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

Joseph M. Farley Nuclear Plant – Units 1 and 2
License Amendment Request to Revise the Actions of
Technical Specification 3.8.9, "Distribution Systems – Operating"

Ladies and Gentlemen:

In accordance with the provisions of Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), Southern Nuclear Operating Company (SNC) is submitting a request for an amendment to the Technical Specifications (TS) for the Joseph M. Farley Nuclear Plant (FNP).

The proposed change would add new Action Conditions (A, B, and C) to TS 3.8.9 that address inoperable 600 Volt AC load center (LC) 1-2R. The proposed change would include appropriate Required Actions and associated Completion Times for the LC 1-2R. Appropriate corresponding changes would be made to the remaining Conditions to reflect these new Conditions.

Enclosure 1 provides the basis for the proposed change to the FNP TS. Enclosure 2 provides the FNP TS and Bases markup pages showing the proposed changes. Enclosure 3 provides the FNP TS clean typed pages showing the proposed changes. Enclosure 4 provides the LC 1-2R load lists. Each of the safety-related loads for the load centers is listed, along with the affected TS Condition statement from having the load center out of service. Additional clarification has been added to the load description where needed. Enclosure 5 provides selected figures and drawings to assist in the description of the FNP electrical system.

SNC requests approval of the proposed license amendment by October 12, 2017. The proposed changes would be implemented within 90 days of issuance of the amendments.

In accordance with 10 CFR 50.91(b)(1), "State Consultation," a copy of this application and its reasoned analysis about no significant hazards considerations is being provided to the designated Alabama officials.

(Affirmation and signature are provided on the following page)

This letter contains no NRC commitments. If you have any questions, please contact Ken McElroy at 205.992.7369.

Mr. C. R. Pierce states he is 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,

C. R. Pierce

C. R. Pierce
Regulatory Affairs Director

Sworn to and subscribed before me this 11th *day of* October, *2016.*

Notary Public

My commission expires: 10-8-2017

CRP/RMJ

Enclosures:
1. FNP Basis for Proposed Change
2. FNP Technical Specifications and Bases Markup Pages
3. FNP Technical Specifications Clean Typed Pages
4. 1-2R Load Center List
5. Selected Figures and Drawings for FNP Electrical System

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Farley Nuclear Plant
License Amendment Request to Revise the Actions of
Technical Specification 3.8.9, "Distribution Systems - Operating"

Enclosure 1

Basis for Proposed Change

Table of Contents

1.0 Summary Description

This evaluation supports a request to amend Appendix A of Operating Licenses NPF-2 and NPF-8 for the Joseph M. Farley Nuclear Plant (FNP) Unit 1 and Unit 2, respectively.

The proposed change would add new Action Conditions (A, B, and C) to Technical Specification (TS) 3.8.9 that address inoperable 600 Volt AC load center (LC) 1-2R. The proposed change would include appropriate Required Actions and associated Completion Times for the LC 1-2R. Appropriate changes would be made to the remaining Conditions to reflect these new Conditions.

2.0 Detailed Description

TS 3.8.9 requires the Train A and Train B AC electrical power distribution systems to be OPERABLE. TS Bases Table B 3.8.9-1 lists the required power distribution subsystems to ensure the availability of AC electrical power for the systems required to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or postulated design basis accident (DBA). If one or more of the AC safety buses listed in Table B 3.8.9-1 is inoperable, current TS 3.8.9 Condition A is entered. Table B 3.8.9-1 lists the LC 1-2R as one of the required LCs to meet the limiting condition for operation (LCO) 3.8.9. This LC is considered shared equipment since it supplies power to loads that affect both units and it also receives power from either units' 4160V bus H. Therefore, whenever this LC is inoperable, both Unit 1 and Unit 2 must enter current LCO 3.8.9 Condition A if they are in a Mode of applicability (MODES 1 – 4). Per LCO 3.0.6, the supported loads are considered inoperable but the Conditions and Required Actions associated with the supported systems are not required to be entered.

TS 3.8.9 contains a conservative Completion Time (CT) of 8 hours for an inoperable AC bus. After the 8-hour CT has expired, the unit(s) must be in MODE 3 in 6 hours and in MODE 5 within 36 hours. Based on the LC 1-2R supported loads, the short CT to restore this LC to an OPERABLE status or else shutdown the unit(s) is not commensurate with the risk for this LC being out of service. In addition, since it is very rare (and never desired) for both units to be shutdown concurrently, the extent of maintenance that can be performed within the short CT is very limited, especially when equipment clearances are necessary for ensuring personnel protection during the maintenance. Requiring a potential dual-unit shutdown can impact grid reliability from the loss of roughly 1800 megawatts electric, and could cause the unit(s) to incur more risk by shutting down than would be incurred by continued operation.

To provide allowed out of service times that are commensurate with the risk of the LC 1-2R being inoperable, the proposed amendment would add new Action Conditions (A, B, and C) to TS 3.8.9, "Distribution Systems – Operating". This would reduce the likelihood of an unnecessary dual-unit TS required shutdown while also providing more flexibility for maintenance activities. The inoperability of the FNP 600 Volt AC LC 1-2R impacts the capability of its supplied loads to perform their safety function. Therefore, consistent with the TS definition of operability as it refers to the availability of support systems including electrical power, the proposed change would require the affected LC loads to be declared inoperable immediately, thereby allowing operation to continue in this condition subject to the TS requirements associated with the affected LC loads. Per LCO 3.0.6, if a Required Action directs a supported system to be declared inoperable, the applicable Conditions and Required Actions are entered. As previously stated, FNP does not have the option of performing maintenance on this LC during a refueling outage without unnecessary risk to the operating

unit. The proposed new FNP TS 3.8.9, "Distribution Systems – Operating" Actions to address Condition A are as follows:

Condition A: Load Center 1-2R inoperable due to power supply being unavailable from Unit 1 or Unit 2.

Required Action A.1: Align 1C Diesel Generator unit selector switch to non-affected Unit. – Immediately

AND

Required Action A.2: Declare the 1C Diesel Generator inoperable for affected Unit. – Immediately

Required Action A.1, above, requires that the 1C Diesel Generator (DG) unit selector switch be aligned to the non-affected Unit, i.e. the Unit whose 4160V H bus remains available to supply power to the LC 1-2R.

Required Action A.2, above, requires that the 1C DG be declared inoperable immediately for the affected Unit, i.e. the Unit whose 4160V H bus does not remain available to supply power to the LC 1-2R.

Required Action A.2 results in entry into Condition B of TS 3.8.1, "AC Sources – Operating," for the affected unit. The 1C DG is a shared DG, so declaring it inoperable will typically cause both units to enter into this Condition. However, by selecting the 1C DG to the non-affected unit, it will remain OPERABLE for the selected unit and will be inoperable for the non-selected unit. The 1C DG selector switch is located in the main control room on the emergency power board. As described in the Technical Analysis section 3.0, selecting the non-affected unit on the 1C DG selector switch ensures that 1C DG will tie to the non-affected unit's 4160V H bus (i.e., 1H or 2H) and energize LC 1-2R. In addition, if a Set B DG (i.e. the 1B or 2B DG) is inoperable or becomes inoperable, TS 3.8.1 Condition E may be entered for two DG sets inoperable for the appropriate unit. As previously mentioned, the Set A DGs (1-2A and 1C) are "shared" since they can supply either unit. Therefore, if either DG is inoperable, both Unit 1 and Unit 2 typically declare the LCO not met and enter the appropriate Condition. The Set B DGs, however, each only supply their respective unit. Therefore, only the affected unit declares the LCO not met if a DG Set B is inoperable.

Proposed Required Action A.2 would limit operation to 10 days for the affected unit. Also, if the affected unit's DG Set B were to become inoperable during this condition, TS 3.8.1 Condition E would be entered for two DG sets being inoperable.

