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AUTH. NAME AUTHOR AFFILIATION
FITZPATRICK, E. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
RECIP. NAME RECIPIENT AFFILIATION
MURLEY, T.E. Document Control Branch (Document Control Desk)

SUBJECT: Application for amends to Licenses DPR-58 & DPR-74, changing
TS to comply w/commitments re Generic Ltr 90-06,
"Resolution of Generic Issues 70 'PORV & Block Valve
Reliability & Generic Issue 94, 'Addl Overtemp....'"

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AEP:NRC:1131A

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
RESOLUTION OF GENERIC ISSUE 70, "POWER-OPERATED RELIEF VALVE AND
BLOCK VALVE RELIABILITY," AND GENERIC ISSUE 94, "ADDITIONAL LOW-
TEMPERATURE OVERPRESSURE PROTECTION FOR LIGHT-WATER REACTORS,"
(GENERIC LETTER 90-06), PROPOSED TECHNICAL SPECIFICATION CHANGES

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

Attn: T. E. Murley

April 16, 1991

Dear Dr. Murley:

This letter and its attachments constitute an application for amendment to the Technical Specifications (T/Ss) for Donald C. Cook Nuclear Plant Units 1 and 2. This amendment is requested to comply with commitments made in our previous submittal, AEP:NRC:1131, which responded to Generic Letter 90-06 ("Resolution of Generic Issue 70, Power-Operated Relief Valve and Block Valve Reliability," and Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light-Water Reactors").

As noted in our response to the Generic Letter, we are generally adopting the power-operated relief valve (PORV) and overpressure protection T/Ss proposed by the staff with three exceptions and also with minor modifications necessary to reflect the plant-specific design features of Cook Nuclear Plant. The first exception concerns the inapplicability of low temperature overpressure protection to Mode 4. The second exception concerns our intent to not limit plant operation in Modes 1, 2, and 3 with any of the three PORVs or block valves inoperable for reasons other than excessive seat leakage to periods of less than 72 hours. The third exception involves our intent to not incorporate valves in the PORV control air system into the in-service testing program. Justifications for each of these exceptions are discussed in Attachment 1 to this letter.

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The reasons for the proposed changes and our analysis concerning significant hazards considerations are also contained in Attachment 1 to this letter. The proposed T/Ss changes are contained in Attachment 2. A copy of the existing T/Ss pages marked-up to reflect the changes being proposed is contained in Attachment 3.

We believe that the proposed T/Ss changes will not result in (1) a significant change in the types of effluents or a significant increase in the amounts of any effluent that may be released offsite, or (2) a significant increase in individual or cumulative occupational radiation exposure.

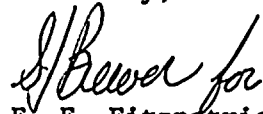
We request that this submittal be approved by the NRC no later than December 1, 1991 in order to allow orderly implementation of these T/Ss changes during appropriate windows of each unit's next refueling outage.

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)(10), copies of this letter and its attachments have been transmitted to Mr. J. R. Padgett of the Michigan Public Service Commission and the Michigan Department of Public Health.

This document has been prepared following Corporate procedures that incorporate a reasonable set of controls to ensure its accuracy and completeness prior to signature by the undersigned.

Sincerely,



E. E. Fitzpatrick
Vice President

ldp

Attachments

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

Attachment 1 to AEP:NRG:1131A

**Description of Proposed Changes and
Significant Hazards Consideration Analysis**

[illegible]

Description of Proposed ChangesChanges to the "OVERPRESSURE PROTECTION SYSTEMS" Technical Specification 3.4.9.3 (Units 1 and 2)

The following T/Ss pages are impacted:

Unit No. 1: Page 3/4 4-31
Page 3/4 4-32

Unit No. 2: Page 3/4 4-29
Page 3/4 4-30

Attachment B-2 of Enclosure B to Generic Letter (GL) 90-06 notes that for plants with existing T/Ss for PORVs used for low temperature overpressure protection (LTOP), the only required change is to restrict the applicability of the 7-day allowable outage time for a single LTOP channel to Mode 4. An exception is being taken to this GL requirement since the current Cook Nuclear Plant T/Ss limit applicability of the LTOP system to when the temperature of one or more of the reactor coolant system (RCS) cold legs is less than or equal to 170°F (Unit 1) or 152°F (Unit 2), except when the reactor vessel head is removed. Since these temperatures represent Mode 5 conditions, the 7-day allowable outage time proposed by the GL for Mode 4 (350°F > T_{avg} > 200°F) cannot be applied to Cook Nuclear Plant. However, the allowable outage time for a single LTOP channel in Modes 5 and 6 (when LTOP is required to be operable) is being reduced from 7 days to 24 hours, consistent with the guidance of the GL. As a point of information, T/S 3.4.9.3 for Unit 1 (Page 3/4 4-31) is the subject of a separate T/Ss change request (AEP:NRC:08940 dated October 29, 1990), in which we proposed a revised LTOP setpoint of 435 psig for the PORVs, with an enable temperature of 152°F (current limits are 400 psig and 170°F).

