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Serial: RA-16-0021 10 CFR 50.90
May 26, 2016

U.S. Nuclear Regulatory Commission
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CATAWBA NUCLEAR STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-413 AND 50-414
RENEWED LICENSE NOS. NPF-35 AND NPF-52

**SUBJECT: LICENSE AMENDMENT REQUEST PROPOSING AN UPDATED FINAL SAFETY ANALYSIS REPORT (UFSAR) REVISION TO REFLECT ELECTRICAL POWER SYSTEMS ALIGNMENTS FOR SHARED SYSTEMS AT CATAWBA NUCLEAR STATION**

Ladies and Gentlemen:

Pursuant to 10 CFR 50.90, Duke Energy Carolinas, LLC (Duke Energy) hereby submits a license amendment request (LAR) for Catawba Nuclear Station (CNS), Units 1 and 2. This request for amendment would revise the Current Licensing Basis, as reflected in the Updated Final Safety Analysis Report (UFSAR).

The proposed change involves adding descriptions to several sections of the UFSAR to clarify how a shutdown unit supplying either its normal or emergency power source may be credited for operability of shared components supporting the operating unit. The Nuclear Service Water System (NSWS), Control Room Area Ventilation System (CRAVS), Control Room Area Chilled Water System (CRACWS) and Auxiliary Building Filtered Ventilation Exhaust System (ABFVES) each have components that are shared between the two units. Specifically, the proposed change seeks Nuclear Regulatory Commission (NRC) approval of UFSAR descriptions for the sections pertaining to the AC Power Systems, NSWS, CRAVS, CRACWS and ABFVES to clarify how shared components supporting an online unit may be powered from OPERABLE offsite and onsite power sources (i.e., emergency diesel generators) on the opposite shutdown unit. A meeting was held with the NRC staff on April 28, 2016 to discuss the proposed change.

Duke Energy requests NRC approval of the proposed change to the UFSAR prior to implementation.

Enclosure 1 to this letter provides a description and assessment of the proposed change. Enclosure 2 provides the existing UFSAR pages marked up to show the proposed change. The proposed amendment does not involve a change to any Operating License Condition or Technical Specification.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and it has been determined that the proposed change involves no significant hazards consideration. The bases for these determinations are included in Enclosure 1.

Staff approval of this license amendment application is requested within one year of the date of this submittal. Once approved, the license amendment will be implemented within 90 days.

There are no new regulatory commitments contained in this letter.

In accordance with 10 CFR 50.91, Duke Energy is notifying the State of South Carolina of this license amendment request by transmitting a copy of this letter and enclosures to the designated State Official. Should you have any questions concerning this letter, or require additional information, please contact Cecil Fletcher at 803-701-3622.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 26, 2016.

Sincerely,

Kelvin Henderson
Vice President, Catawba Nuclear Station

Enclosures:

1. Evaluation of the Proposed Change
2. Proposed Updated Final Safety Analysis Report Changes (Mark-up)

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# Enclosure 1

## Evaluation of the Proposed Change

Subject: License Amendment Request Proposing an Updated Final Safety Analysis Report (UFSAR) Revision to Reflect Electrical Power Systems Alignments for Shared Systems at Catawba Nuclear Station

## 1. SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, Duke Energy is submitting a license amendment request (LAR) proposing to change the Catawba Nuclear Station (CNS) Current Licensing Basis (CLB), as reflected in the Updated Final Safety Analysis Report (UFSAR).

The proposed change involves adding Updated Final Safety Analysis Report (UFSAR) descriptions to the sections pertaining to the AC Power Systems, Nuclear Service Water System (NSWS), Control Room Area Ventilation System (CRAVS), Control Room Area Chilled Water System (CRACWS) and Auxiliary Building Filtered Ventilation Exhaust System (ABFVES) to clarify how shared components supporting an online unit may be powered from OPERABLE offsite and onsite power sources (i.e., emergency diesel generators) on the opposite shutdown unit.

## 2. DETAILED DESCRIPTION

Duke Energy proposes to modify CNS UFSAR sections 8.3.1 (AC Power Systems), 9.2.1 (Nuclear Service Water System), 9.4.1 (Control Room Area Ventilation) and 9.4.3 (Auxiliary Building Ventilation System) to more appropriately describe how shared systems consisting of the NSWS, CRAVS, CRACWS and ABFVES may be powered when one unit is shutdown (MODE 5, 6 or No MODE) and the opposite unit is online (MODES 1, 2, 3 or 4). The proposed descriptions to be inserted are below and the UFSAR sections marked up to show the proposed change may be found in Enclosure 2.

UFSAR Section 8.3.1 (AC Power Sources)

"8.3.1.1.2.3 Shared System Alignment Considerations

Some of the systems that have components which are shared between the two units are the Nuclear Service Water System (RN), Control Room Area Ventilation System (VC), Control Room Area Chilled Water System (YC) and the Auxiliary Building Filtered Ventilation Exhaust System (VA). Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the RN, VC/YC, VA shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and
- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY."

UFSAR Section 9.2.1 (Nuclear Service Water System)

"9.2.1.8.5 RN Shared Components Alignment Considerations

The RN system has components which are shared between the two units. Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the RN shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and
- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY."

UFSAR Section 9.4.1 (Control Room Area Ventilation)

"The Control Room Area Ventilation System and Control Room Area Chilled Water System have components which are shared between the two units. Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the Control Room Area Ventilation System and Control Room Area Chilled Water System shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and
- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY."

