UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-338/87-41 and 50-339/87-41

Licensee: Virginia Electric and Power Company
Richmond, VA 23261

Docket Nos.: 50-338 and 50-339 License Nos.: NPF-4 and NPF-7

Facility Name: North Anna 1 and 2

Inspection Conducted: December 14-18, 1987

Inspector: Nick Economos 1/6/88
N. Economos Date Signed

Approved by: J. J. Blake 1/6/88
J. J. Blake, Section Chief Date Signed
Materials and Processes Section
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection was in the areas of inservice inspection and testing of pumps and valves; closing of open items. Also attended the ACRS Joint Subcommittee Meeting on Metal Components/Thermal Hydraulic affects on Steam Generator Integrity.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*M. L. Bowling, Jr., Assistant Station Manager
C. L. Conner, Senior Engineering Technician
*R. F. Driscoll, Manager Quality Assurance
*G. Harkness, Licensing Coordinator
*E. W. Harrell, Station Manager
*G. E. Kane, Assistant Station Manager
J. Leberstien, Licensing Engineering
*P. S. Naughton, Engineering Supervisor Inservice Inspection (ISI)

Other licensee employees contacted included QC/QA inspectors, engineers, technicians, and office personnel.

NRC Resident Inspectors

J. Caldwell, Senior Resident Inspector
L. King, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on December 18, 1987, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below.

338, 339/87-41-01	Open	Unresolved Item (URI) Maximum Limiting Stroke Time on IWV Valves (paragraph 4)
338/87-41-02	Open	Inspector Followup (IFI) - High Ampere Values on Inside Recirculation Spray Pump B (paragraph 4)
338/87-41-03	Open	IFI - Documentation of Pump and Valve Testing Commitments (paragraph 4)

Dissenting comments were not received from the licensee.

Proprietary information is not contained in this report.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Inservice Testing of Pumps and Valves - Units 1 and 2 (73756)

Review of Inservice Testing Program Implementation

Selected aspects of the licensee's implementation of inservice testing (IST) requirements for pumps and valves were reviewed to verify compliance with regulatory requirements and licensee commitments. The applicable code for IST, as identified through 4.0.5 of the Technical Specifications and 10 CFR 50.55(a)(g) is ASME Section XI, (Subsection IWV, (74S75) for valves and Subsection IWP, 1980 Edition for pumps). The inspector discussed the scheduling, performance, and documentation of pump/valve testing with cognizant on-site personnel. The IST program is documented in procedure, ISI-2.0, 2/27/87 ASME XI IWP/IWV Program. This procedure specifies the responsibilities and surveillance requirements for pumps and valves including post maintenance testing as applicable. Specifically, pumps and valves included in this program are identified in the North Anna Power Station Equipment Classification Manual. In addition, to the above, the inspector reviewed the following procedures from VEPCO's ISI Manual for technical content.

ISI-10	4/30/87	ASME Section XI Class 1 Valve Visual Examination Program
ISI-5.1	8/21/86	ISI Visual Examination, VT-2
ISI-12	4/16/87	ASME Section XI Pressure Testing Program

In addition, the inspector reviewed the documentation of previously performed pump/valve performance tests (PT) for Units 1 and 2 to determine accuracy, completeness and Code compliance. The PTs reviewed were as follows:

Valves

	Unit No.	Type	System	Procedure	Test Frequency
2SI 112	2	Check	Low Head Injection	2PT-138	Refueling
*TVBD100B "A"	1	Globe	"A" S/G Blowdown Inside Cont. Isolation	1PT-213.1	3 months
MOV100B "B"	1	Globe	Aux. feedwater Supply to "B" S/G	1PT-213.14	3 months
*MOV1289A "A"	1	Gate	Chemical Volume and Control	1PT-212.2	Refueling

(cont'd)

Valves

	Unit No.	Type	System	Procedure	Test Frequency
*MOV2867C	2		Boron Injection tank to Cold Leg	2PT-138	Refueling
*MOV2869B "A"	2	Gate	High Head Safety Injection to Cold Leg	2PT-211.2	Cold Shutdown
MOV2867A "B"	2	Gate	High Head Safety Injection Inlet	2PT-213.9	3 months

*Valves requiring periodic leakage testing.