The following voluntary changes are being made to generally conform to the "Modified Technical Specifications for Combustion Engineering and Westinghouse Plants" contained in Attachment B-1 of Enclosure B to Generic Letter 90-06, consistent with the design employed at Cook Nuclear Plant for overpressure protection systems. Additionally, a few minor editorial changes are being made for the sake of clarity.

The "Limiting Condition for Operation (LCO)" and "Applicability" sections are being revised to reflect that the depressurizing and venting of the RCS is not classified as an overpressure protection system. The applicability of the LCO is also being revised to exclude Mode 6 when the RCS is adequately vented by a 2-square-inch or larger vent, or through any single blocked open PORV and to clarify applicability for Mode 6 as "when the head is on and fastened to the reactor vessel." Since the Bases already reflect that either LTOP PORV has adequate relieving capacity to protect the RCS from a cold overpressure transient, any of the three PORVs, which have identical flow characteristics, may be blocked open to provide an acceptable RCS vent to preclude applicability of this



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specification. Additionally, we have evaluated the consequences of a cold overpressure transient with the reactor head resting on but not fastened to the reactor vessel. Our evaluation indicated that the RCS would be adequately vented through the reactor vessel flange in this scenario, and we have therefore clarified the "Applicability" section to note that the head must be on and fastened to the reactor vessel for the specification to be applicable. These changes will avoid any question on Specification 3.0.4 being applied to preclude fastening the head on the vessel if any part of the LCO is not met when the RCS is vented.

The "Action" section of each unit's T/Ss is being revised as follows:

ACTION (a) is being modified to incorporate the reduced allowable outage time for a single LTOP channel or RHR safety valve from 7 days to 24 hours and to note that the RCS may be vented through a single blocked open PORV. Editorial changes are also being made to better define the action requirements for various scenarios.

ACTION (b) is being editorially revised to provide consistency with the T/Ss contained in the GL and to note that the RCS may be vented through a single blocked open PORV, as discussed above.

ACTION (c) is a new paragraph which incorporates the provisions of paragraph (d) of the T/Ss contained in the GL. This requirement is contained in paragraphs 4.4.9.3.4 (Unit 1) and 4.4.9.3.3 (Unit 2) of the surveillance requirements section of each unit's T/Ss and is being deleted from those sections.

ACTIONS (d) and (e) correspond to ACTIONS (c) and (d) of the current Cook Nuclear Plant T/Ss and remain otherwise unchanged. These are similar to ACTIONS (e) and (f) of the T/Ss contained in the GL.

The surveillance requirements section of each unit's T/Ss is being revised to delete the reference to testing of the PORVs as ASME Category B valves. This reference is being moved to the surveillance requirements section of Specification 3.4.11, consistent with the T/Ss contained in the GL. Accordingly, the reference to the PORVs in paragraph 4.4.9.3.3 (Unit 1) is being removed and in paragraph 4.4.9.3.1.d (Unit 2) is being deleted in its entirety, with subsequent paragraph 4.4.9.3.1.e renumbered to 4.4.9.3.1.d. The reference to testing of the RHR safety valve (which is also used for LTOP protection) as an ASME Category C valve is being retained in this specification. Paragraphs 4.4.9.3.4 (Unit 1) and 4.4.9.3.3 (Unit 2) are being deleted since the requirements for RCS vent verification are being moved to the ACTION section of T/S 3.4.9.3, ACTION (c), as described above.

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The other paragraphs of this section contained in the current Cook Nuclear Plant T/Ss provide surveillance requirements that are consistent with or surpass those contained in the GL and therefore remain unchanged. It should be noted that page 3/4 4-32 (Unit 1) is the subject of a separate T/Ss change request (AEP:NRC:0433N, dated August 7, 1990), which proposed modified references to the in-service testing program requirements of ASME Section XI to promote consistency between Units 1 and 2. The result of this pending T/Ss change will make Unit 1 T/S page 3/4 4-32 identical to Unit 2 T/S page 3/4 4-30. Therefore, the changes described above for the Unit 2 T/S will be applicable to the revised Unit 1 T/S page.

