TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

February 27, 1981 3 PM 12:50

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2 - NRC-OIE REGION II INSPECTION REPORT - 50-327/80-43, 50-328/80-21 - RESPONSE TO VIOLATIONS

The subject inspection report dated January 26, 1981, cited TVA with one Severity Level IV and one Severity Level V Violation in accordance with 10 CFR 2.201. A letter documenting your approval of the seven-day extension to the response deadline was submitted February 20, 1981. Enclosed is our response to these violations.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc: Mr. Victor Stello, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE
SEQUOYAH NUCLEAR PLANT UNIT 2
RESPONSE TO VIOLATIONS 328/80-21-01 AND 328/80-21-02

Violation 328/80-21-01

10CFR50, Appendix B, Criterion VI, Document Control requires that procedures which prescribe activities affecting quality shall be reviewed for adequacy and approved by authorized personnel before use.

Contrary to the above, documents were not controlled in that on November 4, 1980, during the cold hydrostatic test of the reactor coolant system, the procedure in use entitled "Reactor Coolant System Unit 2 Cold Hydrostatic Coordination Plan 68-2" had been prepared and implemented by the engineers conducting the test and had not been independently reviewed and approved by authorized personnel.

Admission or Denial of Alleged Violation

The failure to review the test procedure, as described in the subject violation, occurred as stated.

Reason for Violation

The violation occurred as a result of failure of project personnel to prepare, review, approve, and issue the test procedure as a supplement to Sequoyah Inspection Instruction (II) No. 41, "Hydrostatic Test of Piping Systems." Instead, the procedure was prepared and issued as a Coordination Plan with acceptance criteria to be in accordance with II-41. As a result, the review and approvals it would have received as an II-41 supplement were bypassed.

Corrective Action Taken and Results Achieved

Further testing was stopped and not resumed until the test procedure had been revised, reviewed, approved, and issued as a supplement to II-41. In addition to the management and QA reviews required for the procedure as an II-41 supplement, the procedure was also reviewed and approved by the Division of Nuclear Power before issuance.

Steps Taken to Avoid Further Recurrence

A memorandum has been issued to responsible project employees clarifying the requirements for preparation, review, approval, and issue of hydrostatic testing procedures.

Date of Full Compliance

The revised test procedure was issued on November 7, 1980, and we are now in full compliance.

Violation 328/80-21-02

10 CFR 50, Appendix B, Criterion V, requires that activities affecting quality shall be conducted in accordance with written procedures. The implementing procedure for the unit 2 hydrostatic test, Reactor Coolant System Unit 2 Cold Hydrostatic Coordination Plan 68-2, requires that a valve lineup be completed as required by Appendix E, hold orders be placed on boundary valves, add chemicals prior to increasing temperature above 150 degrees F., chemical analysis be confirmed at 600 and 1000 lb/in^2, personnel access be limited to the reactor building, a relief valve be installed on the discharge of the positive displacement pump, and that communications be established between the reactor coolant area, the charging pumps room and the control room.

Contrary to the above, activities affecting quality were not conducted in accordance with the unit 2 reactor coolant system hydrostatic test procedure in progress on November 4, 1980, in that with the system pressurized to 1000 lb/in^2, the following prerequisites had not been met:

1. A relief valve was not installed at the discharge of the positive displacement pump as required by Section 4.3.4.

2. A valve lineup check sheet had not been completed and hold orders had not been placed on boundary valves as required by Section 7.5.6. The inspectors observed a sampling of approximately ten valves and found five not positioned in accordance with Appendix E.

3. Reactor Coolant temperature was increased above 150 degrees F prior to adding lithium hydroxide to the system as required by Sections 7.4.2 and 7.5.1.

4. Reactor coolant was not sampled and chemistry requirements verified at the 600 and 1000 lb/in^2 pressure plateaus as required by Sections 7.6.2 and 7.7.3.

5. Measures were not taken to limit personnel access to the reactor building to only those persons involved in the hydrostatic test as required by Section 4.1.14.

6. Direct communications were not established between the reactor coolant area, the charging pump rooms, and the control room as required by Section 4.1.12.

Item 1

Admission or Denial of Alleged Violation

The relief valve was not in the configuration required by Section 4.3.4 of the test procedure at the time of the NRC inspection. The valve was installed at the specified location at the start of the test. However, at the time of the inspector's observation, the valve had been isolated and removed to correct leakage that had developed.

The centrifugal charging pump was being used to pressurize the system at this time, and there was no danger of exceeding the relief valve setpoint. The relief valve was reinstalled in the specified location before operation of the positive displacement pump for pressurizing the system above 1500 lb/in^2.

Item 2

Admission or Denial of Alleged Violation

The violation occurred as stated.

Reason for Violation

The test procedure restriction against pressurizing above 600 lb/in^2 until the valve linup had been verified was based on not overpressuring the low pressure portions of the system. After the low pressure portions of the system had been isolated in accordance with Appendix E, pressure was increased to 1000 lb/in^2 concurrent with completing the remainder of the valve lineup.

