



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 25, 1984

Docket No. 50-316

Mr. John Dolan, Vice President
Indiana and Michigan Electric Company
c/o American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43216

Dear Mr. Dolan:

The Commission has issued the enclosed Amendment No.62 to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit No. 2. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated April 24, 1984.

The amendment authorizes an emergency Technical Specification change to allow thirty (30) fuel assemblies to be discharged from the reactor vessel with only one source range flux monitor assemble operable. This change is approved for a one time only operation and the change will no longer be in effect once the last of the thirty fuel assemblies are removed from the vessel.

Background

On April 20, 1984, during the Unit 2 refueling activities, one of the two source range neutron flux monitors began behaving erratically, rendering it inoperable. Core alteration activities were suspended in accordance with Technical Specification requirements with all but 30 fuel assemblies (out of 193 total) removed. The core is being completely unloaded in preparation for the 10 year inservice inspection of the vessel. The refueling cavity was partially drained and the detector assembly replaced. The source range monitor system is still inoperable and the licensee is continuing to determine the cause of failure and restore the monitor.

On Tuesday, April 24, 1984, the licensee notified the NRC that the continuing difficulties in restoring the source range monitor to meet the Technical Specification requirements was causing a commensurate delay in restart of the facility. Until the 30 fuel assemblies can be discharged from the vessel, the inspection is being delayed, the subsequent refueling is being delayed, and the eventual restart is being delayed. In a letter dated April 24, 1984, the licensee requested an emergency change to the Technical Specification to allow the removal of the 30 fuel assemblies should the continuing efforts to restore the inoperable source range monitor not be successful.

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Evaluation

Technical Specification 3.9.2 on source range flux monitors is written to cover all combinations of refueling operations up to and including the loading of an entirely fresh, highly reactive core. The flux monitoring capability is available to detect changes in the reactivity condition of the core to alert the operators to criticality potential. Technical Specification 3.9.1 on boron concentration during refueling operations (core alteration or positive reactivity changes) is also to cover all combinations of refueling operations but is intended to provide protection against criticality/recriticality events. There is no change proposed for Technical Specification 3.9.1 or the protection measures against criticality. The proposed change would permit the off-loading of the remaining fuel assemblies with only one of the two source range detectors operable.

The core is highly borated with 2000 ppm boron sufficient to provide protection for 193 fuel assemblies. All but 30 assemblies have been removed and borated water has replaced those discharged assemblies. The licensee has concluded that the core multiplication factor (K-effective) will always be reduced by the removal of each additional fuel assembly and the consequent replacement with 2000 ppm borated water.

We agree that it is not possible for the 30 remaining fuel assemblies to become critical in 2000 ppm borated water and that the potential is further reduced with the removal of each additional fuel assembly.

The licensee is also proposing to alter the sequence of removal of the remaining fuel assemblies to enhance the detection capabilities of the remaining monitor. The 30 assemblies are separated with about half located near each of the monitors. The fuel near the inoperable monitor will be removed first since any change in criticality potential from the moved fuel will be amplified by the fuel nearest the operable monitor. If the fuel nearest the operable monitor were moved first, the advantage of subcritical physics would be lost and the operable monitor might not be able to adequately detect small changes in criticality potential from the far fuel alone. We also agree that the change in removal sequence is appropriate.

We have concluded that the 30 fuel assemblies in the core pose no new safety concern and that the removal of the assemblies by the proposed sequence with all of the usual methods and precautions will also pose no new safety concern. The one remaining operable source range monitor is more than sufficient under the prevailing circumstances to alert the operators to any unusual and highly unlikely change in criticality potential. We therefore find that the proposed change in the Technical Specification 3.9.2 to allow one operable source range monitor while the remaining 30 fuel assemblies are being removed is acceptable. This change is to be temporary and will no longer be in effect once the 30 fuel assemblies are removed. To reload the core, the two source range monitors must be operable.

Final No Significant Hazards Consideration

The 30 remaining fuel assemblies in the core pose no new safety concern. The core is highly borated sufficient for 193 fuel assemblies and refueling operations which would include new fuel. With the removal of each of the 30 remaining fuel assemblies, the potential for criticality is further reduced by the replacement of 2000 ppm borated water.

The sequence of removal of the fuel will be changed to provide the added benefit of subcritical physics and detection for the operable source range monitor. This may reduce in some way a safety margin but only in detection of a highly unlikely change in criticality potential; not in the protection against criticality available from the 2000 ppm borated water. The core will be maintained within the acceptance criteria for subcriticality. The removal methods and precautions will not change and no new accident is postulated by the sequence change or loss of the one source range monitor. This change does not involve a significant reduction in a margin of safety. Each fuel assembly removed should lessen the potential for consequences from any event or accident previously analyzed. We therefore have determined that the one time change to the Technical Specification 3.9.2 to allow one of two source range monitors to be inoperable for removal of the 30 fuel assemblies to not involve a significant hazards consideration.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Sincerely,

Original signed by
Steven A. Varga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosure:
Amendment No. to DPR-74

CPB Dunfield 4/25/84	CPB Phillips 4/25/84	ADCPS Rubenstein 4/25/84	D:DL DEisenhut 4/ /84
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cc: w/enclosure
See next page

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Indiana and Michigan Electric Company

Donald C. Cook Nuclear
Plant, Units 1 and 2

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

INDIANA AND MICHIGAN ELECTRIC COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.62
License No. DPR-74

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana and Michigan Electric Company (the licensee) dated April 24, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-74 is hereby amended to read as follows:

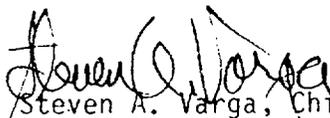
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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 62, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 25, 1984

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 62 FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Revise Appendix A as follows:

Remove Pages

3/4 9-2

Insert Pages

3/4 9-1*
3/4 9-2

*Included for convenience only.

3/4.9 REFUELING OPERATIONS

BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 With the reactor vessel head unbolting or removed, the boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met:

- a. Either a K_{eff} of 0.95 or less, which includes a 1% $\Delta k/k$ conservative allowance for uncertainties, or
- b. A boron concentration of ≥ 2000 ppm, which includes a 50 ppm conservative allowance for uncertainties.

APPLICABILITY: MODE 6.*

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration at ≥ 10 gpm of 20,000 ppm boric acid solution or its equivalent until K_{eff} is reduced to < 0.95 or the boron concentration is restored to ≥ 2000 ppm, whichever is the more restrictive. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

- a. Removing or unbolting the reactor vessel head, and
- b. Withdrawal of any full length control rod in excess of 3 feet from its fully inserted position within the reactor pressure vessel.

4.9.1.2 The boron concentration of the reactor coolant system and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

*The reactor shall be maintained in MODE 6 when the reactor vessel head is unbolting or removed.

REFUELING OPERATIONS

INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2 As a minimum, two source range neutron flux monitors shall be operating, each with continuous visual indication in the control room and one with audible indication in the containment and control room.

APPLICABILITY: MODE 6.

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes.* The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.2 Each source range neutron flux monitor shall be demonstrated OPERABLE by performance of:

- a. A CHANNEL FUNCTIONAL TEST at least once per 7 days, and
- b. A CHANNEL FUNCTIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS, and
- c. A CHANNEL CHECK at least once per 12 hours during CORE ALTERATIONS.

*During the 1984 refueling outage only, removal of the last 30 assemblies is allowed with only one source range neutron flux monitor operating.