Condition B: Required Action and associated Completion Time of Condition A not met

Required Action B.1: Declare the associated Unit 1 Service Water automatic turbine building isolation valves inoperable. – Immediately

Required Action B.1, above, requires that the associated Unit 1 Service Water System (SWS) automatic turbine building isolation valves be declared inoperable immediately. This Required Action results in entry into Condition B of TS 3.7.8, "Service Water System (SWS)."

If Proposed Required Action A.1 cannot be complete, the LC 1-2R (and hence its supported loads) may not be available following a design basis accident. The Unit 1 Service Water automatic turbine building isolation valves are energized through the LC 1-2R, and hence must be declared inoperable in this situation. Required Action B.1 would confirm that there's a remaining OPERABLE Unit 1 SWS turbine isolation valve in each train and would likely limit operation to 72 hours. If there are no remaining OPERABLE Unit 1 SWS turbine isolation valves in either train, Unit 1 would enter LCO 3.0.3. TS 3.8.1 Condition A will still be applicable.

The proposed new FNP TS 3.8.9, "Distribution Systems – Operating" Actions to address Condition C are as follows:

Condition C:	Load Center 1-2R inoperable for reasons other than Condition A or B.	
	Required Action C.1:	Declare the associated Unit 1 Service Water automatic turbine building isolation valves inoperable. – Immediately, and
		AND
	Required Action C.2:	Declare the 1C Diesel Generator inoperable. - Immediately

Required Action C.1 and C.2, above, are similar to Required Actions B.1 and A.2 except that Required Action C.2 requires the 1C DG to be declared inoperable for both units, while Required Action A.2 only requires the 1C DG to be declared inoperable for the affected unit.

Bases changes that support the TS changes described above are also provided in Enclosure 2 along with the TS markups.

3.0 Technical Analysis

The loads supplied by LC 1-2R were evaluated to determine the impact (i.e., the TS requirements that would become applicable) if each of the loads supplied by the LC were declared inoperable. The safety-related loads supplied by the LC 1-2R, along with a description of the loads and TS-related systems that would become inoperable if the LC were declared inoperable, are provided as Enclosure 4.

For LC 1-2R, it was determined that TS 3.7.8, "Service Water System (SWS)" and TS 3.8.1, "AC Sources – Operating" have Required Actions that would become applicable if the loads of LC 1-2R are declared inoperable based on this change to enter the Required Action Statements of the supported loads. The LC 1-2R is necessary to assure that power remains available for the auxiliary systems of DG 1C and for Unit 1 SWS turbine building isolation motor operated valves (MOVs) V515 and V517.

The following paragraphs provide a more detailed discussion of the TS affected loads discussed above.

Unit 1 SWS turbine building isolation MOVs Q1P16V515 and Q1P16V517

Train A of Unit 1 SWS includes isolation Valves Q1P16V515 and Q1P16V516.

Train B of Unit 1 SWS includes isolation Valves Q1P16V514 and Q1P16V517.

Each train of SWS has two isolation valves, one powered from electrical train A (Q1P16V515 and Q1P16V517) and one powered by electrical train B (Q1P16V514 and Q1P16V516). Turbine Building isolation is therefore possible with only one electrical train in service.

LC 1-2R provides power to Unit 1 turbine building isolation MOVs Q1P16V515 (SWS Train A) and Q1P16V517 (SWS Train B). TS 3.7.8, "Service Water System (SWS)" Condition B is applicable when one SWS automatic turbine building isolation valve is inoperable in each SWS train. As such, this SWS Action Condition is applicable when the loads served by LC 1-2R (i.e., the Unit 1 SWS automatic turbine building isolation valves) are declared inoperable as required by proposed Required Action A.1 of TS 3.8.9, "Distribution Systems – Operating" (described in Section 2.0 above). TS 3.7.8, "Service Water System (SWS)" Condition B provides a Completion Time of 72 hours to restore the inoperable isolation valves to operable status.

The turbine building isolation MOVs powered by LC 1-2R provide redundant turbine building SWS supply isolation valves that automatically isolate the nonessential turbine building service water loads upon receipt of a Phase A Containment Isolation Signal and/or excess turbine building SWS flow rate. This action is required to ensure adequate service water flow to safety-related equipment during accident modes.

The turbine building SWS supply isolation valves also provide a throttling function during a loss of offsite power (LOSP) event. Specifically, the valve operators automatically position the valve to 16 degrees in the open direction upon receipt of an LOSP signal. This throttled, or mid-stroke, position serves to provide a limited amount of cooling water to the turbine building to support the cooldown of the secondary side of the plant. The throttling function also serves to automatically provide increased cooling water to the Emergency DGs during an LOSP event.

DG 1C

LC 1-2R provides power to ventilation fans, heaters, wall louvers, and other auxiliary systems necessary to support the operation of DG 1C. Proposed Required Action A.2 of TS 3.8.9, "Distribution Systems – Operating" (described in Section 2.0 above) would require DG 1C be declared inoperable immediately.

DG 1C is part of DG Set A and is required to be operable by TS 3.8.1, "AC Sources – Operating" (see the paragraphs below for an explanation of FNP DG sets). Therefore, TS 3.8.1 Condition B (one DG set inoperable) would be applicable. TS 3.8.1 Condition B provides the appropriate Required Actions and Completion Times for an inoperable DG set.

The FNP 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 DG set. DG set A consists of the 1-2A and 1C DGs. DG set B consists of the 1B DG (Unit 1) and the 2B DG (Unit 2).

DGs 1B and 2B are dedicated to train B of Unit 1 and Unit 2, respectively, and each DG comprises a required DG set for its associated unit. DGs 1-2A and 1C are dedicated to

train A, but are shared between both units and together comprise a required DG set for both units. There are no design basis events in which DG 1-2A or 1C are required to supply power to the safety loads of both units simultaneously; therefore, DGs 1-2A and 1C are characterized as "shared" only from the point of view of their capability to align to either Unit 1 or Unit 2. All ESF buses that have two power sources available have their supply breakers interlocked such that the buses can receive power from only one source at a time. For the 1H and 2H 4160V buses, the supply breaker interlock prevents the bus from being powered from two sources simultaneously.

Of the two train A DGs, 1-2A and 1C, DG 1C has sufficient capacity to only provide power to a complete train of shutdown loads of a non-accident unit (LOSP only). Since a loss of coolant accident (LOCA) is assumed to occur on only one unit, the alignment logic of these two train A DGs is designed to ensure that in events involving a LOCA, DG 1-2A aligns to the accident unit and DG 1C aligns to the non-accident unit. The alignment chosen for these train A diesels in scenarios involving a LOSP only is arbitrary (1-2A is aligned to Unit 1 and 1C is aligned to Unit 2 for a dual unit LOSP event), since both DGs 1-2A and 1C have sufficient capacity to energize the required loads in these events. Therefore, the alignment logic of the two train A DGs, 1-2A and 1C, ensures adequate power for a complete train of required shutdown loads in each unit.

In addition, LC 1-2R provides power to heaters, fans, and louvers for the diesel building switchgear room "A". Switchgear room A contains the 4.16 kV H busses and the 600 V LC 1-2R. The 4.16 kV H busses are required to support the operation of DG 1C to supply the emergency Buses F and K which in turn supply design basis required loads. The loads supported directly by the H busses include river water pumps, and the G, H, and R LCs. Initially, the FNP TS contained an LCO for the River Water system as this system provides makeup water to the emergency cooling water storage pond (ultimate heat sink). However, Amendment numbers 45/36 to the Unit 1 and 2 operating license (issued June 7, 1984) deleted the River Water System from the FNP TS. In the safety evaluation report (SER) for these amendments, the NRC concluded that the emergency cooling water storage pond can independently provide the 30 day post-accident ultimate heat sink needs for FNP. These Amendments resulted in the elimination of the requirement to automatically sequence the river water pumps onto the associated emergency DGs during accident conditions and effectively reduced the required DG loading. Per the FNP Updated Final Safety Analysis Report (UFSAR), the G and H LCs are considered nonsafety-related systems. As the loss of the H busses is essentially equivalent to the loss of the DG 1C, they are treated as DG 1C support systems in LCO 3.8.1 and LCO 3.8.2 and are not listed in Table B.3.8.9-1. Therefore, if the H bus cannot function to support the 1C DG's intended safety function, the 1C DG is declared inoperable.

