VIRGINIA ELECTRIC AND POWER COMPANY Richmond, Virginia 23261

April 6, 1995

United States Nuclear Regulatory Commission Attention: Document Control Desk Washington, D. C. 20555 Serial No. 95-140 SPS/BCB/GDM R7 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 REPLY TO A NOTICE OF VIOLATION NRC INSPECTION REPORT NOS. 50-280/95-03 AND 50-281/95-03

We have reviewed Inspection Report Nos. 50-280/95-03 and 50-281/95-03 dated March 7, 1995 and the enclosed Notice of Violation. We share your concern regarding the adequacy and effectiveness of maintenance of the turbine-driven auxiliary feedwater pump (TDAFWP). We have expended significant resources during the past year to investigate TDAFWP operation and testing and have undertaken several initiatives to improve pump availability and reliability. Some of these initiatives were discussed with the NRC at the January 25, 1995 management meeting.

We have also reviewed our requirements regarding station activities that directly involve vendor procedures or employ vendor representatives and concluded that they are appropriate and adequately defined by station procedures. However, actions have been taken to heighten station personnel's awareness and understanding of these requirements to ensure they are effectively implemented in the future.

We have no objection to this letter being made a part of the public record. Please contact us if you have any questions or require additional information.

Very truly yours,

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James P. O'Hanlon Senior Vice President - Nuclear

Attachment

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: U.S. Nuclear Regulatory Commission Region II 101 Marietta Street, N.W. Atlanta, Georgia 30323

Mr. M. W. Branch NRC Senior Resident Inspector Surry Power Station

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REPLY TO A NOTICE OF VIOLATION NRC INSPECTION CONDUCTED JANUARY 22 - FEBRUARY 11, 1995 SURRY POWER STATION UNITS 1 AND 2 INSPECTION REPORT NOS. 50-280/95-03 AND 50-281/95-03

NRC COMMENT:

"During an NRC inspection conducted on January 22 through February 11, 1995 a violation of NRC requirements was identified. In accordance with the 'General Statement of Policy and Procedure for NRC Enforcement Actions,' 10 CFR Part 2, Appendix C, the violation is listed below:

Technical Specification 6.4.A.7, 6.4.C and 6.4.D require that detailed written procedures and instructions shall be provided for corrective maintenance activities which would have an effect on the safety of the reactor. They also require that these procedures be reviewed and approved by the Station Nuclear Safety and Operating Committee and that they be followed.

Virginia Power Administrative Procedure (VPAP)-0801, Maintenance Program, revision 4, implements these requirements for maintenance activities.

VPAP-0801, Section 6.3.3.c requires the safety significance of the maintenance activity, complexity of the maintenance activity and experience and training of personnel performing the activity be considered when determining whether a detailed maintenance procedure or skill of the craft should be utilized to accomplish a maintenance activity.

VPAP-0801, Section 6.18.2.a requires that maintenance activities performed by a vendor at the station be accomplished in accordance with approved procedures.

Contrary to the above, approved detailed written procedures were not used to perform complex maintenance and vendor related activities on the Unit 1 turbine driven auxiliary feedwater pump (TDAFWP) as evidenced by the following examples:

1. On December 24 and 25, 1994, and January 11, 1995, the TDAFWP governor was replaced using Work Orders (WOs) 301919 02, 301919 03 and 306913 08 respectively. Approved detailed maintenance procedures were not used.

NRC COMMENT (Continued):

- 2. On December 24 and 25, 1994, and January 11, 1995, vendors performed maintenance/adjustment/testing on the TDAFWP governor using WOs 301919 01 and 301919 02, 301919 03 and 306913 08 respectively. Approved detailed maintenance procedures were not used.
- 3. On January 10, 1995, the turbine speed control system linkage was disassembled and reassembled using WO 306913 01. An approved detailed maintenance procedure was not used.

This is a Severity Level IV Violation (Supplement I)."

<u>REPLY TO A NOTICE OF VIOLATION</u> <u>NRC INSPECTION CONDUCTED JANUARY 22 - FEBRUARY 11, 1995</u> <u>SURRY POWER STATION UNITS 1 AND 2</u> <u>INSPECTION REPORT NOS. 50-280/95-03 AND 50-281/95-03</u>

1. Reason for the Violation, or, if Contested, the Basis for Disputing the Violation

The Maintenance Program administrative requirements regarding vendor maintenance of safety-related equipment and the use of skill of the craft in lieu of detailed instructions were reviewed. The review concluded that the requirements are appropriate and adequately defined by the Maintenance Program procedures. During these maintenance activities, however, these requirements were not properly implemented. The violation occurred when the scope and complexity of the maintenance activities increased and detailed written procedures were not developed and approved.

Recommendations from Root Cause Evaluation (RCE) 93-25-01, "Turbine Driven Auxiliary Feedwater Pump Overspeed Trip," were implemented during the Unit 1 steam generator chemical cleaning outage in December 1994. These planned maintenance activities included the replacement of Unit 1 turbine-driven auxiliary feedwater pump (TDAFWP) turbine speed control governor Serial No. 228 with Serial No. 227, refurbishment of the governor valve linkage, and installation of a new governor spring, governor valve spring, and governor valve cushion spring. These activities were not considered complicated and had been successfully performed on previous occasions. Engineering and vendor representatives were present to provide technical expertise during governor valve set-up and testing activities.

