ATTACHMENT 1

PROPOSED CHANGES

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
7. Auxiliary Feedwater (continued)					
f. Station Blackout (Note 1) Start Motor-Driven Pumps and Turbine-Driven Pump					
1) 4 kV Loss of Voltage	~~4~~ 3/Bus	2/Bus Either Bus	2/Bus	1, 2, 3	19
2) 4 kV Degraded Voltage	3/Bus	2/Bus Either Bus	2/Bus	1, 2, 3	19
g. Trip of All Main Feedwater Pumps Start Motor-Driven Pumps	2-1/MFWP	2-1/MFWP	2-1/MFWP	1, 2#	27
8. Automatic Switchover to Recirculation					
RWST Level	3	2	2	1, 2, 3	15
9. Loss of Power					
a. 4 kV Loss of Voltage ~~Emergency Bus Undervoltage Grid Degraded Voltage~~	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	15a
b. 4 kV Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	15a
10. Engineered Safety Features Actuation System Interlocks					
a. Pressurizer Pressure, P-11	3	2	2	1, 2, 3	20
b. Low-Low T_{avg}, P-12	4	2	3	1, 2, 3	20
c. Reactor Trip, P-4	2	2	2	1, 2, 3	22
d. Steam Generator Level, P-14	3/stm gen.	2/stm gen. in any operating stm gen.	2/stm gen. in each operating stm gen.	1, 2, 3	20

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
7. Auxiliary Feedwater		
a. Manual Initiation	N.A.	N.A.
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.
c. Steam Generator Water Level--Low-Low		
1) Start Motor-Driven Pumps	≥ 12% of span from 0 to 30% of RATED THERMAL POWER, increasing linearly to ≥ 40.0% of span at 100% of RATED THERMAL POWER.	≥ 11% of span from 0 to 30% of RATED THERMAL POWER, increasing linearly to ≥ 39.0% of span at 100% of RATED THERMAL POWER.
2) Start Turbine-Driven Pumps	12% of span from 0 to 30% of RATED THERMAL POWER, increasing linearly to ≥ 40.0% of span at 100% of RATED THERMAL POWER.	≥ 11% of span from 0 to 30% of RATED THERMAL POWER, increasing linearly to ≥ 39.0% of span at 100% of RATED THERMAL POWER.
d. Auxiliary Feedwater Suction Pressure - Low (Suction Supply Automatic Realignment)	≥ 2 psig	≥ 1 psig
e. Safety Injection - Start Motor-Driven Pumps	See Item 1. above for all Safety Injection Trip Setpoints and Allowable Values	
f. Station Blackout - Start Motor-Driven Pumps and Turbine-Driven Pump (Note 1)	~~3464 ± 173 volts with a 8.5 ± 0.5 second time delay~~	~~≥ 3200 volts~~
g. Trip of Main Feedwater Pumps - Start Motor-Driven Pumps	N.A.	N.A.

(See Insert A on next page)

Insert A:

Unit 1		
1) 4 kV Loss of Voltage	≤ 3220 volts with a 8.5 ± 0.5 second time delay	≤ 3227 volts
2) 4 kV Degraded Voltage	≥ 3678.5 volts with ≥ 11 second with SI and ≤ 600 second without SI time delays	≥ 3661 volts
Unit 2		
1) 4 kV Loss of Voltage	≤ 3202.5 volts with a 8.5 ± 0.5 second time delay	≤ 3206 volts
2) 4 kV Degraded Voltage	≥ 3703 volts with ≥ 11 second with SI and ≤ 600 second without SI time delays	≥ 3685.5 volts

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
8. Automatic Switchover to Recirculation		
RWST Level	≥ 90 inches	≥ 80 inches
9. Loss of Power		
(See Insert B on next Page) ~~4 kV Emergency Bus Undervoltage-Grid Degraded Voltage~~	~~3464 ± 173 volts with a 8.5 ± 0.5 second time delay~~	~~≥ 3200 volts~~
10. Engineered Safety Features Actuation System Interlocks		
a. Pressurizer Pressure, P-11	≤ 1955 psig	≤ 1965 psig
b. T_{avg}, P-12	≥ 553°F	≥ 551°F
c. Reactor Trip, P-4	N.A.	N.A.
d. Steam Generator Level, P-14	See Item 5. above for all Trip Setpoints and Allowable Values.	

