VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

March 17, 2000

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 00-073
NL&OS/GDM R1
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
PROPOSED TECHNICAL SPECIFICATIONS CHANGE
DEGRADED VOLTAGE AND LOSS OF VOLTAGE SETTING LIMITS

Pursuant to 10CFR50.90, Virginia Electric and Power Company requests amendments in the form of revisions to the Technical Specifications to Facility Operating License Numbers DPR-32 and DPR-37 for Surry Power Station Units 1 and 2. The proposed change will revise the setting limits for the degraded voltage and loss of voltage setpoints. Also incorporated in this submittal is a minor editorial correction. A discussion of the proposed Technical Specifications change is provided in Attachment 1.

The proposed Technical Specifications change has been reviewed and approved by the Station Nuclear Safety and Operating Committee and the Management Safety Review Committee. It has been determined that the proposed Technical Specifications change does not involve an unreviewed safety question, as defined in 10CFR50.59. Marked-up Technical Specifications pages that reflect the proposed change are provided in Attachment 2. Revised Technical Specifications pages that incorporate the proposed change are provided in Attachment 3. The basis for our determination that the Technical Specifications change does not involve a significant hazards consideration, as defined in 10CFR50.92, is provided in Attachment 4.

The typical time frame for implementing Surry operating license amendments is 30 days after issuance. Since the revised degraded voltage setting limits will have to be implemented during an outage, a different implementation schedule is requested for the license amendments. Specifically, we request implementation of the revised setting limits to coincide with the Fall 2001 refueling outage for Surry Unit 1 and the Spring 2002 refueling outage for Surry Unit 2. We will be in contact with the NRC Project

A001

Manager to discuss the implementation schedule prior to your approval of the proposed change.

Should you have any questions or require additional information, please contact us.

Very truly yours,

David A. Christian
Vice President – Nuclear Operations

Attachments:
1. Discussion of Change
2. Mark-up of Technical Specifications
3. Proposed Technical Specifications
4. Significant Hazards Consideration Determination

Commitments made in this letter: None

cc: U.S. Nuclear Regulatory Commission
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Mr. R. A. Musser
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Surry Power Station

Commissioner
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COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by David A. Christian, who is Vice President - Nuclear Operations, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 17th day of March, 2000.

My Commission Expires: 3/31/04.

Maggie McClure
Notary Public

(SEAL)

ATTACHMENT 1

DISCUSSION OF CHANGE

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2

Discussion of Change

Introduction

Virginia Electric and Power Company (Virginia Power) is proposing a revision to the Surry Power Station Technical Specifications (TS) to revise the emergency bus degraded and loss of voltage setting limits. The degraded voltage setting limit is being changed to increase the minimum allowable bus voltage to improve long term motor performance in the event of operation with bus voltage less than nominal. The emergency bus loss of voltage setting limit is being revised to better address expected relay performance over time (i.e., setting drift.) The voltage setting limits specified in TS Table 3.7-4 for the emergency bus degraded voltage and loss of voltage setpoints are being changed from a percentage of nominal bus voltage to an actual bus voltage value. The voltage setting limits are being changed to a limiting value as opposed to an ideal value with a tolerance band. In addition, a minor editorial correction is also being implemented in this proposed change.

The operation of plant safety systems is not affected by the proposed change; only emergency bus degraded voltage and loss of voltage setting limits are being changed within the limits of safety analysis assumptions. Pump flows have been evaluated and determined to be acceptable. Therefore, the proposed change does not increase the probability or consequences of any previously analyzed accident. Furthermore, the proposed change does not involve any alteration to the physical plant that would introduce any new or unique operational modes or accident precursors. The proposed setting limit for the emergency bus degraded voltage is conservative with respect to the existing setting limits. The reduced setting limit for the emergency bus loss of voltage function accounts for actual relay performance over the surveillance interval while still bounding the assumptions used in the electrical distribution system analysis. The loss of voltage setting limit is being revised to reflect the expected setting drift between surveillances. Although the setting limit is being expanded to address instrument drift, the limit is not considered in accident analyses and sustained voltages just above the loss of voltage setpoint is not credible. The proposed setting limits for degraded voltage and loss of voltage will continue to ensure that adequate voltages will be available for the continuous operation of safety-related equipment to function in response to a design basis accident. Consequently, the margin of safety is not reduced by the proposed change. It is therefore concluded that the proposed TS change does not result in an unreviewed safety question or significant hazards consideration.

