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Ref: 10 CFR 50.54(f)
Ref: 10 CFR 50.55a(h)(2)
Ref: 10 CFR 50.55a(h)(3)

October 25, 2012

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT (CPNPP)
DOCKET NOS. 50-445 AND 50-446
90-DAY RESPONSE TO NRC BULLETIN 2012-01, "DESIGN VULNERABILITY IN ELECTRIC POWER SYSTEM"

REFERENCE: NRC Bulletin 2012-01, "Design Vulnerability in Electric Power System"

Dear Sir or Madam:

Pursuant to 10CFR50.54(f), this letter provides the Luminant Generation Company LLC (Luminant Power) 90-day response to NRC Bulletin 2012-01, "Design Vulnerability in Electric Power System" dated July 27, 2012.

The U.S. Nuclear Regulatory Commission (NRC) issued this bulletin to achieve the following objectives:

1. To notify the addressees that the NRC staff is requesting information about the facilities' electric power system designs, in light of the recent operating experience that involved the loss of one of the three phases of the offsite power circuit (single-phase open circuit condition) at Byron Station, Unit 2, to determine if further regulatory action is warranted.

2. To require that the addressees comprehensively verify their compliance with the regulatory requirements of General Design Criterion (GDC) 17, "Electric Power Systems," in Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 or the applicable principal design criteria in the updated final safety analysis report; and the design criteria for protection systems under 10 CFR 50.55a(h)(2) and 10 CFR 50.55a(h)(3).

3. To require that addressees respond to the NRC in writing, in accordance with 10 CFR 50.54(f).

The NRC Bulletin 2012-01 requested that within 90 days, licensees submit a response to questions to verify compliance with the regulatory requirements and current licensing bases. Luminant Power's 90-day response is provided in Attachment 1.

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NRR

This communication contains no new or revised commitments.

Should you have any questions, please contact Ms. Tamera J. Ervin-Walker at (254) 897-6902.

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

Executed on October 25, 2012.

Sincerely,

Luminant Generation Company, LLC

Rafael Flores

By: Fred W. Madden
Director, Oversight and Regulatory Affairs

TJEW

Attachment 1 90-Day Response to Bulletin 2012-01
Attachment 2 Simplified One-Line Diagram
Attachment 3 Tables

c - E. E. Collins, Region IV
W. Walker, Region IV
B. K. Singal, NRR
Resident Inspectors, CPNPP

ATTACHMENT 1 to TXX-12122

90-DAY RESPONSE TO NRC BULLETIN 2012-01, "DESIGN VULNERABILITY IN ELECTRIC POWER SYSTEM"

CPNPP Bulletin Response:

Overview

Comanche Peak Nuclear Power Plant (CPNPP) has organized the response to the NRC Bulletin 2012-01, "Design Vulnerability in Electric Power System" in the following order.

- System Description - Items 2., 1.d, 2.a, 2.c
- System Protection - Items 1., 1.a, 2.b, 2.d
- Consequences - Items 1.b, 1.c, 2.e
- Attachment 2 - Simplified One-Line Diagram
- Attachment 3 - Tables
    - Table 1 - ESF Buses Continuously Powered From Offsite Power Source(s)
    - Table 2 - ESF Buses Not Continuously Powered From Offsite Power Source(s)
    - Table 3 - ESF Buses Major Loads
    - Table 4 - Offsite Power Transformers
    - Table 5 - Protective Devices

System Description

Items 2., 1.d, 2.a, and 2.c request system information and will be addressed in this Section:

> ***2. Briefly describe the operating configuration of the ESF buses (Class 1E for current operating plants or non-Class 1E for passive plants) at power (normal operating condition).***
>
> CPNPP Response:
>
> See Attachment 2, for a simplified one-line diagram.
>
> CPNPP engineered safety feature (ESF) buses are normally powered directly from offsite power.
>
> The power from 138kV and 345kV switchyard buses, through startup transformers (STs) XST1 and XST2, to safety related buses constitute the offsite power sources for CPNPP. (Final Safety Analysis Report (FSAR) Section 8.2.2)
>
> Two physically independent and redundant sources of offsite power are available on an immediate basis for the safe shutdown of either Unit. The preferred source to Unit 1 is the 345kV offsite supply from the 345kV switchyard and the ST, XST2; the preferred source to Unit 2 is the 138kV offsite supply from the 138kV switchyard and the ST, XST1. Each of the STs (XST1 and XST2) normally energizes its related Class 1E buses; i.e., XST1 normally energizes Unit 2 Class 1E buses and XST2 normally energizes Unit 1 Class 1E buses. In the event one ST (e.g., XST1, a preferred source) becomes unavailable to its normally fed class 1E buses, power is made available from the other ST (e.g., XST2, an alternate source) by an automatic transfer scheme. (FSAR Section 8.2.1)
>
> The two STs which feed the emergency buses (XST1 and XST2) are connected to the safety-related 6900V auxiliary bus systems by separate, metal-enclosed, ventilated, louvered top cover, cable bus ducts and short sections of ventilated, solid top cover, cable tray. (FSAR Section 8.2.1)
>
> ***1.d. Describe the offsite power transformer (e.g., start-up, reserve, station auxiliary) winding and grounding configurations.***

CPNPP Response:

See Attachment 3, Table 4 for offsite power transformer winding and grounding configurations.

2.a. Are the ESF buses powered by offsite power sources? If so, explain what major loads are connected to the buses including their ratings.

CPNPP Response:

For at-power (normal operating condition) configurations, CPNPP ESF buses are powered by offsite sources. ST XST2, fed from 345kV system, is the preferred offsite power source for Unit 1 ESF buses and ST XST1, fed from 138kV system, is the preferred offsite power source for Unit 2 ESF buses.

STs XST1 and XST2 feed ESF buses only.

See Attachment 3, Table 1 for ESF bus power sources.

See Attachment 3, Table 3 for ESF bus major loads energized during normal power operations, including their ratings.

2.c. Confirm that the operating configuration of the ESF buses is consistent with the current licensing basis. Describe any changes in offsite power source alignment to the ESF buses from the original plant licensing.

CPNPP Response:

The CPNPP current licensing basis for offsite power per FSAR Section 8.2.2 is the power from 138kV and 345kV switchyard buses, through STs XST1 and XST2, to safety related buses constitute the offsite power sources for CPNPP. The operating condition of ESF buses is consistent with the current licensing basis as described in response to Question 2.

The following at-power (normal operating condition) configurations have been confirmed to be consistent with the current licensing basis:

- Unit 1 Circuit #1 - ST XST2, powered from 345kV switchyard, is the preferred offsite power source for Unit 1 ESF buses.
- Unit 2 Circuit #1 - ST XST1, powered from 138kV switchyard, is the preferred offsite power source for Unit 2 ESF buses.
- Unit 1 Circuit #2 - ST XST1, powered from 138kV switchyard, is the alternate offsite power source for Unit 1 ESF buses.
- Unit 2 Circuit #2 -ST XST2, powered from 345kV switchyard, is the alternate offsite power source for Unit 2 ESF buses.

The offsite power source alignment to 345kV system has been enhanced to provide ESF bus alignment to offsite source thru XST2 or its installed spare ST XST2A. Note: Spare ST, XST2A has dual primary windings (345kV and 138kV). This spare ST may be physically relocated to a dedicated location near XST1, to serve as a replacement of XST1. The offsite power source alignment to the ESF buses is same as the original plant licensing.

<u>System Protection</u>

Items 1., 1.a, 2.b, and 2.d request information regarding electrical system protection and will be addressed in this section:

1. Given the requirements above, describe how the protection scheme for ESF buses (Class 1E for current operating plants or non-Class 1E for passive plants) is designed to detect and automatically respond to a single-phase open circuit condition or high impedance ground fault condition on a credited off-site power circuit or another power sources.

CPNPP Response:

Consistent with CPNPP current licensing basis and General Design Criteria (GDC) 17, existing protective circuitry will separate the ESF buses from a connected failed offsite source due to a loss of voltage or a sustained, balanced degraded grid voltage concurrent with certain design basis accidents. The relay systems were not specifically designed to detect a single-phase open circuit condition or high impedance ground fault condition on a credited offsite power circuit. Detection of a single-open phase condition or high impedance ground fault condition on a credited offsite power circuit is beyond the NRC approved design and licensing basis of the plant.

