VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

W. L. STEWART
VICE PRESIDENT
NUCLEAR OPERATIONS

March 4, 1988

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

Serial No. 88-104
NO/DJV:jmj
Docket No. 50-338
License No. NPF-4

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT 1
REQUEST FOR ENFORCEMENT DISCRETION

Virginia Electric and Power Company requests that NRC Region II exercise enforcement discretion regarding North Anna Unit 1 compliance with Technical Specification 4.0.5, Surveillance Requirements for Inservice Inspection and Testing. Specifically, enforcement discretion is requested regarding inservice testing of containment isolation valve 1-CC-TV-102A, Component Cooling Water Return from "C" Reactor Coolant Pump Motor. This valve was stroke time tested on January 28, 1988 and placed in "alert" because its stroke time when compared to that of the previous test increased by more than that allowed by ASME Section XI, 1974 Edition through Summer 1975 Addenda. During subsequent testing on February 4, 1988 the valve was stroke time tested on four occasions with stroke times between 8.95 and 10.05 seconds. These results were comparable to those of previous tests prior to January 28, 1988. (A complete history of the valve stroke time test results for 1-CC-TV-102A is provided in Attachment 1). However, a definitive reason for the increase in valve stroke time on January 28, 1988 was not identified, and therefore no corrective action was taken. Consequently, the valve is now required to be stroke time tested on an accelerated basis in accordance with ASME Section XI.

This valve is in the cold shutdown testing category and cannot be safely tested with the unit on-line due to the potential impact on the operating reactor coolant pump motor should the valve fail to reopen following the stroke time test. (Note that the valve is only required to close on a Containment Depressurization Actuation (CDA) signal in order to accomplish its safety function). The potential impact of the valve failing to reopen would be the initiation of a rapid shutdown of the plant or an immediate reactor trip in order to remove the reactor coolant pump from service. Therefore, the valve should only be tested with the unit in Mode 3 or below with the reactor coolant pump shut down. This, of course, would require an unscheduled plant shutdown, and has the potential for imposing an unnecessary transient on the plant.

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We have evaluated continued operation without testing the valve on a monthly basis and concluded that the unit can continue to operate safely and that there will be no reduction in safety, if discretionary relief from the Technical Specifications and ASME Section XI is granted. It is our conclusion that the valve will perform its safety function if called upon to do so. This conclusion is based on: 1) the valve history does not show a failure to stroke within the Technical Specification required stroke time of 60 seconds and 2) the valve was successfully tested on February 4, 1988 while the unit was in cold shutdown and exhibited stroke times comparable to those of earlier tests (before January 28, 1988). Further, we have evaluated the safety significance of the valve failing to close. As discussed in Attachment 1, it is our conclusion that the safety consequences are negligible because the redundant containment isolation valve (1-CC-TV-102B) for the same penetration is fully operable. In addition, even if both of the two redundant containment isolation valves failed to close, the potential consequences would be greatly reduced by the operator and system actions that would reasonably be expected to take place.

This request has been reviewed and approved by the Station Nuclear Safety and Operating Committee, and it has been determined that this discretionary enforcement request does not present an unreviewed safety question as defined in 10 CFR 50.59.

Based on the above, we request that the NRC exercise enforcement discretion by March 13, 1988 to permit continued operation of Unit 1 without testing containment isolation valve 1-CC-TV-102A on a monthly basis as required by Technical Specifications and ASME Section XI. This relief is requested until the next shutdown (scheduled or forced) of the unit at which time corrective action will be performed.

Very truly yours,

W. L. Stewart

Attachment

cc: U. S. Nuclear Regulatory Commission
101 Marietta Street, N.W.
Suite 2900
Atlanta, GA 30323

Mr. J. L. Caldwell
NRC Senior Resident Inspector
North Anna Power Station

ATTACHMENT 1

BASIS FOR DISCRETIONARY ENFORCEMENT

DISCUSSION OF SAFETY SIGNIFICANCE

BASIS FOR DISCRETIONARY ENFORCEMENT

ASME Section XI, IWV-3410 (b) (1) and (e) (1974 Edition through Summer 1975 Addenda) directs that 1-CC-TV-102A shall be exercised during each shutdown. This requirement is satisfied by the current surveillance program. IWV-3410 (g) states that if a valve fails to stroke, then corrective action must be performed within the next 24 hours, or the valve must be declared INOPERABLE. This requirement is also satisfied by the current Periodic Test procedures (PTs) and the station Deviation Reporting procedure (ADM-16.1). Further, IWV-3410 (c) (3) states that if a valve stroke time increases by more than 25% (≤10 sec) or more than 50% (>10 sec), then the test frequency shall be increased to once each month until corrective action is taken.

