January 7, 1988

Docket Nos. 50-280
and 50-281

Mr. W. L. Stewart
Vice President - Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

Dear Mr. Stewart:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION RELATED TO INSERVICE TESTING PROGRAMS FOR SURRY POWER STATION, UNITS 1 AND 2 (TAC NOS. 65557 AND 65558)

By letter dated April 16, 1987, Virginia Electric and Power Company (VEPCO) submitted the revised Inservice Testing Programs for both Surry units. As a result of our preliminary review of these programs, we have developed a set of questions and comments. We would like to meet with VEPCO's representatives, preferably at the plant site, to resolve our concerns. The enclosed list of questions will be used as the agenda for the discussion. Formal reply to these questions prior to the meeting is not necessary. However, draft responses should be prepared prior to the meeting and made available during the discussion.

A meeting schedule will be established after you have had a reasonable time to prepare responses to these questions.

The reporting and/or recordkeeping requirements of this letter affect fewer than 10 respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by

Chandu P. Patel, Project Manager
Project Directorate II-2
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: See next page

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SURRY POWER STATION, UNITS 1 AND 2 ENCLOSURE
PUMP AND VALVE INSERVICE TESTING PROGRAM
QUESTIONS AND COMMENTS

1. VALVE TESTING PROGRAM

A. General Questions and Comments

1. Provide a list of all valves that are Appendix J, type C, leak rate tested but not included in the IST program and categorized A or A/C.

2. The NRC has concluded that the applicable leak test procedures and requirements for containment isolation valves are determined by 10CFR50, Appendix J. Relief from paragraphs IWV-3421 through 3425 for containment isolation valves presents no safety problem since the intent of IWV-3421 through 3425 is met by Appendix J requirements, however, the licensee shall comply with Paragraphs IWV-3426 and 3427. Specific relief must be requested from IWV-3421 through 3425 for any valves that are Appendix J tested to fulfill Section XI requirements.

3. The NRC staff has identified rapid-acting power operated valves as those which stroke in 2 seconds or less. Relief may be obtained from the trending requirements of Section XI, Paragraph IWV-3417(a), however, in order to obtain this Code relief the staff does require that the licensee assign a maximum limiting stroke time of 2 seconds to these valves and comply with the requirements of IWV-3417(b) when the 2 second limit is exceeded. The last paragraph on page 4-32 appears to be in conflict with this position.

4. 10CFR50.55a(g)(5)(ii) states that, "If a revised inservice inspection program for a facility conflicts with the technical specification for the facility, the licensee shall apply to the Commission for amendment of the technical specifications to conform the technical specification to the revised program." The second paragraph of section 4.4.1, page 4-32 of the Surry IST program

appears to conflict with this requirement. Valve testing in the IST program shall conform to the Code requirements unless specific relief is granted.

5. Provide the limiting values of full-stroke time for all power operated valves in the IST program for our review. What are the bases used to assign the limiting values of full-stroke time for these valves?

6. When flow through a check valve is used to indicate a full-stroke exercise of the valve disk, the NRC staff position is that verification of the maximum flow rate identified in any of the plant's safety analyses through the valve would be an adequate demonstration of the full-stroke requirement. Any flow rate less than this will be considered partial-stroke exercising unless it can be shown (by some means such as measurement of the differential pressure across the valve), that the check valve's disk position at the lower flow rate would permit maximum required flow through the valve. Does the Surry IST program conform to this staff position?

7. The NRC staff has concluded that check valve sample disassembly/inspection using a manual full-stroke of the disk is an acceptable alternative method to verify the full-stroke capability of check valves. The sampling technique requires that each valve in the group must be of the same design (manufacturer, size, model number and materials of construction) and must have the same service conditions. Additionally, at each disassembly the licensee must verify that the disassembled valve is capable of full-stroking and that its internals are structurally sound (no loose or corroded parts).

A different valve of each group is required to be disassembled, inspected and manually full-stroked at each refueling, until the entire group has been tested. If it is found that the disassembled valve's full-stroke capability is in question, the remainder of the valves in that group must also be disassembled, inspected, and manually full-stroked at the same outage.

8. The following specific system questions and comments pertain to the valves, pumps, and drawings of Unit 1. Unless otherwise noted, the questions and comments also apply to Unit 2.

B. Main Steam System

1. For which Code requirement is Relief Request 1 requesting relief?

2. Review the valve categorization and type for valves TV-MS-101A, TV-MS-101B, and TV-MS-101C. Is the technical specification testing identified for these valves in the alternate testing for Relief Request 2 more limiting than the Code required testing?