UFSAR Section 9.4.3 (Auxiliary Building Ventilation System)

"The Auxiliary Building Filtered Exhaust System has components which are shared between the two units. The specific components that are shared between the two units are the train related shared motor control centers (1EMXG and 2EMXH). Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the Auxiliary Building Filtered Exhaust System shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and

- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY."

One reason for the request is that there is a common outage configuration at CNS where one train of any of the aforementioned shared systems is aligned to a shutdown unit (i.e., MODE 5, 6 or No MODE) for required Engineered Safety Features testing, while the other train is aligned to the online unit (i.e., MODES 1 through 4). Currently, when this transfer to the shutdown unit is done to verify the applicable shared train's start off of the load sequencer, the train is declared inoperable because it does not have an operable normal and emergency power supply for the required Mode of Applicability (typically MODE 1). The current requirement for shared systems at CNS is that operability of the shared components requires both a normal and emergency power source. Adding descriptions to the UFSAR to clarify that the shutdown unit's offsite power circuit and diesel generator (DG) may be credited for operability of shared components supporting the online unit will avoid unnecessarily declaring shared components INOPERABLE. The Current Licensing Basis, as reflected in the UFSAR, is silent on the matter of crediting the shutdown unit's offsite power circuit and DG. Another reason for the request is that if the other shared train (the train not undergoing ESF testing) that is supporting the online unit becomes inoperable for any reason during the ESF testing, then an entry into TS 3.0.3 would ultimately be the action taken. This LAR is being submitted in order to avoid this type of unnecessary TS 3.0.3 situation.

## 3. TECHNICAL EVALUATION

Descriptions of all plant systems at CNS that are pertinent to this LAR are described below in Sections 3.1. A discussion of the technical justification for the proposed changes is provided in Section 3.2.

### 3.1 Catawba Nuclear Station System Descriptions

Onsite Power Systems

For CNS, Chapter 8 of the Updated Final Safety Analysis Report (UFSAR) provides a detailed description of the onsite power systems. The onsite Class 1E AC Distribution System is divided into redundant load groups (trains) so that the loss of any one group does not prevent the minimum safety functions from being performed. Each train has connections to two preferred offsite power sources and a single diesel generator (DG). From the transmission network, two electrically and physically separated circuits provide AC power, through step down station auxiliary transformers, to the 4.16 kV Engineered Safety Feature (ESF) buses.

The onsite standby power source for each 4.16 kV ESF bus is a dedicated DG. DGs A and B are dedicated to ESF buses ETA and ETB, respectively. A DG starts automatically on a safety injection (SI) signal (i.e., low pressurizer pressure or high containment pressure signals) or on an ESF bus degraded voltage or undervoltage signal. After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with a SI signal. With no SI signal, there is a 10 minute delay between degraded voltage signal and the DG start signal.

The DGs will also start and operate in the standby mode without tying to the ESF bus on a SI signal alone. Following the trip of offsite power, a sequencer strips loads from the ESF bus. When the DG is tied to the ESF bus, loads are then sequentially connected to their respective ESF bus by the automatic load sequencer. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application. In the event of a loss of preferred power, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the DG in the process. Approximately 1 minute after the initiating signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service.

Nuclear Service Water System

The NSWS, including Lake Wylie and the Standby Nuclear Service Water Pond (SNSWP), provides a heat sink for the removal of process and operating heat from safety related components during a Design Basis Accident (DBA) or transient. During normal operation, and a normal shutdown, the NSWS also provides this function for various safety related and non-safety related components.

The NSWS consists of two independent loops (A and B) of essential equipment, each of which is shared between units. Each loop contains two NSWS pumps, each of which is supplied from a separate emergency diesel generator. Each set of two pumps supplies two trains (1A and 2A, or 1B and 2B) of essential equipment through common discharge piping. While the pumps are unit designated (i.e., 1A, 1B, 2A, 2B), all pumps receive automatic start signals from a safety injection or blackout signal from either unit. Therefore, a pump designated to one unit will supply post-accident cooling to equipment in that loop on both units, provided its associated emergency diesel generator is available. For example, the 1A NSWS pump, supplied by emergency diesel generator 1A, will supply post-accident cooling to NSWS trains 1A and 2A. One NSWS loop has sufficient capacity to supply post LOCA loads on one unit and shutdown and cooldown loads on the other unit. Thus, the capability of two NSWS loops to perform their specified safety functions assures that no single failure will keep the system from performing the required safety function. Additionally, one NSWS loop containing one NSWS pump capable of performing its specified safety function has sufficient capacity to maintain one unit indefinitely in MODE 5 while supplying the post LOCA loads of the other unit. Thus, after a unit has been placed in MODE 5, only one NSWS pump and its associated emergency diesel generator are required to perform their specified safety functions on each loop, in order for the system to be capable of performing its required safety function, including single failure considerations.

Additional information about the design and operation of the NSWS, along with a list of the components served, is presented in UFSAR Section 9.2.1. The principal safety related function of the NSWS is the removal of decay heat from the reactor via the Component Cooling Water (CCW) System.

The requirements of General Design Criterion (GDC) 5, Sharing of structures, systems and components, are addressed. Specifically, no single failure can keep the system from performing its safety function and that two NSWS pumps will be available to handle a LOCA on one unit and bring the other unit to a safe, cold shutdown.

Control Room Area Ventilation System

The CRAVS ensures that the Control Room Envelope (CRE) will remain habitable for occupants during and following all credible accident conditions. This function is accomplished by pressurizing the CRE to ≥ 1/8 (0.125) inch water gauge with respect to all surrounding areas, filtering the outside air used for pressurization, and filtering a portion of the return air from the CRE to clean up the control room environment.

