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SUBJECT: Application for amends to Licenses DPR-58 & DPR-74, modifying Unit 1 TS 3.3.3.8, Table 3.3-11 & Unit 2 TS 3.3.3.6, Table 3.3-10 to change min channels required to be operable for safety valve position indicator acoustic monitor.

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Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
UNITS 1 AND 2 PRESSURIZER SAFETY VALVE POSITION INDICATOR ACOUSTIC MONITOR TECHNICAL SPECIFICATION AMENDMENT REQUEST

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Attn: T. E. Murley

August 12, 1992

Dear Dr. Murley:

This letter and its attachments constitute an application for Technical Specifications (T/Ss) changes for Donald C. Cook Nuclear Plant Units 1 and 2. Specifically, we are proposing to modify Unit 1 T/S 3.3.3.8 Table 3.3-11 and Unit 2 T/S 3.3.3.6 Table 3.3-10 to change the minimum channels operable for the pressurizer safety valve position indicator acoustic monitor (Instrument 14) to two out of three total from one per valve. We are also proposing to remove the ***** footnotes and references to the ***** footnotes that were added during the previous operating cycle for each unit and are no longer in effect.

Attachment 1 provides a detailed description of the proposed changes, the justification for the changes, and our proposed determination of no significant hazards consideration performed pursuant to 10 CFR 50.92(c). Attachment 2 contains the existing T/Ss pages marked to reflect the proposed changes. Attachment 3 contains the proposed T/Ss pages.

The proposed changes have been reviewed by the Plant Nuclear Safety Review Committee and by the Nuclear Safety and Design Review Committee.

In compliance with the requirements of 10 CFR 50.91(b)(1), copies of this letter and its attachments have been transmitted to Mr. J. R. Padgett of the Michigan Public Service Commission and to the Michigan Department of Public Health.

A001

This letter is submitted pursuant to 10 CFR 50.54(f) and, as such, an oath of affirmation is enclosed.

Sincerely,

E. E. Fitzpatrick
Vice President

dag

Enclosure

Attachments

cc: D. H. Williams, Jr.
A. A. Blind - Bridgman
J. R. Padgett
G. Charnoff
NFEM Section Chief
A. B. Davis - Region III
NRC Resident Inspector - Bridgman

STATE OF OHIO)
COUNTY OF FRANKLIN)

E. E. Fitzpatrick, being duly sworn, deposes and says that he is the Vice President of licensee, Indiana Michigan Power Company, that he has read the forgoing Units 1 and 2 Pressurizer Safety Valve Position Indicator Acoustic Monitor Technical Specification Amendment Request, and knows the contents thereof; and that said contents are true to the best of his knowledge and belief.

E E Fitzpatrick

Subscribed and sworn to before me this 13th day of August, 1992.

Rita D Hill
NOTARY PUBLIC

RITA D. HILL
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES 6-28-94

Attachment 1 to AEP:NRC:1170D

10CFR50.92 Determination for Proposed Changes to the
Donald C. Cook Nuclear Plant Units 1 and 2
Technical Specifications

1.0 · SECTIONS TO BE CHANGED

Unit 1: Table 3.3-11 of Technical Specification (T/S) 3.3.3.8.
Unit 2: Table 3.3-10 of Technical Specification (T/S) 3.3.3.6.

2.0 EXTENT OF CHANGES

We are proposing to change the minimum number of channels operable for the pressurizer safety valve position indicator acoustic monitors (Instrument 14 in Unit 1 T/S Table 3.3-11 and Unit 2 T/S Table 3.3-10) from one per valve to two out of three total.

We are also proposing to delete the ***** footnotes and references to the ***** footnotes in the same tables because the referenced operating cycle has been completed and they are no longer applicable.

3.0 CHANGES REQUESTED

Identical changes are being sought for both the Unit 1 and Unit 2 Technical Specifications.

3.1 UNIT 1

We are proposing to make the following changes to the Unit 1 Technical Specifications.

Revise Table 3.3-11, "Post-Accident Monitoring Instrumentation"

Currently, Instrument 14 of Table 3.3-11 has an exception denoted by a ***** footnote. We are proposing to delete this footnote.

Also, Instrument 14 of Table 3.3-11 requires that as a minimum, one channel per valve be operable. We are proposing to change this to require that, as a minimum, two out of three channels total be operable.

3.2 UNIT 2

We are proposing to make the following changes to the Unit 2 Technical Specifications.

Revise Table 3.3-10, "Post-Accident Monitoring Instrumentation"

Currently, Instrument 14 of Table 3.3-10 has an exception denoted by a ***** footnote. We are proposing to delete this footnote.

Also, Instrument 14 of Table 3.3-10 requires that, as a minimum, one channel per valve be operable. We are proposing to change this to require that, as a minimum, two out of three channels total be operable.