Further details describing the FNP DGs can be found in FNP UFSAR Section 8.3.1.1.7, "Onsite Emergency Power Systems."

With the LC 1-2R unable to be supplied power from either its Unit 1 or Unit 2 power supply (i.e. the 1H or 2H 4160V bus, respectively), the 1C DG will be unavailable for the affected unit (i.e., the unit unable to supply power to the LC 1-2R). In the event of a design basis dual unit LOSP and single unit safety injection (SI), the 1-2A DG will align to the unit experiencing the SI while the 1C DG will align to the opposite unit. For this scenario, the 1-2A DG will energize 4160V F bus of the unit experiencing the SI, which will in turn energize that unit's 4160V K bus. That unit's 4160V H bus, however, will remain de-energized until manually energized by the operator. (See the figures in Enclosure 5.) Aligning the 1C DG unit selector switch to the non-

affected unit (i.e. the unit that is able to supply power to the LC 1-2R) will ensure the power supply to the LC 1-2R (either the 1H or 2H 4160V bus) remains energized. If a dual unit LOSP / single unit SI were to occur in this situation, the 1-2A DG will align to the unit experiencing the SI while the 1C DG will remain aligned to the unit for which its unit selector switch is aligned. The logic associated with the tie breaker between F and H busses (DF13) will ensure that 1C DG and 1-2A DG are never paralleled (i.e., if 1C DG were selected to the unit to which the 1-2A ties, DF13 will remain open while 1C DG energizes the H bus (which in turn energizes the LC 1-2R) while 1-2A DG energizes the F bus. In the event of a dual unit LOSP, this alignment (i.e., 1C and 1-2A tied to the same unit) would leave the affected unit's (i.e. the unit unable to supply power to the LC 1-2R) A-train de-energized. This is the basis for the affected unit entering LCO 3.8.1 for an inoperable diesel set, since the 1C DG may therefore be unavailable to align to the opposite unit as the 1-2A DG (i.e. the unit not experiencing the SI). Consistent with the definition of OPERABILITY, the 1C DG must be declared inoperable for the affected unit.

It's worth noting that in addition to both units having a dedicated B-train DG, FNP has an installed station blackout (SBO) DG 2C that can tie to either unit's B-train electrical power system if necessary.

4.0 Regulatory Safety Analysis

4.1 Significant Hazards Consideration

The proposed Amendment would revise Technical Specification (TS) 3.8.9, "Distribution Systems – Operating" to add new Action Conditions (A, B, and C). Appropriate corresponding changes would be made to the remaining Conditions to reflect these new Conditions. The proposed changes are necessary to provide the appropriate Required Actions and associated Completion Times for an inoperable 600 Volt AC load center (LC) 1-2R that is required to be operable by TS 3.8.9.

Southern Nuclear Operating Company (SNC) has evaluated the proposed changes to the Farley Nuclear Plant (FNP) TS using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

As required by 10 CFR 50.91(a), the SNC analysis of the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is presented below:

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

Response: No

The proposed amendment revises the TS requirements to include an appropriate Condition, Required Actions and associated Completion Times to address an inoperable 600 Volt AC LC 1-2R that is required to be operable by TS 3.8.9 "Distribution Systems – Operating."

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed). The 600V LC are not a precursor to any accident previously evaluated. The proposed changes do not

adversely affect accident initiators or precursors nor alter the design assumptions, conditions, and configuration of the facility or the manner in which the plant is operated and maintained. The proposed changes do not adversely affect the ability of structures, systems and components (SSCs) to perform their intended safety function to mitigate the consequences of an initiating event within the assumed acceptance limits. The LC 1-2R provides power to equipment that may be used to mitigate the consequences of accidents previously evaluated. The proposed change to TS 3.8.9, "Distribution Systems – Operating" provides assurance that the requirements of the TS appropriately address all the equipment that is required to be operable by TS 3.8.9. Thus, the proposed change does not affect the probability or the consequences of any accident previously evaluated.

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

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 amendment revises the TS to include an appropriate Condition, Required Actions, and associated Completion Times to address inoperable 600 Volt AC LC 1-2R that is required to be operable by TS 3.8.9 "Distribution Systems – Operating."

The proposed change does not involve a physical alteration of the plant (no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The proposed change to the TS assures that the TS appropriately addresses all the equipment required to be operable to support the electrical distribution system. Thus, the proposed change does not adversely affect the design function or operation of any structures, systems, and components important to safety.

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

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

Response: No

The proposed amendment revises the TS requirements to include an appropriate Condition, Required Actions, and associated Completion Times to address inoperable 600 Volt AC LC 1-2R that is required to be operable by TS 3.8.9 "Distribution Systems – Operating."

The proposed change to TS 3.8.9 "Distribution Systems - Operating" provides assurance that all the requirements of the TS are appropriately addressed in the Action Conditions. The proposed change serves to make the TS more complete

and appropriate for all the equipment required to be operable to support the electrical distribution system. Thus, the proposed change does not involve a change in the margin of safety.

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

Based upon the above analysis, SNC concludes that the proposed amendment does not involve a significant hazards consideration, under the standards set forth in 10 CFR 50.92(c), "Issuance of Amendment," and accordingly, a finding of "no significant hazards consideration" is justified.

4.2 Applicable Regulatory Requirements/Criteria

The operability of the AC, DC, and AC vital bus electrical power distribution systems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining power distribution systems operable during accident conditions in the event of:

a. An assumed loss of all offsite power or all onsite AC electrical power; and

b. A worst case single failure.

The NRC acceptance criteria associated with the design of the electric power systems, including the Emergency DGs and their auxiliary systems, is contained in the following General Design Criteria (GDC):

GDC 17, "Electric Power Systems,"
GDC 18, "Inspection and Testing of Electric Power Systems," and
GDC 21, "Protection System Reliability and Testability."

FNP Compliance with specific GDCs is discussed in FNP UFSAR Section 3.1, "Conformance with NRC General Design Criteria."

In addition, the electrical distribution systems and Emergency DGs satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

The proposed change would add new Action Conditions (A, B, and C) to TS 3.8.9, "Distribution Systems - Operating" for an inoperable 600 Volt AC LC 1-2R.

The inoperability of the FNP 600 Volt AC LC 1-2R impacts the capability of the loads supplied by the LC to perform their safety function. The loss of LC 1-2R impacts the capability of the DG 1C and the Unit 1 Service Water turbine building isolation valves to perform their safety functions. Therefore, consistent with the TS definition of operability, as it refers to the availability of support systems including electrical power, the proposed change would require the affected LC loads to be declared inoperable immediately.

As such, the proposed change would make the TS 3.8.9, "Distribution Systems – Operating" more complete, with appropriate Required Actions for all the equipment required to be operable to support the electric power system.

Thus, the proposed change is acceptable since it provides additional assurance that the operability of the AC electric power system is maintained consistent with the initial assumptions of the accident analyses, the design basis of the unit, and the FNP compliance with the regulatory criteria cited above.

4.3 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.

5.0 Environmental Consideration

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in 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.

