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Subject: Request for Interpretation Regarding Technical Specification 3.8.1.1, Electrical Power Systems, A.C. Sources - Operating

Ladies and Gentlemen:

The purpose of this letter is to request an NRC-written interpretation of the Technical Specification 3.8.1.1, Electrical Power Systems, A.C. Sources - Operating, requirements regarding operability of offsite alternating current electrical power sources for the Davis-Besse Nuclear Power Station (DBNPS), Unit Number 1, Operating License Number NPF-3. The details of this request are provided in the enclosures.

This request is being submitted to the NRC pursuant to the guidance provided by the NRC in Information Notice 97-80, "Licensee Technical Specification Interpretations," dated November 21, 1997 (DBNPS Letter Log Number 1-3918) for obtaining a NRC-approved Technical Specification interpretation.

A response is requested by June 1, 2000. Should you have any questions or require additional information, please contact Mr. James L. Freels, Manager - Regulatory Affairs, at (419) 321-8466.

Very truly yours,

GMW

Enclosures

cc: J. E. Dyer, Regional Administrator, NRC Region III
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Utility Radiological Safety Board

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Request for NRC-Written Interpretation of the Technical Specification 3.8.1.1 Requirements Regarding Operability of Offsite Electrical Power Sources

The purpose of this submittal is to request an NRC-written interpretation of the Davis-Besse Nuclear Power Station (DBNPS) Technical Specification (TS) 3.8.1.1 requirements to be applied when any switchyard manipulation is performed that introduces the possibility of a single breaker fault that could result in a complete loss of offsite power.

Background:

The DBNPS TS 3/4.8.1, Electrical Power Systems, A.C. Sources - Operating, Limiting Condition for Operation 3.8.1.1 states, in part:

> "As a minimum, the following A.C. electrical power sources shall be OPERABLE:
>
> a. Two qualified circuits between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system, and
>
> b. Two separate and independent diesel generators each with..."

The associated Bases for DBNPS TS Section 3.8.1 states, in part:

> "The OPERABILITY of the A.C. and D.C. power sources and associated distribution Systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.
>
> Qualified offsite to onsite circuits are those that are described in the USAR and are part of the licensing basis for the plant.
>
> An OPERABLE qualified offsite to onsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E essential buses.
>
> An OPERABLE qualified offsite to onsite circuit consists of:
>
> 1. One OPERABLE 345 kV transmission line
> 2. One OPERABLE 345 - 13.8 kV startup transformer
> 3. One OPERABLE 13.8 kV bus, and
> 4. One OPERABLE 13.8 - 4.16 kV bus tie transformer. "
>
> "The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial

> condition assumptions of the safety analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source."

A complete copy of the DBNPS TS 3/4.8.1 and associated Bases is included in Enclosure 2 to this letter for information purposes. A one-line diagram of the DBNPS 345 kV switchyard (USAR Figure 8.2-2) is included as Enclosure 3 to this letter for information purposes. This diagram reflects the current and original design of the DBNPS switchyard as approved in the DBNPS Operating License (OL) Safety Evaluation Report (SER) dated December 1976 (NUREG-0136).

In examining this issue, a review of the pertinent portions of the DBNPS Updated Safety Analysis Report (USAR) with respect to the design and operation of the A.C. electrical power sources was conducted. USAR Section 8.1.5, "Design Basis," states "The electrical systems are designed to ensure that no single component failure will prevent operation of engineered safety systems." In the case of engineered safety systems that depend on electrical power to perform their function, this means that the required power must be assured either from A.C. power sources (including the emergency diesel generators) or D.C. power sources.

USAR Section 8.3.1.2.2, "Independent Circuits," states "Three independent circuits are provided to supply power to the onsite electrical distribution system, and with any two circuits in service the requirements of NRC General Design Criterion 17 are fulfilled." The three independent circuits that are provided are the 345 kV Bayshore, Lemoyne, and Ohio Edison transmission lines. Only two of these are required in order to meet General Design Criterion 17.