Changes to the "BASES - PRESSURE/TEMPERATURE LIMITS" Technical Specification 3/4.4.9 (Units 1 and 2)

The following T/S pages are impacted:

Unit 1: Page B 3/4 4-7

Unit 2: Page B 3/4 4-10

The Bases for the overpressure protection T/S contained in paragraph 3/4.4.9.3 of each unit's T/Ss are being clarified to note that the RCS may be vented through a single blocked open PORV, as discussed above, and that an RCS vent opening of greater than or equal to 2 square inches is not considered an overpressure protection system.

Finally, Attachment B-3 of Enclosure B to the GL was reviewed against the Cook Nuclear Plant T/Ss to ensure that the T/Ss contain the design basis restrictions for safety injection/centrifugal charging pump operability and differential temperature restrictions for reactor coolant pump restart. Our review has determined that these restrictions have already been appropriately implemented within the Cook Nuclear Plant T/Ss and no further actions are required.

Changes to the "RELIEF VALVES - OPERATING" Technical Specification 3.4.11 (Units 1 and 2)

The following T/S pages are impacted:

Unit No. 1: Page 3/4 4-35
Page 3/4 4-36

Unit No. 2: Page 3/4 4-32
Page 3/4 4-33

Attachment A-2 of Enclosure A to Generic Letter 90-06 provides guidance to modify the limiting conditions for operation of PORVs and block valves in the T/Ss for Modes 1, 2, and 3. The Cook Nuclear Plant T/Ss are being revised to comply with those contained in that attachment with one exception. Attachment A-2 is intended for application to Westinghouse plants with three PORVs. While each Cook Nuclear Plant unit has three pressurizer PORVs, the original Westinghouse design contained only two PORVs. Westinghouse was

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requested to provide plant modifications to achieve the capability to carry plant auxiliaries under all load rejection conditions, including full load rejection. A third pressurizer PORV was specifically added as a result. The capacity of the secondary side steam dump system was originally designed consistent with this intent. The original design capacity of the steam dump system was 85% of full load steam flow, which would allow the turbine generator to take a load reduction from 100% to the plant auxiliaries load without a reactor trip. Therefore, the availability of a third PORV should be viewed as an enhancement to the original design which was added on a voluntary basis, rather than as an essential initial design feature.

In order to achieve consistency with the assumptions initially contained in the generic ATWS mitigating system actuation circuitry (AMSAC) design developed by the Westinghouse Owners Group, and also to reduce excessive operational expense and maintenance problems with the steam dump valves, a design change has been implemented on both Cook Nuclear Plant units to reduce the steam dump system load rejection capability from 85% to 40%. This is in line with the Westinghouse standard plant design, which also provides 40% steam dump capacity. Since the secondary side of the plant is no longer designed to sustain a large load rejection without a reactor trip, the availability of the third PORV effectively assumes the role of an installed spare for management of load reduction transients. With regard to the Unit 1 UFSAR Chapter 14 safety analysis, Section 14.2.4, "Steam Generator Tube Rupture," states that during the recovery process for the case without offsite power, the operator will open the PORVs as required to reduce RCS pressure to less than 1000 psia. These actions will automatically reduce the pressure in the faulted steam generator below 1100 psia. The recovery process is performed in accordance with the Emergency Operating Procedures developed based on the Westinghouse Owners Group Emergency Response Guidelines. One PORV is sufficient for this purpose as indicated in the Westinghouse Emergency Response Guideline E-3, Step 18. This applies to Unit 2 as well. The current T/Ss reflect this by requiring two of three PORVs to be operable, with one valve assumed to fail and the other being available to depressurize the RCS. NRC acceptance of the current T/Ss and the role of the PORVs was conveyed in the Safety Evaluation Reports related to Amendment Nos. 120 (Unit 1) and 82 (Unit 2) for Facility Operating Licenses DPR-58 and DPR-74, respectively. Based on these considerations, we are requesting an exception to the staff position that plant operation in Modes 1, 2, and 3 with any of the three PORVs or block valves inoperable for reasons other than seat leakage be limited to periods of no more than 72 hours. Instead we are proposing to continue the current practice of permitting operation in these modes with one PORV or block valve inoperable. This constitutes the second exception to the GL requirements. The following specific T/Ss changes are proposed.