3. Provide a detailed technical justification for not full-stroke exercising valves RV-MS-101A, RV-MS-101B, and RV-MS-101C if they have the capability of being remotely operated.

4. How are valves PCV-MS-102A and PCV-MS-102B stroke timed quarterly?

5. Provide a detailed technical justification for not stroke timing and fail-safe testing valve HCV-MS-104.

6. Do valves TV-MS-109 and TV-MS-110 have a required fail-safe position?

7. How are valves 1-MS-176, 1-MS-178, and 1-MS-182 individually verified to full-stroke exercise open and closed quarterly?

8. What is the safety position(s) of valves NRV-MS-102A, NRV-MS-102B, and NRV-MS-102C and how is the position(s) verified?

C. Feedwater System

1. Review the safety function(s) of the following valves to determine if they should be included in the IST program and tested to Section XI requirements.

	P&ID 11448-FM-68A location
1-FW-148	E-7
1-FW-149	E-7
1-FW-163	F-7
1-FW-164	F-7
1-FW-178	G-7
1-FW-179	G-7

2. How are valves 1-FW-144, 1-FW-159, and 1-FW-174 verified to full-stroke open?

3. Are <u>each</u> of the following valves disassembled for full-stroke exercising every refueling outage?

1-FW-10	1-FW-12	1-FW-41
1-FW-43	1-FW-72	1-FW-74

D. Auxiliary Feedwater Cross Connect System

1. How are valves 1-FW-272, 1-FW-273, 1-FW-309, and 1-FW-310 verified to full-stroke exercise during cold shutdown?

2. Does the emergency makeup system for the auxiliary feedwater system perform any safety function?

E. Circulating and Service Water System

1. What safety function(s) do the following valves perform?

MOV-CW-106A	MOV-CW-106B	MOV-CW-106C	MOV-CW-106D
MOV-CW-100A	MOV-CW-100B	MOV-CW-100C	MOV-CW-100D

2. Review the safety function(s) of valves 1-SW-130, 2-SW-130, 1-SW-268 and the check valve downstream of valve 1-SW-109 (P&ID 11448-FM-71B, locations B-6, B-6, F-8, and G-8) to determine if they should be included in the IST program and tested to Section XI requirements.

F. Component Cooling Water System

1. How are valves 1-CC-176 and 1-CC-177 verified to full-stroke exercise?

2. Provide a detailed technical justification for not fail-safe testing the following valves quarterly.

TV-CC-105A	TV-CC-105B	TV-CC-105C	TV-CC-107
TV-CC-110A	TV-CC-110B	TV-CC-110C	

3. Review the safety function(s) of valves HCV-CC-101A, HCV-CC-101B, HCV-CC-102A, and HCV-CC-102B (P&ID 11448-FM-72B, locations I-2, G-1, C-3, and D-1) to determine if they should be included in the IST program and tested to Section XI requirements.

4. Review the safety function(s) of valves HCV-CC-100 and the component cooling water surge tank vacuum breaker (P&ID 11448-FM-72D, locations A-1 and B-1) to determine if they should be included in the IST program and tested to Section XI requirements.

5. How are valves 1-CC-557 and 1-CC-563 verified to full-stroke open?

G. Compressed and Containment Instrument Air Systems

1. Provide a more detailed technical justification for not full-stroke exercising valves 1-IA-938 and 1-IA-939 quarterly and during cold shutdown.

2. Provide a detailed technical justification for not fail-safe testing valves TV-IA-101A, TV-IA-101B, and TV-IA-100 quarterly.

H. Sampling System

1. Provide a detailed technical justification for not fail-safe testing the following valves quarterly.

TV-SS-100A	TV-SS-100B	TV-SS-101A	TV-SS-101B
TV-SS-102A	TV-SS-102B	TV-SS-103A	TV-SS-103B
TV-SS-104A	TV-SS-104B	TV-SS-106A	TV-SS-106B

I. Vents and Drains System

1. Provide a detailed technical justification for not fail-safe testing the following valves quarterly.

TV-DA-100A	TV-DA-100B	TV-DA-103A	TV-DA-103B
TV-DG-108A	TV-DG-108B	TV-VG-109A	TV-VG-109B

J. Containment and Recirculation Spray Systems

1. Provide a more detailed technical justification for not full-stroke exercising the following valves quarterly and during cold shutdown.

