



**Consumers
Power
Company**

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Director of Nuclear Reactor Regulation
Att: Mr Don K Davis, Acting Branch Chief
Operating Reactor Branch No 2
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - ECCS T/S
CHANGE REQUEST

Transmitted herewith are three (3) original and thirty-seven (37) conformed copies of a proposed change to the Technical Specifications for the Big Rock Point Plant, Docket 50-155, License DPR-6.

The purpose of this change is to reflect changes made to the Big Rock Point Emergency Core Cooling System (ECCS) as required by the Commission's Memorandum and Order dated May 26, 1976. In general, these changes reflect the qualification of the ECCS backup core spray nozzle and the on-line testability of the ECCS and encompass changes to surveillance requirements, Limiting Conditions for Operation and the Bases sections as derived from these events.

Because plant start-up from a refueling outage is scheduled for the first week of September 1977, approval of this proposal is requested by September 1, 1977.

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CONSUMERS POWER COMPANY

Docket 50-155

Request for Change to the Technical Specifications

License DPR-6

For the reasons hereinafter set forth, it is requested that the Technical Specifications contained in Provisional Operating License DPR-6, Docket 50-155, be changed as described in Section I, below:

I. Changes

A. Section 11.4.1.4.A.

1. Delete:

- (a) "Verify the Operability of MO-7051, -7061, -7066, -7033 and -7074 by remote manual actuation."
- (b) "Verify that the check valve between MO-7051 and -7061 is not stuck shut."

2. Add:

- (a) "Verify the following valve locked or sealed in the open position:
MO-7069."
- (b) "Verify the following valve locked or sealed in the shut position:
Upstream manual isolation valve for transformer deluge valve."

B. Delete Section 11.4.1.4.B.

C. Section 11.4.1.4 * C.

1. Replace:

- (a) "*C. At least once every six (6) months, except for periods of continuous shutdown, when the following shall be performed prior to start-up" with "B. At each major refueling outage, the following shall be performed:"

2. Add:

- (a) "Manual and" before "automatic."
- (b) "Manual actuation of valve MO-7066."
- (c) "Perform pressure test of backup cooling supply hose for post-incident heat exchanger."

D. Section 11.4.1.4.D:

1. Delete:

- (a) "D. At each major refueling outage, the following shall be performed:"
- (b) "Actuation and."

E. Section 11.4.1.4*E

1. Change:

- (a) "*E" to "C."
- (b) "Table 11.4.1.4(a)" to "Table 11.4.1.4a."

F. Delete Section 11.3.1.4.F.

G. Section 11.3.1.4.G.

1. Change:

- (a) "G" to "F."
- (b) "Table 11.3.1.4(a)" to "Table 11.3.1.4a."

H. Delete the asterisked (*) footnote at bottom of Paragraph 11.4.1.4.

I. Tables 11.3.1.4a and 11.4.1.4a.

1. Change "cores" to "core."

2. Under column entitled "Parameter":

- (a) Change footnote reference "(b)" to "(a)."
- (b) Change "Steam Drum" to "Primary."

3. Under column entitled "Conditions for Operability":

Change footnote reference "(a)" to "(b)."

4. Under column entitled "Limiting Set Point":

Delete: "(\geq 28" Above Core)."

5. Under Table 11.4.1.4a:

- (a) Change "Requirement" to "Requirements."
- (b) Change "Instrument Trip Including Valve Actuation" to "Instrument Trip Test."
- (c) Change periodicities as follows:
"Once every six months of operation other than cold shutdown"
to "Once quarterly."

6. Under Notes for Tables 11.3.1.4a and 11.4.1.4a:

(a) Under Note (a):

Change "steam drum" to "primary system."

(b) Change Note (b) to read:

"The primary core spray system shall be available for use during refueling operations. The backup core spray system shall be inoperable during refueling operations with the valves blocked or otherwise defeated (while the piping section from the valves to the reactor head is dismantled)."

J. Bases

1. Paragraph 3:

Add: "If a passive failure of underground fire main piping should occur during the long-term cooling phase, the capability exists to bypass the affected portion of piping utilizing a fire hose to ensure the continuation of long-term ECCS cooling."

2. Paragraph 8:

Delete "will" between "procedures" and "require."