Note: CPNPP offsite power sources and onsite power sources i.e. emergency diesel generators (EDGs) are designed to Institute of Electrical and Electronics Engineers Standard IEEE 308-1974 requirements and do not have a common failure mode between them.

Any cable fault in the cables from STs to ESF buses will result in a line-to-line or line-to-ground fault. This fault will be detected and isolated before any open phase condition. Therefore, an undetectable single-phase open circuit or a high impedance ground fault in the cables from STs to ESF buses is not considered.

The protection for offsite circuits has been reviewed with Oncor Electric Delivery Company LLC, the CPNPP Transmission Owner (TO). The protection schemes for lines to XST1 and XST2 will;

1. Not detect an ungrounded open phase in lines to the STs,
2. Detect and respond to any phase ground "high side" fault,
3. Detect and respond to open phase line with a ground on the switchyard end of the circuit, and
4. Not sensitive to detect/potentially may not detect an open phase line with a ground only in the transformer end of the circuit.

It may be noted that the line ground faults at 345kV and 138kV level are detectable even with a fault impedance of 40 ohms. The faults impedance at these transmission levels is generally less than this value. Therefore, high impedance fault, at these transmission levels, is not a concern.

For conditions 2 and 3, the protection scheme will trip the switchyard breakers feeding the line. This will result in a loss of offsite power source to the ESF buses and the undervoltage protection scheme will transfer the ESF buses to the alternate offsite power source or respective EDG.

1.a. The sensitivity of protective devices to detect abnormal operating conditions and the basis for the protective device setpoint(s).

CPNPP Response:

Consistent with the current licensing basis and GDC 17, existing electrical protective devices are sufficiently sensitive to detect design basis conditions like a loss of voltage or a degraded voltage, but were not designed to detect a single-phase open circuit or high impedance ground fault condition on a credited offsite power circuit.

See Attachment 3, Table 5 for undervoltage protective devices and the basis for the device setpoint(s).

2.b. If the ESF buses are not powered by offsite power sources, explain how the surveillance tests are performed to verify that a single-phase open circuit condition or high impedance ground fault condition on an off-site power circuit is detected.

CPNPP Response:

Not Applicable - The ESF buses at CPNPP are powered by offsite power sources.

2.d. Do the plant operating procedures, including off-normal operating procedures, specifically call for verification of the voltages on all three phases of the ESF buses?

CPNPP Response:

"A-B" and "B-C" line voltages are monitored by an undervoltage relay scheme that use a 2-out-of-2 logic to establish undervoltage conditions. A loss of the B phase may result in actuation of the 2-out-of-2 logic and the automatic transfer of the bus to an alternate offsite source or an EDG. The loss of A or C phase will not actuate the 2-out-of-2 logic. The monitoring of phases "A-C" line voltage may provide indication of a loss of A or C phase. Therefore, the normal position for the Safeguards Bus Voltage Selector Switch is required to be "C-A" to monitor the bus voltage. Monitoring phases "C-A" line voltage may allow the Control Room Operators to more readily identify a loss of a single-phase of incoming power. These voltmeters are monitored during routine control board walkdowns, several times each shift.

The TO, performs switchyard walkdowns twice per week. CPNPP Plant Equipment Operators perform switchyard and transformer inspections each shift. These walkdowns will detect any fallen transmission lines and the affected line breakers will be tripped manually. This will result in a loss of an offsite source to the ESF bus and offsite source undervoltage protection will respond to transfer the bus to an alternate source or an EDG.

Consequences

Items 1.b, 1.c, and 2.e request information regarding the electrical consequences of an event and will be addressed in this section:

1.b. The differences (if any) of the consequences of a loaded (i.e., ESF bus normally aligned to offsite power transformer) or unloaded (e.g., ESF buses normally aligned to unit auxiliary transformer) power source.

CPNPP Response:

CPNPP installed relays were not designed to detect single-phase open circuit or a high impedance ground condition on a credited offsite power circuit.

The CPNPP response for a loaded power source configuration cannot be calculated without developing a system model which incorporates the STs magnetic circuit response during a high-voltage (HV) line open phase condition and modeling the specific loads to assess the impact on their performance.

1.c. If the design does not detect and automatically respond to a single-phase open circuit condition or high impedance ground fault condition on a credited offsite power circuit or another power sources, describe the consequences of such an event and the plant response.