USAR Section 3D.1.13, "Electric Power Systems," which references General Design Criterion (GDC) 17, states "Electric power from the transmission network to the onsite electric distribution system is supplied by two physically independent circuits ... designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A switch yard common to both circuits is acceptable." Therefore, although the system must minimize simultaneous failure of the offsite circuits due to a single event, it should be noted that this is limited to the extent practical (i.e., not completely in all cases). This is repeated in USAR Section 8.2.1.1, "Reliability Considerations," which states "The possibility of power failure due to faults in the network interconnections and the associated switching is minimized by the following arrangements:

a. Any one of the three 345 kV transmission lines may be interrupted, and the others will be capable of carrying the load...

h. The ring bus switching arrangement in the 345 kV switchyard includes two full capacity main buses. Primary and backup relaying (redundant systems) are provided for each circuit along with circuit breaker failure backup protection. These provisions permit the following:

1. Any transmission line can be cleared under normal or fault conditions without affecting any other transmission line.
2. Any single circuit breaker can be isolated for maintenance without interrupting the power or protection to any circuit.
3. Short circuits on a section of ring bus will be isolated without interrupting service to any circuit, other than that connected to the faulted bus section.
4. Short circuit failure of power circuit breaker No. 34562 will result in the loss of the startup transformer No. 02, the Bay Shore Line, and the Ohio Edison tie line until the point of the fault is isolated by disconnect switches.
5. Short circuit failure of power circuit breaker No. 34561 will result in the loss of the main unit and the Bay Shore line, until the point of fault is isolated by disconnect switches.
6. Short circuit failure of power circuit breaker No. 34564 will result in the loss of the startup transformer No. 02, the Ohio Edison tieline, and the Lemoyne line, until the point of fault is isolated by disconnect switches.
7. Short circuit failure of power circuit breaker No. 34560 will result in tripping the generator main breakers, the loss of the unit from the system and of startup transformer No. 01, until the point of fault is isolated by disconnect switches.
8. Short circuit failure of power circuit breaker No. 34563 will result in the loss of the startup transformer No. 01 and the Lemoyne line until the point of fault is isolated by disconnect switches."

Therefore, it is noted that while power failures are minimized, it is also recognized that certain short circuit failures may occur until action is taken to isolate faults by means of disconnect switches. (Note: This USAR text is substantially unchanged since the Operating License was issued.)

Explanation of Issue:

General Design Criterion (GDC) 17 of Appendix "A" to 10 CFR 50 specifies the minimum requirements for the A.C. power sources from the transmission network to the onsite electric distribution system. Among these requirements are the following:

1. Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions.

2. Each of these circuits shall be designed to be available in sufficient time following a loss of all onsite alternating current power supplies and the other offsite electric power circuit, to assure that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded.

3. One of these circuits shall be designed to be available within a few seconds following a loss-of-coolant accident to assure that core cooling, containment integrity, and other vital safety functions are maintained.

In DBNPS Licensee Event Report (LER) 96-008, Revision 2 dated August 3, 1998, a condition was reported where it was conservatively interpreted that the minimum number of circuits between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system was not maintained and the specified actions of TS 3.8.1.1.a were not performed as required. For this event, it was determined that if a fault of a certain type (a lockout-fault) occurred on switchyard Air-Circuit Breaker (ACB) 34562 when the Lemoyne transmission line was removed from service for maintenance, this single fault would have resulted in additional switchyard breakers opening and a loss of the remaining offsite power sources. Because of this potential lockout-fault (which is a low probability occurrence), it was determined that the two "qualified" circuits specified by TS 3.8.1.1.a did not exist, and TS 3.8.1.1 should have been entered while the Lemoyne transmission line was out of service. This determination was based on TS 3.8.1.1.a requiring "qualified offsite to onsite circuits" and the term "qualified" being interpreted as single-failure proof. Since the TS required actions were not performed as specified, this event was reported in accordance with 10CFR50.73(a)(2)(ii) as a condition prohibited by TS. Other similar equipment configurations exist as described earlier in USAR Section 8.2.1.1 that can also result in a temporary loss of all offsite A.C. power sources due to a switchyard breaker fault when another switchyard breaker is open or the Bayshore transmission line is out of service.