The CRAVS consists of two independent, redundant trains of equipment. Each train consists of:

- a pressurizing filter train fan
- a filter unit which includes moisture separator/prefilters, HEPA filters and carbon adsorbers
- the associated ductwork, dampers/valves, controls, doors and barriers

Inherent in the CRAVS's ability to pressurize the control room is the CRE boundary. The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room and may encompass the non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected during normal operation, natural events and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The capability of the CRE boundary to perform its specified function must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of DBA consequences to CRE occupants. The CRE and its boundary must be intact or properly isolated for the CRAVS to function properly.

GDC 5 applies to this system and the design of the CRAVS meets the requirements of GDC 5.

Control Room Area Chilled Water System

The CRACWS provides temperature control for the control room and the control room area.

The CRACWS consists of two independent and redundant trains that provide cooling to the control room and control room area. Each train consists of a chiller package, chilled water pump and air handling units with cooling coils. Chilled water is passed through the cooling coils of the air handling unit to cool the air. Electric duct heaters are then used to control the supply air temperature.

The CRACWS provides both normal and emergency cooling to the control room and control room area. A single train will provide the required temperature control to maintain the control room at approximately 74°F. The CRACWS operation is described further in UFSAR Section 9.4. GDC 5 applies to this system and the design of the CRACWS meets the requirements of GDC 5.

Auxiliary Building Filtered Ventilation Exhaust System

The ABFVES consists of two independent and redundant trains. Each train consists of a heater demister section and a filter unit section. The heater demister section consists of a prefilter/moisture separator (to remove entrained water droplets) and an electric heater (to reduce the relative humidity of air entering the filter unit). The filter unit section consists of a prefilter, an upstream HEPA filter, an activated carbon adsorber (for the removal of gaseous activity, principally iodines), a downstream HEPA filter and a fan. The downstream HEPA filter is not credited in the accident analysis, but serves to collect carbon fines. Ductwork, valves or dampers, and instrumentation also form part of the system. Following receipt of a SI signal, the system isolates non-safety portions of the ABFVES and exhausts air only from the Emergency Core Cooling System (ECCS) pump rooms.

The ABFVES is normally aligned to bypass the system HEPA filters and carbon adsorbers. During emergency operations, the ABFVES dampers are realigned to the filtered position, and fans are started to begin filtration. Also during emergency operations, the ABFVES dampers are realigned to isolate the non-safety portions of the system and only draw air from the ECCS pump rooms, as well as the Elevation 522 pipe chase and Elevation 543 and 560 mechanical penetration rooms.

The ABFVES is discussed further in UFSAR Sections 6.5, 9.4, 14.4 and 15.6. GDC 5 applies to this system and the design of the ABFVES meets the requirements of GDC 5.

3.2 Discussion

The proposed additions to the UFSAR serve to provide a description of crediting an offsite power circuit and a DG associated with a shutdown unit (i.e., MODE 5, 6 or No MODE) for normal and emergency power of shared components supporting an online unit (i.e., MODES 1 through 4). As part of the overall effort to demonstrate an adequate level of safety associated with the proposed change, the following points of discussion are relevant.

CNS Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.9 ensures shared SSC operability is applied to each unit based on Mode of Applicability. TS LCO 3.0.9 requires that LCOs and Required Actions apply to both units whenever the LCO refers to SSCs which are shared by both units; for example, a pipe that is shared by both units for pumps in a cooling system. Therefore, as a result of the proposed change to the UFSAR, CNS will continue to comply with TS 3.0.9 by ensuring that an offsite power circuit and an emergency diesel generator utilized to provide normal and emergency power to shared components meet the requirements based on the MODE each unit is in. An offsite power circuit and a DG on a unit in MODE 5, 6 or No MODE that will be aligned to power shared SSCs required to be operable in MODE 1 through 4, will meet MODE 1 through 4 requirements (i.e., TS 3.8.1). Likewise, the shared loads associated with the CRAVS, CRACWS, ABFVES and NSWS will meet MODE 1 through 4 requirements or the applicable Required Actions will be taken.

The offsite power circuit and DG associated with a shutdown unit will be able to support the operability of shared SSCs required to be operable in MODES 1, 2, 3 or 4 by meeting applicable TS 3.8.1 (AC Sources - Operating) requirements, TS 3.8.3 (Diesel Fuel Oil, Lube Oil, and Starting Air) requirements and all the requirements of the TS 1.1 (Definitions) definition of OPERABLE/OPERABILITY. The shared essential 600v motor control centers (MCCs) must meet TS 3.8.9 (Distribution Systems - Operating) requirements as well. Meeting these TS LCOs also means CNS will meet all of the applicable TS Surveillance Requirements. An offsite power circuit and a DG that meet all of these TS requirements and are capable of meeting their mission times, are OPERABLE for MODES 1 through 4. Should the UFSAR change request be approved, although the unit itself may not be in a Mode of Applicability (i.e., MODE 1-4), the offsite power circuit and DG associated with the unit in MODE 5, 6 or No MODE can be fully operable to support the shared components that have MODE 1 through 4 TS requirements, when needed. Several TS Bases changes will be made under the provisions of 10 CFR 50.59 to reflect how the shutdown unit offsite power circuit and DG can supply normal and emergency power to the shared components supporting the opposite unit, should the UFSAR changes be approved.

Although the DGs at CNS provide power to shared SSCs via “shared” MCCs (i.e., a MCC that can be aligned to one unit or the other), the DG remains separate and independent to ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA. The DGs themselves are not shared between units and each train of the 4.16 kV Essential Auxiliary Power System remains separate and independent and capable of supplying power to the Class 1E loads required to safely shut down the unit following a DBA. Each DG is designed and tested to ensure it is capable of supplying the loads necessary to shut down the unit.