1-RS-11	1-RS-17	1-CS-13
1-CS-24	1-CS-105	1-CS-127

K. Containment Vacuum and Leakage Monitoring System

1. Provide a detailed technical justification for not fail-safe testing the following valves quarterly.

TV-LM-100A	TV-LM-100B	TV-LM-100C	TV-LM-100D
TV-LM-100E	TV-LM-100F	TV-LM-100G	TV-LM-100H
TV-CV-150A	TV-CV-150B	TV-CV-150C	TV-CV-150D

L. Reactor Coolant System

1. Provide a more detailed technical justification for not leak testing valves HCV-1556A, HCV-1556B, and HCV-1556C in accordance with IWV-3426 and 3427 (see Relief Request 30).

2. Provide a detailed technical justification for not full-stroke exercising, not fail-safe testing, and not remote position indication verifying the following valves quarterly (every 2 years for position verification). How are these valves stroke timed?

SOV-RC-100A-1	SOV-RC-100A-2	SOV-RC-100B-1	SOV-RC-100B-2
SOV-RC-101A	SOV-RC-101B	SOV-RC-101C	SOV-RC-101D

3. Review the safety function(s) of the following valves to determine if their categorization should be changed.

SV-1551A	SV-1551B	SV-1551C	MOV-1535
MOV-1536	PCV-1456	PCV-1455C	

4. Provide a detailed technical justification for not fail-safe testing valve TV-1519A quarterly.

5. Provide a more detailed technical justification for not full-stroke exercising valve 1-PG-65 quarterly and during cold shutdown.

M. Residual Heat Removal System

1. Provide a more detailed technical justification for not full-stroke exercising valves 1-RH-5 and 1-RH-11 quarterly.

2. Do valves FCV-1605 and HCV-1758 (P&ID 11448-FM-87A, locations B-5 and G-4) have a required fail-safe position?

N. Chemical and Volume Control System

1. How are valves 1-CH-76 and 1-CH-92 verified to full-stroke open during quarterly exercising?

2. What are the consequences of valve failure during quarterly exercising of valves LCV-1115B and LCV-1115D?

3. Review the safety function(s) of valves 1-CH-256, 1-CH-265, and 1-CH-274 (P&ID 11448-FM-88B, locations D-6, F-6, and G-1) to determine if they should be included in the IST program and tested to Section XI requirements.

4. Provide a detailed technical justification for not fail-safe testing valve TV-1204 quarterly.

5. Review the safety function(s) of the following valves to determine if they should be included in the IST program and tested to Section XI requirements.

	P&ID 11448-FM-88B location
MOV-1287A	B-6
MOV-1287B	E-6
MOV-1287C	G-6
MOV-1286A	B-6
MOV-1286B	F-6
MOV-1286C	G-6

6. Review the safety function(s) of the following valves to determine if they should be included in the IST program and tested to Section XI requirements.

	P&ID 11448-FM-88B location
MOV-1267A	D-7
MOV-1267B	D-7
MOV-1269A	F-7
MOV-1269B	F-7
MOV-1270A	H-7
MOV-1270B	H-7

7. Review the safety function(s) of valves MOV-1350 and 1-CH-227 (P&ID 11448-FM-88B, locations H-6 and I-6) to determine if they should be included in the IST program and tested to Section XI requirements.

8. Provide a detailed technical justification for not fail-safe testing valves HCV-1200A, HCV-1200B, and HCV-1200C quarterly.

9. Provide a more detailed technical justification for not full-stroke exercising valve 1-CH-309 quarterly.

O. Safety Injection System

1. Provide a more detailed technical justification for not full-stroke exercising valves 1-SI-56 and 1-SI-47 quarterly.

2. How is reverse flow closure verified for valves 1-SI-50 and 1-SI-58?

3. Provide a more detailed technical justification for not full-stroke exercising valves MOV-1869A, MOV-1869B, and MOV-1842 during cold shutdown.

4. How are valves 1-SI-25 and 1-SI-410 verified to full-stroke open and closed during cold shutdown?

5. Review the safety function(s) of the following valves to determine if their categorization should be changed.

MOV-1890A	MOV-1890B	MOV-1890C
MOV-1869A	MOV-1869B	MOV-1842

6. Provide a detailed technical justification for not fail-safe testing valves TV-SI-100, TV-SI-102A, and TV-SI-102B quarterly.

7. Provide a more detailed technical justification for not full-stroke exercising the following valves quarterly. What alternative methods have been considered to full-stroke exercise these valves?

1-SI-107	1-SI-109	1-SI-128
1-SI-130	1-SI-145	1-SI-147

8. What are the consequences of valve failure during quarterly exercising of valves MOV-1865A, MOV-1865B, and MOV 1856C?

9. Provide a more detailed technical justification for not full-stroke exercising the following valves quarterly and during cold shutdown. How is reverse flow closure verified for <u>each</u> of these valves?