Note 1: The turbine driven pump will not start on a blackout signal coincident with a safety injection signal.

Insert B:

Unit 1		
a. 4 kV Loss of Voltage	≤ 3220 volts with a 8.5 ± 0.5 second time delay	≤ 3227 volts
b. 4 kV Degraded Voltage	≥ 3678.5 volts with ≥ 11 second with SI and ≤ 600 second without SI time delays	≥ 3661 volts
Unit 2		
a. 4 kV Loss of Voltage	≤ 3202.5 volts with a 8.5 ± 0.5 second time delay	≤ 3206 volts
b. 4 kV Degraded Voltage	≥ 3703 volts with ≥ 11 second with SI and ≤ 600 second without SI time delays	≥ 3685.5 volts

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
7. Steam Generator Water Level LowLow	
a. Motor-driven Auxiliary Feedwater Pumps	≤ 60
b. Turbine-driven Auxiliary Feedwater Pumps	≤ 60
8. Negative Steam Line Pressure Rate - High	
Steam Line Isolation	≤ 10
9. Start Permissive	
Containment Pressure Control System	N.A.
10. Termination	
Containment Pressure Control System	N.A.
11. Auxiliary Feedwater Suction Pressure - Low	
Auxiliary Feedwater Pumps (Suction Supply Automatic Realignment)	≤ 13
12. RWST Level	
Automatic Switchover to Recirculation	≤ 60
13. Station Blackout	
a. Start Motor-Driven Auxiliary Feedwater Pumps	≤ 60
b. Start Turbine-Driven Auxiliary Feedwater Pump (6)	≤ 60
14. Trip of Main Feedwater Pumps	
Start Motor-Driven Auxiliary Feedwater Pumps	≤ 60
15. Loss of Power	
~~4 kV Emergency Bus Undervoltage-Grid Degraded Voltage~~	~~≤ 11~~
a. 4 kV Loss of Voltage	≤ 11
b. 4 kV Degraded Voltage	≥ 11 with SI, and ≤ 600 without SI

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
7. Auxiliary Feedwater								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	Q	1, 2, 3
c. Steam Generator Water Level--Low-Low	S	R	M	N.A.	N.A.	N.A	N.A.	1, 2, 3
d. Auxiliary Feedwater Suction Pressure-Low	N.A.	R	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements							
f. Station Blackout	N.A.	N.A.	N.A	R	N.A.	N.A.	N.A.	1, 2, 3
g. Trip of Main Feedwater Pumps	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A	1, 2
8. Automatic Switchover to Recirculation								
RSWT Level	S	R	M	N.A.	N.A.	N.A.	N.A.	1, 2, 3
9. Loss of Power								
a. 4 kV Loss of Voltage ~~Emergency Bus Undervoltage-Grid Degraded Voltage~~	N.A.	R	N.A.	M	N.A.	N.A.	N.A	1, 2, 3, 4
b. 4 kV Degraded Voltage	N.A.	R	N.A.	M	N.A.	N.A.	N.A.	1, 2, 3, 4

ATTACHMENT 2

TECHNICAL JUSTIFICATION

Technical Justification:

McGuire FSAR Figures 8-3 and 8-17 show the station's main electrical buses and typical auxiliary distribution system.

All of the vital loads required to mitigate an accident and to achieve a safe shutdown are fed from the 4160 Volt Essential Auxiliary Power System, either at 4160 Volts or through transformers at a lower voltage. This system is provided with diesel-engine generators connected to automatically start and supply power in the event that power from the 6900 Volt Normal Auxiliary Power System is not available.

Engineered Safety Features (ESFs) are provided to prevent accident propagation or to limit the consequences of postulated accidents which might otherwise lead to damage of the system and release of fission products.