## 4. REGULATORY EVALUATION

### 4.1 Applicable Regulatory Requirements/Criteria

General Design Criterion 5

GDC 5 deals with the sharing of structures, systems and components that are important to safety. The proposed change does not impact the design of the NSWS, CRAVS, CRACWS or ABFVES and does not interfere with basic function and operability of these systems due to sharing. Thus, GDC 5 is not impacted by this proposed change.

General Design Criterion 17

GDC 17 deals with the design of the Electrical Power Systems for the unit, both offsite and onsite power systems. The proposed change does not affect the design of the onsite or offsite power systems. Thus, GDC 17 is not impacted by this proposed change.

General Design Criterion 18

GDC 18 deals with testing of Electric Power Systems for the unit, both offsite and onsite power systems. The proposed change also does not involve offsite power circuit testing, which is covered by GDC 18. No changes in the design, operation or testing of the offsite power circuits are being proposed.

General Design Criteria 37, 40, 43 and 46

GDC 37, 40, 43 and 46 all contain provisions for testing of key safety systems (other than the Electric Power Systems), including “the performance of the full operational sequence that brings the systems into operation, including...the transfer between normal and emergency power sources." The proposed change does not impact this capability, as the normal offsite power circuit surveillances, along with the various system simulated automatic actuation surveillances, will continue to demonstrate that these GDC are met.

Safety Guide 6

Safety Guide 6 (i.e., original revision of Regulatory Guide 1.6) (Reference 1) deals with the electrical independence of each division of the electrical distribution system. The proposed change will not impact the design of the electrical distribution system, nor the associated interlocks between the onsite and offsite electrical distribution systems. Thus, the proposed change does not impact CNS's ability to meet the guidelines of Reference 1, as described in CNS UFSAR Sections 1.7.1.1 and 8.3.2.2.3.

## 4.2 No Significant Hazards Consideration Determination

Duke Energy is requesting an amendment to change the Catawba Nuclear Station (CNS) Current Licensing Basis by adding several descriptions to the Updated Final Safety Analysis Report (UFSAR) to clarify how a shutdown unit supplying either its normal or emergency power source may be credited for operability of shared components supporting the operating unit. The Nuclear Service Water System (NSWS), Control Room Area Ventilation System (CRAVS), Control Room Area Chilled Water System (CRACWS) and Auxiliary Building Filtered Ventilation Exhaust System (ABFVES) each have components that are shared between the two units. Specifically, the proposed change seeks Nuclear Regulatory Commission (NRC) approval of UFSAR descriptions for the sections pertaining to the AC Power Systems, NSWS, CRAVS, CRACWS and ABFVES to clarify that shared components supporting an online unit may be powered from OPERABLE offsite and onsite power sources (i.e., emergency diesel generators) on the opposite shutdown unit, provided the power sources meet all applicable requirements.

Duke Energy has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

**1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No.

The proposed change only involves a change to the UFSAR to reflect how shared systems at CNS can be powered from offsite or onsite power sources. The proposed change does not modify any plant equipment and does not impact any failure modes that could lead to an accident. Additionally, the proposed change does not impact the consequence of any analyzed accident since the change does not adversely affect any equipment related to accident mitigation.

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

2. **Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?**

   Response: No.

   The proposed change only involves a change to the UFSAR to reflect how shared systems at CNS can be powered from offsite or onsite power sources. The proposed change does not modify any plant equipment and there is no impact on the capability of the existing equipment to perform their intended functions. No system set points are being modified and no changes are being made to the method in which plant operations are conducted. No new failure modes are introduced by the proposed change and the proposed amendment does not introduce accident initiators or malfunctions that would cause a new or different kind of accident.

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

3. **Does the proposed change involve a significant reduction in a margin of safety?**

   Response: No.

   The proposed change only involves a change to the UFSAR to reflect how shared systems at CNS can be powered from offsite or onsite power sources. The proposed change to the UFSAR does not affect any of the assumptions used in the CNS accident analysis, nor does it affect any operability requirements for equipment important to safety.

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

Based on the above, Duke Energy concludes that the proposed change presents no 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

In conclusion, 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.

## 5. ENVIRONMENTAL CONSIDERATION

The proposed amendment does not involve a significant hazards consideration, a significant change in the types of any effluents that may be released offsite, a significant increase in the amount of any effluents that may be released offsite or a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion 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.

## 6. REFERENCES

1. Safety Guide 6, *Independence Between Redundant Standby (Onsite) Power Sources and Between Their Distribution Systems*, Revision 0, U.S. Nuclear Regulatory Commission, March 1971.

# Enclosure 2

# Proposed Updated Final Safety Analysis Report Changes (Markup)

| | | |
|---|---|---|
| 1) | 50/51 (Inst./Time Delayed OC) | 50-1.73 X Maximum Low Side Fault Current /51-125 to 200% Transformer Full Load Current |
| 2) | 50G (Ground Overcurrent) | 5 Amps at 6 Cycles |

To avoid protective relay trip setpoint drift problems, all Class 1E relays are tested periodically to verify the relays are within specified limits and are re-calibrated if required.

#### 8.3.1.1.2.2 600VAC Essential Auxiliary Power System

**Note:**

This section of the FSAR contains information on the design bases and design criteria of this system/structure. Additional information that may assist the reader in understanding the system is contained in the design basis document (DBD) for this system/structure.

