

VIRGINIA ELECTRIC AND POWER COMPANY

RICHMOND, VIRGINIA 23261

February 25, 1991

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

Serial No.: 91-061
SPS/RCB R6
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. 50-280/90-39 AND 50-281/90-39

We have reviewed your Inspection Report Nos. 50-280/90-39 and 50-281/90-39 dated January 25, 1991. Our reply to the Notice of Violation enclosed in the report is provided as an attachment to this letter.

We share the NRC's concerns over challenges to emergency safeguards equipment and are taking steps to strengthen our management and procedural controls over the types of occurrences which led to this Notice of Violation. We have also taken steps to strengthen controls over the the design change process and to emphasize the importance of interdepartmental communications. Specific steps are discussed in the attached response.

We have no objection to this reply being disclosed to the public.

If you have any further questions, please contact us.

Very truly yours,



W. L. Stewart
Senior Vice President - Nuclear

Attachment

cc: U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Suite 2900
Atlanta, Georgia 30323

Mr. W. E. Holland
NRC Senior Resident Inspector
Surry Power Station

DI 9103040080 910225
PDR ADDCK 05000280 PDR
Q

TE01
11

Attachment

REPLY TO NOTICE OF VIOLATION INSPECTION REPORT NOS. 50-280/90-39 AND 50-281/90-39

NRC Comment:

During an NRC inspection conducted on October 28 - December 28, 1990, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1990), the violations are listed below:

- A. Technical Specification 6.4.D requires, in part, that detailed written procedures with appropriate checkoff lists and instructions shall be followed for testing of systems and components involving nuclear safety of the station.

Contrary to the above, procedural requirement 4.19 of Periodic Test 1-OPT-ZZ-001, ESF Actuation with Instantaneous Under Voltage - 1H Bus, dated November 20, 1990, performed on December 2, 1990, was not followed in that a voltmeter was not used to monitor contact position. This resulted in an unintentional actuation of Unit 1, emergency safeguards components in the B redundant Train.

This is a Severity Level IV violation (Supplement I).

- B. 10 CFR 50, Appendix B, Criterion V, as implemented by Operational Quality Assurance Program Topical Report (VEP 1-5A, Section 17.2.5), in part, requires that activities affecting quality shall be prescribed by documented instructions or procedures appropriate to the circumstances.

Contrary to the above, activities affecting quality were not prescribed by adequate instructions and/or procedures, in that Periodic Test 1-OPT-ZZ-001, ESF Actuation With Instantaneous Under Voltage - 1H, dated November 20, 1990, performed on December 3, 1990, did not provide adequate instructions for installation of an electrical test jumper. This resulted in an unintentional actuation of Unit 1 emergency safeguards components in the B redundant Train.

This is a Severity Level IV violation (Supplement I).

- C. 10 CFR 50, Appendix B, Criterion III, as implemented by Operational Quality Assurance Program Topical Report (VEP 1-5A, Section 17.2.3) in part, requires that design changes shall be subject to the design control measures commensurate with those applied to the original design.

Contrary to the above, field change 43 to Design Control Package 86-15-1, Level Instrumentation to Prevent Loss of Shutdown Cooling/Surry/Unit 1, dated November 20, 1990, was issued without an adequate review. This resulted in a loss of plant configuration control and unreliable reactor vessel level indication.

This is a Severity Level IV violation (Supplement I).

REPLY TO NOTICE OF VIOLATION
NRC INSPECTION REPORT 50-280/90-39 AND 50-281/90-39

RESPONSE TO ITEM A:

(1) **THE REASON FOR THE VIOLATION, OR, IF CONTESTED, THE BASIS FOR DISPUTING THE VIOLATION:**

The violation was caused by a combination of personnel errors:

- The an adequate pre-job briefing was not performed. Although the precautions and limitations section of the test procedure instructs workers to perform voltage checks prior to making continuity checks, this section was not discussed in the pre-job briefing.
- The electricians taking continuity readings on the terminals failed to check for voltage in accordance with generally accepted "skill of the craft" and good practice.

(2) **THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN TO AVOID FURTHER VIOLATIONS:**

The event was immediately reviewed with the personnel involved, emphasizing the need for an adequate pre-job briefing and the proper methods for taking continuity measurements. The remainder of the testing was completed without similar incident.

The Station Nuclear Safety and Operating Committee (SNSOC) also reviewed the event in detail. SNSOC requested that a Human Performance Evaluation System (HPES) review be performed. This review confirmed the causes of the violation and made recommendations for corrective actions which are discussed below. A Licensee Event Report (LER) was prepared pursuant to 10CFR50.73 and submitted to the NRC on December 27, 1991.