Corrective Action Taken and Results Achieved

Further testing was stopped and a complete valve realignment was made and documented before resumption of testing.

Steps Taken to Avoid Further Recurrence

All test employees have been reinstructed in the necessity to adhere to procedural requirements.

Date of Full Compliance

We were in full compliance on November 9, 1980, following resumption of testing.

Item 3

Admission or Denial of Alleged Violation

The violation occurred as described.

Reason for Violation

The failure to add lithium hydroxide to the reactor coolant system before exceeding 150 F$^\circ$ occurred through oversight.

Corrective Action Taken and Results Achieved

Lithium hydroxide was added to the reactor coolant system immediately upon recognition of the oversight. The addition was made approximately 2-1/2 hours after an RCS temperature of 150°F was first achieved. The highest RCS temperature reached during this period was 166°F.

Steps Taken to Avoid Further Recurrence

All test employees have been reinstructed to adhere to procedural requirements.

Date of Full Compliance

We were in full compliance with the resumption of testing on November 8, 1980.

Item 4

Admission or Denial of Alleged Violation

There was a failure to verify the chemistry requirement at the 600 lb/in^2 plateau as stated; however, reactor coolant samples were taken as required, and the chemistry requirement was verified as required at the 1000 lb/in^2 plateau.

Reason for Violation

An RCS sample was taken at 600 lb/in^2. The pressure was subsequently increased to 1000 lb/in^2 before the results of this sample were known. The sample specified to be taken at 1000 lb/in^2 was taken as required and pressure was not increased until the results were known.

Corrective Action Taken and Results Achieved

RCS pressure was not increased after the 1000 lb/in^2 sample was taken until the results of both the 600 lb/in^2 sample and 1000 lb/in^2 sample were known and verified to be satisfactory.

Steps Taken to Avoid Further Recurrence

All test employees have been reinstructed in the necessity to adhere to procedural requirements.

Date of Full Compliance

We were in full compliance with the resumption of testing on November 8, 1980.

Item 5

Admission or Denial of Alleged Violation

The violation occurred as stated.

Reason for Violation

The test director interpreted the requirement in Section 4.1.14 of the test procedure to apply to pressures above 1500 lb/in^2.

Corrective Action Taken and Results Achieved

Further testing was stopped and not resumed until a uniformed guard was posted to restrict access to only those persons authorized by the test director. The test director was instructed to ensure access was controlled at all pressures above atmospheric.

Steps Taken to Avoid Further Recurrence

All test employees have been reinstructed in the requirements for restricting access to areas where test activities are in progress.

Date of Full Compliance

We were in full compliance with the resumption of testing on November 8, 1980.

Item 6

Admission or Denial of Alleged Violation

The violation did not occur as stated. Provisions for the direct communication specified by Section 4.1.12 of the test procedure were made as required before the start of the test. The system consisted of battery-powered headsets connected by a combination of temporary and permanent plant wiring. Phone jacks for connecting the headsets were located in each of the specified areas. Test employees took the headsets with them as they moved between the various locations and therefore the headsets would not have been in evidence unless test employees were at the location at the time of the inspector's observation. Because of their small size, the phone jacks may not have been readily evident.

General Response Relative to Inspection Report 80-43 and 80-21

General Response

As a result of the subject NRC inspection, the followup inspection, a meeting with NRC-OIE Region II in Atlanta on November 19, 1980, and TVA's own investigation, we concur that our construction test program did not conform to regulatory agreement and intent nor did the program ensure that components and systems tested under the program were adequate for preoperational testing. In an effort to remove the concerns that developed as a result of these problems, TVA committed to perform an overall review and evaluation of the entire construction test program. This commitment was identified in an NRC confirmation of concurrence letter from J. P. O'Reilly to H. G. Parris dated November 20, 1980.

The extent of the review and evaluation is much broader and comprehensive than noted in the above correspondence. The procedures and their applicability to each component or system is being reviewed by TVA to verify that the applicable construction test meets the design requirements. Each construction test program element will be explicitly defined with written and formal instructions issued for each element of the construction test program.

As a result of the construction test review, a number of changes have been identified. Where Sequoyah unit 2 construction tests have been completed, the test results will be reviewed and evaluated to determine if the original tests were adequate. Retests will be conducted where necessary. In addition, the more complex test procedures for individual components or systems will require additional review and signoff. This will include review and approval by TVA's Division of Engineering Design (EN DES), Division of Nuclear Power (NUC PR), and Construction QA Unit onsite. Control during testing will be formalized with shift turnover instructions and designation of test directors for each test. All test results will be verified and approved by the Construction Engineer with QA and NUC PR approval required on specific test results.

TVA is now satisfied that the upgraded construction test program that resulted from the review and evaluation process meets regulatory agreement and intent. The improved program should ensure that the fabrication, erection, and installation of the component or system being tested is in accordance with the design requirements and that the component or system is adequate for preoperational testing. While this response is specific to Sequoyah unit 2, the review and evaluation of the construction test program is generic to all TVA nuclear units still under construction.