1-SI-88	1-SI-91	1-SI-94
1-SI-238	1-SI-239	1-SI-240

10. How is reverse flow closure verified for <u>each</u> of valves 1-SI-79, 1-SI-82, and 1-SI-85?

11. Review the safety function(s) of valves 1-SI-235, 1-SI-236, and 1-SI-237 to determine if their categorization should be changed.

12. What is the accuracy of flow instruments FT-1932, FT-1933, FT-1960, FT-1961, FT-1962, and FT-1963?

13. If the operability of valves HCV-1853A, HCV-1853B, HCV-1853C, and HCV-1936 (P&ID 11448-FM-89B, locations D-4, D-7, G-5, and H-5) is necessary to fulfill the requirements of Branch Technical Position RSB 5-1, these valves must be included in the IST program and tested to the Code requirements.

P. Containment Hydrogen Analyzer System

1. Provide a detailed technical justification for not fail-safe testing the following valves quarterly.

TV-GW-100	TV-GW-101	TV-GW-102	TV-GW-103
TV-GW-104	TV-GW-105	TV-GW-106	TV-GW-107
TV-GW-111A	TV-GW-111B		

Q. Steam Generator Blowdown System

1. Provide a detailed technical justification for not fail-safe testing the following valves quarterly.

TV-BD-100A	TV-BD-100B	TV-BD-100C
TV-BD-100D	TV-BD-100E	TV-BD-100F

R. Radiation Monitoring-Containment Particulate System

1. Provide a detailed technical justification for not fail-safe testing valves TV-RM-100A, TV-RM-100B, and TV-RM-100C quarterly.

S. Fuel Oil System

1. Review the safety-related function(s) of CS-60A valves (six check valves at the outlet of the ready and standby pumps) to determine if they should be included in the IST program and tested to Section XI requirements.

2. Provide a detailed technical justification for not stroke timing the following valves quarterly.

SOV-EE-100	SOV-EE-101	SOV-EE-102
SOV-EE-103	SOV-EE-104	SOV-EE-105

T. Containment Purge System

1. Provide a technical justification for not verifying valve remote position indication for valve MOV-VS-101 to the Section XI requirements.

U. Diesel Air Starting System.

1. Provide a more detailed technical justification for not individually exercising valves SOV-EG-100A, SOV-EG-100B, SOV-EG-300A, and SOV-EG-300B to the Section XI requirements.

2. Review the safety function(s) of valves 1-EG-40, 1-EG-42, 3-EG-40, and 3-EG-42 to determine if they should be included in the IST program and tested to Section XI requirements.

2. PUMP TESTING PROGRAM

1. Relief Request 1 proposes to utilize ASME Publication 78-WA/NE-5 for pump vibration velocity acceptance criteria. An acceptable alternative pump vibration velocity acceptance criteria is that of ANSI/ASME OM-6, draft 10. Provide a copy of 78-WA/NE-5 for our review.

2. Relief Requests 2, 3, 4, 6, 9, 11, and 12 reference instrumentation installation at some unspecified date. When and what specific instrumentation will be installed to permit measurement of Code required parameters?

3. What alternative testing methods have been considered to detect hydraulic degradation for recirculation spray pumps 1-RS-P-1A and 1-RS-P-1B (see Relief Request 5)?

4. Provide the technical justification that demonstrates that flow measurement is not necessary for evaluation of pump performance for auxiliary feedwater pumps 1-FW-P-3A, 1-FW-P-3B, and 1-FW-P-2 (see Relief Request 6).

5. Provide a more specific technical justification for not testing residual heat removal pumps quarterly.

6. IWP-4400 states that rotative shaft speed need not be measured for pumps directly coupled to motor drives of either the synchronous or the induction type. Therefore, relief from the Code requirement need not be requested for pumps meeting these conditions (see Relief Request 0).

7. Observation of lubricant level or pressure applies only to those pumps that have a lubrication system with level or pressure indication. Therefore, relief from the Code requirement need not be requested for pumps meeting these conditions (see Relief Requests 13 and 14).

8. Provide the specific technical justification that demonstrates that the proposed alternate testing for component cooling water pumps meets the Code requirement for measurement of pump flow (see Relief Request 15).

9. Provide a more specific technical justification for not measuring vibration for the boric acid transfer and fuel transfer pumps quarterly (see Relief Request 9 and 12).