Post maintenance testing was initiated on December 24, 1994 in accordance with the post-maintenance testing program. During initial testing, the turbine governor exhibited divergent oscillations leading to an overspeed trip. To resolve the problem, a series of diagnostic tests involving different control system configurations were performed. These tests were performed relying on the skill of the craft and the expertise of the vendor representatives. On December 25, 1994 the TDAFWP was tested satisfactorily and returned to service. The TDAFWP was also tested satisfactorily in accordance with Technical Specification requirements on December 27, 1994.

On January 8, 1995 the Unit 1 reactor tripped due to a loss of lube oil to the "B" main feedwater pump. The Unit 1 TDAFWP received an automatic start signal, as designed, and after approximately 50 seconds, an overspeed trip occurred. A review of steam flow data indicated that the pump had experienced divergent oscillations prior to the overspeed trip similar to those observed during the December 1994 post-maintenance testing.

Reason for the Violation, or, if Contested, the Basis for Disputing the Violation (Continued)

1.

From January 10 through 13, 1995 a series of tests were performed to identify the cause of the divergent oscillations. The tests were performed with two different turbine governors installed (Serial Nos. 227 and 228) and under varied conditions. The testing was performed relying on the skill of the craft and the expertise of the vendor representatives. Turbine governor No. 227 continued to exhibit divergent oscillations. Turbine governor No. 228 performed satisfactorily and was left installed. On January 14, 1995, the TDAFWP was tested satisfactorily and returned to service.

In summary, as the planned maintenance was being performed, problems emerged and it became necessary to perform additional, more complex work. The additional work involved the disassembly and adjustment of the turbine speed control system. These activities were beyond the originally planned scope and continued to be performed relying on the skill of the craft and the expertise of the vendor representatives. This response to an evolving maintenance issue resulted in the use of insufficiently detailed approved instructions by utility maintenance and vendor personnel.

2. Corrective Steps Which Have Been Taken and the Results Achieved

The following actions have been taken to heighten station personnel's awareness and understanding of the Maintenance Program administrative requirements regarding vendor maintenance of safety-related equipment and the use of skill of the craft in lieu of detailed instructions. These actions will help to ensure that the requirements are effectively implemented in the future.

- The Superintendent Maintenance documented and communicated his expectations concerning these requirements to the Maintenance Department staff. Coaching was provided to the maintenance supervisors to reinforce the requirements.
- The Quality Maintenance Team (QMT) Coordinator discussed the requirements with craft personnel during QMT meetings.
- The Station Manager coached the station superintendents and issued a memorandum to underscore management's standards and expectations.

A Root Cause Evaluation (RCE) team was promptly established to determine the cause of the Unit 1 TDAFWP divergent oscillation event that occurred on January 8, 1995. The team evaluated this event relative to previous overspeed trip occurrences and thoroughly reviewed each aspect of TDAFWP maintenance. RCE 95-02, "Turbine Driven Auxiliary Feedwater Pump Divergent Oscillations," concluded that the maintenance described in this

2. Corrective Steps Which Have Been Taken and the Results Achieved (Continued)

response was not the root cause of the January 8, 1995, divergent oscillation event.

The procedure used to maintain the TDAFWPs was revised to provide additional instructions for the removal/installation, adjustment, and postmaintenance testing of the TDAFWP governor. The revision process included a review of the associated vendor technical manuals to ensure the procedural instructions are consistent with the vendor and RCE 95-02 recommendations.

3. Corrective Steps Which Will be Taken to Avoid Further Violations

To reinforce attention to the programmatic requirements for maintenance activities, the following actions are planned:

- The station requirements regarding vendor maintenance of safety-related equipment and the use of skill of the craft will be addressed during the next session of Technical Staff Manager Training and Technical Staff Continuing Training.
- Designated maintenance personnel will participate in a vendor provided training program that will specifically address TDAFWP governor maintenance.
- Maintenance Program requirements for performing work on safetyrelated equipment and the use of skill of the craft will be reinforced during the next session of Maintenance Continuing Training for each maintenance craft.
- Maintenance training programs will be reviewed to ensure that requirements for use of detailed and approved instructions when performing work activities are properly addressed and meet management expectations.

Management uses several methods to monitor and promote standards and expectations which should enhance future work evolutions. Management receives feedback from 1) Quality Assurance (QA) Daily Reports, 2) the Quality Maintenance Team Coordinator, who serves as a facilitator between various station departments supporting QMTs, and 3) QA periodic briefings.

The Superintendent - Maintenance, as well as other departmental superintendents, are periodically debriefed on various Quality Assurance and management observations. Performance observations that are not consistent with management expectations for maintenance or other areas are discussed. Items relating to noted performance discrepancies, as well as strengths, are

discussed in weekly departmental meetings. From these debriefing sessions and management discussions, additional corrective actions are developed.

4. The Date When Full Compliance Will be Achieved

Full compliance has been achieved. Maintenance personnel were coached on management's expectations for the implementation of the subject Maintenance Program requirements and the applicable maintenance procedure was revised to provide additional instructions for maintaining the TDAFWP.