6.0 References

1. FNP Unit 1 and Unit 2 Final Safety Analysis Report Update, Section 8.3.1.1.7, "Onsite Emergency Power Systems", Revision 27, August 2016.
2. 10 CFR 50 Appendix A, General Design Criteria 17, "Electric Power Systems."
3. 10 CFR 50 Appendix A, General Design Criteria 18, "Inspection and Testing of Electric Power Systems."
4. 10 CFR 50 Appendix A, General Design Criteria 21, "Protection System Reliability and Testability."
5. FNP Unit 1 and Unit 2 Final Safety Analysis Report Update, Section 3.1, "Conformance with NRC General Design Criteria", Revision 27, August 2016.
6. 10 CFR 50.36, "Technical Specifications."

Farley Nuclear Plant
License Amendment Request to Revise the Actions of
Technical Specification 3.8.9, "Distribution Systems - Operating"

Enclosure 2

Technical Specification and Bases Markup Pages

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems — Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Load Center 1-2R inoperable due to power supply being unavailable from Unit 1 or Unit 2	A.1 Align 1C DG Unit Selector Switch to non-affected unit. AND A.2 Declare the 1C Diesel Generator inoperable for affected Unit.	Immediately Immediately
B. Required Action and associated Completion Time of Condition A not met	B.1 Declare the associated Unit 1 Service Water automatic turbine building isolation valves inoperable.	Immediately
C. Load Center 1-2R inoperable for reasons other than Condition A or B	C.1 Declare the associated Unit 1 Service Water automatic turbine building isolation valves inoperable. AND C.2 Declare the 1C Diesel Generator inoperable.	Immediately Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~A~~D. One or more AC electrical power distribution subsystems inoperable for reasons other than Condition A, B, or C.	~~A~~D.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours
~~B~~E. One or more AC vital buses inoperable.	~~B~~E.1 Restore AC vital bus subsystem(s) to OPERABLE status.	8 hours
~~C~~F. One Auxiliary Building DC electrical power distribution subsystem inoperable.	~~C~~F.1 Restore Auxiliary Building DC electrical power distribution subsystem to OPERABLE status.	2 hours

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
~~D~~G. Required Action and associated Completion Time of Condition D, E, or F~~A, B, or C~~ not met.	~~D~~G.1	Be in MODE 3.	6 hours
	AND		
	~~D~~G.2	----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ----------	
		Be in MODE 4.	12 hours
~~E~~H. One Service Water Intake Structure (SWIS) DC electrical power distribution subsystem inoperable.	~~E~~H.1	Declare the associated Service Water train inoperable.	Immediately
~~F~~I. Two trains with inoperable distribution subsystems that result in a loss of safety function.	~~F~~I.1	Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

BASES

LCO (continued)

battery or charger. OPERABLE vital bus electrical power distribution subsystems require the associated buses to be energized to their proper voltage from the associated inverter via inverted DC voltage or Class 1E constant voltage transformer.

In addition, tie breakers between redundant safety related AC, DC, and AC vital bus power distribution subsystems, if they exist, must be open. This prevents any electrical malfunction in any power distribution subsystem from propagating to the redundant subsystem, that could cause the failure of a redundant subsystem and a loss of essential safety function(s). If any tie breakers are closed, the affected redundant electrical power distribution subsystems are considered inoperable. This applies to the onsite, safety related redundant electrical power distribution subsystems. It does not, however, preclude redundant Class 1E 4.16 kV buses from being powered from the same offsite circuit.

APPLICABILITY

The electrical power distribution subsystems are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided, and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

Electrical power distribution subsystem requirements for MODES 5 and 6 are covered in the Bases for LCO 3.8.10, "Distribution Systems — Shutdown."

ACTIONS

A.1 and A.2

With the shared Load Center (LC) 1-2R unable to be supplied power from either its Unit 1 or Unit 2 power supply (i.e. the 1H or 2H 4160V bus, respectively), the 1C DG will be unavailable to energize the affected unit (i.e., the unit unable to supply power to the LC 1-2R). The 1C DG will, however, remain available to energize the non-affected unit following a design basis accident. Aligning the 1C DG unit selector switch to the non-affected unit will ensure the LC 1-2R will remain energized via the Unit 1 or Unit 2 4160V H bus to which the 1C DG is aligned during a design basis accident. This will also ensure the 1C

DG is unavailable to energize the affected unit. Therefore, consistent with the definition of OPERABILITY, the 1C DG must be declared inoperable for the affected unit.

B.1

If the Required Action and associated Completion Time of Condition A cannot be met, the power supply to the Unit 1 Service Water (SW) System automatic turbine building isolation valves (MOVs 515 and 517) will be unavailable following a design basis accident, so these valves must also be declared inoperable. Required Action A.2 will still apply, so the 1C DG must also be declared inoperable.

C.1 and C.2

With the shared Load Center 1-2R inoperable for reasons other than Condition A or Condition B, the Unit 1 Service Water (SW) System automatic turbine building isolation valves (MOVs 515 and 517) and the 1C DG must be declared inoperable immediately. The load center provides power to Unit 1 MOVs 515 and 517 and the 1C DG auxiliary systems. Therefore, consistent with the definition of OPERABILITY, these loads must be declared inoperable immediately.

AD.1

With one or more required AC buses, load centers, motor control centers, or distribution panels, except AC vital buses, inoperable, for reasons other than Condition A, B, or C, and a loss of safety function has not yet occurred, the remaining AC electrical power distribution subsystems are capable of supporting the

(continued)

BASES

ACTIONS

~~A~~D.1 (continued)

minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining power distribution subsystems could result in the minimum required ESF functions not being supported. Therefore, the required AC buses, load centers, motor control centers, and distribution panels must be restored to OPERABLE status within 8 hours.

Condition ~~A~~ D worst scenario is one train without AC power (i.e., no offsite power to the train and the associated DG inoperable). In this Condition, the unit is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the unit operator's attention be focused on minimizing the potential for loss of power to the remaining train by stabilizing the unit, and on restoring power to the affected train. The 8 hour time limit before requiring a unit shutdown in this Condition is acceptable because of:

a. The potential for decreased safety if the unit operator's attention is diverted from the evaluations and actions necessary to restore power to the affected train, to the actions associated with taking the unit to shutdown within this time limit; and

b. The potential for an event in conjunction with a single failure of a redundant component in the train with AC power.

(continued)

BASES

ACTIONS

~~B~~E.1

With one or more AC vital buses inoperable, and a loss of safety function has not yet occurred, the remaining OPERABLE AC vital buses are capable of supporting the minimum safety functions necessary to shut down the unit and maintain it in the safe shutdown condition. Overall reliability is reduced, however, since an additional single failure could result in the minimum required ESF functions not being supported. Therefore, the required AC vital bus must be restored to OPERABLE status within 8 hours by powering the bus from the associated inverter via inverted DC or Class 1E constant voltage transformer.

Condition ~~B~~ E represents one or more AC vital buses without power; potentially both the DC source and the associated AC source are nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all noninterruptible power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining vital buses and restoring power to the affected vital bus.

This 8 hour limit is more conservative than Completion Times allowed for the vast majority of components that are without adequate vital AC power. Taking exception to LCO 3.0.2 for components without adequate vital AC power, that would have the Required Action Completion Times shorter than 8 hours if declared inoperable, is acceptable because of:

a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) and not allowing stable operations to continue;

(continued)

BASES

ACTIONS

~~B~~E.1 (continued)

b. The potential for decreased safety by requiring entry into numerous Applicable Conditions and Required Actions for components without adequate vital AC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train; and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 8 hour Completion Time takes into account the importance to safety of restoring the AC vital bus to OPERABLE status, the redundant capability afforded by the other OPERABLE vital buses, and the low probability of a DBA occurring during this period.

~~C~~F.1

With Auxiliary Building DC bus(es) in one train inoperable, the remaining Auxiliary Building DC electrical power distribution subsystems are capable of supporting the minimum safety functions

(continued)

BASES

ACTIONS

~~C~~F.1 (continued)

necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining DC electrical power distribution subsystem could result in the minimum required ESF functions not being supported. Therefore, the required DC buses must be restored to OPERABLE status within 2 hours by powering the bus from the associated battery or charger.