However, upon recent review, the DBNPS staff has determined that this application of the single failure criterion to the switchyard breakers may be overly conservative. This is based on the following information:

A. Standard Review Plan, NUREG-0800, Section 8.2, Item III.1.d states "The design is examined to determine that at least one of the two required [offsite] circuits can, within a few seconds, provide power to safety-related equipment following a loss-of-coolant accident. General Design Criterion 17 does not require these circuits in themselves to be single-failure-proof for this accident" [emphasis added].

   In general, at least one of the two offsite circuits was capable of meeting this criterion with the switchyard configuration described in LER 96-008. Only a specific failure (a lockout-fault) of a specific breaker would have prevented either circuit from meeting this criterion. GDC-17 permits the existence of failures that can result in a loss of both circuits, as the GDC does not require the circuits to be single-failure-proof.

B. GDC 17: "The onsite electrical power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure."

Based upon this statement in conjunction with statement "A" above, only the onsite electrical power supplies are required to be single-failure-proof, and the issue being examined here for interpretation concerns the offsite power supplies.

C. GDC 17: "Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies." [emphasis added]

This requires the minimization, not the complete elimination of the probability of losing electric power.

D. As referenced in Statement 1 above, GDC 17 states that the offsite circuits shall be designed and located so as to minimize [emphasis added] to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions.

Again, this requires the minimization, not the complete elimination of the probability of losing electric power.

E. The TS Bases 3/4.8 state that the "qualified offsite to onsite circuits" are those described in the USAR. As discussed above, GDC 17, which is discussed in USAR Section 3D.1.13, provides for the minimization (but not necessarily the elimination) of the probability of losing power from the transmission network. Furthermore, the two required offsite circuits are not required to be single-failure-proof in themselves.

Therefore, the "qualified circuits" as described in the USAR and required under TS 3.8.1.1 allow for the low probability of the loss of offsite power.

Based upon a conservative interpretation of statements 1 through 3 (contained on pages 3 and 4 of this Enclosure), the FirstEnergy Nuclear Operating Company (FENOC) concluded in LER 96-008 that equipment manipulation in the DBNPS switchyard that would increase the possibility of a loss of all offsite power sources due to a single fault should only be performed as allowed by the applicable Technical Specification Action statement. For example, this interpretation requires entry into TS 3.8.1.1 Action a whenever the reactor trips and switchyard breakers 34560 and 34561 open to isolate the main generator from the transmission system. Entry into Action a would be taken under this interpretation, because a fault on breaker 34564 would cause the lockout of breakers 34562 and 34563 (the two circuits adjacent to the faulted breaker) leaving no offsite circuit. Thus, the circuits in service would not be considered single-failure-proof and Action a addresses the situation when there is only one qualified circuit. This adds additional burden on the operators during a reactor trip, unit shutdown, or unit startup, as the operators must either reclose the breakers or perform the TS requirements of Action a within an hour. This interpretation also appears to be contrary to statements "C" and "D" above, in that the original design of the DBNPS switchyard, as described in USAR Section 8.2.1.1, specifically

allowed the potential for breaker 34564 to experience a fault, resulting in the loss of the startup transformer No. 02, the Ohio Edison tieline, and the Lemoyne line. If this fault were to occur when breakers 34560 and 34561 open immediately following a reactor trip, a loss of all offsite power sources would result. In the DBNPS OL SER the NRC concluded that the design of the offsite emergency power system satisfied GDC 17 and was therefore acceptable. As part of this acceptance, the NRC determined that the probability of losing electrical power from the offsite sources coincident with the loss of power generated by the nuclear power unit was minimized, and that the design of the offsite circuits minimized to the extent practical the likelihood of their simultaneous failure.

Based on the above conservative interpretation that switchyard equipment manipulation requires entry into TS 3.8.1.1 Action a, should a switchyard breaker or offsite transmission line need to be removed from service for maintenance for more than 72 hours, under TS 3.8.1.1 Action a either the reactor will need to be shutdown, or the switchyard ring bus must be further separated by opening additional breakers to isolate the possibility of a single fault causing a loss of offsite power. While this separation allows continued operation in accordance with the TS, it can limit the ability to wheel power through the DBNPS switchyard. This separation may also result in the overall Toledo Edison/FirstEnergy grid becoming less reliable in the event of a nuclear or fossil unit trip, or problem with the transmission system.