CPNPP Response:

1. CPNPP did not credit in the current licensing basis (CLB) that the Class 1E protection scheme for the ESF buses were designed to detect and automatically respond to a single-phase open circuit or a high impedance ground condition on the credited offsite power source as described in the FSAR and Technical Specifications (TS).

   The offsite power circuits at CPNPP consist of two independent circuits. One from the 345kV switchyard buses thru ST XST2 to the incoming breaker of the ESF buses and the other from the 138kV switchyard buses thru ST XST1 to the incoming breaker of the ESF buses. (Reference: FSAR Section 8.2.2)

2. Since CPNPP did not credit the ESF bus protection scheme as being capable of detecting and automatically responding to a single-phase open circuit or a high impedance ground condition, an open phase fault or a high impedance ground was not included in the design criteria for either the loss of voltage, the degraded voltage relay (DVR) scheme or secondary level undervoltage protection system (SLUPS) design criteria. Since open phase or a high impedance ground detection was not credited in the CPNPP design or licensing basis, no design basis calculations or design documents exist that previously considered this condition.

3. Without formalized engineering calculations or engineering evaluations, the electrical consequences of such an open phase or high impedance ground event (including plant response), can only be evaluated to the extent of what has already been published by the Electric Power Research Institute (EPRI) and Basler; which is a generic overview. The difficulty in applying these documents to the CPNPP specific response is that these are generic assessments and cannot be formally credited as a basis for an accurate response. The primary reason is that detailed plant specific models would need to be developed (e.g., transformer magnetic circuit models, electric distribution models, motor models; including positive, negative, and zero sequence impedances (voltage and currents)), and the models would need to be compiled and analyzed for the CPNPP specific Class 1E electric distribution system (EDS).

4. CPNPP ESF buses are normally fed from a preferred offsite source and both trains of CPNPP ESF buses are powered from the same offsite source. CPNPP open delta, 2-out-of-2 coincidence logic DVR scheme monitors "A-B" and "B-C" line voltages. The DVR voltage settings are not sensitive to detect open phase condition in transmission lines to STs. A single-phase open circuit condition on a transmission line to STs will impact the ESF loads of both trains. A loss of a running or starting motor, due to an adverse consequence of a single-phase open circuit condition, will likely result in the loss of redundant motors of both trains.

5. Analysis of ESF buses with offsite power transformer and distribution system models is needed to assess the impact of a transmission line single-phase open circuit condition on;
   a. Operation of running loads,
   b. Operation of starting loads, and
   c. Voltage imbalance on the transformer secondary side during running and starting of loads from no load to full load condition of ESF buses.

The results of the analysis will define potential vulnerabilities. The potential action(s) for automatic protection from a single-phase open circuit condition will be based on these studies.

6. The following interim actions needed to detect degraded offsite power sources due to single-phase open circuit condition have been completed.

Vulnerability:

Only Phases "A-B" and "B-C" are monitored by the CPNPP degraded voltage relay scheme.

Action:

Plant labels have been installed to designate the normal position for the Safeguards Bus Voltage Selector Switches as "C-A." Maintaining these switches in the "C-A" position may allow the Control Room Operators to more readily identify a loss of a single-phase of incoming power during a transient or routine control board walkdowns, since the undervoltage protection schemes monitor phases "A-B" and "B-C."

Vulnerability:

A transmission line could fall and not be detected by the current relaying schemes.

Action:

The TO performs switchyard walkdowns twice per week. Plant Equipment Operators perform switchyard and transformer inspections each shift and would detect such abnormal conditions as a fallen line to a ST.

Vulnerability:

The diagnosis of the cause of a loss of phase transient based on observed symptoms could be problematic for Operations.

Action:

A summary of the Byron 2 event and the resulting electrical system transient was included in the Operations Shift Order on February 16, 2012. This event summary provided a description of the indications evident in the Byron 2 event to assist the Control Room Operators in their diagnosis if such an event occurred at CPNPP.

Additionally, this event was thoroughly discussed during Operations Training Cycle 12-1. This training described the event indications, operational response, and potential impact to CPNPP.