Background

Surry Technical Specifications Table 3.7-2, Item 4, and Table 3.7-4, Item 7, establish requirements for engineered safeguards instrumentation, interlocks, and setpoints associated with detecting and responding to an undervoltage condition on the 4.16KV emergency buses. These features protect safety-related equipment from potentially

damaging undervoltage conditions, and coordinate the interactions between the offsite and onsite (i.e., emergency diesel generators, EDGs) emergency power system.

As part of a systematic review of instrument channel uncertainties and standard calculational methodology for computing the total channel statistical allowance (CSA) associated with certain TS setpoints, it was identified that the existing setting limits for emergency bus degraded voltage and loss of voltage required revision. The revision is necessary to enhance the long-term operation of safety-related equipment powered from the emergency buses and to better characterize the capabilities of the relays that generate these functions. Further, in the case of emergency bus degraded voltage, when channel uncertainties and electrical analysis assumptions were taken into account, it was determined that the setting limit for this function should be raised to provide increased margin to the safety analysis limit used in the electrical analysis, assuming a sustained degraded voltage.

The design and licensing bases for offsite and onsite emergency power system voltage and system interactions was established by a series of correspondence between Virginia Power and the NRC beginning in 1976.

A minor editorial correction is also being implemented by this change as discussed below.

Licensing Basis

By letter dated August 12, 1976, the NRC requested licensees to conduct an evaluation of the vulnerability of their stations to degraded voltage conditions. The request was made in response to an industry event relating to plant operation and equipment failures that occurred at a facility during a degraded voltage condition. Based on a review of the evaluation results provided by the industry in response to the NRC request, the NRC issued a Generic Letter dated June 3, 1977. The Generic Letter requested licensees to assess the susceptibility of Class 1E electrical equipment to sustained degraded voltage conditions at the offsite power sources and to assess the interaction between the offsite and onsite emergency power systems. The criteria and staff positions pertaining to degraded grid voltage protection for Class 1E power systems were also transmitted in this Generic Letter. In response, Virginia Power modified the undervoltage protection for the Class 1E power supplies at Surry, and proposed Technical Specifications operability and surveillance requirements that characterize the loss of voltage and degraded voltage protection system modifications.

Each of the NRC staff positions were addressed by modification and/or by the proposed TS changes. The following summarizes the NRC staff positions and Virginia Power's disposition:

- NRC Staff Position 1 – Second Level of Undervoltage or Overvoltage Protection with a Time Delay

  Virginia Power modified the existing undervoltage protection to include a second level of protection. Each level of protection has a two-out-of-three coincident logic with appropriate setpoints and time delays to protect the equipment and prevent unnecessary transients of the electrical distribution system.

- NRC Staff Position 2 – Interaction of Onsite Power Sources with Load Shed Features

  This position requires that the system be designed to prevent automatic load shedding of the emergency bus once the onsite sources are supplying power to all sequenced loads and automatic reinstatement of the load shedding features when the onsite breakers are tripped.

  The Virginia Power design automatically disables the first and second level undervoltage relays when the onsite emergency source emergency diesel generators (EDGs) are independently supplying the Class 1E buses. At all other times, the undervoltage relays are functional.

- NRC Staff Position 3 – Onsite Power Source Testing

  Certain tests were required to be included in the TS. These tests were required to demonstrate the full functional operability and independence of the onsite power sources at least once per 18 months during shutdown. Virginia Power proposed TS that characterized the undervoltage protection system modifications. Specifically, the proposed changes:

  * Included the trip setpoints, time delays, and associated limits for the loss of voltage and degraded voltage protection schemes.

  * Established limiting conditions for operation and action statements for a two-out-of-three coincident logic.

  * Incorporated surveillance requirements for channel functional testing and calibration, as well as an integrated functional test of the undervoltage (loss of voltage and degraded voltage) protection system.

These proposed TS changes were approved and incorporated into the Surry TS by Amendment Nos. 80 and 81 for Units 1 and 2, respectively, issued October 5, 1982.