Condition ~~C~~ F represents one train without adequate DC power; potentially both with the battery significantly degraded and the associated charger nonfunctioning. In this situation, the unit is significantly more vulnerable to a complete loss of all DC power. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for loss of power to the remaining trains and restoring power to the affected train.

This 2 hour limit is more conservative than Completion Times allowed for the vast majority of components that would be without power. Taking exception to LCO 3.0.2 for components without adequate DC power, which would have Required Action Completion Times shorter than 2 hours, is acceptable because of:

a. The potential for decreased safety by requiring a change in unit conditions (i.e., requiring a shutdown) while allowing stable operations to continue;

b. The potential for decreased safety by requiring entry into numerous applicable Conditions and Required Actions for components without DC power and not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected train; and

c. The potential for an event in conjunction with a single failure of a redundant component.

The 2 hour Completion Time for DC buses is consistent with Regulatory Guide 1.93 (Ref. 3).

(continued)

BASES

ACTIONS

~~D~~G.1 and ~~D~~G.2

If the inoperable distribution subsystem(s) addressed by Conditions ~~A~~D, ~~B~~E, or ~~C~~ F cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which overall plant risk is reduced. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. Remaining within the applicability of the LCO is acceptable to accomplish short duration repairs to restore inoperable equipment because the plant risk in MODE 4 is similar to or lower than MODE 5 (Ref. 4). In MODE 4 the Steam Generators and Residual Heat Removal System are available to remove decay heat, which provides diversity and defense in depth. As stated in Reference 4, the steam turbine driven Auxiliary Feedwater Pump must be available to remain in MODE 4. Should Steam Generator cooling be lost while relying on this Required Action, there are preplanned actions to ensure long-term decay heat removal. Voluntary entry into MODE 5 may be made as it is also acceptable from a risk perspective.

Required Action ~~D~~G.2 is modified by a Note that states that LCO 3.0.4.a is not applicable when entering MODE 4. This Note prohibits the use of LCO 3.0.4.a to enter MODE 4 during startup with the LCO not met. However, there is no restriction on the use of LCO 3.0.4.b, if applicable, because LCO 3.0.4.b requires performance of a risk assessment addressing inoperable systems and components,

(continued)

BASES

ACTIONS

~~D~~G.1 and ~~D~~G.2 (continued)

consideration of the results, determination of the acceptability of entering MODE 4, and establishment of risk management actions, if appropriate. LCO 3.0.4 is not applicable to, and the Note does not preclude, changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

~~E~~H.1

With one SWIS DC electrical power distribution subsystem inoperable, the Service Water System train supported by the affected SWIS DC electrical power distribution subsystem must be declared inoperable. The capability of the affected SWIS DC electrical power distribution subsystem to fully support the associated train of Service Water is not assured. Therefore, consistent with the definition of OPERABILITY, the associated train of Service Water must be declared inoperable immediately, thereby limiting operation in this condition to the Completion Time associated with the affected Service Water System train.

~~F~~I.1

With two trains with inoperable distribution subsystems that result in a loss of safety function, adequate core cooling, containment OPERABILITY and other vital functions for DBA mitigation would be compromised, and immediate plant shutdown in accordance with LCO 3.0.3 is required.

SURVEILLANCE REQUIREMENTS

SR 3.8.9.1

This Surveillance verifies that the required AC, DC, and AC vital bus electrical power distribution systems are functioning properly, with the correct circuit breaker alignment. The correct breaker alignment ensures the appropriate separation and independence of the electrical divisions is maintained, and the appropriate voltage is available to each required bus. The verification of proper voltage availability on the buses ensures that the required voltage is readily available for motive

(continued)

Farley Nuclear Plant
License Amendment Request to Revise the Actions of
Technical Specification 3.8.9, "Distribution Systems - Operating"

Enclosure 3

Technical Specification Clean Typed Pages

3.8 ELECTRICAL POWER SYSTEMS

3.8.9 Distribution Systems — Operating

LCO 3.8.9 Train A and Train B AC, DC, and AC vital bus electrical power distribution subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Load Center 1-2R inoperable due to power supply being unavailable from Unit 1 or Unit 2.	A.1	Align 1C DG Unit Selector Switch to non-affected unit.	Immediately
	AND		
	A.2	Declare the 1C Diesel Generator inoperable for affected Unit.	Immediately
B. Required Action and associated Completion Time of Condition A not met.	B.1	Declare the associated Unit 1 Service Water automatic turbine building isolation valves inoperable.	Immediately
C. Load Center 1-2R inoperable for reasons other than Condition A or B.	C.1	Declare the associated Unit 1 Service Water automatic turbine building isolation valves inoperable.	Immediately
	AND		
	C.2	Declare the 1C Diesel Generator inoperable.	Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more AC electrical power distribution subsystems inoperable for reasons other than Condition A, B, or C.	D.1 Restore AC electrical power distribution subsystem(s) to OPERABLE status.	8 hours
E. One or more AC vital buses inoperable.	E.1 Restore AC vital bus subsystem(s) to OPERABLE status.	8 hours
F. One Auxiliary Building DC electrical power distribution subsystem inoperable.	F.1 Restore Auxiliary Building DC electrical power distribution subsystem to OPERABLE status.	2 hours
G. Required Action and associated Completion Time of Condition D, E, or F not met.	G.1 Be in MODE 3. AND G.2 ----------NOTE---------- LCO 3.0.4.a is not applicable when entering MODE 4. ---------- Be in MODE 4.	6 hours 12 hours
H. One Service Water Intake Structure (SWIS) DC electrical power distribution subsystem inoperable.	H.1 Declare the associated Service Water train inoperable.	Immediately
I. Two trains with inoperable distribution subsystems that result in a loss of safety function.	I.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.9.1	Verify correct breaker alignments and voltage to required AC, DC, and AC vital bus electrical power distribution subsystems.	In accordance with the Surveillance Frequency Control Program

Farley Nuclear Plant
License Amendment Request to Revise the Actions of
Technical Specification 3.8.9, "Distribution Systems - Operating"

Enclosure 4

1-2R Load Center List

DH08
1R 600V LOAD CENTER **DB - 155'** **F177677**

BKR	TPNS	DESCRIPTION
	Q1R16B0508-A	**1R 600V LOAD CENTER**
ER01	Q1R16BKRER01	PT COMPARTMENT
ER02	**Q1R11B0503-A**	**1R 4160/600V SST <<< 1-DH08 (ALTERNATE)**
ER03	**Q1R17B0507-A**	**1N 600/208V MCC >>>**
ER05	**Q2R11B0503-A**	**2R 4160/600V SST <<< 2-DH08 (NORMAL)**

DH08
ER03
1N 600/208V MCC **DB-155'** **B177556-13**

BKR	TPNS	DESCRIPTIONS (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
	Q1R17B0507-A	**1N 600/208V MCC (600V SECTION) <<< ER03**	
FNA3	QSY41B0523A-A	DG BLDG SWITCHGEAR ROOM A HEATER A. *Switchgear room A contains the 4.16 kV H busses and the 600 V LC 1-2R. The 4.16 kV H busses do not supply any design basis required loads by themselves but are required to support the operation of DG 1C to supply the emergency Buses F and K which in turn supply design basis required loads. As the loss of the H busses is essentially equivalent to the loss of the DG 1C, it is treated as a DG 1C support system in LCO 3.8.1 and LCO 3.8.2. Therefore, if the H bus cannot function to support the 1C DG's intended safety function, the 1C DG is declared inoperable. Per this amendment request, the 1C DG is being declared inoperable if the 1/2R LC is inoperable. There are no additional TS LCOs affected.*	3.8.1 Condition B
FNA4	QSY41B0523B-A	DG BLDG SWITCHGEAR ROOM A HEATER B	
FNB2	QSY41B0523C-A	DG BLDG SWITCHGEAR ROOM A HEATER C	
FNB3	Q1P16V0515-A	SERVICE WATER MOV V515. *Isolates Train A SW supply to turbine building. Per this amendment request, TS 3.7.8 Condition B is entered when the 1/2 R LC is out-of-service.*	3.7.8 Condition B
FNB4	Q1P16V0517-A	SERVICE WATER MOV V517. *Isolates Train B SW supply to turbine building. Per this amendment request, TS 3.7.8 Condition B is entered when the 1/2 R LC is out-of-service.*	3.7.8 Condition B