TS 3.3.2 deals with the Engineered Safety Features Actuation System Instrumentation (ESFAS). Four Tables associated with this TS list the various ESFs and their associated actuating instrumentation and interlocks. Engineered safety features and interlocks that are listed in these tables include: 1. Safety Injection 2. Containment Spray, 3. Containment Isolation, 4. Steam Line Isolation, 5. Turbine Trip and Feedwater Isolation, 6. Containment Pressure Control System, 7. Auxiliary Feedwater, 8. Automatic Switchover to Recirculation, 9. Loss of Power, and 10. ESFAS Interlocks.

TS 3.3.2, Table 3.3-3 lists the various instrumentation and interlocks associated with ESFAS. In particular, instrumentation for "Loss of Power" includes only one level of undervoltage protection on the 4160 Volt buses. Table 3.3-4 lists the trip setpoints and allowable values for ESFAS instrumentation and interlocks. Table 3.3-5 lists the response times for ESFs - times from when they receive the initiating signals from ESFAS instrumentation to when they actuate. Table 4.3-2 lists the ESFAS instrumentation surveillance requirements.

As stated above, the current loss of power ESF function includes only one level of undervoltage protection. This proposed TS amendment is for updating this existing level of undervoltage protection to be exclusively for loss of voltage, and add a second level of undervoltage protection to be exclusively for degraded voltage to detect the existence of a degraded voltage condition on the 4160 Volt buses. The two level undervoltage protection design is modeled after the recommendations of the NRC communicated in Branch Technical Position PSB-1. This additional relaying will incorporate a time delay sufficient to allow operators to improve the degraded condition before separating the Essential Power System from the preferred offsite power source.

Two separate time delays will be incorporated into the degraded voltage relay logic. The first time delay will be utilized to override any transient conditions. The second time delay will be of limited duration to ensure safety loads are not damaged. At the end of the second time delay if the degraded voltage condition is not improved, the Essential Power System will automatically be separated from offsite power and be supplied with emergency diesel generator power. In addition, the logic will also initiate a separation from offsite power after the first time delay should a Safety Injection signal occur concurrently with a degraded voltage signal. The added relaying equipment will be QA Condition 1, and will be installed in seismically qualified enclosures. The voltage will be monitored on all three phases of each 4160 Volt bus. Three undervoltage relays will be required per 4160 Volt switchgear, and a 2 out of 3 output logic will be utilized to initiate timers and control room alarms should a

predetermined voltage setpoint be reached. The timers will then initiate a separation of offsite power. The trip setpoints and time delays were determined by analysis and recommendations of PSB-1. MCC-1381.05-00-0094, Protective Relay Setting Calculation for Essential Switchgear will be updated with the new relays and philosophies once the relays are installed. The minimum required voltage for the plant was based on the worst case load flow analysis considering steady state and transient voltages during a Safety Injection with one of the two bus lines out. Once the minimum voltage was determined, channel uncertainties were considered as recommended by PSB-1 using ISA-S67.04, "Setpoint for Nuclear Safety-Related Instrumentation Used in Nuclear Plants" by the Instrumentation Society of America. The degraded voltage relays were then set above this point to ensure separation before the minimum voltage level was reached. A high accuracy relay with a small deadband was selected so that the relay could be set very close to the minimum required voltage while maintaining a fast reset on increasing voltage.

The following three columns compare the existing and proposed Technical Specification undervoltage instrumentation trip setpoints (Volts):

Existing TS (Both Units)	Proposed TS (Unit 1)	Proposed TS (Unit 2)
		Set DV ≥ 3703 (89%)
		Allow. DV ≥ 3685.5 (88.6%)
	Set DV ≥ 3678.5 (88.4%)	
	Allow. DV ≥ 3661 (88%)	
UV Trip Setpoint:		
Max. UV - 3637 (87.4%)		
Min. UV - 3291 (79.1%)		
	Allow. LV ≤ 3227 (77.5%)	
	Set LV ≤ 3220 (77.4%)	
		Allow. LV ≤ 3206 (77.1%)
		Set LV ≤ 3202.5 (77%)
Allow. UV ≥ 3200 (76.9%)		

For the existing TS: UV (Under Voltage) relays isolate offsite power from the bus in a maximum of 8.5 ± 0.5 seconds.

