ATTACHMENT 1

PROPOSED CHANGES

ELECTRICAL POWER SYSTEMS

3/4.8.2 D.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 The following D.C. channels shall be OPERABLE and energized:

a. Channel 1 consisting of 125-Volt D.C. Bus No. EVDA, 125-Volt D.C. Battery Bank No. EVCA and a full-capacity charger,*#

b. Channel 2 consisting of 125-Volt D.C. Bus No. EVDB, 125-Volt D.C. Battery Bank No. EVCB and a full-capacity charger,*#

c. Channel 3 consisting of 125-Volt D.C. Bus No. EVDC, 125-Volt D.C. Battery Bank No. EVCC and a full-capacity charger,*# and

d. Channel 4 consisting of 125-Volt D.C. Bus No. EVDD, 125-Volt D.C. Battery Bank No. EVCD and a full-capacity charger,*#

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

ACTION: (Units 1 and 2)

a. With one 125-volt D.C. bus inoperable or not energized, restore the inoperable bus to OPERABLE and energized 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.

b. With one 125-volt D.C. battery and/or its normal and standby chargers inoperable or not energized, either:

1. Restore the inoperable battery and/or charger to OPERABLE and energized 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, or

2. Energize the associated bus with an OPERABLE battery bank via OPERABLE tie breakers within 2 hours; operation may then continue for up to 72 hours from time of initial loss of OPERABILITY, otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

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*A vital bus may be disconnected from its D.C. source for up to 24 hours for the purpose of performing an equalizing charge on its associated battery bank provided the vital busses associated with the other battery banks are OPERABLE and energized.

#During periods of battery bank replacement only, the affected channel may be considered OPERABLE provided a temporary battery is configured to a full capacity charger and connected to the respective bus. All limiting conditions for operation, action statements, and surveillance requirements pertaining to the permanent batteries shall be maintained for the temporary battery during periods of battery bank replacement.

(See next page)

#During periods of station modification associated with battery, main and tie breaker replacement only, the loads of a DC bus may be energized from a same train DC bus via temporary cables and breakers connecting to the same train DC bus directly and bypassing the de-energized DC bus. A one time allowable outage time up to 112 hours is granted for each DC bus, one at a time, to allow for replacement of these breakers. Footnote * shall not be applied to any of the busses during the 112 hour period.

3/4.8.3 ONSITE POWER DISTRIBUTION

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following A.C. electrical busses and inverters shall be OPERABLE and energized with tie breakers open both between redundant busses within the unit and between the two units:

a. 4160-Volt Emergency Bus (#) ETA,

b. 4160-Volt Emergency Bus (#) ETB,

c. 600-Volt Emergency Bus (#) ELXA,

d. 600-Volt Emergency Bus (#) ELXB,

e. 600-Volt Emergency Bus (#) ELXC,

f. 600-Volt Emergency Bus (#) ELXD,

g. 120-Volt A.C. Vital Bus (#) EKVA energized from Inverter (#) EVIA connected to D.C. Channel 1,* #

h. 120-Volt A.C. Vital Bus (#) EKVB energized from Inverter (#) EVIB connected to D.C. Channel 2,* #

i. 120-Volt A.C. Vital Bus (#) EKVC energized from Inverter (#) EVIC connected to D.C. Channel 3,* # and

j. 120-Volt A.C. Vital Bus (#) EKVD energized from Inverter (#) EVID connected to D.C. Channel 4.* #

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

ACTION:

a. With less than the above complement of A.C. busses OPERABLE and energized, restore the inoperable busses to OPERABLE and energized status within 8 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 inverter inoperable, energize the associated A.C. Vital Bus within 8 hours; restore the inoperable inverter to OPERABLE and energized status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.3.1 The specified A.C. busses and inverters shall be determined energized in the required manner at least once per 7 days by verifying correct breaker alignment and indicated voltage on the busses.

*An inverter may be disconnected from its D.C. source for up to 24 hours for the purpose of performing an equalizing charge on its associated battery bank provided: (1) its vital bus is OPERABLE and energized, and (2) the vital busses associated with the other battery banks are OPERABLE and energized. An inverter may be disconnected from its D.C. source for up to 72 hours provided the conditions of ACTION b. of Specification 3.8.2.1 are satisfied.

(see next page)

#During periods of station modification associated with battery, main and tie breaker replacement only, two channel related inverters may be energized from a same train DC bus via temporary cables and breakers connecting to the same train DC bus directly and bypassing the associated de-energized DC bus. A one time allowable outage time up to 112 hours is granted for each DC bus, one at a time, to allow for replacement of these breakers. Footnote * shall not be applied to any of the busses during the 112 hour period.