Editorial Change - An editorial correction is also being implemented by the proposed TS change. License Amendments 143 and 140 for Surry TS Units 1 and 2, respectively,

were issued on August 2, 1990. These Amendments incorporated changes into the TS to specify requirements regarding the Auxiliary Feedwater (AFW) cross-connect. Though not a part of the AFW cross-connect change itself, a typographical error was introduced on TS page 3.6-1 when it was re-typed for submittal to the NRC to reflect the proposed TS change. Specifically, the required reactor coolant system conditions specified in TS 3.6.B were erroneously stated as "350°F *or* 450 psig," rather than "350°F *and* 450 psig," which are the correct requirements. The conjunction was inadvertently changed and submitted to the NRC in an October 30, 1989 (Serial No. 89-411) TS change request supplement associated with the Auxiliary Feedwater cross-connect requirements, and issued in the Amendments noted above. The conjunction is corrected ("or" revised to "and") in this proposed TS change.

Design Basis

The station emergency buses are protected from both loss of voltage and degraded grid voltage conditions. The voltage for each bus is monitored on each phase by separate single-phase loss of voltage relays and two parallel three-phase degraded voltage relays. The undervoltage setpoints were chosen to preclude inadvertent load shedding during transient undervoltage conditions that could potentially occur when large loads are started. Undervoltage protection is automatically blocked when the emergency diesel generators are independently powering the bus and is functional during any other bus powering schemes.

The basis of the degraded voltage setpoint is to meet the following criteria:

- Adequate voltage to pick up contactors in Class 1E motor control centers.
- Minimum continuous running voltage (nominally 90% of nameplate) to Class 1E motors on the emergency buses.
- Sufficiently low reset value of the degraded voltage relays so that bus voltages recover to this level during normal voltage transients.

A safety limit has been established for the degraded voltage relays such that the emergency buses remain operable in accordance with the above criteria. In some cases, available terminal voltage could be marginally below 90% for some 460V motors. Continuous operation of the emergency buses at this voltage level will permit safe shutdown or the mitigation of accident conditions in accordance with the accident analysis. If a degraded voltage condition existed prior to accident initiation, it would be expected that voltage transients associated with motor starts would result in transfer of the emergency bus(es) to the emergency diesel generator(s). Existing electrical analyses indicate that, with the exception of short transients, emergency bus voltage does not approach the degraded voltage setpoint during worst-case postulated plant/switchyard conditions.

The basis of the loss of voltage setpoint is to meet the following criteria:

- Start any load and not damage loads already running.
- No damage to MCC control circuit fuses due to inrush currents drawn by motor contactors.
- No shedding of load due to thermal overloads/relaying.
- No contactor dropout for running loads.

Voltages near the proposed loss of voltage setting limit (approximately 75±3.75% of 4160V) are not sustainable. Emergency bus voltage in this range is indicative of a loss of the associated offsite power supply either due to a loss of switchyard voltage or due to equipment failure. The duration of this condition is limited to, at worst, the time delays associated with the degraded voltage relaying (60 seconds for normal conditions and 7 seconds for SI, CLS). Existing electrical analyses indicate that, with the exception of transients from starting the larger non-safety related motors during unit startup, emergency bus voltage does not approach the loss of voltage setpoint during worst case plant/switchyard conditions. Safety-related motors were purchased to start at 70% of rated voltage. If a transient does not last longer than the normal starting time (10-30 seconds), the motors will suffer no harm. Any longer period may begin to reduce their useful service life, but they will still respond as required.

Discussion

4.16 KV Emergency Bus Undervoltage (Loss of Voltage)

This function initiates the automatic transfer of the Class 1E emergency buses from the offsite power source to the emergency diesel generators due to a low voltage signal on the bus after a specific time delay. The proposed setting limit includes the instrument error determined by the channel statistical allowance (CSA) calculation. The existing TS setting limit is 75 (±1)% of 4.16 KV. Based on the CSA calculation for this value, the ±1% tolerance is achievable for calibration but is not maintainable for the surveillance interval. The existing relay setpoint will not be changed; however, the TS setting limit will be lowered to accommodate the achievable relay performance. The proposed setting limit is ≥2975 volts which corresponds to ≥71.5% of nominal bus voltage. The format of the setting limit is changed from percent to volts which is consistent with the Improved Standard Technical Specification (NUREG-1431) format.