Corresponding simulator training was presented to the Control Room Operators as a demonstration to enhance their ability to detect and respond to the loss of a single incoming phase on the ESF buses.

Existing Operation's procedures (ABN-601 "Response to a 138/345 KV Malfunction" and ABN-602 "Response to a 6900/480V Malfunction") direct the Operators to transfer the ESF buses to another available power supply if the voltage is outside of specified limits.

ABN-602 has been revised to add additional information for Control Room Operators to enhance their ability to detect and respond to the loss of a single incoming phase on the ESF buses.

2.e. If a common or single offsite circuit is used to supply redundant ESF buses, explain why a failure, such as a single-phase open circuit or high impedance ground fault condition, would not adversely affect redundant ESF buses.

CPNPP Response:

Consistent with the CLB and GDC 17, protective circuitry will separate the ESF buses from a failed offsite source due to a loss of voltage or a sustained balanced degraded grid voltage concurrent with certain design basis accidents. The CPNPP relay systems were not specifically designed to detect an open single-phase of a three-phase system. Detection of a single-open phase circuit is beyond the approved design and licensing basis of the plant. No calculations for this scenario have been performed.

The protection scheme provided by the TO for protection of lines to STs XST1 and XST2 will detect and isolate a ground fault condition with all three phases intact by tripping the line breakers. This will cause loss of the preferred offsite source to the ESF buses. Consistent with the current CPNPP design, automatic protection against this condition is provided by the loss of preferred offsite source circuitry which will automatically transfer the ESF buses to an alternate power source or an EDG. An ungrounded open phase condition will not be detected by the TO protection scheme. CPNPP ESF buses are normally fed from a preferred offsite source and both trains of the CPNPP ESF buses are powered from the same offsite source. CPNPP open-delta, 2-out-of-2 coincidence logic DVR scheme monitors "A-B" and "B-C" line voltages. The DVR voltage settings are not sensitive enough to detect an open phase condition in transmission lines to the STs. A single-phase open circuit condition on the transmission line to the STs will impact the ESF loads of both trains. A loss of a running or starting motor, due to an adverse consequences of single-phase open circuit condition, will likely result in loss of redundant motors of both trains.

For interim actions to detect an open phase condition, such as procedure changes and training, see item 6 of response to Question 1.c.