For the proposed TS: DV (Degraded Voltage) relays initiate alarms in the control room in a maximum of 11 seconds, and isolate offsite power from the bus in either a minimum of 11 seconds with a concurrent safety injection signal or a maximum of 600 seconds (from the start of the first time delay) without a concurrent safety injection signal. LV (Loss of Voltage) relays isolate offsite power from the bus in a maximum of 8.5 ± 0.5 seconds.

TS 3.3.2 requires that the ESFAS instrumentation be operable, in integration with the Reactor Trip System instrumentation (TS 3.3.1), to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the accident analyses. The surveillance requirements for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. Surveillance intervals and surveillance and maintenance outage times for these two systems have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and supplements to that report. The measurement of

response time at the specified frequencies provides assurance that the Reactor trip and the ESF actuation associated with each channel is completed within the time limit assumed in the accident analyses.

On November 23, 1977, the NRC sent a letter to Duke Power stating its positions on offsite and onsite electrical power systems for the review of all plants in the Construction Permit and Operating License stage of review. Position 1 of this letter (later became Branch Technical Position PSB-1, Revision 0 - July 1981) specifies that a second level of voltage protection for the onsite power system is required and that this second level of voltage protection shall satisfy the criteria associated with voltage and time setpoints, coincidence logic, time delays, automatic disconnection of offsite power sources, IEEE Standards, and Technical Specifications. This Position further explains that undervoltage monitoring for a complete loss of offsite power corresponds to voltage levels of between 50 to 70 percent of the nominal rated safety bus voltage, and that, since degradation of an offsite power system that could lead to or cause the failure of redundant safety-related electrical equipment is unacceptable, second level of voltage protection is required. Enclosed with this letter is a copy of the Westinghouse Model Technical Specification which lists two levels of voltage protection, one level for loss of voltage, and one for degraded voltage.

By letter dated April 4, 1978, Duke Power responded to the above NRC letter by providing a description of the McGuire Nuclear Station 4160 Volt Essential Auxiliary Power System Undervoltage Protection Scheme and a comparison of this scheme to the NRC positions. This letter stated the scheme included only one level of undervoltage protection set high enough (83.2% of 4160 Volts) to protect against sustained degraded voltage conditions.

In the Safety Evaluation Report, Supplement No. 1, May 1978 for McGuire Nuclear Station, the NRC staff concluded the above one-level-protection scheme was acceptable.

In January 1991, a Duke Power Self-Initiated Technical Audit of the McGuire electrical power systems identified a discrepancy between the Electrical Engineering Division Calculation MCC-1381.05-00-0094 "Protective Relay Setting Calculation for Essential Switchgear" and the settings specified in the Technical Specifications regarding undervoltage relay settings. The Calculation specified an undervoltage setpoint of 84.1% of 4160 V and an allowable undervoltage value of 80% of 4160 V. The Technical Specifications, Table 3.3-4 "ESFAS Instrumentation Trip Setpoint" specified a minimum undervoltage setpoint of 79.1% of 4160 V and an allowable undervoltage value of 76.9% of 4160 V. As a result of this finding, the Transmission procedure for testing these relays was revised to change the allowable undervoltage value from 76.9% to 79.1% of 4160 V, and that an alarm would be added to warn the operators of a degraded voltage condition.

In July 1991, the NRC finished a functional inspection of the electrical distribution system at McGuire. This inspection acknowledged the Duke intention to add the alarm and additional instrumentation to detect a degraded voltage condition at the end of fuel cycle 9 for each unit.

On September 14, 1992, the NRC issued Information Notice 91-29, Supplement 1 "Deficiencies Identified During Electrical Distribution System Functional Inspections." It identified, in part, a design weakness in undervoltage relay setpoints for degraded grid conditions. In the discussion section of this Notice, it was emphasized that two levels of undervoltage protection should be provided, the first level (loss of voltage) is implemented by setting the undervoltage relays to trip quickly for a loss of offsite voltage, and the second level (degraded voltage) is implemented by setting the undervoltage relays to alarm and trip for a sustained degraded voltage condition.