Pumps

Inside Recirc. Spray Pump A	No. 1	1PT-64.1A	2/27/87; 6/16/87; 10/3/87
Inside Recirc. Spray Pump B	No. 1	1PT-64.1B	1/18/87; 3/7/87; 6/16/87
Steam Driven Auxiliary Feedwater Pump	No. 1	1PT-71.1	1/13/87; 2/13/87; 4/13/87
Quench Spray System "A" Subsystem	No. 2	2PT-63.1A	1/2/87; 4/2/87; 7/1/87
Residual Heat Removal and Valve Test	No. 2	2PT-78.3	9/16/87
Low Head Safety Injection Pump	No. 1	1PT-57.1A	1/3/87; 4/3/87; 7/3/87

Within these areas, the inspector made the following observations:

a. Limiting stroke time for the above valves was not commensurate with the capabilities of the valves tested. Instead, limiting times of full stroke time, in the applicable performance procedures, were related to the particular system response time specified by the station's TS. To illustrate this point, the inspector cited two examples:

Valve	Limiting Stroke Time	Full Stroke Time
T.V. BD-100B	58 seconds	6.1 to 9.7 seconds
MOV-FW-100B	60 seconds	29.6 to 30.5 seconds

The NRC inspector disagreed with the licensee's approach to limiting parameters stating that the staff has taken the position that limiting values of full stroke time is required to be based on reasonable engineering judgement of valve operability, not minimum system requirements. Moreover, the inspector stated that this position was based on the staff's interpretation of Subsection IWV as a component-oriented code, and as such maximum limiting stroke times should apply specifically to valve operability and not minimum system response requirements. The licensee responded by stating that this matter is currently being addressed for the Surry Nuclear Station and a similar resolution was contemplated for North Anna. This matter was identified as an unresolved item pending review of the licensee's resolution. Unresolved Item 338, 339/87-41-01, Maximum Limiting Stroke Time on IWV valves.

b. With regards to Inside Recirculation Spray Pump B, the inspector noted that one of the three test records reviewed showed that an ampere value of 325A was recorded on March 7, 1987. This value was considerably higher than that recorded on an earlier and later test, e.g.

Date	Test Results
January 18, 1987	120 amps
March 7, 1987	325 amps
June 16, 1987	100 amps

At the time of this inspection, the licensee could not explain the marked increase in the ampere value nor could he produce any objective evidence to show that the incident was investigated by technical personnel. Therefore, the inspector indicated that an inspector followup item (IFI) would be identified in order to permit more time for further investigation into this matter.

IFI 338/87-41-02, High Ampere Values on Inside Recirculation Spray Pump "B"

c. Certain phases of maintenance work performed on inside recirculation spray pumps A and B (pumps), was observed by the NRC resident inspectors and documented in report 338, 339/87-36. As stated under paragraph 7 of the subject report, back in 1981 the licensee committed to perform a hydraulic test on the pumps following major maintenance. Following completion of major maintenance work during this outage, the resident inspectors learned that the licensee has requested the Commission to grant relief from the code required hydraulic test and as an alternate the licensee proposed to run the pumps dry, to verify operability.

Following discussions between the licensee Headquarters and Region II, the Commission determined that the dry test in this case, was not sufficient to establish operability and the pumps would

therefore have to be hydraulically tested. In view of these circumstances, the inspector requested that the licensee conduct a records search and determine what other, if any, commitments have been made to the Commission in the area of interest.

Also, the inspector requested that in the case where other similar commitments were found to exist, they should be included in the pump and valve program manual for North Anna 1 and 2. This item was identified as IFI 338, 339/87-41-03, Documentation of Pump and Valve Testing Commitments.

Within the areas inspected there were no deviations or violations identified.

5. Inspector Followup Items (92701)

(Closed) IFI 338, 339/87-35-01, Revise Procedure PT-61.4 to Delineate Corrective Action Requirements

The subject procedure was revised to include past procedure deviations and to specify what action is to be taken if leakage was detected in a valve undergoing testing. The revision was approved on October 28, 1987.

6. ACRS Joint Subcommittee Meeting on Steam Generator Integrity

On December 15, 1987, the inspector attended the subject meeting as a representative of Region II. Both VEPCO and Westinghouse (W), participated in the presentation which focused on the technical aspects of the North Anna, steam generator tube failure. VEPCO provided a synopsis of the events which led to the tube rupture, including operator action(s) and lessons learned. This was followed by a W presentation which was of a technical nature, focusing on results of the failure analysis, explanation of the failure mechanism including the source of the stress loads that contributed to the tube rupture. Other topics of the presentation included steam generator criteria and recommendations applicable to North Anna and other W plants having Series-51 steam generators.