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SUBJECT: Application for amends to licenses DPR-58 & DPR-74. Amends
would modify TS 3.9.4 to provide flexibility in operation of
containment personnel airlocks during core alterations.

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March 31, 1995

AEP:NRC:1220

Docket Nos.: 50-315
50-316

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

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
PROPOSED AMENDMENT TO TECHNICAL SPECIFICATION SECTION
3/4.9.4 FOR CONTAINMENT PERSONNEL AIRLOCK REQUIREMENTS

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. Specifically, we are proposing to modify T/Ss 3.9.4 entitled Refueling Operations, Containment Building Penetrations, to provide flexibility in the operation of the containment personnel airlocks during CORE ALTERATIONS by expanding the existing limiting condition for operation to include the establishment of containment closure capability requirements.

This proposed amendment is consistent with Amendments 194 (DPR-53) and 171 (DPR-69) approved for use at the Calvert Cliffs Nuclear Power Plant in the NRC's transmittal of August 31, 1994. The Calvert Cliffs amendment allows the personnel airlock doors to be open during CORE ALTERATIONS provided certain administrative controls are in place.

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

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

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ADD 1

These proposed changes have been reviewed by the Plant Nuclear Safety Review Committee and 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 the Michigan Public Service Commission and to the Michigan Department of Public Health.


Sincerely,



E. E. Fitzpatrick
Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 31st DAY OF March 1995



Notary Public

My Commission Expires: 6-28-99

eh

Attachments

cc: A. A. Blind
G. Charnoff
J. B. Martin
NFEM Section Chief
NRC Resident Inspector - Bridgman
J. R. Padgett



ATTACHMENT 1 TO AEP:NRC:1220

DESCRIPTION AND JUSTIFICATION OF CHANGES

10 CFR 50.92 ANALYSIS FOR CHANGES
TO THE DONALD C. COOK NUCLEAR PLANT
UNITS 1 AND 2 TECHNICAL SPECIFICATIONS

I. DESCRIPTION OF CHANGES

The proposed amendment to technical specification (T/S) 3.9.4 makes the following specific changes to the Cook Nuclear Plant Units 1 and 2 T/Ss:

T/S 3.9.4

- A. Expand Limiting Condition For Operation 3.9.4, item "b" (page 3/4 9-4) to include the ability to leave both personnel airlock doors in the "open" position during CORE ALTERATIONS. As a result, closure capability of the containment airlock doors will be assured in one of two ways; 1) one airlock door will be maintained closed during CORE ALTERATIONS, or 2) both airlocks may remain open provided certain restrictions are satisfied including the positioning of dedicated personnel at the airlock to facilitate closure..
- B. A footnote has also been added to define what constitutes an OPERABLE airlock door when implementing the "both airlock doors open" option of the specification.
- C. Revise the Bases for specification 3/4.9.4 (page B 3/4 9-1) to include the restrictions associated with the "both airlock doors open" option.

II. JUSTIFICATION FOR CHANGES

Technical specification 3.9.4 requires that a minimum of one personnel airlock door, as well as other containment penetrations be closed during CORE ALTERATIONS and movement of irradiated fuel within the containment. Although the present technical specification requires a minimum of one airlock door to be closed during refueling, the UFSAR analysis of a radioactive release resulting from a fuel handling accident inside containment, takes no credit for containment isolation.

During a refueling outage, other work in the containment does not stop during fuel movement and CORE ALTERATIONS. This requires that personnel operate the airlock doors to enter and exit the containment. Studies of airlock door operation and maintenance at Cook Nuclear Plant have identified the following trends. Airlock usage, during the 1994 refueling outage, for the periods bounding CORE ALTERATIONS (Sept. 16th - 20th and Oct. 18th - 25th) totalled 10,200 entries and exits. Assuming four to five individuals entered the containment per airlock cycle, the average number of airlock cycles during CORE ALTERATIONS is conservatively estimated to be greater than 200 per day. Such heavy use of the airlock doors was not anticipated during its design. As a result of this unexpectedly heavy use, failures of the door have manifested themselves as

problems in the gear and interlock alignments of the doors locking mechanism and handwheel failures.