The 600VAC Essential Auxiliary Power System supplies power to the 600 volt essential motor control centers which are located in load concentration areas throughout the plant. Connected to the essential motor control centers are all of the 600 volt essential loads which require power during accident conditions and non-essential loads which are required to be disconnected during accident conditions. Two essential motor control centers (1EMXG and 2EMXH) are provided to supply power to loads which are shared between the two units, e.g. Control Area Chilled Water System. The Train A loads, fed from motor control center 1EMXG, are identified in Table 8-6 in the remarks column. The corresponding Train B loads are fed from 2EMXH. This system is shown on Figure 8-21.

The only non-Class 1E loads which can be powered from the Class 1E AC systems during an accident are the AC emergency lighting transformers and the hydrogen igniter transformers. These loads are automatically disconnected on a LOCA signal and are given a permissive signal which allows manual connection after all LOCA loads are sequenced on. The AC emergency lighting transformers are powered from 600 volt Class 1E motor control centers 1EMXA, 1EMXJ, 2EMXA and 2EMXJ. The hydrogen igniter transformers are fed from 600 volt Class 1E motor control centers 1EMXI, 1EMXB, 2EMXI and 2EMXB. When the A train igniters are manually aligned to the SSF Diesel Generator, the A train igniter transformer is powered from 600 volt Class 1E motor control center EMXS.

The 600VAC Essential Auxiliary Power System is divided into two redundant and independent safety trains, each of which consists of two load centers and their associated motor control centers. Each load center normally receives power from its associated 4160 volt essential switchgear via a separate 1500KVA, 4160/600 volt essential load center transformer. The two load centers in each safety train are provided with a spare transformer which can be manually connected to either load center should the normal load center transformer be unavailable. A key interlock scheme is provided to prevent the spare transformer from being connected to both load centers simultaneously.

In the event of a blackout or blackout coupled with a LOCA, the diesel generator load sequencer automatically sheds the load centers by tripping the load center incoming breakers. Essential loads required during the blackout or blackout/LOCA condition are then automatically sequenced onto their respective bus by the sequencer.

In general, protective devices on the 600 VAC Essential Auxiliary Power System (EPE) are selected and set so that a minimal amount of equipment is isolated from the system for adverse conditions such as a fault. Protective devices protect cable and equipment. In the case of essential motor control center equipment, incoming breakers may not fully coordinate with motor control center load breakers. However, the resulting amount of equipment isolation is acceptable, such that there is no impact on the UFSAR Chapter 15 safety analyses and redundant equipment is not affected. The load center breakers are set to protect the cable feeding the essential motor control centers and coordinate with the breakers that feed motor control center loads. The relays on the essential load center transformer feeders are set to protect the transformers and coordinate with the load center breakers.

***HISTORICAL INFORMATION NOT REQUIRED TO BE REVISED***

The protective relay settings for essential systems/equipment are calculated based on equipment manufacturer's data and system parameters. *The initial setpoints are verified during system pre-operational testing.* The setpoints are determined as follows:

| | ANSI Number and Function | Setting |
|---|---|---|
| 1)52 | (Load Center Incoming Breakers) | Set to protect the cable and equipment and coordinate with feeder breaker settings. |
| 2)52 | (Load Center Feeder Breakers) | Set to protect the cable and equipment. |

For certain special cases, such as the incoming cables to motor control centers 1EMXG and 2EMXH, load center feeder breakers may trip slightly higher than the 70% cable ampacity rating. These breaker settings were verified during preoperational testing and are documented in the applicable breaker setting calculation.

To avoid protective relay trip setpoint drift problems, all Class 1E relays are tested periodically to verify the relays are within specified limits and are re-calibrated if required.

Refer to Section 8.3.1.4 for a description of the separation of redundant equipment in the 600VAC Essential Auxiliary Power System and to Section 8.3.1.3 for a detailed description of the physical identification of safety-related equipment.

The instrumentation and control power for each redundant train of the 600VAC Essential Auxiliary Power System is supplied from the corresponding train of the 125VDC Vital Instrumentation and Control Power System as shown in Table 8-7. For a further discussion of the 125VDC vital system, refer to Section 8.3.2.1.2.1.

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#### 8.3.1.1.2.~~3~~ 4 Testing

##### 8.3.1.1.2.~~3~~4.1 Preoperational Testing

***HISTORICAL INFORMATION NOT REQUIRED TO BE REVISED***

*Preoperational testing of the Class 1E ac system is performed in accordance with the recommendations of Regulatory Guide 1.41 to verify proper design, installation, and operation. The preoperation test program for the emergency diesel generators is described in Section 8.3.1.1.3.10.*

##### 8.3.1.1.2.~~3~~4.2 Periodic Testing

Inspection, maintenance, and testing of the Class 1E ac systems are performed on a periodic testing program in accordance with the recommendations of Regulatory Guides 1.22 and 1.118. The periodic testing program is scheduled so as not to interfere with unit operation. Where tests do not interfere with unit operation, system and equipment tests may be scheduled with the nuclear unit in operation.

The normal and emergency AC power distribution systems for both units at Catawba are separate during normal operation. During testing on Unit 2, the power systems on Unit 1 will be lined up in their normal operating configurations, which will assure that cross-ties are not present which could affect availability of emergency power to Unit 1 during testing on Unit 2.

The 4160 volt circuit breakers and associated equipment are tested in-service by opening and closing the circuit breakers with the breakers in the "racked out" test position and operated without energizing the circuits, if necessary.

The 600 volt circuit breakers, motor contactors and associated equipment can be tested in-service by opening and closing the circuit breakers or contactors where testing does not interfere with operation of the unit.