The "Action" section of each unit's T/Ss is being revised as follows:

All of the applicable action statements have been changed to terminate the forced shutdown with the plant being in hot shutdown rather than cold shutdown because the applicability requirements of the LCO do not extend past the hot standby mode, as permitted by the GL.

ACTION (a) is a new paragraph which distinguishes PORV inoperability due to seat leakage, and requires that power be maintained to closed block valves to isolate leaking PORVs. The current T/Ss contain footnotes stating that PORVs isolated to limit RCS leakage through their seats, with the block valves shut to isolate this leakage, are not considered inoperable. Consistent with the T/Ss contained in the GL, power will be maintained to block valves that are closed to limit seat leakage so that they remain operable and may be subsequently opened to allow the associated PORVs to be used to control RCS pressure.

ACTION (b) reflects the second exception to the T/Ss contained in the GL described above by allowing continued operation in Modes 1, 2, and 3 with a single PORV inoperable due to causes other than excessive seat leakage provided its block valve can be closed and power removed within one hour. If this cannot be accomplished, the unit must be taken to hot standby within 6 hours and hot shutdown within the following 6 hours. This is generally consistent with action (a.1) of the current Cook Nuclear Plant T/Ss.

ACTION (c) is generally consistent with Action (b) of the T/Ss contained in the GL, except it only applies to two PORVs inoperable, rather than one or two PORVs, as a result of the exception proposed in paragraph (b) above. Therefore, Action (c) also allows restoration of only one PORV instead of both (for a total of two operable) as an acceptable condition for exiting the action statement. This paragraph effectively corresponds to Action (a.2) of the current Cook Nuclear Plant T/Ss.

ACTION (d) is generally consistent with Action (c) of the T/Ss contained in the GL and corresponds to Action (a.3) of the Cook Nuclear Plant T/Ss.

ACTION (e) continues the second exception to the T/Ss contained in the GL by allowing continued operation in Modes 1, 2, and 3 with a single inoperable block valve provided its associated PORV is placed in manual control or the block valve is closed with power removed within one hour. If this cannot be accomplished, the unit must be taken to hot standby within 6

hours and to hot shutdown within the following 6 hours. This is generally consistent with Action (b.1) of the current Cook Nuclear Plant T/Ss except that the associated PORV is to be placed in manual control rather than closed with power removed from the associated solenoid valve. Closing the associated PORV and removing power from the associated solenoid valve is not specified since the PORV would not likely be open and removal of power from the solenoid valve would preclude using the PORV for RCS pressure control. When the block valve is inoperable, placing the PORV in manual control is sufficient to preclude the potential for having a stuck-open PORV that could not be isolated because of an inoperable block valve. Although not identified as an option in the T/Ss contained in the GL, the ability to close and remove power from a single inoperable block valve, which is currently contained in the Cook Nuclear Plant T/Ss, is being retained since an inoperable block valve may still be functional and capable of being closed. Closure of an inoperable block valve constitutes an acceptable means of isolating a single PORV path, which leaves two remaining operable paths, consistent with the proposed exception.

ACTION (f) is generally consistent with ACTION (d) of the T/Ss contained in the GL; however, it applies to two or more block valves inoperable rather than one or more block valves inoperable as a result of the second exception proposed in Actions (b) and (e) above. Therefore, Action (f) also allows restoration of two (rather than three) block valves within 72 hours as an acceptable condition for exiting the action statement. This paragraph effectively corresponds to Action (b.2) of the current Cook Nuclear Plant T/Ss.

ACTION (g) corresponds to Action (c) of the current Cook Nuclear Plant T/Ss, and clearly defines the actions to be taken if PORVs and block valves not in the same line are simultaneously inoperable. The need for this paragraph arises as a result of our proposal to continue the current practice of permitting operation in Modes 1, 2, and 3 with one PORV or block valve inoperable.

