOTE: The brackets are shown in this markup for clarity; however, the entire second paragraph is bracketed Tier 2\* information.)

[...The floor at elevation 135'-3" carries air filtration and air handling units, chiller pumps ~~s~~ equipment, and other mechanical and electrical equipment. ...]

**UFSAR Section 9.2.7, Subsection 9.2.7.2.1, General Description**

Revise Tier 2 information in the third paragraph to reflect that each train of the low capacity VWS subsystem loop has its own chemical feed tank versus a common chemical feed tank. The statement regarding the location of the chiller pumps and expansion tanks relative to the chillers is also removed.

The low capacity subsystem consists of two 100-percent capacity chilled water loops. Each loop consists of a chilled water pump, an air-cooled chiller, an expansion tank, a chemical feed tank, and associated valves, piping, and instrumentation. The subsystem is arranged in two independent trains with separate supply and return headers. ~~The subsystem is provided with a common chemical feed tank.~~ The subsystem provides a reliable source of chilled water to the main control room (MCR) and control support area (CSA) HVAC subsystem, and the Class 1E electrical equipment room HVAC subsystem. This system configuration provides 100-percent redundancy during normal plant operation and following the loss of offsite power. The air-cooled chillers of the low capacity subsystem are located on the auxiliary building roof. ~~The chilled water pumps and expansion tanks are located in the auxiliary building below the chillers.~~

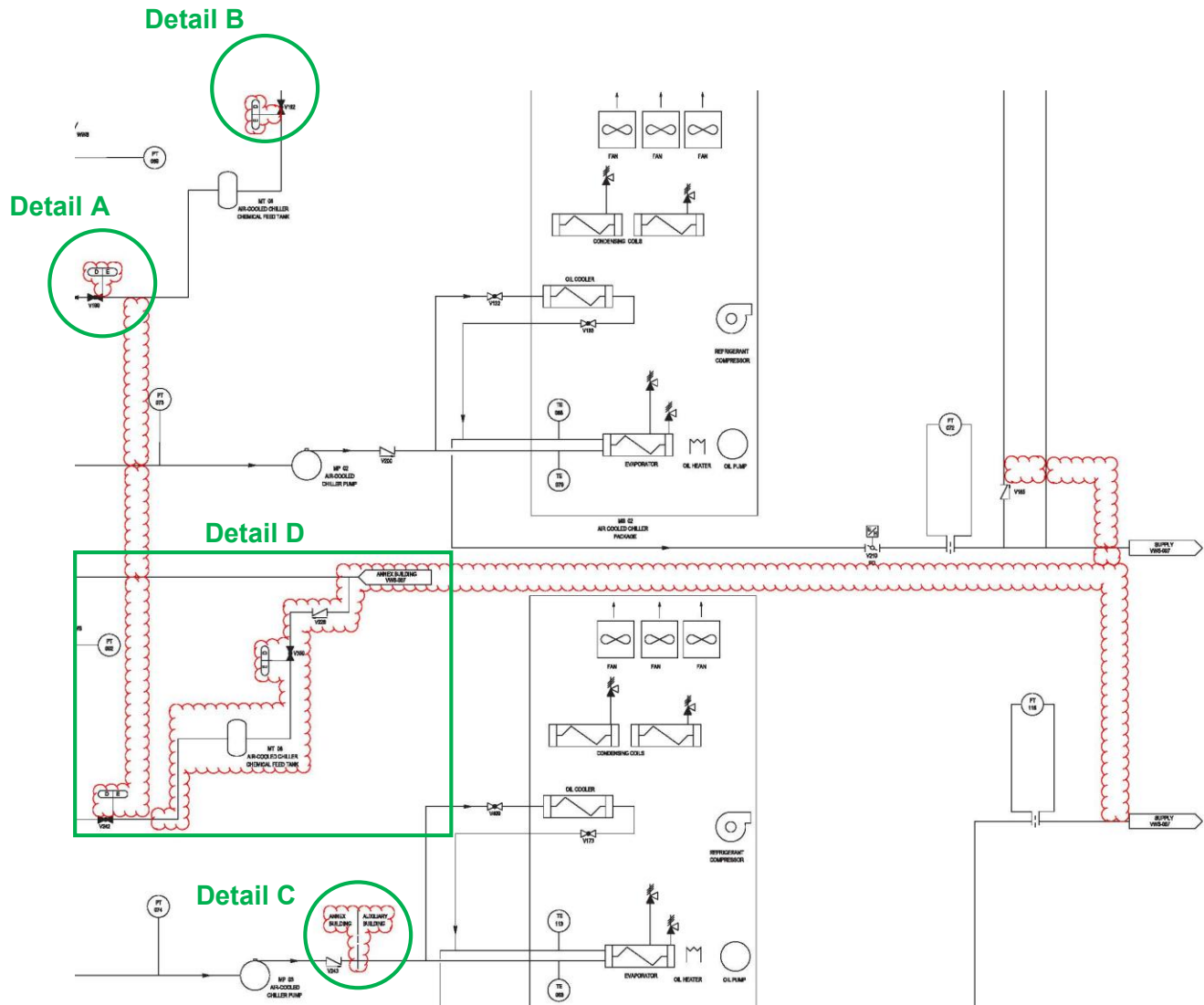
**UFSAR Section 9.2, Figure 9.2.7-1 (Sheet 1 of 4), Simplified Central Chilled Water System Piping and Instrumentation Diagram (REF) VWS 006**

