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VICE PRESIDENT
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March 30, 1988

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Relief Request for Section XI of ASME Code

REFERENCE: (a) Letter from Mr. J. A. Tiernan (BG&E) to NRC Document Control Desk,
dated February 10, 1987, Inservice Test Program for Safety-Related
Pumps and Valves

Gentlemen:

In accordance with 10 CFR 50.55a, we are submitting for your review additional relief requests (Attachment 1) as a supplement to Reference (a). This reference provided our second 10-year ASME Section XI Pump and Valve Test Program. The program took effect on April 1, 1987.

As a result of recent conversations with NRC representatives, we recognized the need for additional relief as explained in Attachment (1). These requests are deemed necessary because of the impracticality of specific code requirements.

In addition to the relief requests, we have identified the need to change certain aspects of Reference (a). Attachment (2) discusses various valves and testing requirements that need to be removed from our inservice test program. A justification for each is provided. Furthermore, there are additional valves that should be added to the COLD SHUTDOWN list. These are provided in Attachment (2).

Should you have any questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

JAT/SRC/dlm

Attachments

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Document Control Desk

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cc: D. A. Brune, Esquire
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ATTACHMENT (I)

RELIEF REQUEST NUMBER A-3

SYSTEM: As Required, Both Units 1 and 2
P&ID: Where Applicable
VALVES: As Required
CATEGORY: C
CLASS: As Required
FUNCTION: Relief Protection on Various Systems

IMPRACTICAL TEST REQUIREMENT

IWV-5512 requires compliance to ASME PTC 25.3-1976. Paragraph 3.02 of PTC 25.3, 1977 Addendum, requires, "A person who supervises the test shall have a formal education in thermodynamics and fluid mechanics. In addition, he shall have at least two years practical experience in fluid flow measurement and have had experience in test supervision."

BASIS FOR RELIEF

The requirement of ASME PTC 25.3-1976 for the qualifications of a relief valve test supervisor are burdensome to a utility. It would result in additional staff requirements that are not warranted in light of the alternate means of meeting the intent of this paragraph.

ALTERNATIVE REQUIREMENTS

The Plant Operating Safety Review Committee reviews all test procedures and any unacceptable results of relief valve testing. There are typically several members of this committee that meet the educational and experience level requirements of the Code. All test results are reviewed by the System Engineer responsible for all components in the system the relief valve protects. The personnel who conduct the tests meet specific qualification requirements in accordance with ANSI/ASME N45.2.6 - 1978. All instruments used for testing are calibrated within the scope of the site Quality Assurance requirements.

ATTACHMENT (1)

RELIEF REQUEST NUMBER 6

SYSTEM: As Required, Both Units 1 and 2
P&ID: Where Applicable
PUMPS: As Required

IMPRACTICAL TEST REQUIREMENT

Table IWP-4110-1 requires the instrument accuracy of the flow instrument used in testing to be $\pm 2\%$ of full scale.

BASIS FOR RELIEF

Many of the pumps within the scope of IWP are tested by using ultrasonic or annubar flow meters. Due to the timeframe of construction for CCNPP, specific test flow monitoring equipment was not part of the original design basis. To install instrumentation meeting the requirement of Table IWP-4110-1 would require extensive piping re-configuration of most systems. In addition, to improve the accuracy of existing methods would result in extreme expense for continuous vendor or national labs re-calibration of instruments between every test. Current experience with the existing instrumentation provides confidence that the proposed accuracy will be adequate to determine if a pump is degrading.

ALTERNATIVE REQUIREMENTS

All flow measuring instruments will meet a loop accuracy of $\pm 4\%$ of full scale accuracy. The repeatability of the instruments will be within the requirement of Table IWP-4110-1.