Duke Power, McGuire Nuclear Station is now ready to update its existing one-level undervoltage protection scheme to become two-level undervoltage protection scheme as described at ve.

It should be noted that McGuire's sister plant, Catawba, has had this TS which has two levels of undervoltage protection as discussed here in this submittal since its initial operation.

ATTACHMENT 3

SAFETY EVALUATION

Safety Evaluation:

This TS change is for adding an additional level of undervoltage protective relaying on the 4160 Volt Essential Auxiliary Power (EPC) system buses, 1ETA, 1ETB, 2ETA, and 2ETB, and to revise the setpoints for the existing protective relaying.

The EPC system is normally powered from the offsite power grid through the 6900 Volt Normal Auxiliary Power (EPB) system which connects to the Main Generator and McGuire Switchyard. In the event that this offsite power supply is lost, emergency power is provided to the EPC system by two redundant Emergency Diesel Generators (D/Gs) per unit. This event is known as a Loss of Offsite Power (LOOP) accident, and is evaluated in FSAR Section 15.2.6. Existing protective relaying on the EPC system buses serve to detect loss of offsite power by detecting a loss of bus voltage. When this occurs, the buses are automatically separated from the offsite power supply. Also, the D/Gs automatically start and supply emergency power to the buses.

The purpose for the protective relaying added by this TS change is to detect a degraded voltage condition which may prevent nuclear safety related plant equipment, required for safe plant shutdown and/or accident mitigation, from performing intended safety functions. The concern to be mitigated by the implementation of this TS change is the potential for having a persisting degraded voltage level that is above setpoint of the existing relaying, but below a level where damage to operating safety-related equipment may occur over a period of time (Ref. MCC-1381.05-00-0098 and MCC-1381.05-00-0135, Auxiliary System Voltage Study, Units 1 & 2).

A voltage sensing relay will be installed on each of the 3 power phases for each bus. If 2 out of 3 relays on a bus detects degraded voltage, 2 timing relays are started. One timing relay assures the degraded voltage is not a short duration transient. If the degraded voltage persists until after this relay is finished its timing cycle, an annunciator alarm is activated. The second timer continues its timing cycle to allow a period of time for the operators to implement any possible actions to correct the degraded condition. If the degraded condition remains present until the end of the second timing cycle, separation from the offsite power grid and connection to emergency diesel generator power occur automatically. Also, at any time after the first timing sequence and before the end of the second timing sequence, separation from offsite power will occur automatically in the event of a Safety Injection signal. After being isolated from offsite power, the 4160 Volts buses will automatically be supplied with emergency power from the diesel generators, and their Blackout and/or Safety Injection loads will be energized by the Diesel Generator Load Sequencers.

Timing sequence length and relaying setpoints for the existing and new protective relaying were determined by engineering evaluation (Ref. MCC-1381.05-00-0094, Protective Relay Setting Calculation for Essential Switchgear). The additional protective relaying equipment is QA Condition 1. Seismic qualification will be maintained for the enclosures in which the new relaying equipment will be installed.

The modification is intended to satisfy an NRC commitment made as a result of the EDSFI audit. The relaying scheme design satisfies NRC Branch Technical Position PSB-1.

Separation of the EPC system from offsite power due to loss or degradation of the offsite power source is a Loss of Offsite Power (LOOP) accident, evaluated in FSAR Section 15.2.6. The implementation of this TS change provides additional automatic means for the EPC system buses to separate from offsite power. Automatic separation from offsite power (a LOOP accident) will be more probable because the

voltage setpoints for the new relaying will be higher than the settings for the existing relaying. The closer relay settings are to 100% bus voltage, the more frequently actual bus voltage can be expected to occur at or below the setpoint. Therefore, the probability of an event previously evaluated in the SAR is increased.

The occurrence of a LOOP presents a challenge to safety systems. More probable (e.g., more frequent) LOOPs increase the frequency of safety system challenges, which increases the probability of malfunction of equipment important to safety. However, offsetting this probability increase is a probability decrease due to the protection of safety equipment from degraded voltage conditions, given by the added protective relaying. Therefore, the probability of a malfunction of equipment important to safety previously evaluated in the SAR is not increased.