1-CC-TV-102A is the outside containment isolation valve for the component cooling water return from the "C" RCP upper and lower motor bearing oil coolers and motor stator coolers (see Figure 1). 1-CC-TV-102B is the redundant inside containment isolation valve. The chronological stroke histories for 1-CC-TV-102A and 1-CC-TV-102B are provided in Tables 1 and 2, respectively. As Table 1 indicates, 1-CC-TV-102A has always closed well within its required time of 58 seconds. Further, the valve has always stroked on demand even when not timed (i.e., when required for other functional tests and routine operation). Table 1 also indicates that after the air vent tubing was placed on the exhaust port, a step change increase in the stroke time occurred. However, the stroke time of the valve has remained relatively constant since that modification. Finally, Table 2 indicates that the redundant trip valve, located inside the reactor containment building (1-CC-TV-102B), has never failed to operate within its required time of 58 seconds. The valve has never been placed in the "ALERT" status and has demonstrated consistent stroke times.

The safety function of these valves is to provide containment isolation on a CDA (Phase B Containment Isolation) signal. These valves are in their safe position when closed. However, if during the stroking of one of these valves it should fail to reopen, then a potential detrimental condition for the RCP and the reactor could result. Westinghouse Technical Manual entitled, "Controlled Leakage Seal Reactor Coolant Pump," item 5.4.3 states that the thrust bearing temperature will rise from a nominal temperature of 65°C (149°F) to the trip temperature of 91°C (195°F) within ten minutes after loss of component cooling water. Both annunciator response procedure 1-AR-C-H4 and abnormal procedure 1-AP-15 instruct the operator to trip the reactor and trip the RCP when the motor bearing temperatures exceed 195°F.

In summary, there is a high degree of confidence that 1-CC-TV-102A will close in its required stroke time since this valve has consistently closed in its required time. Furthermore, its associated redundant valve is fully operable. Finally, even if it is postulated that both 1-CC-TV-102A and 1-CC-TV-102B fail to automatically close, the event could be easily and quickly detected by the operator, and under normal radiation conditions, the outside containment isolation valve could be closed by failing instrument air to the valve or venting the SOV locally. The safety significance of not isolating the penetration are also insignificant as discussed in the next section.

SAFETY SIGNIFICANCE FROM THE POSTULATED EVENT OF FAILURE OF BOTH 1-CC-TV-102A AND 1-CC-TVV-102B TO CLOSE

1.0 LEAKAGE POTENTIAL

The CCW system inside containment is not normally open to either the containment atmosphere or to the RCS. Leakage of RCS into the CCW from the RCS during normal operation is detected by the radiation monitors at the outlet of the CCW heat exchangers and by CCW temperature and flow instrumentation. To have excessive leakage of RCS through the CCW system out of containment caused by failure of 1-CC-TV-102A and 1-CC-TV-102B to close would require a failure in the RCP thermal barrier heat exchanger, a failure of a check valve (1-CC-181), and a failure of the Control Room Operator to close 1-CC-TV-106C. (See Figure 1.)

To have leakage of the containment atmosphere through the CCW system would require the failure of the associated piping. If such a failure should occur, the leakage would initially be contained in the CCW system. If the containment atmospheric pressure was also higher than CCW pressure, the level in the CCW surge tank would increase. To mitigate this event, the operator could isolate the break by closing the valves which connect the CCW surge tank to the CCW pump inlet header. Since design pressure for the CCW system piping is in excess of the maximum containment pressure for any postulated accident scenario, the isolation of the CCW system lines would be ensured. Further, any abnormal radiation releases to the Auxiliary Building could be mitigated by operator action from the Control Room by placing the Auxiliary Building ventilation through the charcoal/HEPA filters.

2.0 DILUTION POTENTIAL

If the CCW line in containment is assumed to rupture during a LOCA and the containment isolation valves fail to close, the consequences could be the unborated CCW dilution of the post LOCA boron concentration in the containment sump. However, in order to achieve a flow path of the CCW system to the containment sump, multiple failures must take place.

The CCW system is a closed loop inside of containment. Both 1-CC-TV-102A and 1-CC-TV-102B valves must fail to close during a CDA event and the CCW piping in containment must be ruptured. Also, with operator action, the break would have to be downstream of 1-CC-TV-106C for any significant dilution to occur. The CCW pumps for the affected unit are designed to receive an automatic trip signal from the CDA initiation. In order to overcome the containment pressure (>27.75 psia) and force CCW into containment, the CCW pumps must fail to trip.