4.0 DISCUSSION

System Description

The reactor coolant system is protected against overpressurization by control and protective circuits, such as the pressurizer pressure high reactor trip, and by the three power-operated relief and three safety valves connected to the top of the pressurizer. Upon opening, these valves discharge steam into the pressurizer relief tank, which condenses and collects the valve effluent. This submittal addresses the monitoring instrumentation associated with the pressurizer safety valves and the pressurizer relief tank.

The purpose of the acoustic monitors is to provide the operator with information regarding safety valve position during post-accident conditions. Two independent monitoring systems exist that alert the operator to the passage of steam through the safety valves due to valve lift. In one of the independent monitoring systems, an acoustic monitor (QR-107A, B, and C) on the discharge of each safety valve detects acoustic vibrations generated from the steam flowing through the pressurizer safety valve, and actuates an alarm and provides a visual display of percentage of full flow in the control room. Due to the magnitude of the acoustic vibrations and the sensitivity of the instrumentation, all three monitors will detect the opening of any one of the three pressurizer safety valves. The acoustic monitors were added to meet the requirements of NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations," and NUREG-0737, "Clarification of TMI Action Plan Requirements," and are environmentally qualified.

During normal operation the acoustic monitors are not used to detect pressurizer safety valve leakage. In the other independent monitoring system, a temperature sensor (NTA-151, -152, -153) downstream of the acoustic sensor generates a signal that actuates a control room alarm when a temperature increase is experienced in the line, as would be the case if the pressurizer safety valve released steam. The attached simplified diagram illustrates this portion of the system. Indications of the temperature, pressure and water level of the pressurizer safety relief tank are also provided in the control room and provide additional indication of pressurizer safety valve leakage during normal operation. The temperature of the water

in the pressurizer relief tank is measured and indicated by instrument number NTA-351. An alarm resulting from this signal is actuated by high water temperature, and informs the operator that cooling of the pressurizer relief tank contents is required. The pressurizer relief tank pressure transmitter (NPA-351) operates a high and low pressure alarm. The pressurizer relief tank level transmitter (NLA-351) provides a signal for a level indication and a high and low tank level alarms. Consequently, a discharge from one of the pressurizer safety valves will cause these instruments to provide an alarm indication in the control room. All downstream temperature, pressure, and tank level indications are not environmentally qualified.

In an emergency situation, the operator does not use a signal from the pressurizer safety valve position indicator acoustic monitors as an action initiator. The operator responds to other indications of loss of reactor coolant inventory. As the operator does not have direct control of the pressurizer safety valve, "where" the loss of inventory is occurring is of less importance than compensating for the loss of inventory. In addition, the Cook Nuclear Plant emergency operating procedures do not reference the pressurizer safety valve position indicator acoustic monitors for the reason stated above.

Reason for Proposed Technical Specification Change Request

The request to remove the footnotes and references to the footnotes is made in order to clarify the Technical Specifications and to remove unnecessary information.

With regard to changing the minimum number of operable channels from one per valve to two out of three total, in letters AEP:NRC:1170 dated December 16, 1991 and AEP:NRC:1170B dated January 22, 1992, amendments were requested to the Unit 2 and Unit 1 Technical Specifications, respectively, to introduce the ***** footnotes which are proposed to be deleted by this letter. These requests were made on an expedited basis to preclude an unwarranted shutdown of each reactor unit. We believe the relief that was granted on a temporary basis can be safely implemented on a permanent basis. Since most of the pressurizer safety valve position indicator acoustic monitor system is inaccessible during power operation, this has the advantage of potentially eliminating the need for plant shutdown or for expedited or emergency T/S relief should an acoustic monitor become inoperable in the future.

We believe that having an acoustic monitor inoperable does not warrant reactor and plant shutdown. As the T/Ss are currently stated, should one pressurizer safety valve position indicator

acoustic monitor become inoperable, it must be restored to operable status within thirty days or the unit must be in hot shutdown within the subsequent twelve hours. Thermal cycling from unwarranted plant shutdowns increases the likelihood of reactor vessel fatigue stress cycles and unnecessarily challenges the safety systems. Because a signal from the pressurizer safety valve position indicator acoustic monitors is not necessary nor used to ensure the safe shutdown of the unit even if a pressurizer safety valve is opened or stuck open during an emergency situation, we believe that a plant shutdown due to an inoperable acoustic monitor would be unwarranted.

Justification for Proposed Technical Specification Changes

For the removal of the footnotes and references to the footnotes, the operating cycles for which the footnotes were valid have been concluded. Therefore, the footnotes are no longer applicable and should be removed.