The EPC system is required to provide power for equipment used for accident mitigation and safe shutdown. The ability of the EPC system to perform its required safety functions will not be degraded by the implementation of this TS change. No common failure modes are created between redundant EPC system power trains. Therefore, the consequences of an accident or malfunction of equipment important to safety evaluated in the SAR are not increased.

No new failure modes are created by the implementation of this TS change. No accidents previously considered incredible are made credible. The added protective relaying is expected to be as reliable as the existing relaying. The added equipment is QA Condition 1, and qualifications of equipment enclosures have been maintained. Thus, the possibility of an accident or malfunction of equipment of a different type than evaluated in the SAR will not be created.

The setpoints for the existing Loss of Power protective relays are lowered by this TS change. The new setpoints have been evaluated (MCC-1381.05-00-0094) and will not prevent the protective relaying from performing its required safety function. The fission product barriers (RCS pressure boundary, containment, fuel pellets, and cladding) are not degraded. No assumptions made in any accident analysis are affected by the implementation of this TS change, except as previously discussed for probability of a Loss of Offsite Power (FSAR Section 15.2.6). Therefore, the margin of safety as defined in the basis for any Technical Specification is not decreased.

The NRC has reviewed the acceptable requirements for degraded grid detection, on a generic basis for all plants, by issuance of Branch Technical Position PSB-1. The requirement for NRC approval has been effectively satisfied, since this TS change meets the provisions of PSB-1.

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 requested amendments update the existing one-level undervoltage protection to be exclusively for loss of voltage, and add a second level of undervoltage protection to be exclusively for degraded voltage.

In 48 FR 14870, the Commission has set forth examples of amendments that are considered not likely to involve significant hazards considerations. Example vi describes a change which either may result in some increase to the probability or consequences of a previously-analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system or component specified in the Standard Review Plan. The requested amendments are similar to example vi in that they result in some increase to the probability of a previously-analyzed accident, the Loss of Offsite Power accident, but where the changes are clearly based on the recommendations of Branch Technical Position PSB-1.

Criterion 1
The requested amendments will not involve a significant increase in the probability or consequences of an accident previously evaluated. The requested amendments will involve some increase in the probability of an accident previously evaluated. Automatic separation from offsite power (a LOOP accident) will be more probable because the voltage setpoints for the new relaying will be higher than the settings for the existing relaying. The closer relay settings are to 100% bus voltage, the more frequently actual bus voltage can be expected to occur at or below the setpoint. The occurrence of a LOOP presents a challenge to safety systems. More probable (e.g., more frequent) LOOPs increase the frequency of safety system challenges, which increases the probability of malfunction of equipment important to safety. However, offsetting this probability increase is a probability decrease due to the protection of safety equipment from degraded voltage conditions, given by the added protective relaying. The EPC system is required to provide power for equipment used for accident mitigation and safe shutdown. The ability of the EPC system to perform its required safety functions will not be degraded by the implementation of this TS change. No common failure modes are created between redundant EPC system power trains. Therefore, the consequences of an accident or malfunction of equipment important to safety evaluated in the SAR are not increased.

Criterion 2
The requested amendments will not create the possibility of a new or different kind of accident from any accident previously evaluated. No new failure modes are created by the implementation of this TS change. No accidents previously considered incredible are made credible. The added protective relaying is expected to be as reliable as the existing relaying. The added equipment is QA Condition 1, and qualifications of equipment enclosures have been maintained. Thus, the possibility of an accident or malfunction of equipment of a different type than evaluated in the SAR will not be created.

Criterion 3
The requested amendments will not involve a significant reduction in a margin of safety. The setpoints for the existing Loss of Power protective relays are lowered by this TS change. The new setpoints have been evaluated and will not prevent the protective relaying from performing its required safety function. The fission product barriers (RCS pressure boundary, containment, fuel pellets, and cladding) are not degraded. No assumptions made in any accident analysis are affected by the implementation of this TS change, except as previously discussed for probability of a Loss of Offsite Power. Therefore, the margin of safety as defined in the basis for any Technical Specification is not decreased.

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.