ATTACHMENT 2

TECHNICAL JUSTIFICATION

Technical Justification:

Figure 1 attached at the end of Attachment 2 shows a composite one-line diagram of the 125 VDC and 120 VAC Vital Instrumentation and Control Power Systems. The 125 VDC Vital Instrumentation and Control Power System (reference McGuire FSAR, section 8.3.2.1.4) provides power to nuclear safety related instrumentation and control loads requiring an uninterrupted power source to maintain safe reactor status during normal plant operation, a loss of offsite power (LOOP), design basis events, and a LOOP concurrent with design basis events. This is a four- channel shared system between Units 1 and 2, with a spare charger which can be connected to these four channels, one or two at a time. This system is required to provide sufficient power to safety related systems and components needed to mitigate the consequences of design basis events. Should a loss of a battery charger or AC power source occur, a single battery is capable of supplying two channels for a period of 1 hour while maintaining sufficient terminal voltage. The 1 hour period is based on a conservative estimate of the time required to restore power to the battery chargers. 125 VDC bus voltage indication, alarms (DC bus undervoltage, DC bus positive/negative ground, DC channel trouble) and computer points for each channel are provided in the control room. The DC channel trouble alarm includes inputs from positions of the charger's input and output breakers, battery output breaker, distribution center's main incoming breaker and tie breaker, as well as undervoltage relays for the DC and AC panelboards.

In July 1991, the NRC finished a functional inspection of the electrical distribution system at McGuire. Based on the EDSFI results, there is a concern that the present breaker arrangement can result in a trip of both the battery breaker (which has an instantaneous trip) and the main incoming breaker (which also has an instantaneous trip) if a fault occurs on one of the 125 VDC panelboards.

By letters dated September 27, 1991, December 12, 1991 and August 26, 1994, McGuire Nuclear Station committed to have these breakers replaced in 1995 with a better coordinated design to eliminate the above concern.

A modification is planned to replace the battery circuit breaker (600A), distribution center main incoming circuit breaker (600A), and tie circuit breaker (400A) for each of the 4 channels of the 125 VDC Vital Instrumentation and Control Power System. The battery circuit breaker will be replaced with a non-fusible switch (600A), and the distribution center main incoming circuit breaker will be replaced with a fusible switch (600A). The tie circuit breaker will be replaced with either the battery or main incoming breaker previously removed (these breakers are capable

of being set at a higher instantaneous overcurrent setting than the existing tie breaker). The new arrangement will use a fusible switch which has a greater time delay than the present main incoming breaker, thereby allowing enough time for the individual breakers on the 125 VDC panelboards or the panelboard feeder breaker to trip on a fault condition, so that the entire distribution center (EVDA, EVDB, EVDC or EVDD) will not be lost as a result of a fault on a panelboard.

The proposed TS changes are for allowing the use of temporary cables and breakers to connect the loads of a vital DC bus (EVDA, EVDB, EVDC or EVDD) to a same train vital DC bus while the vital DC bus is de-energized for replacement of the battery, main and tie circuit breakers. The proposed TS changes are also for allowing a one time outage time up to 112 hours for each vital DC bus for completion of all tasks associated with the replacement of these breakers. The proposed 112 hours are extended from the 72 hours currently allowed by TS 3.8.2.1 ACTION b.2 for two DC busses to be cross-tied together. Within this proposed 112 hours, the expected time for implementation is 88 hours and the additional 24 hours are requested for contingencies that may arise during installation. To minimize the use of the 88 hours, the following steps will be taken:

1/ As much work as possible will be performed prior to entering TS time.

2/ Work will be in progress 24 hours a day with various parts of the implementation proceeding simultaneously.

3/ DC panelboard circuit breakers for temporary alignment have been previously installed by minor modifications.

4/ Spare circuit breakers and switches will be available.

5/ Possibility of unacceptable battery degradation will be eliminated by monitoring battery voltage periodically throughout installation and having a spare charger available.

During modification installation, all inputs to the DC channel trouble alarm, except those from the DC and AC panelboard undervoltage relays, are isolated so that an undervoltage condition in a panelboard can be immediately detected. The temporary configuration, as described above, is technically compatible with the cross-tie configuration allowed by TS 3.8.2.1 ACTION b.2.