BKR	TPNS	DESCRIPTIONS (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
FNC2	QSY41C0508B-A	1C GENERATOR ROOM FAN B. *1C DG room fan. The only SR equipment in Generator Room 1-C is the 1C DG and its related auxiliary equipment. Per this amendment request, this DG is declared inoperable from having the 1/2R LC out-of-service.*	3.8.1 Condition B
FNC5	QSY41B0522L-A	1C GENERATOR ROOM HEATER B	3.8.1 Condition B
FND2	QSY41B0522M-A	1C GENERATOR ROOM HEATER C	3.8.1 Condition B
FND3	Q1P16V0558-A	SERVICE WATER MOV V558. *Train A SW dilution bypass line isolation valve. This valve remains open to provide service water flow path to the service water pond via the dilution bypass line during normal operation and is maintained open except during maintenance. The valve fails as-is. There are no isolation signals, and no TS Required Action statements to enter if this valve is inoperable.*	N/A
FND4	QSR43M0508-B	AUX JACKET WATER PUMP - DIESEL 1C	3.8.1 Condition B
FND5	Q1P16V0542-A	SERVICE WATER MOV V542. *Train A turbine building service water return isolation valve. These valves are normally open as fail as-is. There are no isolation signals for these valves, and no TS Required Action statements to enter if these valves are inoperable.*	N/A
FNE2	QSY41C0508A-A	1C GENERATOR ROOM FAN A	3.8.1 Condition B
FNE3	QSY41B0522K-A	1C GENERATOR ROOM HEATER A	3.8.1 Condition B

BKR	TPNS	DESCRIPTIONS (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
FNE4	Q1P16V0524-A	SERVICE WATER MOV V524. *1C DG Unit 1 service water supply isolation valve. During normal operation, there valves are open and fail as-is on loss of power.*	3.8.1 Condition B
FNE5	Q1P16V0525-A	SERVICE WATER MOV V525. *1C DG Unit 2 service water supply isolation valve. During normal operation, there valves are open and fail as-is on loss of power.*	3.8.1 Condition B
FNF2L	**QSR43L0503-A**	**1C DIESEL 75 KVA 600/208V AUX TRANSFORMER LOCATED IN HNO2 >>> 1C D.G. BREAKER PANEL BOARD >>>**	
FNF3	Q1P16V0532-A	SERVICE WATER MOV V532. *1C DG Unit 1 service water return isolation valve.*	3.8.1 Condition B
FNF4	Q1P16V0533-A	SERVICE WATER MOV V533. *1C DG Unit 2 service water return isolation valve.*	3.8.1 Condition B
FNF5	QSR43M0503A-A	AIR COMPRESSOR A - DIESEL 1C	3.8.1 Condition B
FNF6	QSR43M0503B-A	AIR COMPRESSOR B - DIESEL 1C	3.8.1 Condition B
FNG2	Q1P16V0539-A	SERVICE WATER MOV V539. *Unit 1 Train A service water header to recirculation line isolation valves. During normal operation, these valves are closed so that all service water return flow is discharged to the river. When the river water system is not available, these valves are opened to recirculate the service water return flow to the storage pond to maintain required storage pond volume. When the SW dilution line is not available, these valves are opened to recirculate the service water return flow to the storage pond. These valves fail as-is on loss of power, but can be manually stroked by use of locally mounted handwheels. There are no TS Required Actions to enter if these valves are inoperable.*	N/A

BKR	TPNS	DESCRIPTIONS (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
FNG4	----------	MCC SPACE HTRS BKR COMPT	
FNG5L	----------	1N 600/208V MCC XFMR >>> 1N MCC 208V SECTION >>>	
FNP2	Q2P16V0519-A	SERVICE WATER MOV V519. *Unit 2 Train A diesel generator service water supply isolation valve. These valves are required to isolate the Diesel Generator Units served in the event of excess service water flow within the Diesel Generator Building. The excess flow may be the result of a line break or component failure. These valves are normally open and fail as-is. There are no isolation signals for these valves, and no TS Required Action statements to enter if these valves are inoperable.*	N/A
FNP3	Q2P16V0537-A	SERVICE WATER MOV V537. *Unit 2 Train A diesel generator service water return isolation valve. These valves are required to isolate the Diesel Generator Units served in the event of excess service water flow within the Diesel Generator Building. The excess flow may be the result of a line break or component failure. These valves are normally open and fail as-is. There are no isolation signals for these valves, and no TS Required Action statements to enter if these valves are inoperable.*	N/A

DH08
ER03 **DB-155'** **D-172552 SH. 2**
FNF2L
1C D.G. BKR PNL BOARD

BKR	TPNS	DESCRIPTION (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
	QSR43L0503-A	**1C DG DIESEL BREAKER PANEL BOARD <<< FNF2L** *The systems below are auxiliary systems needed to support the 1C diesel generators.*	3.8.1 Condition B
DBPB-CB1		1C DG JACKET COOLANT HEATER	
DBPB-CB2		1C DG JACKET COOLANT PUMP	
DBPB-CB3		1C DG LUBE OIL HEATER	
DBPB-CB4		1C DG LUBE OIL PUMP	
DBPB-CB5		1C DG PRE LUBE OIL PUMP	
DBPB-CB6		1C DG GENERATOR SPACE HEATER	

DH08
ER03
FNG5L
1N 208V MCC SECTION **DB-155'** **B177556-13B**

BKR	TPNS	DESCRIPTION (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
	Q1R17B0507-A	**1N 600/208V MCC (208V SECTION) <<< FNG5L**	
HNH2	QSY41C0511A-A	DG BLDG SWITCHGEAR ROOM A FAN A	3.8.1 Condition B
HNH3	QSY41C0511B-A	DG BLDG SWITCHGEAR ROOM A FAN B	3.8.1 Condition B
HNJ2	QSY41C0509D-A	1C GENERATOR RM FAN C	3.8.1 Condition B
HNJ3	QSY41C0510G-A	1C FUEL ROOM FAN A. *DG 1C DAY TANK ROOM ROOF EXHAUST VENTILATOR FAN*	3.8.1 Condition B
HNJ4	QSY41C0510H-A	1C FUEL ROOM FAN B	3.8.1 Condition B
HNK4	QSY52P0503A-A	1C STORAGE TANK OIL TRANSFER PUMP 503A. *1C DG fuel oil transfer pump.*	3.8.1 Condition B
HNL2	Q1Y52P0502A-A	1B STORAGE TANK OIL TRANSFER PUMP 502A. *1B DG manual fuel oil transfer pump. There are two fuel oil transfer pumps per storage tank. The capacity of each pump is in excess of the amount required to simultaneously supply the diesel generator full load fuel requirements and fill the associated day tank. One pump automatically maintains the required day tank level, and the other is strictly manual. There are no TS Required Actions as long as the automatic pump remains operable.*	N/A (Assuming automatic fuel oil transfer pump remains operable)
HNN2	**Q1R17B0507-A**	**120/208V AC DIST CABINET >>>**	