The surveillance requirements section of each unit's T/Ss is being revised to generally reflect the T/Ss contained in the GL. A reference to the requirements of Specification 4.0.5 (in-service testing program) is being added to paragraph 4.4.11.1 to agree with the GL T/Ss. This reference is currently contained in and is being deleted from the surveillance requirements section of the Cook Nuclear Plant overpressure protection systems T/S. It should be noted that this reference applies only to testing of the PORVs (and block valves) within the in-service testing program and not to valves in the control air system as in the GL. This constitutes the third exception to the GL. As noted in our response to the GL (AEP:NRC:1131 dated December 21, 1990), we believe that current

in-service testing of the PORVs already indirectly provides assurance of proper operation of the control air system valves. Indirect testing of the control air system valves will continue to be accomplished by testing the PORVs on a cold shutdown frequency under the in-service testing program. Plant procedures will be enhanced to provide further assurance that the control air system valves perform their required functions when the PORVs are stroked off both the normal and backup air supplies every 18 months during cold shutdown.

Paragraph 4.4.11.1.a is unchanged from the current Cook Nuclear Plant T/S and requires the performance of a PORV channel functional test, excluding valve operation, once per 31 days. Although this requirement is not contained in the T/S proposed in the GL, this surveillance requirement is considered necessary to periodically demonstrate PORV operability and is therefore being retained.

Revised paragraph 4.4.11.1.b incorporates the new requirements in paragraph 4.4.4.1 of Attachment A-2 of GL Enclosure A to cycle the PORVs once per 18 months in Modes 3 or 4.

Paragraph 4.4.11.1.c includes new requirements, per the GL, to operate the solenoid air control valves and check valves in the PORV control systems through one complete cycle of full travel once per 18 months. These requirements will be satisfied via testing which ensures that the PORVs stroke using both the normal and backup air supplies (for those valves with a backup air supply), which implies proper operation of associated solenoid and check valves. However, it should be noted that the backup air supply, which is provided on only two of the three PORVs, is intended for use only when these valves are being used for LTOP service, rather than in Modes 1, 2, and 3. This proposed new testing should not be construed as an indication that the backup air supply is required to be operable in Modes 1, 2, and 3.

Although a channel calibration was previously required by the existing T/Ss per paragraph 4.4.11.1.b, this requirement has been editorially revised to agree with the wording contained in the GL, and renumbered as paragraph 4.4.11.1.d.

Paragraph 4.4.11.2, which requires cycling of the block valves in Mode 5, but not more frequently than 92 days, has been revised to make reference to revised paragraphs in the "Action" section of the specification. Finally, paragraph 4.4.11.3 remains unchanged since the wording in the existing T/Ss provides more specific guidance than that proposed in the GL.

Changes to the "BASES - RELIEF VALVES" Technical Specification
3/4.4.11 (Units 1 and 2)

The following T/S pages are impacted:

Unit No. 1: Page B 3/4 4-13

Unit No. 2: Page B 3/4 4-11

The Bases for the relief valves T/S contained in paragraph 3/4.4.11 of each unit's T/Ss are being enhanced to reflect the expanded role of the PORVs and block valves as discussed in the GL and to note the role of the backup air supply when the PORVs are being used for LTOP service.

10 CFR 50.92 Significant Hazards Consideration Analysis

Per 10 CFR 50.92, a proposed amendment to an operating license will not involve a significant hazards consideration if the proposed amendment satisfies the following three criteria:

- 1) Does not involve a significant increase in the probability or consequences of an accident previously analyzed,
- 2) Does not create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated, or
- 3) Does not involve a significant reduction in a margin of safety.

Criterion 1

The proposed T/Ss changes in this submittal generally adopt the PORV and overpressure protection T/Ss proposed by the staff in Generic Letter 90-06 with three exceptions, and also with minor modifications necessary to reflect the plant-specific design features of Cook Nuclear Plant. The staff's proposed T/Ss will result in an increase in PORV and block valve reliability as well as additional LTOP. Since the proposed T/Ss changes augment or preserve the requirements contained in the current Cook Nuclear Plant T/Ss, and since the three exceptions to GL 90-06 retain the current T/Ss requirements, it is concluded that the proposed T/Ss changes do not involve a significant increase in the probability or consequences of an accident previously analyzed in Chapter 14, "Safety Analysis," of the Updated FSAR for Cook Nuclear Plant.

Criterion 2

The proposed T/Ss changes either retain or enhance the LCOs, action statements, and surveillance requirements of the current Cook Nuclear Plant T/Ss. It is concluded, therefore, that the proposed

T/Ss changes do not create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated in Chapter 14, "Safety Analysis," of the UFSAR.

Criterion 3

The proposed T/Ss changes either retain or enhance the LCOs, action statements, and surveillance requirements of the current Cook Nuclear Plant T/Ss. It is concluded, therefore, that the proposed T/Ss changes do not involve a significant reduction in a margin of safety.