For the reduction in the minimum number of channels operable from one per valve to two out of three total, first, the temperature sensor installed downstream of each pressurizer safety valve provides indication and alarm on both the control room panel and the plant computer. Past experience has shown these temperature sensors to be effective leak detection devices.

In addition, the pressurizer safety valve position indicator acoustic monitoring system has shown in the past that when one of the pressurizer safety valves opens, all three safety valve position indicator acoustic monitor channels are actuated. This is caused by the sensitivity of the accelerometers and the fact that the three safety valves and their associated acoustic monitor sensors are in close proximity to each other and tied together through common piping. Thus, if the pressurizer safety valve associated with the inoperable position indicator acoustic monitor channel discharges, the remaining two position indicator acoustic monitor channels would alert the operator. An additional benefit to this effect is that it also enables the operator to discriminate a valid alarm indication from an invalid alarm indication.

Other instrumentation exists that provides the operator with indication of pressurizer safety valve actuation. The pressurizer safety valves discharge into the pressurizer relief tank. The temperature, pressure, and liquid level of the tank are indicated and alarmed in the control room. A change in these parameters would alarm and alert the operator of a safety valve discharge condition.

Finally, in an emergency situation, the operator does not use a signal from the pressurizer safety valve position indicator acoustic monitors as an action initiator. The operator responds to other indications of loss of reactor coolant inventory. As the operator does not have direct control of the pressurizer safety valve, "where" the loss of inventory is occurring is of less importance than compensating for the loss of inventory. In addition, the Cook Nuclear Plant emergency operating procedures do not reference the pressurizer safety valve position indicator acoustic monitors.

5.0 NO SIGNIFICANT HAZARDS DETERMINATION

We have evaluated the proposed T/Ss exemption and have determined that it should not require a significant hazards consideration based on the criteria established in 10CFR50.92(c). Operation of the Cook Nuclear Plant in accordance with the proposed amendment will not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated.

Although the proposed exemption results in the operator having one less source of information on plant status, it does not create a significant increase in the probability or consequences of an accident previously evaluated. The acoustic monitors do not perform a function vital to safe shutdown or to the isolation of the reactor, or the reactor coolant system pressure boundary, nor is there a mechanism involving an operable or inoperable pressurizer safety valve acoustic monitor which would initiate an accident. These monitors were added to meet the requirements of NUREG-0578 and NUREG-0737. During normal operations, other instrumentation exists that provides the operator with indication of safety valve actuation. The acoustic monitors are not necessary to and are not used in the emergency operating procedures. In addition, the acoustic monitors being inoperable will not result in an uncontrolled release of radiation to the environment and will not initiate an accident. Finally, although the operator may have one less channel operable, the operator receives no less information than if all three channels are operable because one valve opening causes all operable channels to actuate. Therefore, we conclude that the proposed T/Ss changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

(2) Create the possibility of a new or different kind of accident from any previously analyzed.

As previously stated, the purpose of the acoustic monitor is to provide the operator with information regarding safety valve position

that may assist in the mitigation of the consequences of an accident. Specifically, it provides information that a safety valve has lifted. However, the operator has other mechanisms for obtaining equivalent information. In addition, the signals generated by an acoustic monitor do not initiate any other equipment actuation, nor will the inoperability of an acoustic monitor initiate any accident. Consequently, the proposed T/Ss changes do not create the possibility of a new or different kind of accident from any previously analyzed.

(3) Involve a significant reduction in a margin of safety.

