

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

July 20, 1995

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

Serial No. 95-365  
NLP/GDM R0  
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 SPECIFICATION CHANGE**  
**SETPOINT LIMITS**

Pursuant to 10 CFR 50.90, the Virginia Electric and Power Company requests amendments, in the form of changes to the Technical Specifications, to Operating License Nos. DPR-32 and DPR-37 for the Surry Power Station Units 1 and 2, respectively. The proposed change establishes a new setpoint limit for steam generator high-high level and provides more restrictive setting limits for certain Reactor Protection System/Engineered Safety Features Actuation System (RPS/ESFAS) setpoints. Administrative changes are also being proposed. The proposed change is discussed in Attachment 1.

This request 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 change does not involve an unreviewed safety question as defined in 10 CFR 50.59 or a significant hazards consideration as defined in 10 CFR 50.92. The proposed change to the Technical Specifications and the basis for our no significant hazards consideration determination are included in Attachments 2 and 3, respectively.

Very truly yours,



James P. O'Hanlon  
Senior Vice President - Nuclear

Attachments

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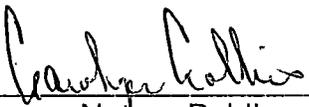
Commissioner  
Department of Radiological Health  
Room 104A  
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COMMONWEALTH OF VIRGINIA )  
 )  
COUNTY OF HENRICO )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by J. P. O'Hanlon, who is Senior Vice President - Nuclear, of Virginia Electric and Power Company. He is duly authorized to execute and file the foregoing document in behalf of that Company, and the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 20 day of July, 1995.

My Commission Expires: August 31, 1998.

  
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Notary Public



(SEAL)

**ATTACHMENT 1**  
**DISCUSSION OF THE PROPOSED CHANGE**

## DISCUSSION OF CHANGES

### INTRODUCTION

Virginia Electric and Power Company is proposing a revision to the Surry Technical Specifications to- 1) revise three Reactor Protection System/Engineered Safety Features Actuation Systems (RPS/ESFAS) channel trip setpoint limits, 2) add a new setpoint limit for high-high steam generator water level, and 3) incorporate editorial changes to revise the measurement units of one setpoint limit and to delete certain references to two-loop operation.

Three RPS/ESFAS setpoint limits are being revised to provide assurance that the effects of instrument channel uncertainties during accident conditions are adequately addressed and are bounded by accident analysis assumptions. The existing Technical Specifications limits were not conservatively specified, since some sources of instrument error, including that due to harsh environmental conditions, were not previously considered and included in the setpoint limits. However, since the RPS/ESFAS setpoints actually implemented in the station are conservative with respect to the existing and proposed Technical Specifications values, these changes do not result in an unreviewed safety question or a significant hazards consideration.

Also, a new setpoint limit is proposed for high-high steam generator water level. This protective function is to limit the cooldown associated with a feedwater malfunction event and preclude steam generator overflow.

Editorial changes are also being proposed by this change. The measurement units for the high-high containment pressure setpoint limit are being revised for consistency with the control room instrumentation faceplate indication, and certain references to two-loop operation are being deleted since Surry Power Station is not licensed for operation in that manner.

### BACKGROUND

Virginia Electric and Power Company has completed a systematic review of instrument channel uncertainties for the Reactor Protection System/Engineered Safety Features Actuation Systems (RPS/ESFAS) instrument actuation setpoints. This effort required the development of a standard calculational methodology for computing the total channel statistical allowance (CSA) for actuation or trip setpoints. This review considered sources of error, such as may be induced by a harsh environment, that were not originally recognized or well understood in initial plant design or licensing. Consequently, it was considered prudent to reconsider RPS/ESFAS setpoints to ensure they were conservative with respect to accident analyses' assumptions and the more recently considered sources of setpoint error.

As a result of the above review program, the Technical Specifications limits for three protection trip setpoints were identified as requiring revision, and a new setpoint limit was identified for implementation. The affected setpoints are as follows:

- 1) Steam Generator Water Level Low-Low
- 2) Steam Generator Water Level High-High
- 3) Pressurizer Low-Low Pressure
- 4) High Containment Pressure

Editorial changes are also being implemented by this proposed change. The existing high-high containment pressure setpoint limit is being revised to change the measurement units from "psig" to "psia" for consistency with control room instrumentation faceplate indication. Furthermore, the Technical Specifications section that discusses Permissive P-8 Reactor Trip Interlock (unblock) is also being revised to delete references to two-loop operation since Surry Power Station is not licensed to operate in this condition.