ATTACHMENT (1)

RELIEF REQUEST NUMBER 7

SYSTEMS: Auxiliary Feedwater (AFW)/High Pressure Safety Injection (HPSI)/Low Pressure Safety Injection (LPSI)/Containment Spray (CS) for Both Units

P&IDs: M-800/801/74

PUMPS: AFW; 11(21), 12(22) and 13(23)
HPSI; 11(21), 12(22) and 13(23)
LPSI; 11(21) and 12(22)
CS; 11(21) and 12(22)

CLASS: 2 and 3

IMPRACTICAL TEST REQUIREMENT

Table IWP-3100-2 requires that flow be monitored and maintained within a set allowable range.

BASIS FOR RELIEF

These pumps are tested in a mini-recirculation flow loop due to the impracticability of full flow testing during power operation. The AFW, HPSI, LPSI and CS Pumps, if full flow tested, would result in thermal shock to equipment nozzles or deluge of equipment in containment with borated water. A recirculation loop provides a relatively fixed resistance flow path. Tank level does not have a significant impact on recirculation flow for any of these pumps. Each of the pumps has a relatively flat hydraulic characteristic curve within the recirculation flow range. Monitoring flow and checking against an allowable range provides no meaningful input to pump performance.

ALTERNATIVE TESTING

Quarterly testing will be performed without evaluating flow. At each refueling outage a large flow test will be conducted with flowrate being evaluated.

ATTACHMENT (1)

RELIEF REQUEST NUMBER AF-1

SYSTEM: AFW for Both Units
P&ID: M-800 & M-801
VALVES: 1(2) -MS-103/106/108/110
CATEGORY: C
CLASS: 3
FUNCTION: AFW Steam Driven Turbine Supply Check Valves

IMPRACTICAL TEST REQUIREMENT

IWV-3520 requires a check valve to be tested to its design flow position once a quarter.

BASIS FOR RELIEF

The AFW pumps are tested in recirculation on a quarterly basis. The required steam flow to the turbine while the pump is on mini-flow recirculation does not cause the check valve to open to its design position. Recirculation flow causes the valve to open to 28% of its full open position. The required design flow position is approximately 33% open. It is not prudent to run the pumps at full design flow during power operation due to thermal cycling of the steam generator AFW nozzle. The AFW pumps are required to be run at their design flowrate every REFUELING. This will fully cycle the valves.

ALTERNATIVE TESTING

The check valves will be part stroked once per quarter and full stroked on a REFUELING basis.

ATTACHMENT (1)

RELIEF REQUEST SI-6

SYSTEM: Containment Spray for Both Units
P&ID: M-74 & M-462
VALVES: 1(2) -SI-313/323
CATEGORY: C
CLASS: 2
FUNCTION: Containment Spray Pump Discharge Check Valve

IMPRACTICAL TEST REQUIREMENT

IWV-3520 requires a check valve to be tested to its design flow position once a quarter.

BASIS FOR RELIEF

These valves cannot be full-flow stroke tested due to limitations on the bypass discharge flow paths. It is not possible to test its normal flow path because this would result in spraying the containment with a contaminated boric acid solution. This would result in equipment damage and expensive radiological clean-up.

ALTERNATIVE REQUIREMENTS

On a COLD SHUTDOWN basis the valves will be part-stroke tested. Each valve will be disassembled at least once during the ITP interval to inspect the valve's internals.

NOTE: BG&E is investigating two alternatives to disassembly. It may be possible on a COLD SHUTDOWN basis to use two bypass flow paths to obtain full design flow. During the next refueling outage we plan to test these flow paths to determine if a successful full flow test can be conducted on a COLD SHUTDOWN frequency. The second alternative is to measure the differential pressure across the valve at full-open stroke. We are currently looking into the instrumentation requirements and availability if this alternative is substituted for the disassembly.

ATTACHMENT (1)

RELIEF REQUEST SI-7

SYSTEM: Safety Injection for Both Units

P&ID: M-74 and M-462

VALVES: 1(2) -SI-4146/4147

CATEGORY: C

CLASS: 2

FUNCTION: Refueling Water Tank Outlet Check Valves

IMPRACTICAL TEST REQUIREMENT

IWV-3520 requires a check valve to be tested to its design flow position once a quarter.