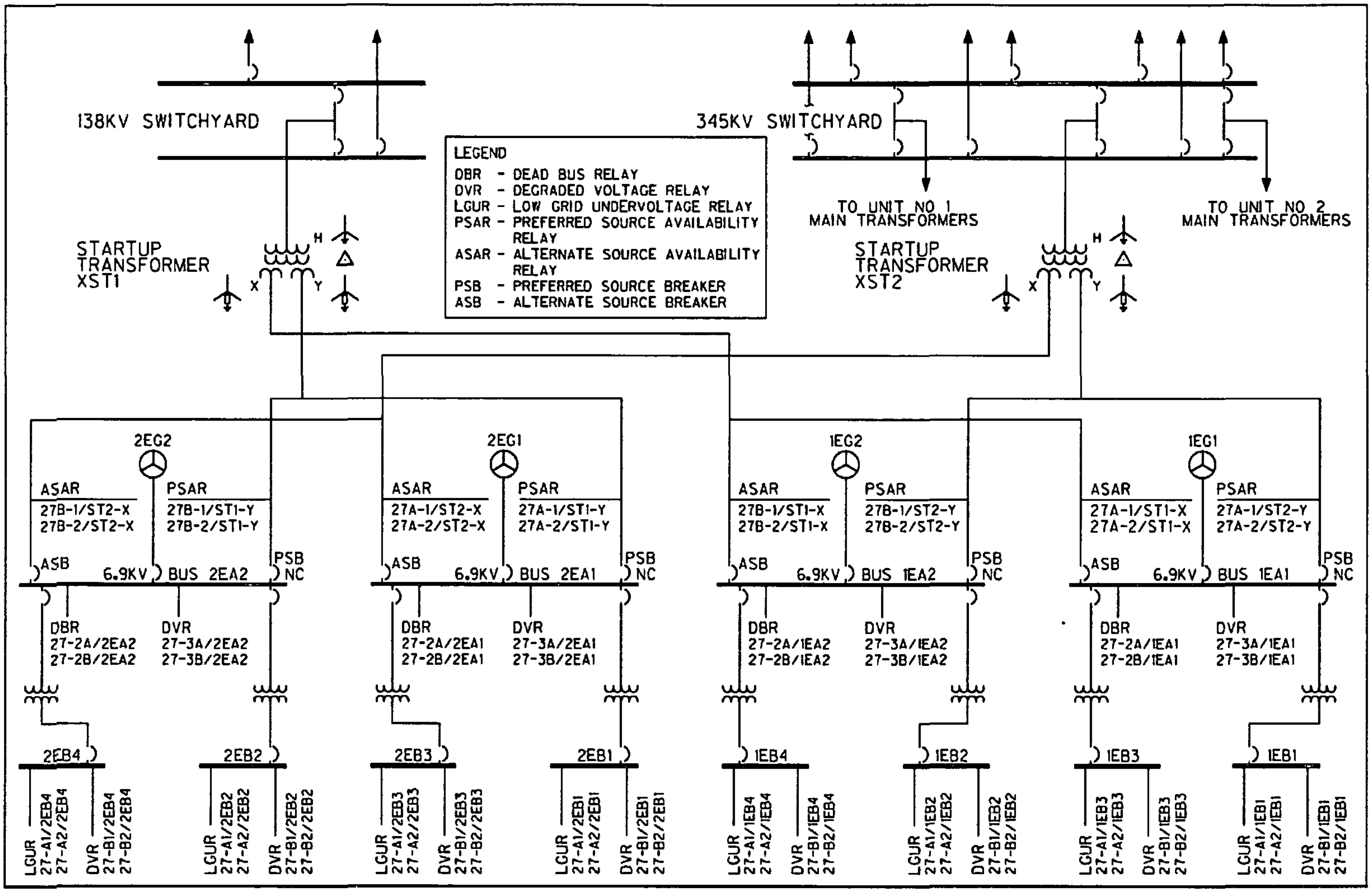
<u>Summary</u>

In summary, consistent with CPNPP current licensing basis and General Design Criteria (GDC) 17, existing protective circuitry will separate the ESF buses from a connected failed offsite source due to a loss of voltage or a sustained, balanced degraded grid voltage concurrent with certain design basis accidents. The relay systems were not specifically designed to detect a single-phase open circuit condition or high impedance ground fault condition on a credited offsite power circuit. Detection of a single-open phase condition or high impedance ground fault condition on a credited offsite power circuit is beyond the NRC approved design and licensing basis of the plant. However, Operations has been trained, including in the simulator, to recognize the symptoms and respond to the loss of a single incoming phase to STs feeding the ESF buses. Additionally, CPNPP is in the process of performing modeling of the open phase condition. Further, CPNPP is closely working with industry to resolve this issue.

ATTACHMENT 2 to TXX-12122

SIMPLIFIED ONE-LINE DIAGRAM

Simplified One-Line Diagram



ATTACHMENT 3 to TXX-12122

TABLES

Table 1 - ESF Buses Continuously Powered From Offsite Power Source(s)

Description of ESF Bus Power Source	ESF Bus Name (normal operating condition).	Original licensing basis configuration (Y/N)
Preferred Power Source Y winding of XST2 (Alternate Power Source X winding of XST1)	1EA1 fed by its Preferred Power Source XST2	Y
Preferred Power Source Y winding of XST2 (Alternate Power Source X winding of XST1)	1EA2 fed by its Preferred Power Source XST2	Y
Preferred Power Source Y winding of XST1 (Alternate Power Source X winding of XST2)	2EA1 fed by its Preferred Power Source XST1	Y
Preferred Power Source Y winding of XST1 (Alternate Power Source X winding of XST2)	2EA2 fed by its Preferred Power Source XST1	Y

Table 2 – ESF Buses Not Continuously Powered From Offsite Power Source(s)

Description of ESF Bus Power Source	ESF Bus Name (normal operating condition).	Original licensing basis configuration (Y/N)
N/A	N/A	N/A

Note: Table 2 is not applicable to CPNPP

Table 3 - ESF Buses Normally Energized Major Loads

ESF Bus	Load	Voltage Level	Rating (HP)
1EA1	Centrifugal Charging Pump 11	6.6 kV	600 hp
1EA1	Station Service Water Pump 11	6.6 kV	900 hp
1EA1	Component Cooling Water Pump 11	6.6 kV	1000 hp
1EA1	HVAC Centrifugal Water Chiller 11 (Non-Class 1E Load)	2.2 kV	670 hp
1EB1	Containment Recirculation Fan 01	460 V	125 hp
1EB3	Containment Recirculation Fan 01	460 V	125 hp

Note: Major loads shown are for Unit 1 Operating Train "A." Similar loads are applicable for Unit 1 Operating Train "B" and Unit 2 Operating Train "A" or "B."