4.16 KV Emergency Bus Undervoltage (Degraded Voltage)

This function initiates the automatic transfer of the Class 1E emergency buses from the offsite power source to the emergency diesel generators due to a degraded voltage condition on the bus after a specific time delay. The original analysis for the emergency bus degraded voltage setting limit qualitatively concluded that a setpoint of 90 (+1)% of

4.16 KV ensured that at least 90% of rated terminal voltage was available for each 4000V and 460V motor. Further, a CSA was not originally applied to the relay applications. During development of extensive electrical system analyses in response to General Design Criterion 17 concerns in the early 1980's, emphasis was placed on ensuring that the degraded voltage relays did not initiate unnecessary separation from offsite power. The previous and present Surry electrical distribution system analysis predicts that near normal voltages will be maintained assuming worst case switchyard voltages and accident conditions. More recent load-flow analysis assuming plant voltages at the degraded voltage relay safety limit, well below GDC-17 predicted voltage, determined that terminal voltage for 460V motors could approach values as low as 85% of rated voltage. As a result of this change in emphasis, and using more quantitative techniques (including CSA calculations) to evaluate adequacy of the degraded voltage setpoint, it was concluded that the existing TS setting limit of 90 ($\pm$ 1)% should be increased.

The proposed setting limit of $\geq$3815V (91.7% of nominal voltage) will require that the existing degraded voltage setpoint be increased from its current value of 3744V (90% of nominal voltage) to 3855.5V (92.7% of nominal voltage). The increased setting limit and trip setpoint take instrument/process uncertainties and analysis assumptions into account. The increased degraded voltage setting limit will ensure that the installed setpoint in the plant will be such that it will minimize the increased heating associated with continuously running motors at increased current due to degraded voltage conditions on the bus thereby increasing the operating life of the equipment. Further, this setting limit will ensure that positive margin exists between the setpoint and the safety limit used in the electrical analysis. The format of the setting limit is changed from percent to volts which is consistent with the Improved Standard Technical Specification (NUREG–1431) format.

Editorial Correction

The required reactor coolant system conditions specified in TS 3.6.B are erroneously stated as "350°F *or* 450 psig," rather than "350°F *and* 450 psig," which are the correct requirements. The conjunction was inadvertently changed (typographical error) in an earlier TS revision associated with Auxiliary Feedwater cross-connect requirements. The proposed change corrects this editorial error.

Specific Changes

The following specific Technical Specifications changes are proposed:

- Technical Specification 3.6.B, page 3.6-1, is revised to correct the required reactor coolant system conditions from the existing wording of "350°F *or* 450 psig" to read "350°F *and* 450 psig."

- Technical Specification Table 3.7-4, page 3.7-26, Item 7, is revised to read as follows:

7.	LOSS OF POWER		
a.	4.16 KV Emergency Bus Undervoltage (Loss of Voltage)	Emergency Bus Separation and Diesel Start	≥2975 volts with a 2 (+5, -0.1) second time delay
b.	4.16 KV Emergency Bus Undervoltage (Degraded Voltage)	Emergency Bus Separation and Diesel Start	≥3815 volts with a 60 (± 3.0) second time delay (Non CLS, Non SI) 7 (± 0.35) second time delay (CLS or SI Conditions)

Safety Significance

The proposed Technical Specifications change 1) revises instrument setting limits for the emergency bus degraded voltage and loss of voltage relay setpoints to increase available motor terminal voltage, appropriately address expected instrument drift, and promote long term equipment life, and 2) implements a minor editorial correction. The impact of these changes on the accident analyses was assessed to ensure implementation of the proposed change would not adversely affect safe operation of the plant. The proposed setting limits are consistent with design basis accident analyses assumptions and existing plant practices. As such, these changes do not alter the conclusions of the existing safety analyses, and an unreviewed safety question does not exist.

No increase in the probability of occurrence or consequences of an accident will result from the proposed changes to the emergency bus degraded voltage/loss of voltage setting limits. The proposed change only affects actuation limits and, therefore, has no bearing on the probability of an accident. Neither the logic nor the function of the undervoltage protection circuits is being changed, nor is circuit or equipment reliability being reduced. The consequences of an accident would not increase since the proposed change implements setting limits that ensure adequate voltages will be available for the continuous operation of safety-related equipment required to function to mitigate a design basis accident.