Testing of protective relays is performed on a periodic basis. Testing capability is provided in accordance with Regulatory Guides 1.22 and 1.118.

Periodic testing of the emergency diesel generators is discussed in Section 8.3.1.1.3.10.

#### 8.3.1.1.2.4 5 Fault Current and Capacity

| Class 1E Equipment | Interrupting Capacity (Symmetrical Current Basis) |
|---|---|
| 4160V Essential Switchgear | 35,000 Amps at 4.16KV |
| 600V Essential Load Center | 42,000 Amps at 600 Volts |
| 600V Essential Motor Control Center | 18,000 Amps at 600 Volts |

1. **Notes:** Available fault currents for above listed equipment are documented in calculatons CNC-1381.05-00-0209 (Unit 1) and CNC-1381.05-00-0210 (Unit 2).

### 8.3.1.1.3 Standby Power Supplies

Each train of the 4160VAC Essential Auxiliary Power System is supplied with emergency standby power from an independent diesel generator. Each diesel generator is rated for continuous operation at 7000 KW with added capability to operate at 7700 KW for a period of two hours out of every 24 hours of operation without affecting the life of the unit. The design basis accident loading requirements for each train of the 4160VAC Essential Auxiliary Power System do not exceed the 7000 KW continuous rating of the diesel generator. (The maximum loading on the essential diesel generators was limited to 5750KW pending resolution of TDI Owners' Group concerns and is reflected in both the Technical Specifications and station procedures. Design basis accident loading requirements of each train of the essential auxiliary power systems has been reviewed to insure that the reduced limits are not exceeded.)

Each diesel generator is designed to attain rated voltage and frequency and to accept load within 11 seconds after receipt of a start signal. The characteristics of the generator exciter and voltage regulator provide satisfactory starting and acceleration of sequenced loads and ensure rapid voltage recovery when starting large motors. The generator voltage and frequency excursions between sequencing steps are in compliance with Regulatory Guide 1.9.

Each diesel generator and its associated auxiliaries are installed in separate rooms and are protected against tornadoes, external missiles, and seismic phenomena. Each diesel generator is separated by interior walls of reinforced concrete. Each diesel generator room sump pump system is designed to remove leakage and equipment drainage from the diesel room (Section 9.5.9). Isolation valves are provided on the nuclear service water pipes to stop the flow of water in the event of a double-ended pipe rupture. The diesel rooms are protected with firewalls which are designed to prevent the spread of fire from one diesel room to the redundant diesel room. In addition, each diesel room is also provided with an automatic cardox $CO_2$ system for fire protection. No known common failure mode exists for any design basis event, including failure of any diesel.

Each diesel generator room is provided with its own independent ventilation system which is designed to automatically maintain a suitable environment in each diesel room for equipment operation and personnel access. A further description of the Diesel Room Ventilation System is presented in Section 9.4.4.

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## 8.3.1.1.2.3 Shared System Alignment Considerations

Some of the systems that have components which are shared between the two units are the Nuclear Service Water System (RN), Control Room Area Ventilation System (VC), Control Room Area Chilled Water System (YC) and the Auxiliary Building Filtered Ventilation Exhaust System (VA). Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the RN, VC/YC, VA shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and
- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY.

RN "pre-aligned" to the SNSWP (the nuclear safety-related heat sink), and valves in the flow path have been positioned with power removed.

The concept of automatically separating trains in the Single discharge header alignment cannot apply as both trains are connected at the point where the RN piping splits just after entering the Auxiliary Building and on the RN return headers. In the existing configuration the protection provided by separating trains ensures that adequate equipment is operating to perform its design basis functions. This protects against a failure such as a leak or diversion of flow one one train affecting the other train. For design basis events the failures that must be considered are a single active failure or a single passive failure.

However, none of the predicted scenarios will be impacted by RN Single Discharge Header alignment since Unit 1 is in a Tech Spec action statement and no additional failures are required to be postulated on opposite train equipment. For example, with RN Train A in a Tech Spec Limiting Conditiion for Operation (LCO) or Tech spec "action statement," no failures are required to be postulated on Unit 1 Train B equipment or Train B shared equipment. This assumption is described in ANSI/ANS-58.9-1981 Section 4.3, which states "If one train of a redundant safety-related fluid system or its safety-related supporting systems is temporarily rendered inoperable due to short-term maintenance as allowed by the unit technical specifications, a single failure need not be assumed in the other train."

#### 9.2.1.8.3 RN Passive Leakage Considerations While Algined in SDHO

While the RN system is aligned in SDHO, the maximum credible leakage rate is 50 GPM for a passive failure, (i.e., valve packing leakage). If the leakage is in the un-isolable RN piping locations (between the auxiliary building outside wall and the first isolation valves in the RN and between the diesel generator building outside walls and the first isolation valves in the RN system), the leakage can be tolerated on a continuous basis and RN system pumps can still provide adequate flow to all essential components. The associated rooms' sump pumps have adequate capacity to mitigate the potential flooding in these areas.

The ability to detect leaks in buried RN system piping is dependent on location, depth, surrounding backfill, and size of the leaks. Detected leaks in underground piping are identified when the leak makes its way to the surface. Mitigating actions for piping leaks includes isolating and performing ASME Code repairs on the affected piping.

The ability to detect leaks in above-ground RN system piping in the pump-house and auxiliary and diesel generator buildings can be effectively performed since the piping is accessible and is within visual contact by personnel during plant periodic walk downs by operators. Mitigating actions for piping leaks includes isolating and performing ASME Code repairs on the affected piping.