The basis for each proposed change is discussed below.

#### Steam Generator Water Level Low-Low

The accident analyses discussed in the Updated Final Safety Analysis Report (UFSAR) that assume the availability of steam generator low-low level protection are loss of normal feedwater and loss of offsite power to the station auxiliaries. The current setpoint limit for this function provided in Technical Specifications 2.3 and 3.7 is  $\geq 5\%$  of the narrow range span. The accident analyses assume an actuation setpoint of 0%.

However, the original Surry licensing basis did not include a feedline break event in containment. We have since provided summary results for our analyses of a feedline break in containment at Surry in response to NRC Staff questions relating to NUREG-0737, Item II. D. 1, Performance Testing of Relief and Safety Valves (Ser. No. 86-094, dated February 28, 1986). These analyses assumed a steam generator low-low level trip setpoint of 0%, consistent with the other accident analyses presented in the UFSAR. However, since the feedline break event creates the potential for an abnormal containment environment, it is necessary to consider harsh environmental effects in the setpoint to ensure the continued validity of the analyses prepared for the NUREG-0737, Item II.D.1 response.

In view of the above, we are proposing a new narrow range setpoint limit of  $\geq 14.5\%$  of narrow range span which addresses the channel statistical allowance due to a harsh environment. Station procedures have historically implemented a setpoint of 17% for this narrow range span, and, therefore, no plant operational impact is generated by this change.

### Steam Generator Water Level High-High

A Technical Specifications setpoint limit does not currently exist for high-high steam generator water level. A Technical Specifications setpoint limit of  $\leq 80\%$  of narrow range span is being proposed. This protective function is provided to limit the cooldown associated with a feedwater malfunction event and to prevent steam generator overfill. The setpoint limit has been conservatively based on maintaining water level within the narrow range level span and includes allowances for normal instrument uncertainties and process measurement errors.

### Pressurizer Low-Low Pressure

This setpoint limit ensures Engineered Safety Features (ESF) actuation for loss of primary or secondary cooling events in accordance with accident analysis assumptions. The accident analysis assumes a safety injection signal is generated when Reactor Coolant System pressure reaches 1715 psia (1700.3 psig). However, a harsh environment due to a small steam line break in containment could introduce additional instrument uncertainty. To ensure the original accident analysis assumptions remain valid in such an environment, a channel statistical allowance addressing the condition has been factored into the Technical Specifications setpoint limit. Consequently, a setpoint limit of  $\geq 1760$  psig is proposed. A clarifying statement has also been added to the Bases section for this setting limit that notes the limit is based on nominal atmospheric pressure.

In an operating license amendment request, Serial No. 90-094A, dated May 16, 1990, we demonstrated that plant protection is not dependent on low-low pressure safety injection occurring in a harsh environment. However, because there are operational advantages to ensuring this capability, the proposed operating license amendment was withdrawn and this proposed Technical Specifications setpoint limit change is requested.

### High Containment Pressure

This setpoint limit ensures primary ESF actuation for high energy line breaks inside containment in accordance with accident analysis assumptions. The accident analysis assumes an ESF signal is generated when containment pressure reaches 19.7 psia ( $\leq 5$  psig in the current Technical Specifications setpoint limit). To ensure this assumption remains valid, normal environmental errors that instrumentation outside containment may experience are included in the proposed Technical Specifications setpoint limit of  $\leq 19$  psia. The units of the proposed setpoint limit are expressed in "psia" rather than "psig" for consistency with control room instrumentation faceplate indication.

### High-High Containment Pressure

This setpoint limit ensures ESF actuation for high energy line breaks inside containment in accordance with accident analysis assumptions. The existing setpoint limit is not being changed, however, the units of the proposed setpoint limit will be expressed in "psia" rather than "psig" for consistency with control room instrumentation faceplate indication. Therefore, the units of the current Technical Specifications setpoint limit of  $\leq 10.3$  psig will be changed to  $\leq 25$  psia.