The design criteria for safeguards equipment ensures that the post LOCA containment pressure is less than atmospheric within one hour after the event, assuming the failure of one entire safeguards train. The conservative assumption for this event is that both trains of safeguards equipment operates. Under this assumption, the containment pressure

would be subatmospheric approximately twenty minutes after the LOCA. At this time, CCW could drain by gravity into the containment.

The Emergency Operating Procedure (EOP) for a LOCA directs the operator to verify that the CCW pumps have tripped and that all containment isolation valves have closed. The indication of an open trip valve and/or running CCW pump would be easily identified, and operator action, as directed by the EOP, would be immediately taken.

If the CCW system was draining into the containment, the CCW Head Tank level would drop and be recognized by direct indication of level and a low level alarm in the Control Room. As the CCW Head Tank level drops, the NPSH for the CCW pumps decreases. If the CCW pumps had failed to trip from the CDA signal and subsequent operator action, they would now lose suction. When the CCW pumps trip, and as the level in the CCW Head Tank decreases, the driving head for the leakage into containment would decrease. A total of 38,300 gallons of CCW would need to drain into the containment sump and xenon would have had to significantly decay away before a core reactivity problem would be created by dilution of the borated sump.

Additionally, the Emergency Operating Procedure for a LOCA directs the operator to sample the containment sump and forward the results to the TSC for evaluation. The TSC staff would have the capability to assess reactivity considerations for post LOCA core conditions and could make recommendations for additional boron additions to the containment sump.

TABLE 1

CHRONOLOGICAL HISTORY OF 1-CC-TV-102A*

DATE	EVENT
1/8/80	The valve stroked closed in 2.9 seconds
4/1/81	The valve stroked closed in 2.8 seconds
4/11/82	The valve stroked closed in 3.1 seconds
2/14/83	The valve stroked closed in 3.3 seconds
10/15/83	The valve stroked closed in 3.2 seconds
2/5/84	The valve stroked closed in 1.8 seconds**
7/26/84	Inspected and reassembled operator (wo # 11491)
8/2/84	The valve stroked closed in 3.3 seconds
9/16/84	The valve stroked closed in 3.3 seconds
8/9/85	The valve stroked closed in 3.4 seconds
11/13/85	The valve stroked closed in 3.5 seconds
9/3/86	The valve stroked closed in 4.11 seconds
9/10/86	Placed a tube, bent 90°, on exhaust port (EWR 86-498B)
5/22/87	Valve was repacked (wo #56465)
6/7/87	SOV replaced (EWR 87-248)
6/13/87	The valve stroked closed in 7.5 seconds (Post maintenance for SOV change out)
6/14/87	The valve stroked closed in 9.1 seconds (Requested by ISI for packing change-out)
9/8/87	The valve stroked closed in 11.6 seconds

*The Station deviation report file was also reviewed to ensure that no failures have occurred.

**An Engineering Evaluation performed by the ISI group determined that the operation of this valve was acceptable for this stroke time.

TABLE 1

CHRONOLOGICAL HISTORY OF 1-CC-TV-102A
(CONT.)

DATE	EVENT
9/23/87	The valve stroked closed in 7.0 seconds
10/1/87	The valve stroked closed in 9.1 seconds (Requested by ISI for Baseline Data)
10/1/87	The valve stroked closed in 8.7 seconds (Requested by ISI for Baseline Data)
1/28/88	The valve stroked closed in 31.87 seconds
2/4/88	The valve stroked closed in 8.95 seconds (Requested by ISI for Baseline Data)
2/4/88	The valve stroked closed in 9.8 seconds
2/4/88	The valve stroked closed in 10.05 seconds
2/4/88	The valve stroked closed in 9.2 seconds