#### 9.2.1.8.4 RN SDHO Restrictions and Requirements

There is a specific allowed outage time in the station Technical Specifications for RN Single Discharge Header Operation, which applies to the RN discharge header piping in the Auxiliary Building. The allowed outage time for all other active and passive components on the RN system still applies when the RN system is aligned in Single Discharge Header Operation.

RN cannot be aligned in the Single Discharge Header alignment if the RN system is already in RN Single Supply Header Operation, as described in Technical Specification 3.7.8. Additionally, performing scheduled, planned or discretionary maintenance that renders both RN pumps and/or the associated Diesel Generators inoperable on either train of RN (i.e. draining the RN pump pit) is prohibited while in the Single Discharge Header Alignment because it will place Unit 1 in a 72 hour action statement.

The use of the RN Single discharge Header Operation alignment is restricted to pre-planned maintenance of the RN system discharge header piping located inside the Auxiliary building upstream of valves 1RN58B and 1RN63A.



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## 9.2.1.8.5 RN Shared Components Alignment Considerations

The RN system has components which are shared between the two units. Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the RN shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and
- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY.

# 9.4 Air Conditioning, Heating, Cooling and Ventilation Systems

## 9.4.1 Control Room Area Ventilation

### 9.4.1.1 Design Bases

The Control Room Area Ventilation System is designed to maintain the environment in the control room envelope, control room area, and switchgear rooms, as indicated on Figure 9-108 thru Figure 9-117 within acceptable limits for the operation of unit controls, for maintenance and testing of the controls as required, and for uninterrupted safe occupancy of the control room envelope during post-accident shutdown. Refer to Section 6.4 for further information regarding control room envelope habitability.

The control room envelope, and other support areas as shown on Figure 9-108 thru Figure 9-111 are designed to maintain approximately 74°F and 50 percent maximum relative humidity. The battery room is designed to maintain approximately 80°F. The mechanical equipment room is designed to maintain a maximum temperature of 100°F. All other areas, as shown on Figure 9-108 thru Figure 9-111 are designed to maintain a maximum temperature of 85°F. These conditions are maintained continuously during all modes of operation for the protection of instrumentation and controls, and for the comfort of the operators. Outdoor design temperatures meet or exceed those given in Table No. 1, Chapter 23 of the ASHRAE 1977 Fundamentals Handbook.

Pressurization of the control room envelope is provided to prevent entry of dust, dirt, smoke, radioactivity and toxic gases originating outside the pressurized zones. Pressurization is maintained at a positive pressure of ≥ 0.125 inch water gauge, relative to the adjacent areas with a makeup flow rate of ≤ 4000 cfm.

Outdoor air for pressurization is taken from either of two locations such that a source of uncontaminated air is available regardless of wind direction. One fresh air intake is located at the intersection of column lines DD and 45, and the other is at the intersection of column lines DD and 69. Both intakes are at elevation 594+0. Each intake is located on the outside of the Reactor Building diametrically opposed to that unit's vent. Normally air is taken from both intakes. All outside air is filtered as described in Section 12.3.3.

Each outside air intake location is monitored for the presence of radioactivity, chlorine, and products of combustion. Should a high radiation level, smoke concentration level or chlorine concentration be detected in the intake, station procedures direct the operator to manually close the most contaminated intake. This will ensure continuous control room envelope pressurization under a radiation smoke or chlorine event.

Each outside air intake is provided with a tornado isolation damper to prevent depressurization of the control room envelope and the control room area during a tornado having a maximum wind speed of 300 mph, a translational velocity of 60 mph and a pressure decrease of 3 psi occuring in 3 seconds.

The following Control Room Area Ventilation System subsystems are each provided with two 100 percent capacity trains. Each meets the single failure criterion. If one train fails indication is provided in the control room. Switchover is accomplished manually by the operator. Electrical and control component separation is maintained between trains. These subsystems include the following:

1. Control Room air handling units,
2. Control Room Area air handling units,
3. Switchgear Room air handling units,
4. Water chillers, chilled water pumps and piping serving the above air handling units,

5. Outside air pressurizing filter trains (includes 4 inch carbon bed filter) and fans.

All essential air conditioning and ventilating equipment, ductwork and supports are designed to withstand the safe shutdown earthquake. Essential electrical components required for the heating, cooling, and pressurization of the control room envelope during accident conditions are connected to emergency Class 1E standby power.

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Instrumentation is provided to indicate the temperature and radioactivity level in the control room envelope.

The chlorine, smoke, and radiation detectors are non-safety related instruments. The smoke detectors are purchased as Fire Protection Related equipment insuring the purchase of UL approved equipment, proper installation, and performance testing.

### 9.4.1.2 System Description

The Control Room Area Ventilation System subsystems are shown on Figure 9-108 thru Figure 9-117 and consist of the following:

1. Control Room Ventilating System,
2. Control Room Area Ventilating System,
3. Control Room and Control Room Area Pressurizing System,
4. Switchgear Room Ventilating Systems,
5. Control Room Area Chilled Water System.

The Control Room Ventilating System consists of two 100 percent capacity air handling units located in the mechanical equipment room at elevation 594+0. Each air handling unit supplies approximately 26,000 cfm of conditioned air to the main control room. Each air handling unit is equipped with a filter bank containing prefilters and final filters with filter efficiencies of approximately 30 percent and 85 percent, respectively. The filter efficiency is based on the ASHRAE test method in accordance with ASHRAE Standard 52.68. A portion of the control room return air passes through the pressurizing filter train for cleanup.