During the majority of equipment manipulations under consideration, two 345 kV transmission lines, two 345 - 13.8 kV startup transformers, two 13.8 kV busses and two 13.8 - 4.16 kV bus tie transformers remain operable in accordance with the TS 3.8.1.1 Bases. To the extent practical, these components make up two individual paths through the common switchyard as allowed by GDC 17, with neither path crossing the other or sharing any component in the switchyard. Under these conditions, the GDC 17 requirement that one circuit be available in a few seconds following a loss of coolant accident would be met. The probability of losing electrical power from any of the remaining offsite power supplies is minimized in that only a low probability failure of a certain switchyard component that is in communication with both circuits will result in a loss of offsite power. Furthermore, this failure will have no effect on the onsite A.C. electrical power supplies.

Request for Interpretation:

The DBNPS switchyard is currently being operated in a conservative manner with respect to GDC 17, in that, TS 3.8.1.1 Action a is entered any time a portion of the switchyard is removed from service. TS 3.8.1.1 Action a is entered even though two 345 kV transmission lines, two 345 - 13.8 kV startup transformers, two 13.8 kV busses and two 13.8 - 4.16 kV bus tie transformers remain operable. However, as described above, this approach may be overly conservative and could result in equipment being unnecessarily declared inoperable, as well as increasing the burden on the operators following a reactor trip. In order to comply with the TS, this conservative action may result in the opening of additional switchyard breakers as described above to avoid an unnecessary reactor shutdown, further affecting the reliability of the grid in the vicinity of the DNBPS.

The FENOC has determined that it may be overly conservative under the DBNPS licensing basis to enter TS 3.8.1.1 Action a when any switchyard manipulation is performed that introduces the possibility of a single breaker fault that could result in a complete loss of offsite power as previously described. For this reason, the FENOC requests a written TS interpretation from the NRC confirming entry into Action a is not required under this situation.

DBNPS TS 3.8.1.1 and Associated Bases
FOR INFORMATION ONLY

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. **Two qualified circuits between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system, and**

b. **Two separate and independent diesel generators each with:**

1. **A separate day fuel tank containing a minimum volume of 4000 gallons of fuel,**

2. **A separate fuel storage system containing a minimum volume of 32,000 gallons of fuel, and**

3. **A separate fuel transfer pump.**

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. **With one offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.**

b. **With one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore at least two diesel generators to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.**

c. **With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and by performing Surveillance**

DBNPS TS 3.8.1.1 and Associated Bases
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ELECTRICAL POWER SYSTEMS

ACTION (Continued)

Requirement 4.8.1.1.2.a.4 within 8 hours. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. With the inoperable offsite source restored, restore two diesel generators to OPERABLE status within 7 days from the time of the initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. With the inoperable diesel generator restored, restore two offsite power sources to OPERABLE status within 72 hours from the time of the initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours and at least once per 8 hours thereafter, unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 7 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required qualified circuits between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability, and

b. Demonstrated OPERABLE at least once each REFUELING INTERVAL during shutdown by transferring (manually and automatically) unit power supply to each of the offsite circuits.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

a. At least once per 31 days, if Surveillance Requirement 4.8.1.1.2.c has not been performed within the previous 31 days, by:

DBNPS TS 3.8.1.1 and Associated Bases
FOR INFORMATION ONLY

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

1. Verifying the fuel level in the day fuel tank.
2. Verifying the fuel level in the fuel storage tank.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
4. Verifying the diesel starts and accelerates up to 900 rpm, preceded by an engine prelube and/or appropriate other warmup procedures.
5. Verifying the generator is synchronized, loaded to $\geq$ 1000 kw, and operates for $\geq$ 60 minutes.
6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.
7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within ± 10% of its required value.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-68 when checked for viscosity, water and sediment.

c. At least once per 184 days by:

1. Verifying the fuel level in the day fuel tank.
2. Verifying the fuel level in the fuel storage tank.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in $\leq$ 10 seconds.
5. Verifying the generator is synchronized, loaded to $\geq$ 1000 kw, and operates for $\geq$ 60 minutes.
6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.
7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within ± 10% of its required value.