## Permissive P-8 Reactor Trip Interlock (Unblock)

The proposed change does not affect the current Technical Specifications setpoint for the P-8 Permissive interlock. Rather, the proposed change is limited to the Technical Specifications wording and the supporting Basis section. These two sections presently include a discussion of the operation of the P-8 Permissive during two-loop operation. Since Surry is not licensed for two-loop operation, the proposed revision deletes the references to operation in this manner.

## SPECIFIC CHANGES

The following specific Technical Specifications changes are proposed:

- Technical Specification 2.3.A.3(b) is revised to change the Low-Low Steam Generator Water Level setting limit from " $\geq 5\%$  of narrow range instrument span" to " $\geq 14.5\%$  of narrow range instrument span."
- Technical Specification 2.3.B.2, "Limiting Safety Settings, Protective Instrumentation," is revised to delete references to two-loop operation regarding operation of the P-8 Permissive interlock.
- Technical Specification 2.3, Basis, is revised to delete references to two-loop operation.
- Technical Specification 3.7, Basis, is revised to note that the Pressurizer Low-Low Pressure setting limit is based on atmospheric pressure.
- Technical Specification Table 3.7-4, is revised as follows:

Item no. 1 - The setting limit for High Containment Pressure is changed from " $\leq 5$  psig" to " $\leq 19$  psia."

Item No. 2 - The setting limit for High-High Containment Pressure is changed from " $\leq 10.3$  psig" to " $\leq 25$  psia."

Item no. 3 - The setting limit for Pressurizer Low-Low Pressure is changed from " $\geq 1700$  psig" to " $\geq 1760$  psig."

Item no. 6a - The setting limit for Steam Generator Water Level Low-Low is changed from " $\geq 5\%$  narrow range" to " $\geq 14.5\%$  narrow range."

Item no. 10 - A new heading, "Turbine Trip and Feedwater Isolation" is included for the newly added Functional Unit number 10a, "Steam Generator Water Level High-High," with the Channel Action of "Turbine Trip, Feedwater Isolation," and the Setting Limit of " $\leq 80\%$  narrow range."

## SAFETY SIGNIFICANCE

The proposed setpoint limit changes will provide added assurance that the effects of instrument channel uncertainties during accident conditions are adequately addressed, and will also ensure that the relationship between actual plant settings for the RPS/ESFAS and the accident analyses' assumptions is properly maintained.

The setpoint limit changes that are being proposed are consistent with design basis accident analysis assumptions and existing plant practices. Furthermore, the proposed setpoint limit changes are more conservative than those setpoint limits currently allowable in Technical Specifications. The remaining changes, revising the units of a setpoint limit and deleting certain references to two-loop operation, are editorial in nature and not safety significant. As such, these changes do not alter the conclusions of the existing safety analyses. Consequently, an unreviewed safety question does not exist.

No increase in the probability of occurrence or consequences of an accident will result from the proposed RPS/ESFAS Technical Specifications allowable setpoint limits. The changes affect setpoints used to mitigate accidents and therefore have no bearing on the probability of an accident. The consequences of an accident would not increase, since the changes ensure that the setpoint limits used to mitigate an accident bound the setpoints used in the accident analyses. Therefore, the probability of occurrence or consequences of an accident will not be affected as a result of this change.

Implementation of the proposed Technical Specifications setpoint limits does not create the possibility of an accident of a different type than was previously evaluated in the safety analysis report. Actual plant setpoints are not being affected. New accident precursors are not introduced, since the proposed setpoint limits are more conservative than the values currently provided in the Technical Specifications. Consequently, no new accident precursors are created as a result of the new Technical Specifications setpoint limits.

The proposed changes ensure plant RPS/ESFAS setpoint limits in the Technical Specifications will bound the existing accident analysis assumptions including instrument channel uncertainties due to environmental considerations. Actual plant setpoints are not being affected. Therefore, the margin of safety as defined in the Technical Specifications bases is unaffected.

ATTACHMENT 2  
PROPOSED TECHNICAL SPECIFICATIONS