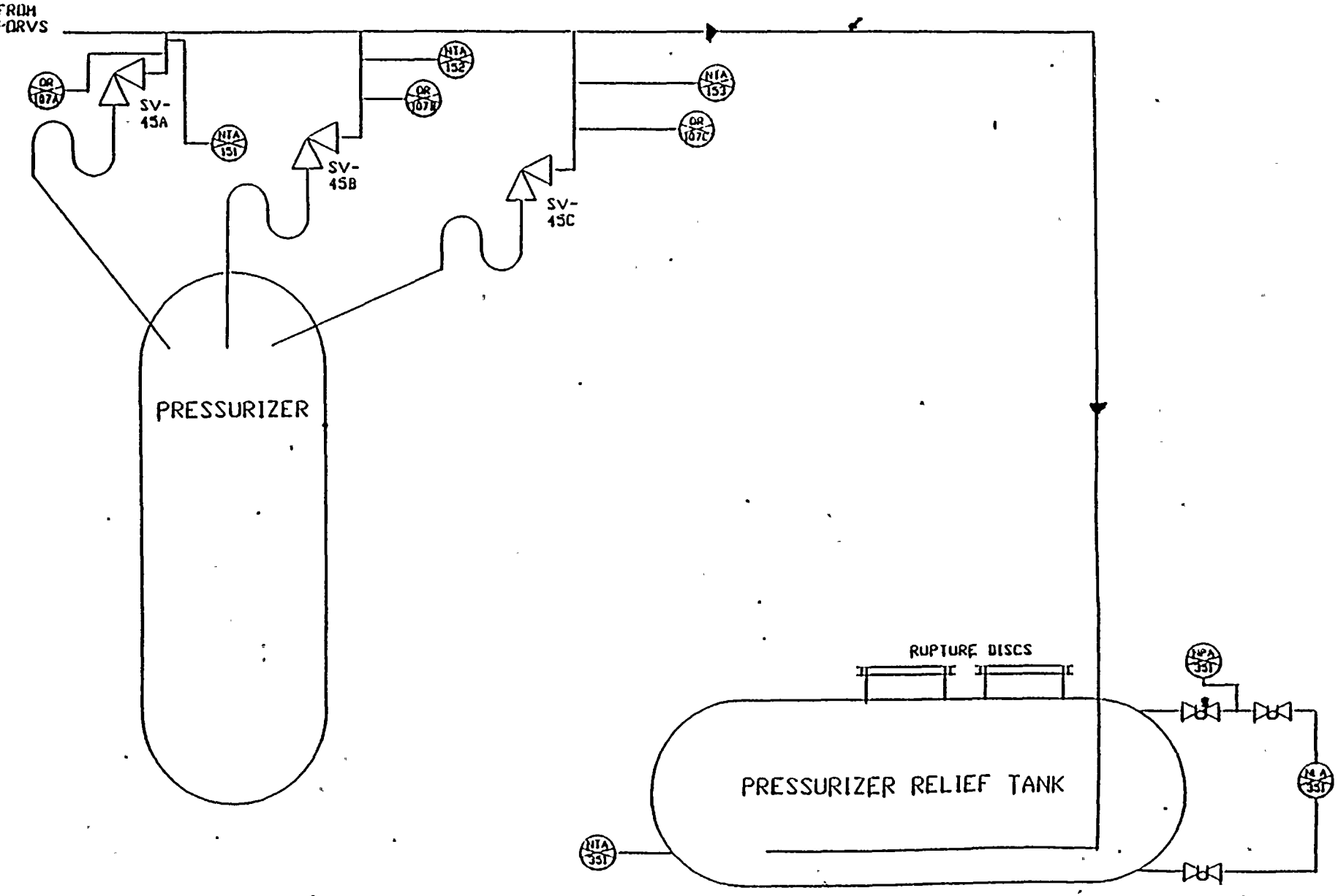
The proposed T/Ss changes result in the operator potentially having one less source of information on plant status. However, we believe the margin of safety is not reduced for several reasons. First, the operator is provided with other viable flow detection devices to determine pressurizer safety valve position, i.e., the temperature sensor on the discharge line associated with the inoperable acoustic monitor, and pressurizer relief tank level (NLA-351), temperature (NTA-351) and pressure (NPA-351) indications. Also, the acoustic monitors are not used by the operators in an emergency situation, as the operator relies on other indications of loss of reactor coolant inventory per the emergency operating procedures. In addition, previous experience with the pressurizer safety valve position indicator acoustic monitoring system has shown that, when any one of the pressurizer safety valves opens, all three safety valve position indicator acoustic monitors are actuated. Because of this, the operator receives no less information regardless if only two or three channels are operable.

Based on the above, we believe that having an acoustic monitor inoperable does not warrant reactor and plant shutdown. As the T/Ss are currently stated, should one pressurizer safety valve position indicator acoustic monitor become inoperable, it must be restored to operable status within thirty days or the unit must be in hot shutdown within the subsequent twelve hours. Thermal cycling from unwarranted plant shutdowns increases the likelihood of reactor vessel embrittlement and unnecessarily challenges the safety systems. Because a signal from the pressurizer safety valve position indicator acoustic monitors is not necessary nor used to ensure the safe shutdown of the unit even if a pressurizer safety valve is opened or stuck open during an emergency situation, we believe that a plant shutdown due to an inoperable acoustic monitor would be unwarranted.

We believe that the unit can be operated safely and that we would still meet the intent of NUREG-0538 and NUREG-0737 with only two out of three pressurizer safety valve position indicator acoustic monitors operable.

6.0 PENDING T/Ss PROPOSALS IMPACTING THIS SUBMITTAL

There is currently one other T/Ss proposal under review that impacts this submittal. In our submittal AEP:NRC:1137, dated February 15, 1991, changes are proposed to Unit 1 T/S page 3/4 3-55 and Unit 2 T/S page 3/4 3-46. The changes proposed in this submittal (AEP:NRC:1170D) are to be made in addition to those in AEP:NRC:1137.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