Implementing the proposed setting limits does not create the possibility of an accident of a different type than was previously evaluated in the safety analysis report. Raising the setting limit for emergency bus degraded voltage and decreasing the setting limit for emergency bus loss of voltage do not introduce any new accident precursors or modes of operation. The relays will continue to detect undervoltage conditions and transfer safety loads to the emergency diesel generators at a voltage level adequate to ensure proper safety equipment performance and to prevent equipment damage. The proposed setting limits include adequate tolerances to calibrate the undervoltage relays while ensuring that emergency bus voltages remain above analytical limits. Therefore, no new accident precursors are created as result of the proposed change.

The proposed change continues to ensure that adequate voltage is available for safety-related equipment relied upon to respond to a design basis accident. The proposed setting limit for degraded bus voltage is conservative with respect to the existing Technical Specifications and is maintained low enough to prevent spurious actuations given expected offsite grid voltages. While the loss of bus voltage setting limit is being reduced, sustained bus voltage in this range is not credible. Operation at this voltage level is, worst case, limited to the degraded voltage time delay. Furthermore, there is no safety limit associated with the loss of voltage setting limit. Therefore, the margin of safety as defined in the Technical Specifications Bases is not affected.

The editorial change is administrative in nature and consequently does not affect the safety analysis in any way.

Environmental Assessment

The proposed Technical Specifications change addresses degraded voltage and loss of voltage relay setting limits and has no impact on the environment nor does it result in any increase in individual or cumulative occupational radiation exposure. The protection circuitry retains sufficient redundancy and diversity to ensure that necessary plant equipment is available and able to perform its function to ensure core protection is maintained, and hence, the risk of offsite release is not increased. The degraded voltage and loss of voltage relays will continue to be operated, calibrated and tested in the same manner. No new effluents or effluent release paths are created as a result of the proposed Technical Specifications change. The proposed change will continue to ensure the degraded voltage and loss of voltage relays will be operable as assumed in the safety analysis to mitigate the consequences of an accident and, therefore, there is no environmental impact as a result of the proposed change.

ATTACHMENT 2

MARK-UP OF TECHNICAL SPECIFICATIONS

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2

3.6 TURBINE CYCLE

Applicability

Applies to the operating status of the Main Steam and Auxiliary Feed Systems.

Objectives

To define the conditions required in the Main Steam System and Auxiliary Feed System for protection of the steam generator and to assure the capability to remove residual heat from the core during a loss of station power/or accident situations.

Specification

A. A unit's Reactor Coolant System temperature or pressure shall not exceed 350°F or 450 psig, respectively, or the reactor shall not be critical unless the five main steam line code safety valves associated with each steam generator in unisolated reactor coolant loops are OPERABLE with lift settings as specified in Table 3.6-1A and 3.6-1B.

B. To assure residual heat removal capabilities, the following conditions shall be met prior to the commencement of any unit operation that would establish reactor coolant system conditions of 350°F ~~or~~ and 450 psig which would preclude operation of the Residual Heat Removal System. The following shall apply:

1. Two motor driven auxiliary feedwater pumps shall be OPERABLE.

2. A minimum of 96,000 gallons of water shall be available in the protected condensate storage tank to supply emergency water to the auxiliary feedwater pump suctions.

3. All main steam line code safety valves, associated with steam generators in unisolated reactor coolant loops, shall be OPERABLE with lift settings as specified in Table 3.6-1A and 3.6-1B.