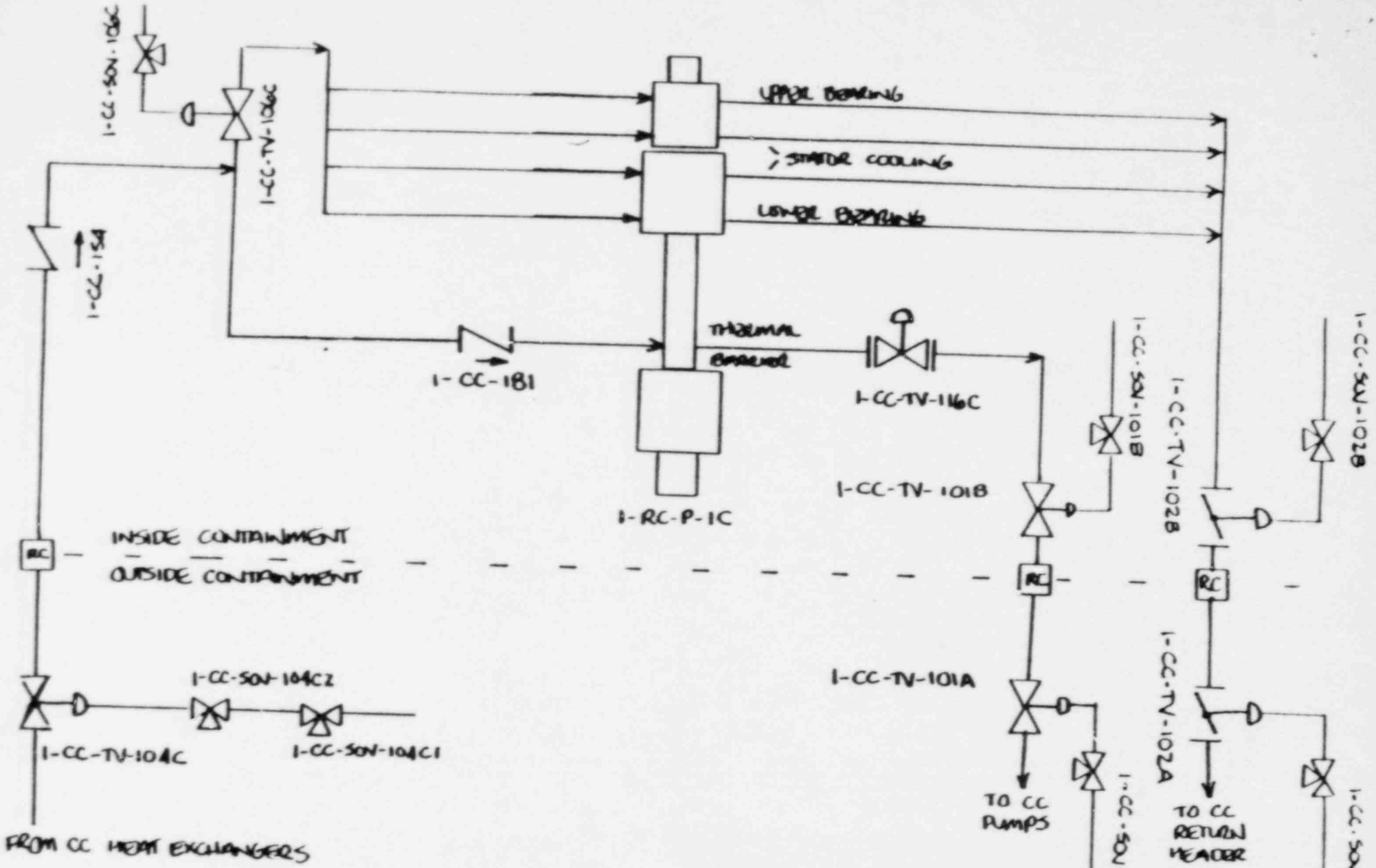
TABLE 2

CHRONOLOGICAL HISTORY OF 1-CC-TV-102B*

DATE	EVENT
1/8/80	The valve stroked closed in 10.7 seconds
4/1/81	The valve stroked closed in 10.7 seconds
11/11/82	The valve stroked closed in 10.1 seconds
2/14/83	The valve stroked closed in 9.8 seconds
10/15/83	The valve stroked closed in 9.2 seconds
2/5/84	The valve stroked closed in 1.7 seconds**
9/16/84	The valve stroked closed in 10.0 seconds
8/9/85	The valve stroked closed in 11.8 seconds
11/13/85	The valve stroked closed in 9.7 seconds
1/11/86	The valve stroked closed in 13.1 seconds
9/3/86	The valve stroked closed in 14.22 seconds
9/4/86	Install fitting with tubing extension (EWR 86-498)
6/13/87	The valve stroked closed in 14.6 seconds
9/8/87	The valve stroked closed in 11.7 seconds
9/23/87	The valve stroked closed in 14.6 seconds
1/28/88	The valve stroked closed in 14.66 seconds

*The Station deviation report file was also reviewed to ensure that no failures have occurred.

**An Engineering Evaluation performed by the ISI group determined that the operation of this valve was acceptable based on its expected stroke time of approximately ten seconds.



FROM 11715-FM-79B SH1,A