BASIS FOR RELIEF

It is not possible to provide full design flow through these check valves during any period of plant operation.

ALTERNATIVE REQUIREMENT

These valves will be part-stroke tested once a quarter. Each valve will be disassembled at least once during the ITP interval to inspect the valve internals.

ATTACHMENT (2)

THE FOLLOWING VALVES OR TEST REQUIREMENTS SHOULD BE REMOVED FROM THE PROGRAM

1. Delete requirement to reverse flow test the following Auxiliary Feedwater Check Valves

- 1(2)-AFW-190 Motor Driven Cross Connect
- 1(2)-AFW-193 Steam Driven Pump to Steam Generator 11 (21)
- 1(2)-AFW-194 Steam Driven Pump to Steam Generator 12 (22)
- 1(2)-AFW-199 Motor Driven Pump to Steam Generator 11 (21)
- 1(2)-AFW-200 Motor Driven Pump to Steam Generator 12 (22)

These check valves are located downstream of the flow control valve on the motor driven train and upstream of the flow control valve on the steam driven train. These check valves have no required safety related function in the closed position. Therefore, they will be tested in the open position only. Both a motor driven and steam driven pump start upon an AFW actuation signal. The flow control valves and block valves are all normally open. Should one of the pumps fail to start, there would be no significant flow diversion between steam generators during the first 10 minutes when no operator action is required. After the 10 minutes has expired, it is possible to isolate the individual lines via the block valves, 1(2)-AFW-4520/4521/4522/4523 for Steam Generator 11(21) and 1(2)-AFW-4530/4531/4532/4533 for Steam Generator 12(22). It is not possible to have inadvertent flow diversion between units due to the fact that the cross connect isolation valve is normally shut. The pumps are protected by their individual check valves, which are tested in the closed position, 1(2)-AFW-183/102/116.

2. Delete the testing requirement for the following Auxiliary Feedwater Flow Control Valves

- 1(2)-CV-4511 Steam Driven Pump to Steam Generator 11 (21)
- 1(2)-CV-4512 Steam Driven Pump to Steam Generator 12 (22)
- 1(2)-CV-4525 Motor Driven Pump to Steam Generator 11 (21)
- 1(2)-CV-4535 Motor Driven Pump to Steam Generator 12 (22)

These valves are normally open during operation and only serve a system control function. If necessary, the individual trains can be isolated by their block valves. Therefore, the above valves will be totally removed from the program.

ATTACHMENT (2)

3. Containment Spray

- 1(2)-SI-313 Discharge Check Valve, Spray Pump 11 (21)
- 1(2)-SI-323 Discharge Check Valve, Spray Pump 12 (22)

These valves have no safety-related function in the closed position. During normal operations there is an orificed drain valve in each containment spray header that prevents the static head of water above the pump from exceeding the low level in the Refueling Water Tank. In addition, the pumps supply separate headers. Therefore, there is no possibility for the pump to be rotating in reverse upon receiving a start signal. Therefore, the above valves will be tested to the open position only.

4. LPSI Flow Control Valves

- 1(2)-CV-306

These valves currently are listed with a required position of OPEN. These valves are categorized as "B" passive open valves with power removed from their actuator during **MODES** 1-3. The valves provide a system control function during COLD SHUTDOWN operation by throttling flow. Therefore, the valve will be removed from the program and functionally tested along with all shutdown cooling manual valves, as discussed in paragraph 3.10 of the Pump and Valve Program.

ADD THE FOLLOWING VALVES TO THE COLD SHUTDOWN LIST

ECCS Pumps Recirculation Isolation Valves

- 1(2)-MOV-659 and 1(2)-MOV-660

Shutting these valves during power operation results in isolating the entire ECCS system recirculation line for each unit. Failure of the valve in the closed position would render the entire ECCS system inoperable. Should a LOCA occur where RCS pressure remained above the shutoff head of the pumps, a complete loss of safety injection would occur. Therefore, these valves will only be tested during COLD SHUTDOWN.