3. Paragraphs 10 and 11 and references:

Delete in entirety.

4. Add new paragraph:

"By Commission Memorandum and Order dated May 26, 1976 Consumers Power Company was granted a plant life exemption from the requirements of 10 CFR, Part 50, 50.46 and Appendix K, Paragraph I.D.1 as applied to a Loss of Coolant Accident (LOCA) caused by a break in a core spray line and a concurrent single failure of a valve in the remaining core spray system. This exemption was based on conditions specified in the Memorandum and Order and supporting documents, with which Consumers Power Company has complied. Thus, these Technical Specifications are in part an augmentation of these conditions."

NOTE: Corrected Technical Specifications pages are included as Attachment 1.

II. Discussion

In the Commission's Memorandum and Order dated May 26, 1976 three specific concerns pertaining to the Pig Rock Point Emergency Core Cooling System (ECCS) were addressed. These included: (1) Vulnerability to a single failure disabling a core spray line, following a break in the alternate core spray line; (2) vulnerability to a single failure disabling the on-site power supply,

following a Loss of Coolant Accident, in the event off-site power is unavailable; and (3) uncertainty regarding adequacy of the nozzle spray distribution. Based on these concerns Consumers Power Company was required to perform specific procedural, system and component modifications as specified in the Memorandum and Order and supporting documentation. Prior to start-up following the 1977 refueling outage, all modifications will be complete. The Commission's resolution, therefore, was granting a plant life exemption for the ECCS vulnerability to a single failure disabling a core spray line following a break in the alternate spray line and granting a limited exemption concerning the uncertainty regarding adequacy of the nozzle spray distribution allowing ECCS credit for feed system makeup. Following the 1977 refueling outage Consumers Power Company will have qualified the nozzle spray distribution through a detailed testing program and the limited exemption will no longer be in effect.

One specific requirement of the May 26, 1976 Memorandum and Order was to augment the surveillance of the ECCS to enhance its reliability. This requirement was based on both the plant life exemption and the limited exemption which gave no credit for the backup core spray distribution. On May 10, 1976 Consumers Power Company requested a change to the Technical Specifications for Big Rock Point which contained the augmented ECCS surveillance requirements. These changes were approved by the Director in Amendment 10 to the Big Rock Point Technical Specifications dated June 4, 1976. However, since Consumers Power Company will qualify the backup core spray system to the satisfaction of the Commission, it becomes both desirable and necessary to modify the ECCS Technical Specifications to account for this. Thus, the purpose of this change request is to update the ECCS Technical Specifications consistent with current industry standards based on a fully qualified backup core spray system, the limitations imposed by the plant life exemption, and system modifications made in compliance with the Memorandum and Order and supporting documentation.

Prior to discussing the individual changes requested, it is prudent to discuss a Limiting Condition for Operation that will be left intact. Specification 11.3.1.4.E of the Big Rock Point Technical Specifications requires that a plant shutdown be initiated within 24 hours, the reactor shutdown within 12

hours, and a full plant shutdown within the following 24 hours if the following conditions cannot be met: (1) Both core spray systems operable, (2) the core spray recirculation system operable, (3) the core spray recirculation heat exchanger out of service for greater than four hours, and (4) both fire pumps (diesel and electric) and associated piping operable. This requirement is significantly more restrictive than that imposed in current industry standards. The General Electric Boiling Water Reactor Standard Technical Specifications require restoring an inoperable core spray system component to operation within seven days prior to initiating shutdown. Maintaining this severely restrictive Limiting Condition for Operation ensures the continued safety of operation of the Big Rock Point Plant by restricting the allowable time for power operation with an inoperable ECCS component and, therefore, adequately compensates for any margin of tolerance gained by the plant life exemption.