In addition to the wear and maintenance concerns described above, the Calvert Cliffs submittal raised concerns regarding worker safety and the practical reality of the airlock's ability to prevent the release of radioactive material following a fuel handling accident.

Calvert Cliffs provided the following argument which we believe to be accurate, realistic and applicable to Cook Nuclear Plant:

"There are a large number of people in the containment during a refueling outage, even during fuel movement and CORE ALTERATIONS. Should a fuel handling accident occur, it would take a number of cycles of the airlock to evacuate personnel from containment. With each airlock cycle, more containment air would be released. While waiting for their turn to exit, the workers would be exposed to the released activity."

To address the potential for worker exposure and to increase the availability/maintainability of the personnel airlock door at Cook Nuclear Plant, we propose to allow both airlocks to be open during CORE ALTERATIONS provided the following administrative controls are established.

The airlock doors shall be controlled in the following manner:

1. a minimum of one door in each airlock is closed, or
2. both airlock doors may be open provided:
 - a. one door in each airlock is OPERABLE,
 - b. refueling cavity level is greater than 23 feet, and
 - c. a designated individual is available at all times to close the airlock if required.

When considering the proposed amendment, the dose consequences of a fuel handling accident were reviewed. Two cases are discussed in the UFSAR, one for a fuel handling accident in the auxiliary building, the other for a similar accident inside containment. The design basis accident is the complete rupture of the highest rated spent fuel assembly. When considering the two accident analyses the containment event was considered to provide the bounding conditions. This was based on the fact that no reduction in the potential thyroid dose was assumed since charcoal filtration was not considered and no credit was taken for containment isolation. The accident inside containment (assuming 3588 MWT power operation) gave

a 0-2 hour site boundary thyroid dose of approximately 100 rem, and a whole body dose of 1.4 rem. Both of these values remain significantly below the 300 rem thyroid and 25 rem whole body limits established in 10 CFR 100. Based on these findings, it was determined that allowing both airlock doors to remain open during CORE ALTERATIONS would not increase the analyzed site boundary dose resulting from a fuel handling accident. Compared to the analyzed case, the dose consequences of a release through an open airlock may even be reduced because of retention time in the auxiliary building and the possibility of filtration through the auxiliary building ventilation system.

III. 10 CFR 50.92 CRITERIA

Per 10 CFR 50.92, a proposed change does not involve a significant hazards consideration if the change does not:

1. 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 accident previously evaluated, or
3. involve a significant reduction in a margin of safety.

Criterion 1

The design basis fuel handling accident is the rupture of the highest rated fuel assembly. As discussed previously, the consequences of an accident inside containment (i.e., site boundary dose) with both airlock doors are bounded by the existing fuel handling accident currently presented in our UFSAR.

Since the containment airlock doors do not affect the failure mechanism of a fuel assembly during a fuel handling accident, we believe that this amendment request does not involve a significant increase in the probability or consequences of an accident previously evaluated. Additionally, no credit was taken for containment closure in the accident analysis. Therefore, based on these considerations, it is concluded that the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Criterion 2

As stated in response to criterion one, the position of the containment airlock doors in no way affects the mechanism by which a spent fuel assembly is damaged during a fuel handling accident. Thus, it is concluded that the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

Criterion 3

The margin for safety as defined in 10 CFR 100 has not been reduced. As discussed previously, the existing fuel handling accident analysis for an event inside containment takes no credit for the isolation of containment. As a result, the position of the airlock doors has no impact on the analyzed site boundary doses resulting from such an accident. Based on these considerations, it is concluded that the changes do not involve a significant reduction in a margin of safety.

ATTACHMENT 2 TO AEP:NRC:1220

EXISTING TECHNICAL SPECIFICATION
PAGES MARKED TO REFLECT PROPOSED CHANGES