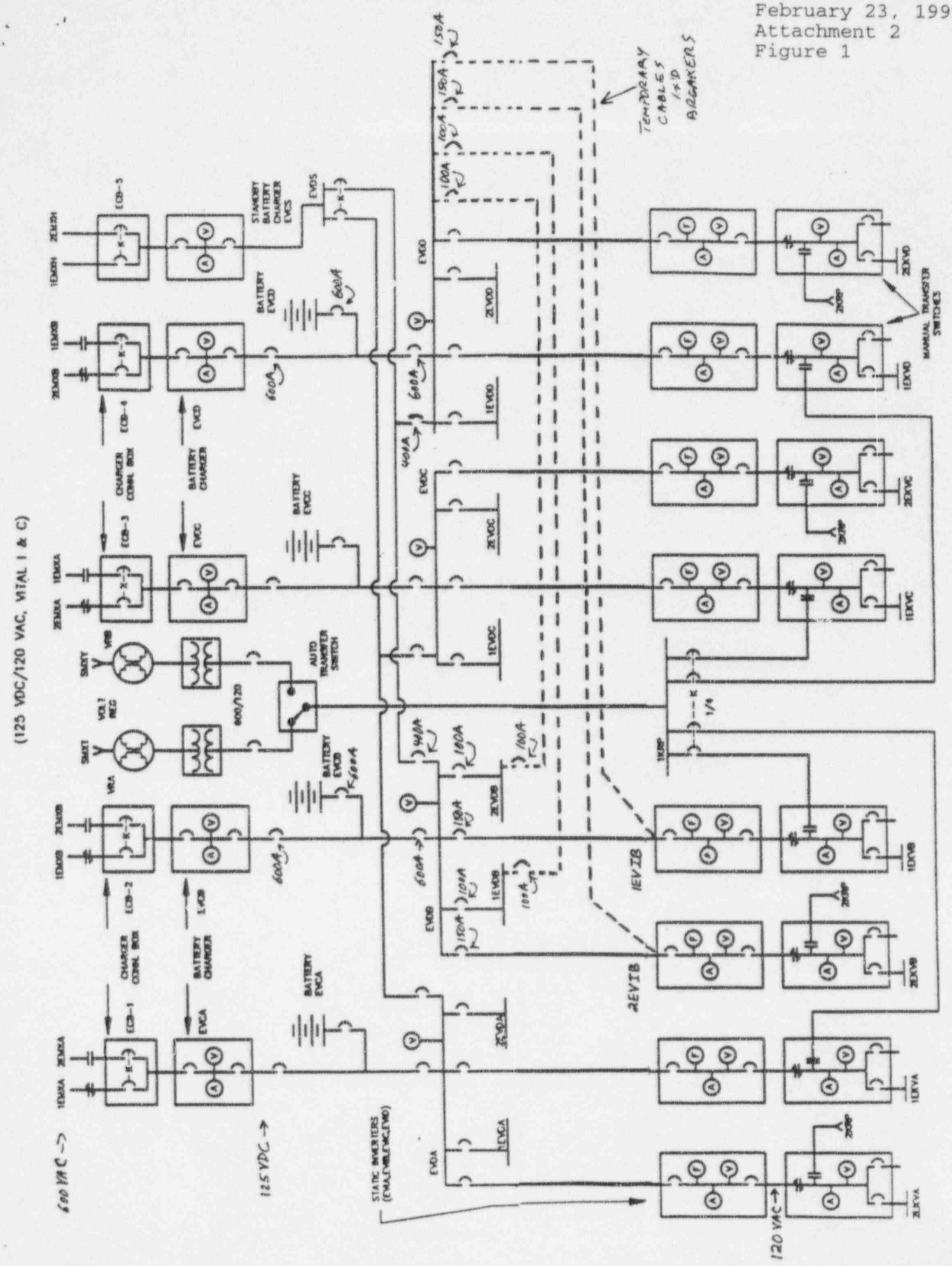
Since four identical channels are involved, only one channel is used in the following explanation.

To replace the battery, main and tie breakers in channel B (see Figure 1), the modification is generally described as follows (the actual implementation is carried out in accordance with implementation procedures): Inverters 1EVIB and 2EVIB and DC panelboards 1EVDB and 2EVDB are energized from DC distribution center EVDD via temporary cables and breakers. DC distribution center EVDB is de-energized. The battery, main and tie breakers are replaced. Channel B is then restored to its normal configuration, with DC panelboards 1EVDB and 2EVDB, and inverters 1EVIB and 2EVIB energized by DC distribution center EVDB.