DBNPS TS 3.8.1.1 and Associated Bases
FOR INFORMATION ONLY

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once each REFUELING INTERVAL during shutdown by:

1. Verifying the generator capability to reject a load equal to the largest single emergency load supplied by the generator without tripping.

2. Simulating a loss of offsite power in conjunction with a safety features actuation system (SFAS) test signal, and:

(a) Verifying de-energization of the essential busses and load shedding from the essential busses.

(b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the essential busses with permanently connected loads, energizes the auto-connected essential loads through the load sequencer and operates for $\geq$ 5 minutes while its generator is loaded with the essential loads.

(c) Verifying that all diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the essential bus and/or an SFAS test signal.

3. Verifying the diesel generator operates for $\geq$ 60 minutes while loaded to $\geq$ 2000 kw.

4. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2838 kw.

e. At least once per 30 months by subjecting the diesels to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendation for this class of standby service.*

* The provisions of Specification 4.0.2 are not applicable.

DBNPS TS 3.8.1.1 and Associated Bases
FOR INFORMATION ONLY

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

The OPERABILITY of the A.C. and D.C. power sources and associated distribution Systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General design Criterion 17 of Appendix "A" to 10 CFR 50.

Qualified offsite to onsite circuits are those that are described in the USAR and are part of the licensing basis for the plant.

An OPERABLE qualified offsite to onsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E essential buses.

An OPERABLE qualified offsite to onsite circuit consists of:

1. One OPERABLE 345 kV transmission line
2. One OPERABLE 345 - 13.8 kV startup transformer
3. One OPERABLE 13.8 kV bus, and
4. One OPERABLE 13.8 - 4.16 kV bus tie transformer.

Typically, the electrical power reserve source selector switches are selected to the two different startup transformers. However, under certain conditions it is appropriate to select both switches to the same startup transformer. The circuit in which the startup transformer does not have a reserve source selector switch pre-selected to it must still meet the requirements of having its 345 kV transmission line, startup transformer, 13.8 kV bus and bus tie transformer OPERABLE.

In the case where a 13.8 kV bus is powered from a startup transformer, the reserve source selector switch should be selected to the opposite startup transformer.

In MODES 1-4, if one of the required 13.8 kV - 4.16 kV bus tie transformers is inoperable, then one qualified offsite to onsite circuit is inoperable and the requirement of LCO 3.8.1.1.a is not met. The appropriate corresponding ACTION statement must be entered. The essential 4.16 kV buses remain OPERABLE while energized with one 13.8 kV - 4.16 kV bus tie transformer inoperable.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

DBNPS TS 3.8.1.1 and Associated Bases
FOR INFORMATION ONLY

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.c.4 verify proper starting of the Emergency Diesel Generators from standby conditions. Verification that an Emergency Diesel Generator has achieved a frequency of 60 Hz within the required time constraints meets the requirement for verifying the Emergency Diesel Generator has accelerated to 900 RPM.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

The Surveillance Requirements for demonstrating the OPERABILITY of the station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance, Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std. 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead - Acid Batteries for Stationary Applications," except that certain tests will be performed at least once each REFUELING INTERVAL.

Battery degradation is indicated when the battery capacity drops more than 10% from its capacity on the previous performance discharge or modified performance discharge test, or is below 90% of the manufacturer's rated capacity.

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cell's float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's full charge specific gravity or a battery charger current of less than two amps is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery. Exceptions to the specific gravity requirements are taken to allow for the normal deviations experienced after a battery discharge and subsequent recharge associated with a service, performance discharge, or modified performance discharge test. The specific gravity deviations are recognized and discussed in IEEE Std. 450-1995.