Under Specification 11.4.1.4A, the requirement to check the operability of MO-7051, -7061, -7066, -7073 and -7074 has been deleted. The requirement to cycle MO-7073 and -7074 (makeup valves for water from the fire header to the main condenser) was based on the limited exemption which gave credit for the capability of the feed system to provide ECCS cooling. Since this exemption is no longer in effect, there is no longer any credit given for feed system makeup capabilities; therefore, there is no necessity to incorporate the testing of these valves under the Technical Specifications. The periodicity of cycling MO-7051, -7061 and -7066 has been shifted to a refueling outage periodicity (approximately 12 months). This is still more conservative than the current industry standards of 18-month system functional checks including valve actuation. It is determined that the requirement to cycle MO-7051 and -7061 (core spray ring isolation valves) monthly was based on enhanced surveillance of the primary core spray system since the backup system was not qualified. This determination is based on the April 19, 1976 letter from Mr Ben C Rusche to Mr Samuel J Chilk which presented the staff views regarding the Big Rock Point ECCS evaluation. Under the section entitled Effectiveness of Nozzle Core Spray, the following comments are made:

"Augmented surveillance of the core ring spray valves can enhance reliability sufficiently for a limited period of operation such as

the next refueling period. However, for the long-term operation the staff believes that redundant spray cooling systems should be provided to protect against failures in the in-core spray cooling sparger." Thus, since the backup spray system will be qualified, the requirement for monthly valve tests is no longer necessary and should, in fact, conform to industry standards. Valve MO-7066 (post-incident heat exchanger isolation valve) should also fall under the standard criteria for ECCS valve testing. It should further be noted that since these monthly valve cycling tests have been initiated, there have been no abnormalities noted.

An additional item deleted from Section 11.4.1.4.A is the verification that the check valve between MO-7051 and -7061 is not stuck shut. It is apparent that this requirement stemmed from the concern over having only one core spray system qualified (reference the letter of April 19, 1976 from Rusche to Chilk and passage cited above). It must also be emphasized that the requirement to verify that the check valve between MO-7070 and -7071 is not stuck shut does not exist in this section. Further, the standard Technical Specifications do not contain requirements to verify check valve operability. However, since the operability of the check valves for both the primary and backup core spray systems is important to system performance, the operability check (check function) has been retained, but at refueling outage periodicity.

Since the position of certain valves is important to ECCS performance, the requirement to verify their locked position has been added to Section 11.4.1.4.A. It should be noted that the locked shut position of the station transformer deluge valve upstream isolation is simply an interim resolution for meeting the single failure criteria pertinent to deluge valve failure. When a final solution is achieved a further Technical Specifications change will be requested.

Section 11.4.1.4.B has been deleted in its entirety. The valve testing specified will be accomplished at a refueling outage periodicity to be consistent with other valve testing. Section 11.4.1.4.C was changed to reflect this periodicity and, therefore, encompassed Section 11.4.1.4.D. The requirement for calibration of core spray system actuation circuitry was

deleted from Section 11.4.1.4.D since it is contained in Tables 11.3.1.4a and 11.4.1.4a.

Section 11.3.1.4.F and the asterisked note under Section 11.4.1.4 have been deleted since they are no longer applicable.

An additional surveillance requirement has been added. This is to perform a pressure test of the backup cooling supply hose for the post-incident heat exchanger. This hose is utilized only when a condition of long-term ECCS cooling is reached, and a passive failure in the underground fire header piping occurs. However, since this is a safety-related component, its integrity by pressure test must be ensured. A periodicity of each refueling outage is judged adequate.

There have been several changes proposed to Tables 11.3.1.4a and 11.4.1.4a, most editorial in nature. The notes have been modified for clarity, and several typographical errors have been corrected. One major change to Table 11.4.1.4a was to augment the requirement for ECCS on-line testability as stipulated in the Commission's Memorandum and Order. This has been done by requiring a quarterly instrument trip test for the ECCS sensors. The system modifications for performing this test will be specified under separate cover.

Changes proposed for the Bases section of this Technical Specification consist of addition of information concerning the backup cooling supply hose for the post-incident heat exchanger and the plant life exemption granted by the Commission's Memorandum and Order dated May 26, 1976, and the deletion of information pertinent to the limited exemption. Further, the references have been deleted as being inappropriate.

III. Conclusions

Bas 1 on the foregoing, both the Big Rock Point Plant Review Committee and the Safety and Audit Review Board have concluded that this change does not involve an unreviewed safety question.

CONSUMERS POWER COMPANY

By C R Bilby
C R Bilby, Vice President
Production & Transmission

Sworn and subscribed to before me this 12th day of August 1977.

Sylvia B Ball
Sylvia B Ball, Notary Public
Jackson County, Michigan
My commission expires April 13, 1980