DH08
ER03
FNG5L
120/208V AC DIST CABINET-MCC 1N DB/EL.155' D172544 SH.1

BKR	TPNS	DESCRIPTION (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
	Q1R17B0507-A	**120/208V AC DIST CABINET - MCC-1N <<< IN COMPARTMENT HNN2**	
MN-6	QSP25JQ4123-A	CONDENSATE STORAGE TANK LOW-LEVEL ALARM & INST POWER SUPPLY (IN-69A) *This instrument supplies power for SW temperature elements, SW wet pit level switch, and river water wet pet level transmitter. There are no TS Required Actions to enter if this instrument is inoperable.*	N/A
MN-7	QSH22L504-A	STATOR TEMPERATURE INDICATOR FOR 1C DIESEL LOCAL RELAY PANEL	3.8.1 Condition B
MN-10	Q1H21E528-N	1C DIESEL GEN LOCAL CONTROL PANEL AND LOCAL ANNUNCIATOR POWER SUPPLY (NSR43E003N)	3.8.1 Condition B
MN-13	QSY41M521A-A	DB SWGR ROOM HVAC LOUVER DAMPER MOTOR 1A CONTROL POWER. *Diesel building A train switchgear room intake louver.*	3.8.1 Condition B
	QSY41M521B-A	DB SWGR ROOM HVAC LOUVER DAMPER MOTOR 1B CONTROL POWER *Diesel building A train switchgear room intake louver.*	3.8.1 Condition B
MN-14	QSR43V792-A	AIR COMPRESSOR "B" DRAIN VALVE. *Part of air start system for 1C DG.*	3.8.1 Condition B
	QSR43V793-A	AIR COMPRESSOR "A" DRAIN VALVE. *Part of air start system for 1C DG.*	3.8.1 Condition B

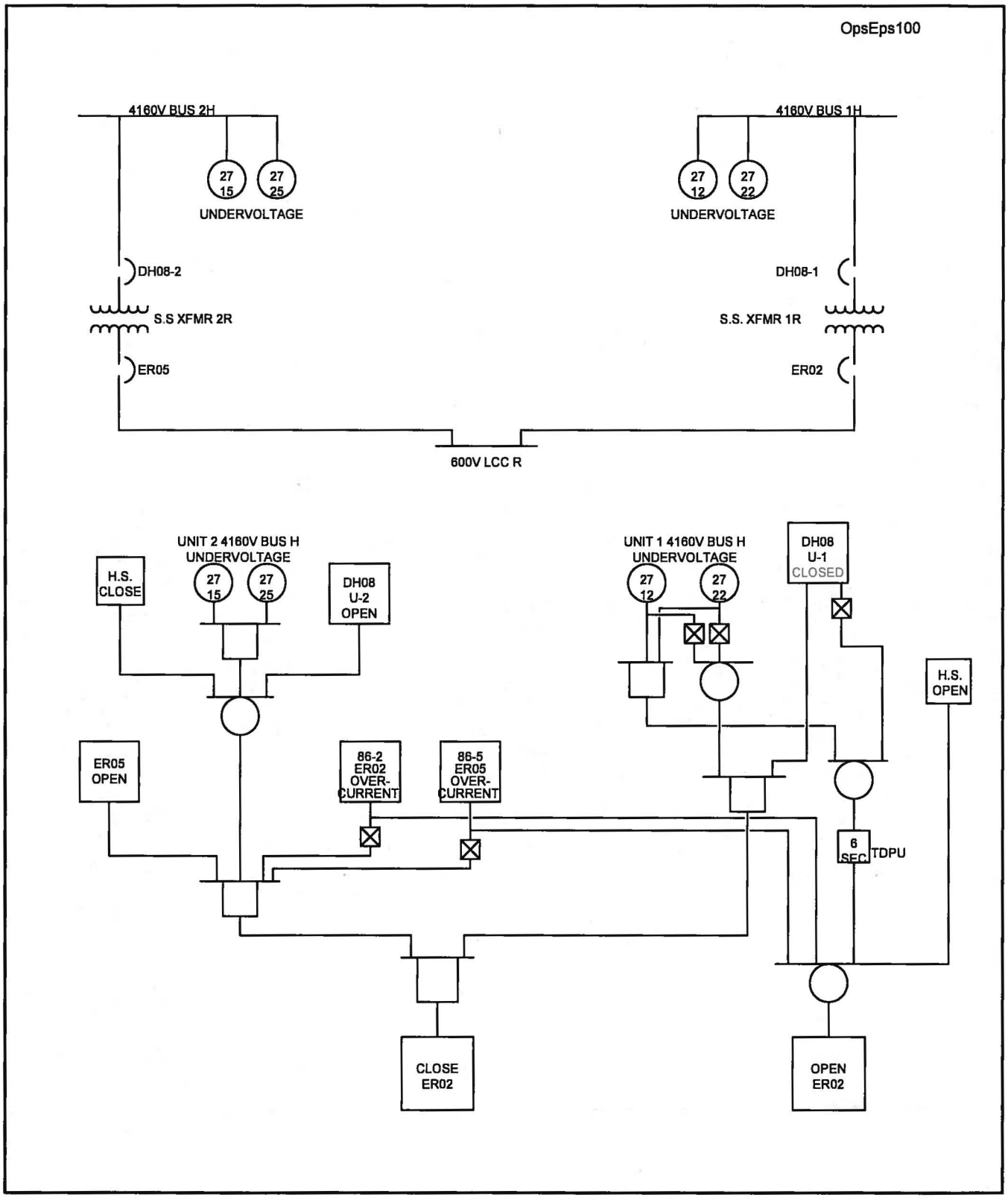
BKR	TPNS	DESCRIPTION (ADDITIONAL INFORMATION IN ITALICS IF NECESSARY)	ADDITIONAL AFFECTED TS
MN-15	QSY41M514B-A	DB GEN ROOM HVAC LOUVER DAMPER MOTOR 1C LOCAL CONTROL POWER. *1C DG room motor operated louvers.*	3.8.1 Condition B
	QSY41M514A-A	DB GEN ROOM HVAC LOUVER DAMPER MOTOR 1D LOCAL CONTROL POWER. *1C DG room motor operated louvers.*	3.8.1 Condition B
MN-17	QSH23S544F-A	DG SWGR ROOM "A" CARDOX VENTILATOR OVER-RIDE. *Diesel building A train switchgear room HVAC local control station.*	3.8.1 Condition B
MN-18	QSR43TM791A-A	LUBE OIL TEMP TRANSMITTER. *1C DG lube oil sump temperature transmitter*	3.8.1 Condition B
	QSR43TM791B-A	LUBE OIL TEMP INDICATOR SIGNAL CONV. *1C DG lube oil temperature indicator*	3.8.1 Condition B
MN-20	Q2R15A0503-A	4160V SWGR 2H SPACE HEATERS	N/A
MN-23	Q1R17B507-A	MCC-1N SPACE HEATERS	N/A

Farley Nuclear Plant
License Amendment Request to Revise the Actions of
Technical Specification 3.8.9, "Distribution Systems - Operating"