DBNPS TS 3.8.1.1 and Associated Bases
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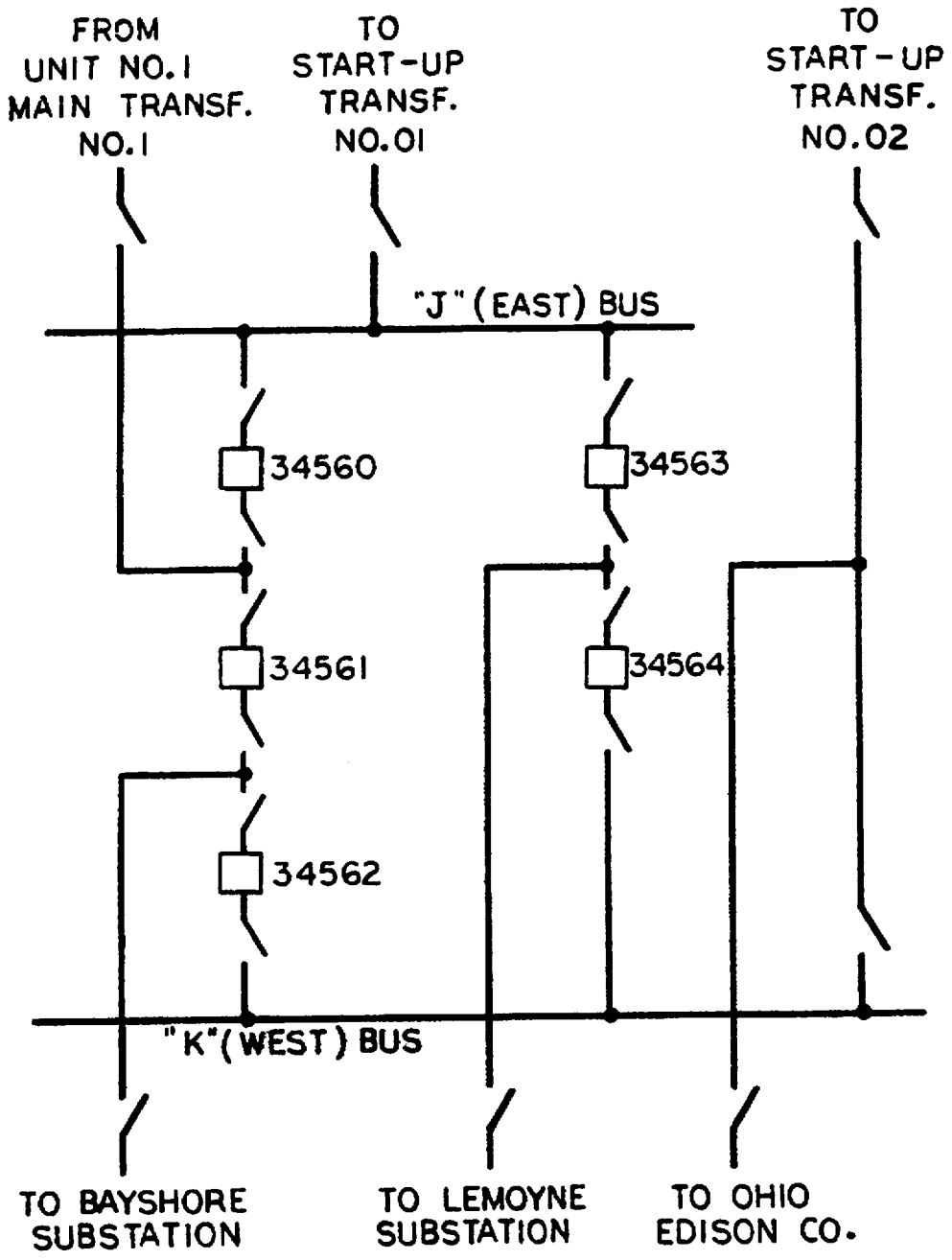
3/4.8 ELECTRICAL POWER SYSTEMS

BASES

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-1 is permitted for up to seven days. During this seven-day period: (1) the allowable value for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

DBNPS 345 kV Switchyard One-Line Diagram

(Updated Safety Analysis Report Figure 8.2-2)
FOR INFORMATION ONLY



COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station in this document. Any other actions discussed in the submittal represent intended or planned actions by Davis-Besse. They are described only as information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs (419-321-8466) at Davis-Besse of any questions regarding this document or associated regulatory commitments.

COMMITMENTS	DUE DATE
None	N/A