(3) **THE CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS:**

A multi-discipline task team has been appointed by station management to evaluate and strengthen standards for conducting pre-job briefings. Once the pre-job briefing standards have been strengthened, training will be provided to appropriate station personnel. With respect to continuity checks, the investigation into the event found that maintenance training programs currently provide training on the proper methods of checking electrical continuity. Applicable lesson plans will be modified to include this example to further emphasize the importance of attention to detail and proper work practices. Further, the applicable ESF test procedures will be revised to include precautionary statements alerting workers to the possibility of voltage being present during testing.

(4) **THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:**

Full compliance will be achieved by August 30, 1991.

RESPONSE TO ITEM B:

(1) **THE REASON FOR THE VIOLATION, OR, IF CONTESTED, THE BASIS FOR DISPUTING THE VIOLATION:**

The violation was caused by personnel error when a step in the test procedure was inadvertently changed during revision of related procedures. The inadvertent change resulted in an electrical jumper being installed incorrectly leading to the unintentional ESF actuation. The error was undetected because the change to the testing procedure was improperly incorporated after the procedure had received final reviews for technical accuracy.

(2) **THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED:**

A detailed verification of the ESF testing procedures was undertaken. The affected test procedures were modified to specify the correct jumper. Changes were made to rectify other minor discrepancies noted during the review or attributable to changes in plant conditions were made. The corresponding test on the redundant emergency bus was satisfactorily performed two days later without complications. Personnel preparing and reviewing test procedures have been cautioned to exercise necessary attention to detail.

SNSOC reviewed the event and requested that an HPES investigation be performed. This review confirmed the cause of the violation and made a recommendation for corrective action which is discussed below. An LER was prepared pursuant to 10CFR50.73 and submitted to the NRC on December 27, 1990.

(3) **THE CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS:**

Administrative controls governing procedure development are being strengthened. Station Procedures personnel have been directed to obtain an additional technical review for complex periodic or special tests which require multi-discipline review or which have the potential to cause inadvertent safety system actuations. Before submittal for final station approval by SNSOC prior to utilization, and after other reviews have been completed and incorporated, the procedure will receive an additional independent technical review.

(4) **THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:**

Full compliance has been achieved.

RESPONSE TO ITEM C:

(1) THE REASON FOR THE VIOLATION, OR, IF CONTESTED, THE BASIS FOR DISPUTING THE VIOLATION:

The reason for the violation was personnel error. An approved modification to the reactor vessel head vent piping was being implemented during the outage. As part of this modification, previously utilized tygon tubing was being replaced with permanent piping. Portions of the new piping were installed while the reactor vessel head was removed for refueling operations. When it became apparent that the head would be ready to be reset before completion of the job, a field change was issued to document the partial installation. Also, a partial technical review was conducted so that the portion of the new piping that was in place could be used to vent the reactor head. This portion of the vent system piping was returned to the Operations Department and placed in service. During installation of the reactor head, it was found that an interference existed between the newly installed vent piping and the reactor head bolt tensioning device. Accordingly, a separate field change was issued to modify the interfering piping.

The engineer involved in the modification incorrectly assumed that the vent line was not in service when in fact it had been returned to service. He also incorrectly assumed that the vent line isolation valve was tagged shut because the tag removal step had not been signed off in the Design Change Package documentation.

Operating personnel had not tagged the isolation valve shut because work on the system was started with the reactor vessel head removed from the reactor vessel and resting on its storage stand. Rather, the tag report space in the field copy of the tagging procedure was marked "N/A" (not applicable) and the step signed as complete without obtaining an approved change to the governing procedure.

To remove the interference between the head tensioning device and the vent line, a section of piping was removed and the exposed end of the pipe was covered with tape for foreign material exclusion. The field change which cut the vent line called for operating personnel to install a piece of tygon tubing to replace the section of piping removed. When they were notified that the piping had been cut, they did not immediately install the tubing because they were unaware that the opening had been taped shut, thus blocking the reactor vessel vent path.

(2) **THE CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND THE RESULTS ACHIEVED:**

Station management requested that a Root Cause Evaluation (RCE) of the event be performed. This evaluation identified the inappropriate personnel actions which led to the violation and made recommendations for corrective actions which are discussed below.

The Superintendent of Engineering reviewed the event with the engineering personnel involved. A "lessons learned" memorandum was distributed to Design, System and Testing Engineering personnel which emphasized the need for awareness of system status, the importance of communication between departments and the necessity to properly document and control evolutions.

The Superintendent of Operations reviewed the event with the operating personnel involved. He also issued a memorandum to his department which reiterated station tagging policy with regard to design changes. It was emphasized that a step may be marked as "not applicable" only when specifically authorized in the body of the procedure.

Administrative procedures governing field change preparation and technical review processes have been enhanced to ensure notification of the Shift Supervisor and retagging of system boundaries prior to working on systems returned to Operations under a partial technical review.

(3) **THE CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS:**

The corrective actions described above, along with controls already in place, will minimize occurrences of this type in the future.

(4) **THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:**

Full compliance has been achieved.