The proposed deletion of the existing # sign in TS 3.8.3.1, items a through j, is purely an administrative change to avoid confusion with the proposed footnote # in TS 3.8.3.1 and TS 3.8.2.1.

The proposed deletion of the existing footnote # in TS 3.8.2.1 is purely an administrative change to remove this note because the battery replacement modifications are complete.

U.S. NRC
February 23, 1995
Attachment 2
Figure 1



ATTACHMENT 3

SAFETY EVALUATION

Safety Evaluation:

The 125 VDC Vital Instrumentation and Control Power System provides power to nuclear safety related instrumentation and control loads requiring an uninterrupted power source to maintain safe reactor status during normal plant operation, a loss of offsite power (LOOP), design basis events, and a LOOP concurrent with design basis events. This is a four-channel shared system between Units 1 and 2, with a spare charger which can be connected to these four channels, one or two at a time. This system is required to provide sufficient power to safety related systems and components needed to mitigate the consequences of design basis events. Should a loss of a battery charger or AC power source occur, a single battery is capable of supplying two channels for a period of 1 hour while maintaining sufficient terminal voltage. The 1 hour period is based on a conservative estimate of the time required to restore power to the battery chargers. 125 VDC bus voltage indication, alarms (DC bus undervoltage, DC bus positive/negative ground, DC channel trouble) and computer points for each channel are provided in the control room. The DC channel trouble alarm includes inputs from positions of the charger's input and output breakers, battery output breaker, distribution center's main incoming breaker and tie breaker, as well as undervoltage relays for the DC and AC panelboards. Indication of the specific condition responsible for initiating the channel trouble alarm is provided on the local alarm module located in the battery room.

A modification is planned to replace the battery circuit breaker (600A), distribution center main incoming circuit breaker (600A), and tie circuit breaker (400A) for each of the 4 channels of the 125 VDC Vital Instrumentation and Control Power System. The battery circuit breaker will be replaced with a non-fusible switch (600A), and the distribution center main incoming circuit breaker will be replaced with a fusible switch (600A). The tie circuit breaker will be replaced with either the battery or main incoming breaker previously removed (these breakers are capable of being set at a higher instantaneous overcurrent setting than the existing tie breaker). The new arrangement will use a fusible switch which opens at a later point than the present main incoming breaker, thereby allowing enough time for the individual breakers on the 125 VDC panelboards to trip on a fault condition, so that the entire distribution center (EVDA, EVDB, EVDC or EVDD) will not be lost on trip of the main incoming breaker.

The use of temporary cables and breakers to facilitate the de-energization of a vital bus and connection of its loads to its same train vital bus for breaker replacement does not technically violate the applicable technical specifications since the intent of these technical specifications is to have uninterrupted power to the loads normally connected to this de-energized bus. The

proposed TS changes do not involve a significant relaxatior limiting conditions for operation. Even though the propose changes involve a relaxation in outage time (112 hours vs. 72 hours), they are accompanied by compensatory conditions: 1/ no equalizing charge on any of the three OPERABLE battery banks is allowed during this time, 2/ all inputs to the DC channel trouble alarm except those from the associated DC and AC panelboard undervoltage relays will be blocked during this time so that an undervoltage condition on any of the DC and AC panelboards during this period will be detected, 3/ a temporary portable charger will be available for charging the INOPERABLE battery during this period if needed, 4/ work done on the opposite train will be minimized during this period, and 5/ installation of the modification will be carried out in accordance with implementation procedures. Thus a commensurate level of safety is maintained.

At no point during this modification is power lost to the DC and AC panelboards. A normal plant procedure is used to transfer power for the AC panelboards back and forth between their inverters and their alternate regulated AC power supplies (1KRP and 2KRP). Instrumentation as described above remains valid to detect an undervoltage condition in the vital DC and AC panelboards being temporarily connected to their same train power source. Temporary cables and breakers meet all applicable safety class 1E and seismic requirements. Temporary cabling will satisfy cable separation criteria. There will be no degradation of distribution centers and panelboards as a result of temporary breakers being installed in them.

Based on the above evaluation, it is concluded that the proposed TS changes do not compromise the safety of any system. The proposed changes do not affect any accident previously analyzed nor create any possible new accidents, and does not compromise in any way the safety of the public.

ATTACHMENT 4

NO SIGNIFICANT HAZARDS CONSIDERATION

No Significant Hazards Consideration:

As required by 10 CFR 50.91, this analysis is provided concerning whether the requested amendments involve significant hazards considerations, as defined by 10 CFR 50.92. Standards for determination that an amendment request involves no significant hazards considerations are if operation of the facility in accordance with the requested amendment would not: 1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or 2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or 3) Involve a significant reduction in a margin of safety.