The Control Room Area Ventilating System consists of two 100 percent capacity air handling units located in the mechanical equipment room at elevation 594+0. Each air handling unit supplies approximately 73,000 cfm of conditioned air to the control room area, i.e., the battery and equipment room, and the cable room, motor control center rooms and the electrical penetration room. Air handling unit filter efficiencies are approximately 30 percent and 85 percent respectively based on the ASHRAE test method in accordance with ASHRAE Standard 52.68.

The Control Room and Control Room Area Pressurizing System consists of two 100 percent capacity filter trains. Each filter train is constructed as described in Section 12.3.3. Each pressurizing filter train supplies approximately 6,000 cfm of filtered air of which approximately 4000 cfm is outside air for pressurization and 2,000 cfm is return air recirculated for cleanup purposes.

The Switchgear Room Ventilating Systems consist of two 100 percent capacity air handling units for each Switchgear Room. Each air handling unit supplies approximately 10,000 cfm of conditioned air to the switchgear room. Each air handling unit is equipped with prefilters having an efficiency of approximately 30 percent based on the ASHRAE test method in accordance with ASHRAE Standard 52.68.

The Control Room Area Chilled Water System consists of two 100 percent capacity water chillers, pumps, piping and control systems. This equipment is located in the mechanical equipment room at elevation 594+0.

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The Control Room Area Ventilation System and Control Room Area Chilled Water System have components which are shared between the two units. Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the Control Room Area Ventilation System and Control Room Area Chilled Water System shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and
- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY.

### 9.4.3.2.3 Auxiliary Building Filtered Exhaust System

The Auxiliary Building Filtered Exhaust System consists of two filter trains with fans, two 100 percent capacity preheater/demister sections and associated ductwork for each unit. This system serves areas of the Auxiliary Building that are subject to potential contamination. This system serves an engineered safety features function during accident conditions.

The Auxiliary Building Filtered Exhaust System serves both a non-safety and a safety related function. During normal plant operation the two filter trains and fans for each unit operate as two-50 percent capacity components of the Filtered Exhaust System for its respective unit. Radiation monitoring is provided upstream of filter trains and in the unit vent. During normal operation, high unit vent radiation levels will shut down the Unfiltered Exhaust and Supply Systems.

Auxililary Building Filtered Exhaust System normally operate in a filter bypass alignment, and automatically swaps to filter alignment upon a receipt of unit vent stack high radiation alarm (EMF35, 36); or a receipt of high radiation upstream of the filter units (0EMF41).

During accident conditions the two filter trains, fans, and preheater/demister sections for each unit will operate as two-100 percent capacity subsystems of the Filtered Exhaust System for its respective unit. Upon receipt of a signal, isolation dampers will close, shutting off air flow from all areas of the Auxiliary Building except for the rooms which contain safety related pumps which are part of the Emergency Core Cooling System (ECCS). One of the two 100 percent capacity exhaust ducts will exhaust air from the pump rooms through the associated preheater/demister section, filter train, and fan to the unit vent. This assures the integrity and availability of one train of the Filtered Exhaust System in the event of any single active failure.

The two preheater/demister sections, filter trains, centrifugal fans and associated isolation and inlet vane dampers for each unit are connected to separate trains of the Class 1E emergency standby power.

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The Auxiliary Building Filtered Exhaust System initially operates at a reduced capacity during a LOCA event, pulling air only from the ECCS pump rooms. Supply air to the ECCS pump rooms is shut down to maintain the rooms at a negative pressure and prevent outleakage of fission products. Within 3 days of the initiation of a design basis event (i.e. LOCA), the Auxiliary Building Filtered Exhaust System is placed back into it's normal alignment because credit is taken in the dose analyses for filtration of unidentified ECCS leakage in other areas of the Auxiliary Building.

The Auxiliary Building Filtered Exhaust System filter trains are described in Section 12.3.3.

### 9.4.3.2.4 Auxiliary Shutdown Panel Rooms Air-Conditioning System

The Auxiliary Shutdown Panel Rooms Air-Conditioning System is shown on Figure 9-122, Figure 9-126, and Figure 9-127.

The four auxiliary shutdown panel rooms are located on floor elevation 543+0 of the Auxiliary Building. A separate 100 percent capacity air conditioning unit is provided to serve each of the four rooms. The system is designed to maintain a maximum temperature of 78°F and a minimum temperature of 65°F. Electrical power to the air conditioning units is provided from the electrical power train associated with the room it serves. This assures the availability of at least one train of the auxiliary shutdown panel rooms.

The air conditioning units are of the self-contained design utilizing the Component Cooling Water System for condenser water. The Component Cooling System is described in Section 9.2.2. Each air conditioning unit has a filter section consisting of filters having an efficiency of approximately 30 percent based on the ASHRAE test method in accordance with ASHRAE Standard 52.68. The auxiliary shutdown panel room air conditioning units are controlled by room thermostats. During an ASP event, these units may utilize

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The Auxiliary Building Filtered Exhaust System has components which are shared between the two units. The specific components that are shared between the two units are the train related shared motor control centers (1EMXG and 2EMXH). Crediting an offsite power circuit and an emergency diesel generator on a shutdown unit as the normal and emergency power sources for operability of the Auxiliary Building Filtered Exhaust System shared components that are aligned to support the opposite online unit, is acceptable, provided the following conditions are met:

- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet applicable Technical Specification 3.8.1 requirements, and
- The credited emergency diesel generator associated with the shutdown unit meets Technical Specification 3.8.3 requirements, and
- Shared essential 600VAC motor control centers meet Technical Specification 3.8.9 requirements, and
- The credited offsite power circuit and emergency diesel generator associated with the shutdown unit meet the requirements of Technical Specification 1.1 for the definition of OPERABLE/OPERABILITY.