Table 4 - Offsite Power Transformers

Transformer	Winding Configuration (Primary/Tertiary/Secondary)	MVA Size (AO/FA/FA)	Voltage Rating (Primary/Secondary)	Grounding Configuration
Startup Transformer XST1	Wye/Delta/Wye-Wye	35/46.7/58.3	138kV/6.9kV-6.9kV	HV Neutral- Grounded LV Neutrals- Resistance Grounded
Startup Transformer XST2	Wye/Delta/Wye-Wye	35/46.7/58.3	345kV/6.9kV-6.9kV	HV Neutral- Grounded LV Neutrals- Resistance Grounded
Startup Transformer XST2A	Wye/Delta/Wye-Wye	35/46.7/58.3	345kV (138kV)/6.9kV-6.9kV	HV Neutral- Grounded LV Neutrals- Resistance Grounded

Table 5 - Protective Devices

Protection Zone	Protective Device	UV Logic	Setpoint (Nominal)	Basis for Setpoint
ESF Buses (6.9kV Buses)	Preferred Offsite Source Availability Relay (PSAR)	2 of 2	5185V (78.5% of 6600V)	Actuate upon non availability of Preferred Offsite Power Source (POPS) to trip POPS of the ESF Bus.
ESF Buses (6.9kV Buses)	Alternate Offsite Source Availability Relay (ASAR)	2 of 2	5185V (78.5% of 6600V)	Actuate upon non availability of Alternate Offsite Power Source (AOPS) to trip AOPS of the ESF Bus or prevent its closure.
ESF Buses (6.9kV Buses)	Dead Bus Relay (DBR) 6.9kV Class 1E Buses	2 of 2	2022V (30.6% of 6600V)	Actuate upon complete loss of 6.9 kV ESF bus voltage to trip motor loads, allow closure of alternate power source and generate EDG start signal if alternate power source does not restore the bus voltage.
ESF Buses (6.9kV Buses)	Degraded Voltage Relay (DVR) 6.9kV Class 1E Buses	2 of 2	6192V (93.8% of 6600V)	Actuate upon recognition of ESF Bus Degraded Voltage (DV), trip POPS immediately on occurrence of Safety Injection Actuation Signal (SIAS) subsequent to establishing the DV condition, trip POPS after a 46-second time delay in the absence of SIAS and trip AOPS if it does not remove DV condition of the bus.
ESF Buses (6.9kV Buses)	Low Grid Undervoltage Relay (LGUR) 480V Class 1E Buses	2 of 2	449.6V (97.7% of 460V)	Actuate upon recognition of 480V Class 1E bus voltage representative of Low Grid Voltage (LGV), trip POPS (6.9kV bus) immediately on occurrence of Safety Injection Actuation Signal (SIAS) subsequent to establishing the LGV condition, and trip AOPS (6.9kV bus) if it does not remove LGV condition of the 480V bus.
ESF Buses (6.9kV Buses)	Degraded Voltage Relay (DVR) 480V Class 1E Buses	2 of 2	442.4V (96.2% of 460V)	Actuate upon recognition of 480V Class 1E Bus Degraded Voltage (DV), trip POPS (6.9kV bus) immediately on occurrence of Safety Injection Actuation Signal (SIAS) subsequent to establishing the DV condition, trip POPS (6.9kV bus) after a 46-second time delay in the absence of SIAS and trip AOPS (6.9kV bus) if it does not remove DV condition of the 480V bus.
	Ground Protection			The undervoltage relays described above will not detect a ground fault in the transmission lines feeding STs XST1 and XST2.

Note: 2 of 2 UV logic monitors "A-B" and "B-C" line voltages in open delta configuration.