

December 17, 1987

Docket Nos. 50-315
and 50-316

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

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Dear Mr. Dolan:

The Commission has issued the enclosed Amendment No. 113 to Facility Operating License No. DPR-58 and Amendment No. 96 to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit Nos. 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application dated January 9, 1987.

These amendments revise the Technical Specifications for the auxiliary building crane, deleting the footnote which requires the load block to be unloaded and the main hoist deenergized whenever the crane travels over the spent fuel pool.

A copy of the Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

/s/

David L. Wigginton, Project Manager
Project Directorate III-3
Division of Reactor Projects

Enclosures:

1. Amendment No. 113 to DPR-58
2. Amendment No. 96 to DPR-74
3. Safety Evaluation

cc w/enclosures:
See next page

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Donald C. Cook Nuclear Plant

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

INDIANA AND MICHIGAN POWER COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 113
License No. DPR-58

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana and Michigan Power Company (the licensee) dated January 9, 1987 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.

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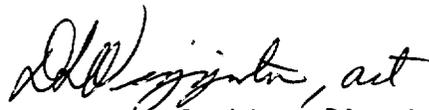
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-58 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 113, 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 issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


Kenneth E. Perkins, Director
Project Directorate III-3
Division of Reactor Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 17, 1987

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 113 FACILITY OPERATING LICENSE NO. DPR-58

DOCKET NO. 50-315

Revise Appendix A Technical Specifications by removing the page identified below and inserting the enclosed page. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

REMOVE

3/4 9-8

INSERT

3/4 9-8

REFUELING OPERATIONS

CRANE TRAVEL - SPENT FUEL STORAGE POOL BUILDING*

LIMITING CONDITION FOR OPERATION

3.9.7 Loads in excess of 2,500 pounds shall be prohibited from travel over fuel assemblies in the storage pool. Loads carried over the spent fuel pool and the heights at which they may be carried over racks containing fuel shall be limited in such a way as to preclude impact energies over 24,240 in.-lbs., if the loads are dropped from the crane.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.7.1 Crane interlocks and physical stops which prevent crane travel with loads in excess of 2,500 pounds over fuel assemblies shall be demonstrated OPERABLE within 7 days prior to crane use and at least once per 7 days thereafter during crane operation.

4.9.7.2 The potential impact energy due to dropping the crane's load shall be determined to be \leq 24,240 in.-lbs. prior to moving each load over racks containing fuel.

*Shared system with D. C. COOK - UNIT 2

D. C. COOK - UNIT 1

3/4 9-8

Amendment No. 707,113



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

INDIANA AND MICHIGAN POWER COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 96
License No. DPR-74

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana and Michigan Power Company (the licensee) dated January 9, 1987, 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 96, 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 issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Kenneth E. Perkins, Director
Project Directorate III-3
Division of Reactor Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 17, 1987

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO 96 FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Revise Appendix A Technical Specifications by removing the page identified below and inserting the enclosed page. The revised page is identified by amendment number and contains marginal lines indicating the area of change.

REMOVE

3/4 9-7

INSERT

3/4 9-7

REFUELING OPERATIONS

CRANE TRAVEL - SPENT FUEL STORAGE POOL BUILDING*

LIMITING CONDITION FOR OPERATION

3.9.7 Loads in excess of 2,500 pounds shall be prohibited from travel over fuel assemblies in the storage pool. Loads carried over the spent fuel pool and the heights at which they may be carried over racks containing fuel shall be limited in such a way as to preclude impact energies over 24,240 in.-lbs., if the loads are dropped from the crane.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.7.1 Crane interlocks and physical stops which prevent crane travel with loads in excess of 2,500 pounds over fuel assemblies shall be demonstrated OPERABLE within 7 days prior to crane use and at least once per 7 days thereafter during crane operation.

4.9.7.2 The potential impact energy due to dropping the crane's load shall be determined to be \leq 24,240 in.-lbs. prior to moving each load over racks containing fuel.

*Shared system with D. C. COOK - UNIT 1



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 113 TO FACILITY OPERATING LICENSE NO. DPR-58
AND AMENDMENT NO. 96 TO FACILITY OPERATING LICENSE NO. DPR-74

INDIANA AND MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-315 AND 50-316

By letter dated January 9, 1987, the Indiana and Michigan Electric Company (the licensee) provided an analysis of the mechanical, radiological, and criticality consequences of dropping the 4.25 ton hook/block assembly into the D. C. Cook spent fuel pit from its full height. The analysis was performed in fulfillment of a condition in the staff Safety Evaluation (SE) dated February 27, 1986 on control of heavy loads at the D. C. Cook plants. The analysis is limited to the considerations of the crane load block as a heavy load and any load carried on the load block must have been previously analyzed or bounded by a previously-approved load drop analysis.

EVALUATION

The mechanical analysis resulted in the conclusion that four fuel assemblies would suffer the rupture of all fuel rods. The radiological consequences of the rupture of all the rods in a single assembly were presented in the original safety evaluation of the racks ("D. C. Cook Units 1 and 2, New and Spent Fuel Storage Array Criticality Safety Analyses," XN-NF-81-97(P) Rev. 2). The results for four assemblies can be obtained by simple scaling and are 7.2 rem to the thyroid and 2.12 rem to the whole body at the site boundary. The staff concludes that the linear scaling is appropriate and that the resultant doses meet the criteria of NUREG-0612 ("Control of Heavy Loads in Nuclear Power Plants," July 1980) and are, therefore, acceptable.

The mechanical analysis showed that the hook will penetrate four fuel assemblies to a depth of approximately 30 inches while the block comes to rest at the top of the fuel-bearing portion of the storage cells. The criticality analysis assumed that the fuel in the full length of the damaged assemblies rearranged so that the rod-to-rod spacing was consistent with a uniform expansion of the assembly to just fill the storage cell. This is the maximum reactivity condition given that constraint. The presence of the loose fuel pellets which fall through the water and are mostly trapped on the first undamaged spacer is ignored.

An infinite array of 10 assembly x 10 assembly storage racks of infinite length was modeled. The KENO-Va Monte Carlo code was used to perform the analysis. This code has been extensively qualified for such calculations and a supplementary qualification was performed to verify its use. The staff concludes that the calculation method and modeling are acceptable.

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The calculated value of K-effective for the configuration described above is 0.94, including all uncertainties. No credit was taken for the presence of dissolved boron in the fuel pool water in performing the analysis and the maximum enrichment (4 percent) was used for the fuel. The calculated K-effective value meets the staff's acceptance criterion for this quantity and is acceptable.

Because the event being analyzed is not anticipated (i.e., is an accident), credit may be taken for the boron in the pool. If such credit is taken, the resulting value of K-effective would be of the order of 0.8 or lower. This is adequate margin to account for any uncertainty in the definition of the maximum reactivity configuration.

SUMMARY

Based on the review which is described above, the staff concludes that the criticality consequences of the drop for the hook and block into the D. C. Cook spent fuel pool are acceptable. This review is limited to the crane load block and any load carried on the load block must have been previously analyzed or bounded by a previously-approved load drop analysis. Based on this review, the proposed Technical Specification revision to remove the footnote provisions for the load block to be unloaded and the hoist deenergized when traveling over the spent fuel is acceptable.

ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously published a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR §51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of these amendments.

CONCLUSION

The staff has 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 the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Walter Brooks
John Ridgely

Date: December 17, 1987