TABLE 3.7-4

ENGINEERED SAFETY FEATURE SYSTEM INITIATION LIMITS INSTRUMENT SETTING

No.	Functional Unit	Channel Action	Setting Limit
6	AUXILIARY FEEDWATER		
	a. Steam Generator Water Level Low-Low	Aux. Feedwater Initiation S/G Blowdown Isolation	≥ 14.5% narrow range
	b. RCP Undervoltage	Aux. Feedwater Initiation	≥ 70% nominal
	c. Safety Injection	Aux. Feedwater Initiation	All S.I. setpoints
	d. Station Blackout	Aux. Feedwater Initiation	≥ 46.7% nominal
	e. Main Feedwater Pump Trip	Aux. Feedwater Initiation	N.A.
7	LOSS OF POWER		
	a. 4.16 KV Emergency Bus Undervoltage (Loss of Voltage)	Emergency Bus Separation and Diesel start	≥ 2975 ~~75 (± 1.0)%~~ volts with a 2 (+5, -0.1) second time delay
	b. 4.16 KV Emergency Bus Undervoltage (Degraded Voltage)	Emergency Bus Separation and Diesel start	≥ 3815 ~~90 (± 1)%~~ volts with a 60 (± 3.0) second time delay (Non CLS, Non SI) 7 (± .35) second time delay (CLS or SI Conditions)
8	NON-ESSENTIAL SERVICE WATER ISOLATION		
	a. Low Intake Canal Level	Isolation of Service Water flow to non-essential loads	23 feet-6 inches
9	RECIRCULATION MODE TRANSFER		
	a. RWST Level-Low	Initiation of Recirculation Mode Transfer System	≥ 11.25% ≤ 15.75%
10	TURBINE TRIP AND FEEDWATER ISOLATION		
	a. Steam Generator Water Level High-High	Turbine Trip Feedwater Isolation	≤ 80% narrow range

Amendment Nos. ~~206 and 206~~

~~12-28-95~~

ATTACHMENT 3

PROPOSED TECHNICAL SPECIFICATIONS

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2

3.6 TURBINE CYCLE

Applicability

Applies to the operating status of the Main Steam and Auxiliary Feed Systems.

Objectives

To define the conditions required in the Main Steam System and Auxiliary Feed System for protection of the steam generator and to assure the capability to remove residual heat from the core during a loss of station power/or accident situations.

Specification

A. A unit's Reactor Coolant System temperature or pressure shall not exceed 350°F or 450 psig, respectively, or the reactor shall not be critical unless the five main steam line code safety valves associated with each steam generator in unisolated reactor coolant loops are OPERABLE with lift settings as specified in Table 3.6-1A and 3.6-1B.

B. To assure residual heat removal capabilities, the following conditions shall be met prior to the commencement of any unit operation that would establish reactor coolant system conditions of 350°F and 450 psig which would preclude operation of the Residual Heat Removal System. The following shall apply:

   1. Two motor driven auxiliary feedwater pumps shall be OPERABLE.

   2. A minimum of 96,000 gallons of water shall be available in the protected condensate storage tank to supply emergency water to the auxiliary feedwater pump suctions.

   3. All main steam line code safety valves, associated with steam generators in unisolated reactor coolant loops, shall be OPERABLE with lift settings as specified in Table 3.6-1A and 3.6-1B.

TABLE 3.7-4

ENGINEERED SAFETY FEATURE SYSTEM INITIATION LIMITS INSTRUMENT SETTING

No.	Functional Unit	Channel Action	Setting Limit
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	c. Safety Injection	Aux. Feedwater Initiation	All S.I. setpoints
	d. Station Blackout	Aux. Feedwater Initiation	≥ 46.7% nominal
	e. Main Feedwater Pump Trip	Aux. Feedwater Initiation	N.A.
7	LOSS OF POWER		
	a. 4.16 KV Emergency Bus Undervoltage (Loss of Voltage)	Emergency Bus Separation and Diesel start	≥ 2975 volts with a 2 (+5, -0.1) second time delay
	b. 4.16 KV Emergency Bus Undervoltage (Degraded Voltage)	Emergency Bus Separation and Diesel start	≥ 3815 volts with a 60 (±3.0) second time delay (Non CLS, Non SI) 7 (±0.35) second time delay (CLS or SI Conditions)
8	NON-ESSENTIAL SERVICE WATER ISOLATION		
	a. Low Intake Canal Level	Isolation of Service Water flow to non-essential loads	23 feet-6 inches
9	RECIRCULATION MODE TRANSFER		
	a. RWST Level-Low	Initiation of Recirculation Mode Transfer System	≥ 11.25% ≤ 15.75%
10.	TURBINE TRIP AND FEEDWATER ISOLATION		
	a. Steam Generator Water Level High-High	Turbine Trip Feedwater Isolation	≤ 80% narrow range

Amendment Nos.