Enclosure 5

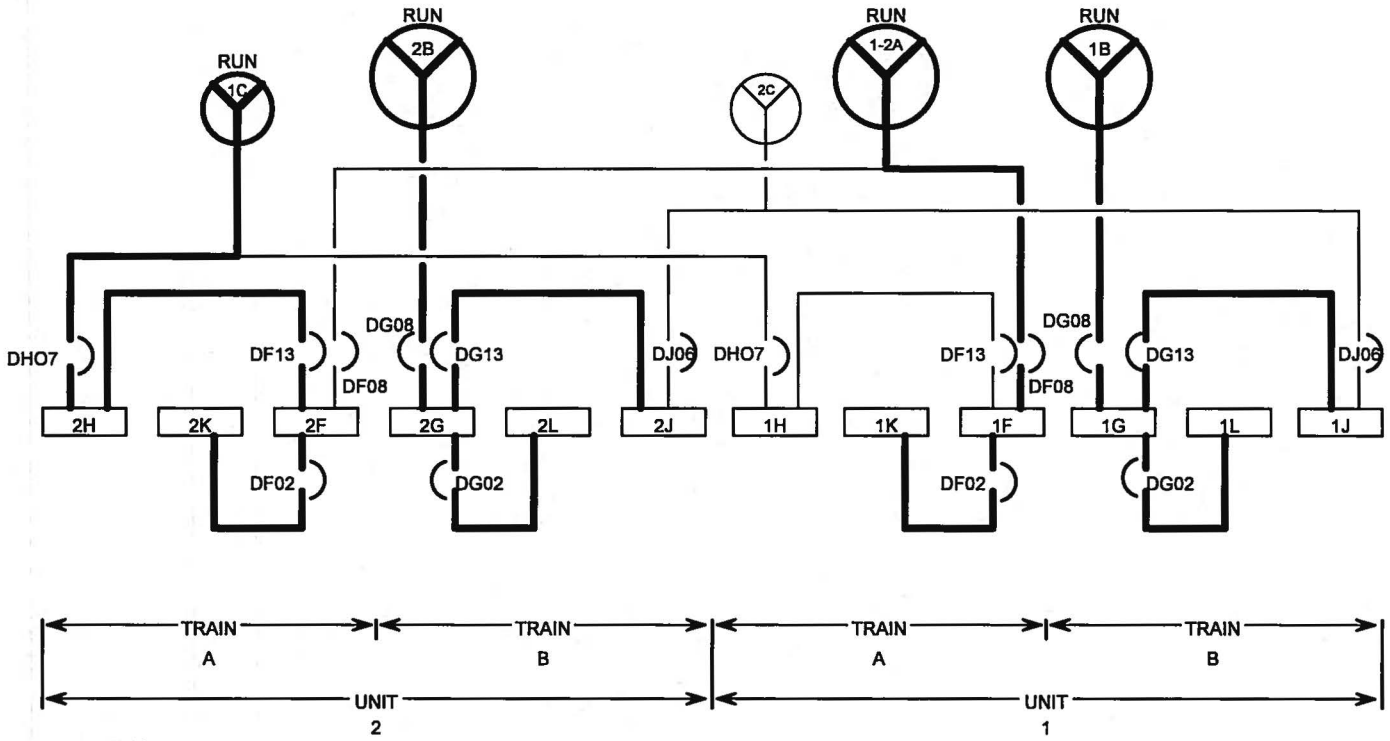
Selected Figures and Drawings for FNP Electrical System

INTERMEDIATE AND LOW VOLTAGE AC DISTRIBUTION



Unit 1 Supply To LCC R Breaker ER02 (Unit 2 Supply To LCC R Breaker ER05)

DIESEL GENERATOR SEQUENCERS



OpsDgs038

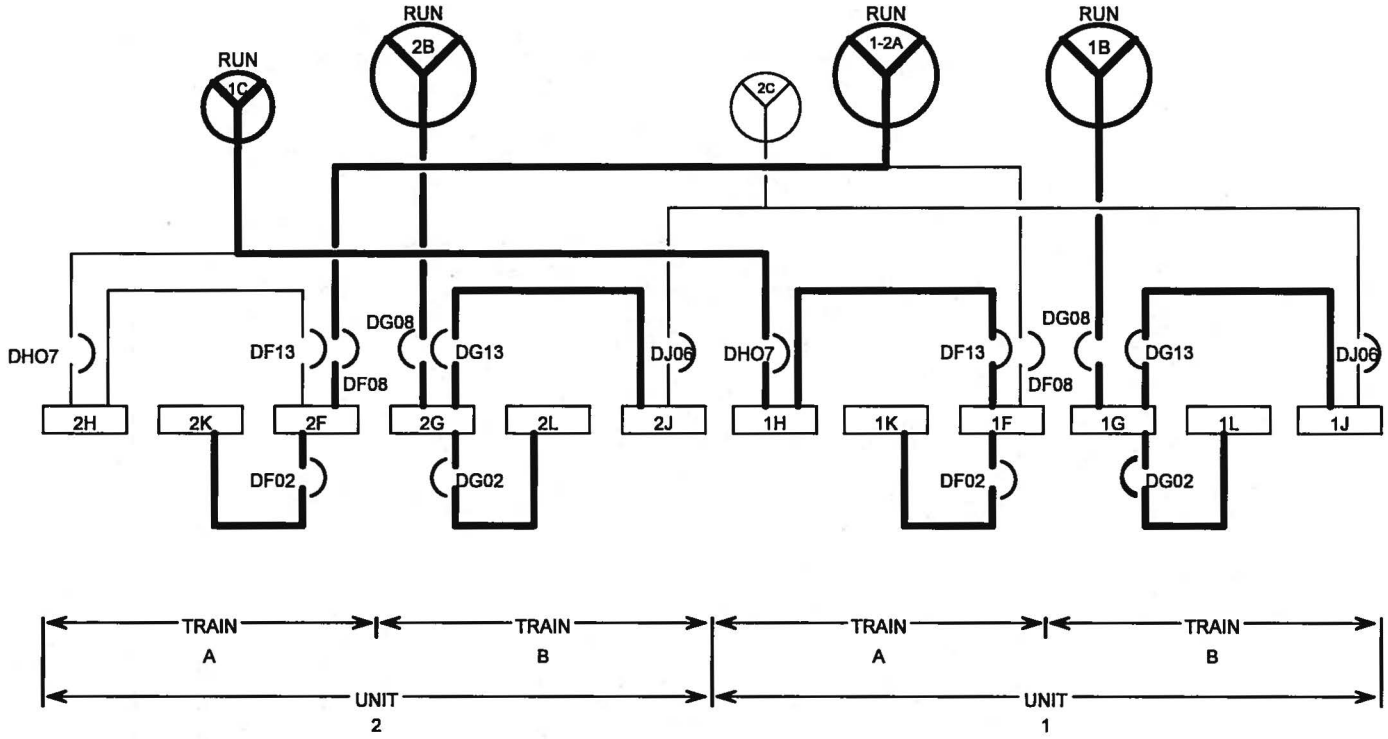
NOTES

DGs 1-2A, 1B, 2B, AND 1C START. DG 1-2A ALIGNS TO BUS 1F, AND THE B1F ESS SEQUENCER RUNS. BUS 1H REMAINS DEENERGIZED UNTIL MANUALLY ENERGIZED BY THE OPERATOR. DG 1C ALIGNS TO BUS 2F THROUGH DH07-2 AND DF13-2. THE B2F LOSP SEQUENCER RUNS. DG 1B ALIGNS TO BUS 1G, AND THE B1G ESS SEQUENCER RUNS. DG 2B ALIGNS TO BUS 2G, AND THE B2G LOSP SEQUENCER RUNS.

Dual-Unit LOSP, SI Unit 1, No Failures

DIESEL GENERATOR SEQUENCERS

OpsDgs039



NOTES

DGs 1-2A, 1B, 2B, AND 1C START. DG 1-2A ALIGNS TO BUS 2F, AND THE B2F ESS SEQUENCER RUNS. BUS 2H REMAINS DEENERGIZED UNTIL MANUALLY ENERGIZED BY THE OPERATOR. DG 1C ALIGNS TO BUS 1F THROUGH DH07-1 AND DF13-1. THE B1F LOSP SEQUENCER RUNS. DG 1B ALIGNS TO BUS 1G, AND THE B1G LOSP SEQUENCER RUNS. DG 2B ALIGNS TO BUS 2G, AND THE B2G ESS SEQUENCER RUNS.

Dual-Unit LOSP, SI Unit 2, No Failures