The proposed TS changes are needed to allow replacement of the battery circuit breaker (600A), distribution center main incoming circuit breaker (600A), and tie circuit breaker (400A) for each of the 4 channels of the 125 VDC Vital Instrumentation and Control Power System thus increasing reliability of safety related DC power source. The battery circuit breaker will be replaced with a non-fusible switch (600A), and the distribution center main incoming circuit breaker will be replaced with a fusible switch (600A). The tie circuit breaker will be replaced with either the battery or main incoming breaker previously removed (these breakers are capable of being set at a higher instantaneous overcurrent setting than the existing tie breaker). The new arrangement will use a fusible switch which opens at a later point than the present main incoming breaker, thereby allowing enough time for the individual breakers on the 125 VDC panelboards to trip on a fault condition, so that the entire distribution center (EVDA, EVDB, EVDC or EVDD) will not be lost due to tripping of the main incoming breaker.

In 48 FR 14870, the Commission has set forth examples of amendments that are considered likely to involve significant hazards considerations. Example iii describes a change which involves a significant relaxation in limiting conditions for operation not accompanied by compensatory changes, conditions, or actions that maintain a commensurate level of safety. The requested amendment is not similar to example iii above in that the proposed changes do not involve a significant relaxation in limiting conditions for operation. Even though the proposed changes involve a relaxation in outage time (112 hours vs. 72 hours), they are accompanied by compensatory conditions: 1/ no equalizing charge on any of the three OPERABLE battery banks is allowed during this time, 2/ all inputs to the DC channel trouble alarm except those from the associated DC and AC panelboard undervoltage relays will be blocked during this time so that an undervoltage condition on any of the DC and AC panelboards during this period will be detected, 3/ a temporary portable charger

will be available for charging the INOPERABLE battery during this period if needed, 4/ work done on the opposite train will be minimized during this period, and 5/ installation of the modification will be carried out in accordance with implementation procedures. Thus a commensurate level of safety is maintained.

Criterion 1

Operation of the facility in accordance with the requested amendments will not involve a significant increase in the probability or consequences of an accident previously evaluated. At no point during this temporary modification is power lost to the DC and AC panelboards. A normal plant procedure is used to transfer power for the AC panelboards back and forth between their inverters and their alternate regulated AC power supplies (1KRP and 2KRP). All inputs to the DC channel trouble alarm except those from the associated DC and AC panelboard undervoltage relays will be blocked during the 112 hour temporary modification period so that an undervoltage condition on any of the DC and AC panelboards during this period will be detected immediately. Temporary cabling will satisfy cable separation criteria. Temporary cables and breakers meet all applicable safety class 1E and seismic requirements. There will be no degradation of distribution centers and panelboards as a result of temporary breakers being installed in them.

Criterion 2

Operation of the facility in accordance with the requested amendments will not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed TS changes will not create the possibility for an accident or malfunction of a different type than any previously evaluated. No new failure modes are being created by the proposed TS changes.

Criterion 3

Operation of the facility in accordance with the requested amendments will not involve a significant reduction in a margin of safety. The proposed TS changes will not reduce the margin of safety as described in the bases for any Technical Specifications. The bases for Tech. Specs. 3/4.8.2 and 3/4.8.3 (minimum specified independent and redundant A.C and D.C. power sources and distribution systems to supply safety-related equipment for safe shutdown and mitigation/control of accident conditions) will not be impacted by these proposed TS changes. The proposed TS changes will not reduce the margin of safety since the temporary cables and breakers meet all applicable safety class 1E and seismic requirements. The use of temporary

cables and breakers to facilitate the de-energization of a vital bus and connection of its loads to its same train vital bus for breaker replacement does not technically violate the applicable technical specifications since the intent of these technical specifications is to have uninterrupted power to the loads normally connected to this de-energized bus. Instrumentation during the temporary modification period remains valid to immediately detect an undervoltage condition in the affected DC and AC panelboards.

Based on the preceding analyses, Duke Power concludes that the requested amendments do not involve a significant hazards consideration.

Environmental Impact Analysis

The proposed Technical Specification amendment has been reviewed against the criteria of 10 CFR 51.22 for environmental considerations. The proposed amendment does not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor increase individual or cumulative occupational radiation exposures. Therefore, the proposed amendment meets the criteria given in 10 CFR 51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Review.