



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

October 7, 1998

50-398/320

Mr. J. P. O'Hanlon
Senior Vice President
Virginia Electric and Power Company
5000 Dominion Boulevard
Glen Allen, VA 23060

SUBJECT: REVIEW OF RESPONSES TO ANOMALIES IN SAFETY EVALUATION AND REVISED RELIEF REQUESTS FOR THE PUMP AND VALVE INSERVICE TESTING PROGRAM FOR NORTH ANNA POWER STATION, UNITS 1 AND 2 (TAC NOS. M96683 AND 96684)

Dear Mr. J. O'Hanlon:

In a letter dated October 18, 1995, Virginia Electric and Power Company (VEPCO) responded to 10 anomalies identified in an NRC Safety Evaluation Report (SER) dated September 24, 1995, for the North Anna Power Station, Units 1 and 2, Inservice Testing (IST) Program. In its letter dated February 15, 1996, NRC discussed actions taken by VEPCO regarding the anomalies, and requested additional clarification and documentation of information. In its letter of July 22, 1996, VEPCO clarified its position on Anomalies 1, 3, 4, 5, and 8, and indicated that relevant documentation would be available on-site for NRC inspection. In the same July 22 letter, you withdrew Relief Request V-59 concerning leak testing for certain groups of containment isolation valves, and revised Relief Requests V 42 for Unit 1 and V 43 for Unit 2 to reflect the use of non-intrusive techniques for testing safety injection accumulator discharge check valves. The staff reviewed the actions taken and clarification concerning the anomalies and finds them acceptable. All actions, clarification, and commitments concerning the anomalies are subject to further review through NRC inspection activities.

In its July 22 letter, VEPCO also submitted a number of revised relief requests concerning closure testing of certain containment isolation (CI) check valves. The current North Anna IST program was developed to the requirements of Section XI of the 1989 Edition of the ASME Boiler and Pressure Vessel Code which references the OM-10 standard for valve inservice testing. Section 4.3.2 of OM-10 requires an exercise test for check valves on a quarterly basis, and, if the test is impractical, at cold shutdowns or refueling outages. Because the subject valves also function as containment isolation valves (CIVs), Section 4.2.2.2 requires that local-leakage-rate tests be performed in accordance with the provisions in 10 CFR Part 50, Appendix J. Presently, the closure testing of the CI check valves is performed in conjunction with a leakage-rate test at each refueling outage, because the quarterly exercise test has been found impractical to perform during power and at cold shutdown.

By NRC letter dated February 9, 1996, North Anna received approval to use Option B of Appendix J for local leak testing of CIVs. Option B of Appendix J allows a performance-based test interval of up to 5 years between tests. Increasing the leak test interval from 2 years to 5 years is allowed by Section 4.2.2.2 of OM-10 and does not require relief. However, an exercise test required by Section 4.3.2 of ASME Code OM-10 cannot exceed one refueling cycle without a relief request. An exercise test is required to ensure the operational readiness and

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functionality of the valve. Performing the closure (exercise) test of the subject valves during power and cold shutdown has been found impractical but performing the test during refueling outage is feasible especially when measurement of leakage is not required. Therefore, the staff found that the relief request for extending the exercise test interval from 2 to 5 years could not be justified using, as a basis, the argument that imposing Code requirements would result in hardship without a compensating increase in the level of quality and safety. Recognizing this, VEPCO provided the following justification and contended that the proposed extended test interval for the subject valves would provide an acceptable level of quality and safety pursuant to 10 CFR 50.55a(a)(3)(i). The licensee stated the following.

- (1) Option B of the Appendix J leakage test program for North Anna has been approved for use.
- (2) The subject valves will be added to the plant's check valve predictive maintenance program.
- (3) The subject valves must have a low risk significance as determined by the plant's Probabilistic Safety Analysis (PSA).

As noted above, the use of Option B of Appendix J was approved only for application to leakage test intervals, not for ensuring the operational readiness and functionality of the valves. Valve exercise tests are normally performed every 3 months, whereas valve leakage tests are usually performed every 2 years. Therefore, the staff finds that approval of Option B is not an acceptable justification for allowing the closure (exercise) test interval to be extended beyond one refueling cycle.

VEPCO indicates that the subject valves will be added to the plant's check valve predictive maintenance program and states that the plant's predictive maintenance program meets the requirements of OM Subsection ISTC, Appendix II, entitled "Check Valve Condition Monitoring Program," dated June 1995, a draft issue. At the present time, the information submitted has been overtaken by recent events. Subsequent to your submittal, ASME OMa Code-1996 was published. Subsection ISTC 4.5.5 and Appendix II of the OMa-1996 Code contains specific provisions for implementing a condition monitoring program (CMP), and indicates that the CMP is an alternative to a valve exercise test. It should be noted that the purpose of this program is both to improve valve performance and to optimize the testing. The staff has since accepted the use of Appendix II to the OM Code (1996 Addenda) for the Wolf Creek Generating Station in a letter dated November 26, 1997, with certain conditions and limitations. The staff encourages VEPCO to review the staff's conditions and limitations and pursue the use of Appendix II for the North Anna Power Station for the subject valves accordingly.

With regard to VEPCO's statement that the subject valves must have a low risk significance as determined by the plant's PSA, the staff has not been able to initiate its evaluation of the PSA approach because (1) VEPCO did not provide sufficient information for the staff to determine the risk significance of the proposed extended test interval, and (2) it is unclear how VEPCO's approach satisfies recent NRC guidance regarding use of the risk-informed inservice testing. Recently, NRC issued Regulatory Guide (RG) 1.174, "An Approach for using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and

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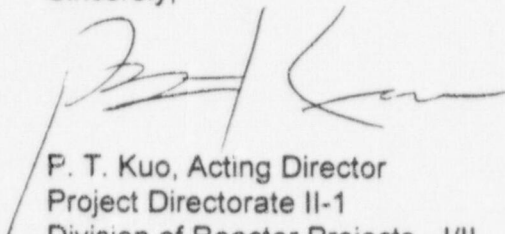
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RG 1.175, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Testing." These two documents provide guidance on how to apply probabilistic risk assessment methods to regulatory activities in general and to inservice testing of pumps and valves in particular. VEPCO should review these two documents and determine the extent to which the proposed approach meets staff guidance and resubmit appropriate documentation to support the risk-informed IST approach if it intends to pursue such an approach.

In conclusion, VEPCO's responses to anomalies identified by staff in SER dated September 24, 1995, are acceptable and subject to NRC inspection. As discussed above, the request for relief from valve quarterly tests and the proposal to extend the test interval up to 5 years is not acceptable based on a lack of information. VEPCO, however, is encouraged to pursue this relief request by providing more information on its check valve CMP and/or proposing a risk-informed inservice testing program to allow extended test intervals for the check valves using the staff's guidance in RG 1.175.

On this basis, the staff considers TAC Nos. M96683 and M96684 to be closed.

Sincerely,



P. T. Kuo, Acting Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulations

Docket Nos. 50-338
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