Revise the title block of UFSAR Tier 2 Figure 9.2.7-1 (Sheet 1 of 4), as follows:

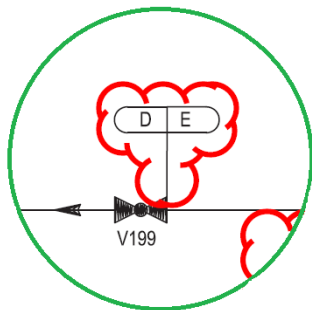
~~Inside Auxiliary Building~~  
Figure 9.2.7-1 (Sheet 1 of 4)  
Simplified Central Chilled Water System  
Piping and Instrumentation Diagram  
(REF) VWS 006



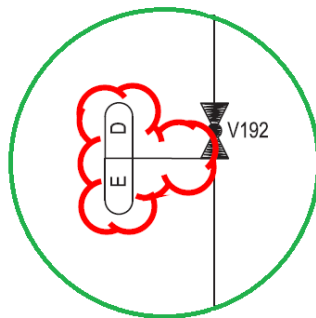
Revise UFSAR Tier 2 Figure 9.2.7-1 (Sheet 1 of 4), as depicted below (See detailed blow-ups below):



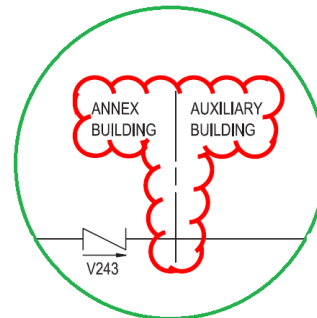
**Detail A:**



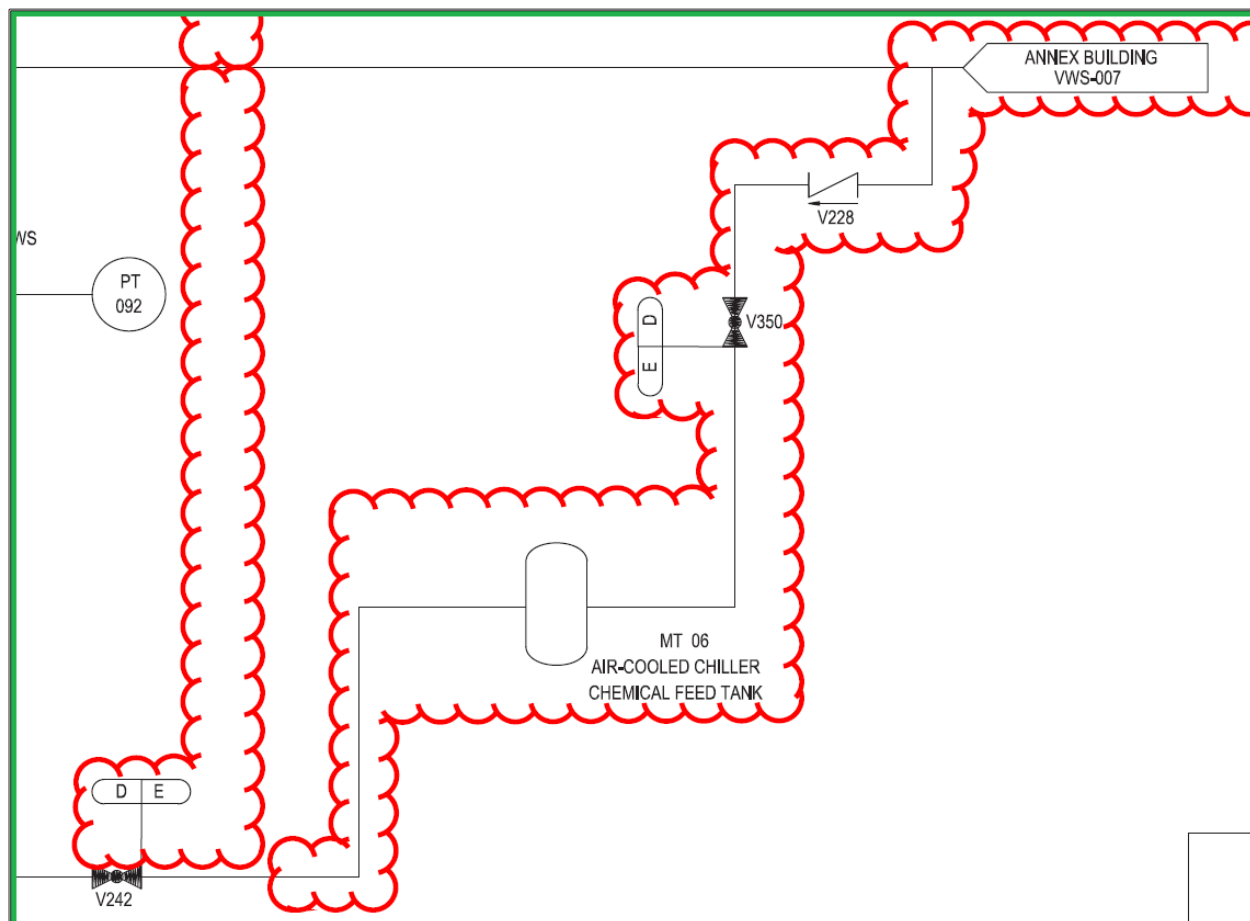
**Detail B:**



**Detail C:**

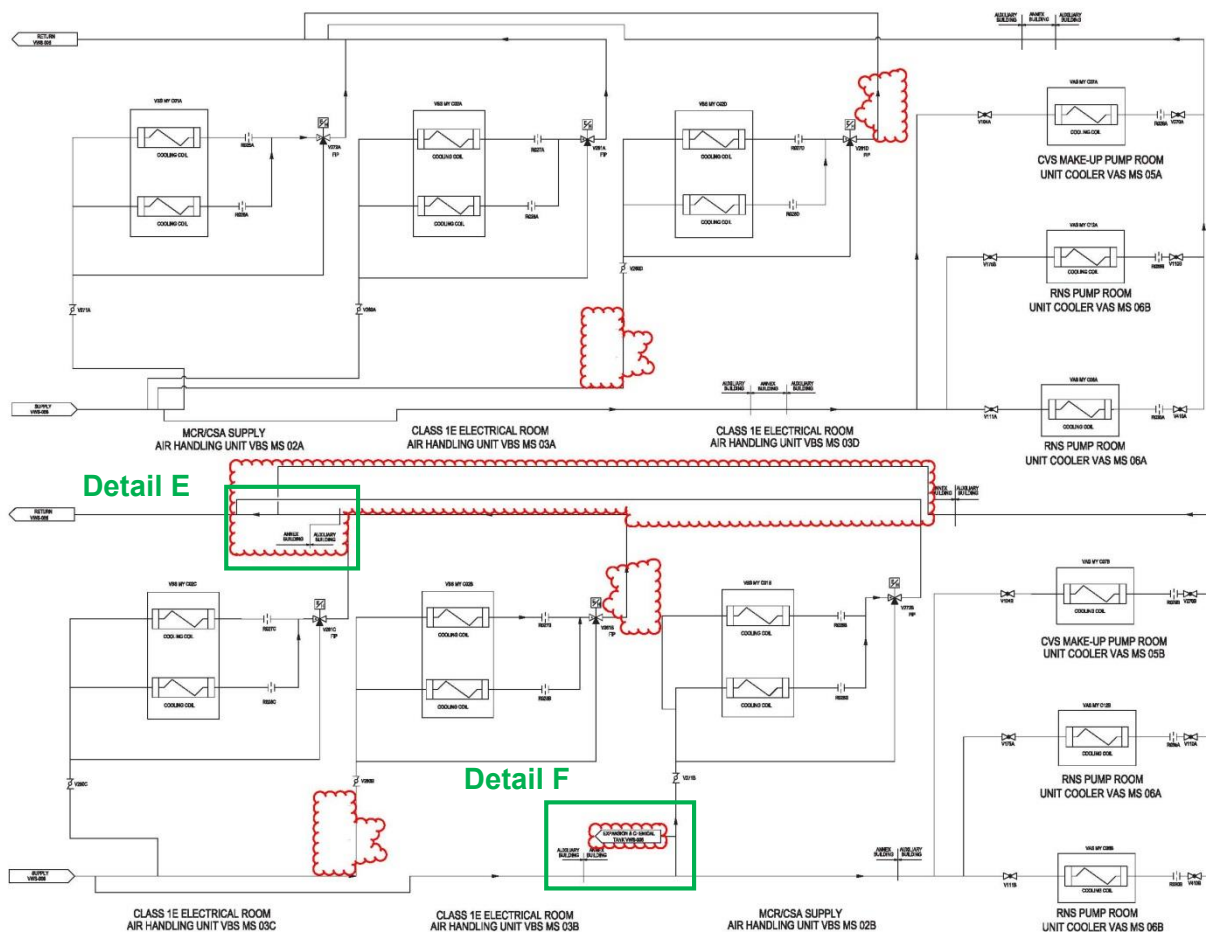


**Detail D:**

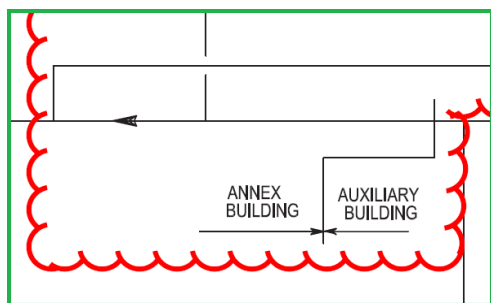


**UFSAR Section 9.2, Figure 9.2.7-1 (Sheet 2 of 4), Simplified Central Chilled Water System Piping and Instrumentation Diagram (REF) VWS 006**

Revise UFSAR Tier 2 Figure 9.2.7-1 (Sheet 2 of 4), as depicted below (See detailed blow-ups below):



**Detail E:**



**Detail F:**