ATTACHMENT 4

SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2

Significant Hazards Consideration

Virginia Electric and Power Company is proposing a revision to the Surry Power Station Technical Specifications to 1) revise instrument setting limits for the emergency bus degraded voltage and loss of voltage relay setpoints to increase available motor terminal voltage, appropriately address expected instrument drift, and promote long term equipment life, and 2) implement a minor editorial correction. The impact of these changes on the accident analyses was assessed to ensure implementation of the proposed change would not adversely affect safe operation of the plant. The proposed setting limits are consistent with design basis accident analyses assumptions and existing plant practices and will not impact the operation of the electrical distribution system nor the relays themselves. The editorial change is administrative in nature and consequently does not affect the safety analysis in any way. As such, these changes do not alter the conclusions of the existing safety analyses.

We have reviewed the proposed change against the criteria of 10 CFR 50.92 and have concluded that the change does not pose a significant safety hazards consideration as defined therein. Specifically, operation of Surry Power Station with the proposed change will not:

1. **Involve a significant increase in the probability or consequences of an accident previously evaluated.**

No increase in the probability of occurrence or consequences of an accident previously evaluated will result from the proposed change in the setting limits for the emergency bus degraded voltage and loss of voltage relay setpoints. The proposed change only affects actuation limits and therefore has no bearing on the probability of an accident. Neither the logic nor the function of the undervoltage protection circuits is being changed, nor is circuit or equipment reliability being reduced. The higher degraded voltage relay setpoint limit will improve motor terminal voltage, and thus promote longer motor life. Changing the setpoint limit for the loss of voltage relays will better characterize the relays' capabilities and facilitate calibration. Further, the performance characteristics of the electrical distribution system and components supplied (motors, etc.) are not being altered, and compliance with GDC-17 is being maintained. The electrical distribution system remains capable of performing its safety function without spurious separation of the emergency buses from offsite power. If offsite power is lost, the capability of the EDG's to perform their safety function is not altered. Therefore, the probability of an accident previously evaluated is not increased.

The consequences of an accident do not increase since the proposed change implements setting limits that will continue to ensure that adequate voltages will be available for the continuous operation of safety-related equipment required to function to mitigate a design basis accident. The proposed setting limits for the emergency bus

degraded voltage and loss of voltage bound the setpoints and initial conditions assumed in the accident analyses and ensure that appropriate protection is maintained.

The editorial change is administrative in nature and consequently does not affect the probability or consequences of an accident in any way.

2. **Create the possibility of a new or different kind of accident from any accident previously evaluated.**

Implementing the proposed Technical Specifications emergency bus degraded voltage and loss of voltage relay setting limits cannot create the possibility of a new or different kind of accident than any accident previously evaluated. Revising the setpoint setting limits does not introduce any new accident precursors, and operation of the electrical distribution system and the undervoltage relaying schemes is unchanged. Raising the setting limit for emergency bus degraded voltage and decreasing the setting limit for emergency bus loss of voltage do not introduce any new accident precursors or modes of operation. The relays will continue to detect undervoltage conditions and transfer safety loads to the emergency diesel generators at a voltage level adequate to ensure proper safety equipment performance and to prevent long-term equipment degradation due to undervoltage conditions. The proposed setting limits include adequate tolerances to calibrate the undervoltage relays while ensuring that emergency bus voltages remain above analytical limits. As noted above, the performance characteristics of the electrical distribution system and the components being supplied are not being altered, and compliance with GDC-17 is being maintained. The proposed Technical Specifications change will ensure that appropriate electrical protection is available as assumed in the safety analysis.

The editorial change is administrative in nature and consequently does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **Involve a significant reduction in a margin of safety.**

The proposed change continues to ensure that adequate voltage is available for safety-related equipment relied upon to respond to a design basis accident. The proposed setting limit for degraded bus voltage is conservative with respect to the existing Technical Specifications and ensures an adequate safety margin is being maintained. Further, the setting limit is maintained low enough to prevent spurious actuations given expected offsite grid voltages. The setting limit for the emergency bus loss of voltage relays is being changed to better characterize the relays' capabilities and to facilitate calibration. While the loss of bus voltage setting limit is being reduced, sustained bus voltage in this range is not credible. Furthermore, there is no safety limit associated with the loss of voltage setting limit.

The proposed change continues to ensure that the setting limits for the emergency bus degraded voltage and loss of voltage relays bound the setpoints and initial conditions assumed in the accident analyses and ensures that appropriate electrical protection is maintained. The editorial change is administrative in nature and consequently does not affect the safety analysis in any way. Consequently, the margin of safety is not being reduced by the proposed Technical Specifications change.