VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

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

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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
ASME SECTION XI INSERVICE PUMP TESTING
RESPONSE TO NRC QUESTIONS AND COMMENTS

On November 21, 1989, Virginia Electric and Power Company and the NRC discussed by telephone the Surry Units 1 and 2 Inservice Testing Program Plan submitted to the NRC on September 30, 1988. The NRC reviewer had several questions and comments which need resolution or further clarification before the NRC can issue the Safety Evaluation Report on pump and valve testing for Surry Power Station.

Attachment 1 contains the questions and comments posed by the NRC reviewer and the responses by Virginia Electric and Power Company.

If you have any questions regarding this revision to our Relief Request, please contact us.

Very truly yours,

W. L. Stewart
Senior Vice President - Nuclear

Attachments

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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

Mr. Clair Ransom
EG&G Idaho
P.O. Box 1625
Idaho Falls, Idaho 83415

ATTACHMENT 1

1. Question - Is there some type of flow criterion associated with the diesel fuel oil transfer pump and pump discharge check valve tests? Refer to Relief Requests P-12 and V-38.

   Response - Yes. While the diesel is running, the pump is started and operated until the high level alarm sounds in the day tank. This test verifies that the check valves open and that the pump is providing more fuel than the diesel can consume.

   The establishment of a crude criterion based on the time to fill the day tank from the low level mark (level at which the pump automatically starts) to the high level mark (level at which the pump automatically stops) will be investigated.

2. Question - If a diesel air start bank fails to discharge as described in Relief Request V-37, will the other bank discharge in time to satisfy Technical Specification Requirement 4.6.A.1.b for diesel start time (10 seconds)?

   Response - Yes. The automatic transfer from one bank to the other occurs within 2 seconds, leaving time to start the diesel within 10 seconds. A trouble start alarm will sound in this case.

3. Question - Are the valves described in Relief Request V-33 verified closed to the full closed position and are they verified open?

   Response - These valves are verified to the full closed position during the Appendix J, Type C leak tests. The current test procedure does not verify the open position. However, the test procedure will be modified to verify the open position by opening the valve after the test volume has been pressurized and observing the pressure decrease. Based on the use of this test method as a positive means for verifying valve position, Relief Request V-33 is no longer necessary and is hereby withdrawn.

4. Question - How are the group leakage criteria established for valves described in Relief Request V-39 and can excess leakage for the smallest valve in a group be masked by criteria based on the larger valve

diameters?

Response - The group leakage criteria are determined by summing the valve diameters in the group and multiplying the sum by 0.32 SCFH which corresponds to the guideline criterion of 7.5 SCFD per inch of valve diameter given in IWV-3426. Based on this method, the ratios of the smallest valve to the sum of the valve diameters for cases where the valve diameters differ are given below.

Valve	Valve Diameter	Smallest Valve Diameter/ Sum of Diameters
1-SI-150	1"	0.14
1-SI-MOV-1867C	3"	
1-SI-MOV-1867D	3"	
1-SI-174	1"	0.25
1-SI-MOV-1869A	3"	
1-VS-MOV-101	8"	0.10
1-VS-MOV-100C	36"	
1-VS-MOV-100D	36"	

The ratios given above establish that the smallest diameter valve in a given group provides a significant contribution to the group leakage. We believe that these ratios provide reasonable assurance that no valve will be returned to service with excessive leakage. The leak test procedure also has an administrative leak limit which is based on 0.16 SCFH per inch of valve diameter. If the leakage exceeds this limit, the valves will be reworked at the discretion of the Type C test coordinator.

5. Comment - Relief Request V-30 does not adequately explain why the valves cannot be tested and how the alternate testing is equivalent to Section XI leak testing.

Response - Article IWV-3421 states, "Category A valves shall be leak tested except that valves which function in the course of plant operation in a manner that demonstrates functionally adequate seat tightness need not be leak tested. In such cases, the valve record shall provide the basis for the conclusion that operational observations constitute satisfactory demonstration".

The intent of Relief Request V-30 was not to identify valves which cannot be leak tested per Section XI, but to present valves which are part of a leakage detection system that constantly monitors the leakage integrity of the RCS boundary and thus "demonstrates adequate seat tightness" for these valves. The RCS boundary is limited to 1 GPM of unidentified leakage and 10 GPM of identified leakage as required by Technical Specification 3.1.C.

RCS leakage is calculated every day. Several parameters are used to determine leakage including

- increased charging flow required to maintain normal level in the pressurizer,
- increasing level in the safety injection accumulators and
- increasing level in the pressurizer relief tank.

6. Comment - The basis for the request in Relief Request V-5 needs more explanation as to why cold shutdown testing of the valves using flow to verify closure is inconclusive due to the low differential pressure across the valve discs.

Response - A test was conducted in an effort to verify whether closure of these valves can be determined using flow. Because there is no isolation boundary between the steam generators and the valves, the test volume must include the steam generators. A steam generator was pressurized with a nitrogen blanket to approximately 5 PSIG. The 0.75 inch drain valve just upstream of the check valve was opened and flow was observed. The 14 inch check valve did not stop the back flow through the vent. It was concluded that the flow was inadequate to seat the check valve completely. Just a small gap between the disc and the seat was sufficient to create a flow area equal to or greater than the flow area through the drain. Therefore, the pressure differential associated with the back flow is being created across the drain valve and not the disc of the check valve.

The above test proved to be inconclusive because of the inability to establish a sufficient differential pressure across the disc. The only way to increase the

differential pressure is to increase the flow area from the test volume. However, this is not achievable for the existing configuration. Immediately upstream of the drain valve is another 14 inch check valve, so the only available flow area from the test volume is the drain valve.

7. Question - Referring to Relief Request V-23, could the charging pumps be stopped long enough during cold shutdown to allow for the stroking of the valves?

   Response - Technical Specification 3.2.B.1 states that one charging pump from the plant in cold shutdown must be available for operation if the other plant is operating. Further review of the system revealed that the valves could be stroked during cold shutdown. Therefore, Relief Request V-23 will be withdrawn and replaced by a cold shutdown justification.