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SUBJECT: Requests enforcement discretion from requirements of TS 3.12.F.1 & 2.3.A.2(b) to permit power operation at reduced RCS pressure. Operation at reduced RCS pressure will permit power operation w/three operable safety valves.

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VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

May 4, 1993

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

Serial No. 93-283  
NL&P/ETS R2  
Docket No. 50-281  
License No. DPR-37

Gentlemen:

**VIRGINIA ELECTRIC AND POWER COMPANY**  
**SURRY POWER STATION UNIT 2**  
**REDUCED REACTOR COOLANT SYSTEM PRESSURE**  
**REQUEST FOR ENFORCEMENT DISCRETION**

During hydrostatic testing of the Surry Unit 2 Reactor Coolant System (RCS) on April 29, 1993, acoustical monitoring alarms were received on two of the three pressurizer safety valves. At this point, the hydrostatic test was stopped and RCS pressure reduced to prevent any further leakage of the safety valves. In order to complete the ASME Section XI required hydrostatic test of the RCS and reduce the potential for leakage and prevent valve seat damage, the 'A' and 'C' safety valves needed to be mechanically secured. However, Technical Specification 3.1.A.3.a requires that all three safety valves be operable when the head is on the reactor and the RCS temperature is above 350°F. Therefore, enforcement discretion was requested of the NRC and verbally approved by Mr. E. W. Merschoff of your staff on April 30, 1993, to allow two safety valves to be mechanically secured for up to 36 hours. In a letter dated May 3, 1993 (Serial No. 93-281), we documented the April 30, 1993 telephone conference call and the basis of the enforcement discretion.

On May 1, 1993, the two safety valves were mechanically secured and the hydrostatic pressure test was completed. However, after the test, with the mechanical securing device removed and RCS pressure returned to normal operating pressure (2235 psig) indications from the Pressurizer Relief Tank, the safety valve acoustic monitors and the tail pipe temperatures continued to show minor leakage of the 'A' safety valve. The unit was subsequently cooled down and depressurized to approximately 1800 psig to allow the loop seal on 'A' safety valve to be reestablished. The unit was then slowly repressurized. With RCS pressure at 2135 psig, the 'A' safety valve is stable.

To return to power operation from the current refueling outage, we are requesting enforcement discretion from the requirements of Technical Specifications 3.12.F.1 and 2.3.A.2.(b) to permit power operation at reduced RCS pressure. Operation at reduced RCS pressure will permit power operation with three operable safety valves and reduce the potential for leakage of the 'A' safety valve. This enforcement discretion is necessary until the staff processes a Technical Specification change on an emergency basis. The emergency Technical Specification change will be submitted by May 6,

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1993, which will permit full power operation at reduced RCS pressure (2135 psig) for the remainder of Surry Unit 2's twelfth operating cycle.

Technical Specification 3.12.F.1 currently requires RCS pressure to be greater than or equal to 2205 psig, so that RCS initial pressure is consistent with the value assumed in existing safety analyses for DNBR-limited events. Operation with a 100 psi pressure reduction requires that RCS pressure be maintained greater than or equal to 2105 psig, which preserves the 30 psi differential to the proposed RCS pressure. The revision of TS 3.12.F.1 is necessary to ensure that plant pressure be maintained within the bounds assumed in the core thermal - hydraulic assessment for DNBR events described below.

TS 2.3.A.2.(b) currently requires the high pressurizer pressure reactor trip setpoint to be less than or equal to 2385 psig to provide protection for RCS overpressure events. The assessment of such events for reduced pressure operation requires that Technical Specification 2.3.A.2.(b) be revised to maintain the high pressurizer pressure reactor trip setpoint less than or equal to 2310 psig. This change ensures that RCS pressure is maintained below the design overpressure limit of 2750 psia. In addition to the necessary Technical Specification changes, the appropriate procedures and training have been completed to support the power operation of Unit 2 with reduced RCS pressure.

## SAFETY IMPACT AND POTENTIAL CONSEQUENCES

### DNBR Events

Operating at reduced pressure results in a DNBR performance penalty. DNBR limited events that are protected by the Overtemperature  $\Delta T$  reactor trip remain protected since the trip setpoint is automatically adjusted for changes in pressure. For DNBR limited events that are not protected by Overtemperature  $\Delta T$ , the effects of reduced pressure operation have been quantified by application of an appropriate penalty against retained DNBR margin. These events continue to meet the design DNBR limit after applying the penalty.

### LOCA and Non-DNBR Events

The results of a LOCA are not sensitive to the initial pressure and are not affected by the reduced operating pressure. Similarly, the steam line breaks are limited by the post-return to criticality conditions, which are insignificantly impacted by the initial RCS pressure. For loss of load accidents the reduced high pressurizer pressure reactor trip setpoint maintains the pressure within design limits (<2750 psia). The behavior of the pressurizer safety valve was modeled using the methodology of WCAP-12910.

### Fuel Performance Assessment

The impact of the reduced RCS pressure on the fuel rod behavior was evaluated and it was determined that the design criteria will continue to be met.

Therefore, an unreviewed safety question is not being created by operation with the RCS pressure reduced by 100 psig.

## SIGNIFICANT HAZARDS CONSIDERATION

The proposed enforcement discretion from Technical Specifications 3.12.F.1 and 2.3.A.2.(b), which establish the limits for RCS system pressure for operation and the high pressurizer pressure reactor trip setpoint, respectively, does not result in a significant hazards consideration as defined in 10 CFR 50.92. Specifically, the proposed enforcement discretion does not:

- Involve a significant increase in the probability or consequences of an accident previously evaluated. The probability of any accident previously analyzed is not increased. Operating at a reduced RCS pressure does not affect the frequency of accident initiating events. Although the Reactor Coolant System pressure is reduced for one cycle of operation the DNBR margin is maintained for accidents that challenge the DNBR limits. The loss of load analysis with the modified high pressurizer pressure reactor trip setpoint continues to meet the overpressure design limit. Therefore, there is no increase in the consequences of any accident previously evaluated which is created by operation of Surry Unit 2 at reduced pressure.
- Create the possibility of a new or different kind of accident from any previously evaluated. There are no new failure modes or mechanisms associated with operating Surry Unit 2 at reduced pressure for up to one cycle. Therefore, there are no new or different kind of accidents created by operation of Surry Unit 2 at reduced pressure.
- Involve a significant reduction in the margin of safety. The limiting DNB analyses continue to meet the DNBR acceptance criteria at reduced pressure operation. The applicable overpressure safety analyses acceptance criteria continue to be met with the high pressurizer pressure reactor trip setpoint reduced to less than or equal to 2310 psig. Therefore, the existing margin of safety is not reduced by operation of Surry Unit 2 at reduced pressure.

## ENVIRONMENTAL CONSEQUENCES

This enforcement discretion will not change the types of any effluents that may be released offsite, nor create a significant increase in individual or cumulative occupational radiation exposure. Operation at a reduced RCS pressure of greater than 2105 psig and the high pressurizer pressure reactor trip setpoint reduced to less than or equal to 2310 psig maintains the existing accident analysis margins and ensure RCS pressure will be maintained less than 110% of design for accident conditions. Therefore, the environmental consequences of any previously analyzed accident will remain unaffected.

This enforcement discretion has been reviewed and approved by the Station Nuclear Safety and Operating Committee. It has been determined that no unreviewed safety question or significant hazards consideration exists. If you have any questions or require additional information, please contact us.

Very truly yours,



W. L. Stewart  
Senior Vice President - Nuclear

cc: Regional Administrator  
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Mr. M. W. Branch  
NRC Senior Resident Inspector  
Surry Power Station