

September 1, 1995

Mr. E. E. Fitzpatrick, Vice President
Indiana Michigan Power Company
c/o American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43215

Dear Mr. Fitzpatrick:

SUBJECT: DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2 - ISSUANCE OF AMENDMENT
RE: DELETION OF TURBINE OVERSPEED PROTECTION REQUIREMENTS (TAC NO.
M88888)

The Commission has issued the enclosed Amendment No. 185 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 (TS) in response to your application dated February 15, 1994, as supplemented June 29, 1995.

The amendment deletes TS 3/4.3.4, associated bases, and associated index listings for the Unit 2 turbine overspeed protection system.

A copy of our related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by

John B. Hickman, Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-316

Enclosures:

1. Amendment No. 185 to DPR-74
2. Safety Evaluation

cc w/enclosures:

See next page

OFFICE	LA:PD31	PM:PD31	BC:OTSB	BC:SP1B	OGCRMAN	D:PD31
NAME	<i>JK for</i> CJamerson	<i>JK for</i> JHickman	CGrimes*	<i>John</i> CMcCracken	<i>No legal objection with noted comments</i> R. Weisman	JHannon
DATE	<i>8/30/95</i> 08/09/95	08/09/95	07/05/94	08/10/95	08/22/95	8/13/95

* See previous concurrence

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Indiana Michigan Power Company

Donald C. Cook Nuclear Plant

cc:

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DATED: September 1, 1995

AMENDMENT NO. 185 TO FACILITY OPERATING LICENSE NO. DRP-74-D. C. COOK UNIT 2

Docket File

PUBLIC

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cc: Plant Service list

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

INDIANA MICHIGAN POWER COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 185
License No. DPR-74

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Indiana Michigan Power Company (the licensee) dated February 15, 1994, as supplemented June 29, 1995, 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:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 185, 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



John B. Hickman, Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 1, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 185

FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NO. 50-316

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE

V
XI
3/4 3-56
3/4 3-57
B 3/4 3-3

INSERT

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BASES

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INSTRUMENTATION

BASES

3/4.3.3.6 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident.

3/4.3.3.7 Deleted.

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY. Use of containment temperature monitoring is allowed once per hour if containment fire detection is inoperable.

3/4 3.3.9 EXPLOSIVE GAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures in the Waste Gas Holdup System. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 185 TO FACILITY OPERATING LICENSE NO. DPR-74
INDIANA MICHIGAN POWER COMPANY
DONALD C. COOK NUCLEAR PLANT, UNIT NO. 2
DOCKET NO. 50-316

1.0 INTRODUCTION

By letters dated February 15, 1994, and June 29, 1995, the Indiana Michigan Power Company (the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. DPR-74 for the Donald C. Cook Nuclear Plant, Unit No. 2. The proposed amendment would revise the TS by eliminating the requirements for the Turbine Overspeed Protection System.

Section 182a of the Atomic Energy Act (the "Act") requires that applicants for nuclear power plant operating licenses state TS to be included as part of the license. The Commission's regulatory requirements related to the content of TS are set forth in 10 CFR 50.36. That regulation requires that the TS include items in five specific categories, including: (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls. However, the regulation does not specify the particular requirements to be included in a plant's TS.

The Commission has provided guidance for the contents of TS in its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" ("Final Policy Statement"), 58 FR 39132 (July 22, 1993), in which the Commission indicated that compliance with the Final Policy Statement satisfies Section 182a of the Act. In particular, the Commission indicated that certain items could be relocated from the TS to licensee-controlled documents, consistent with the standard enunciated in *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 273 (1979). In that case, the Atomic Safety and Licensing Appeal Board indicated that "technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety."

Consistent with this approach, the Final Policy Statement identified four criteria to be used in determining whether a particular matter is required to be included in the TS, as follows: (1) Installed instrumentation that is used to detect, and indicated in the control room, a significant abnormal

degradation of the reactor coolant pressure boundary; (2) a process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; (3) a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; (4) a structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.¹ As a result, existing TS requirements which fall within or satisfy any of the criteria in the Final Policy Statement must be retained in the TS, while those TS requirements which do not fall within or satisfy these criteria may be relocated to other, licensee-controlled documents.

2.0 EVALUATION

The turbine overspeed protection systems are designed to prevent damage to the turbine by terminating an overspeed transient. Operation of the overspeed protection system is designed to minimize the potential for a turbine missile. Loss of electrical load or malfunction of the control system can cause the turbine to overspeed. The emergency overspeed protection systems operate to limit the maximum turbine speed under fault conditions.

Currently, Section 3/4.3.4 of the D. C. Cook Unit 2 TS requires at least one turbine overspeed protection system to be operable. The licensee has proposed the deletion of the turbine overspeed protection system specification based on other existing performance verification performed on the overspeed protection system.

The basis of TS 3/4.3.4, "Turbine Overspeed Protection" involves maintaining the turbine overspeed protection system to reduce the hazards of turbine missiles. This function is discussed in Standard Review Plan Sections 3.5.1.3 and 10.2.3. The licensee provided an analysis in Section 14.1.13 of the Updated Safety Analysis Report (USAR) which deals with a safety analysis of the main turbine-generators and presents the results of the study of the consequences of a failure. That analysis indicated that although large energetic fragments could be generated, the probability is extremely small. The plant is designed to prevent a turbine missile from endangering the reactor and associated nuclear systems.

¹ The Commission recently adopted amendments to 10 CFR 50.36, pursuant to which the rule was revised to codify and incorporate these criteria. See Final Rule, "Technical Specifications," 60 FR 36953 (July 19, 1995). The Commission indicated that reactor core isolation cooling, isolation condenser, residual heat removal, standby liquid control, and recirculation pump Trip are included in the TS under Criterion 4, although it recognized that other structures, systems and components could also meet this criterion. 60 FR 36956.

The D. C. Cook Unit 2 turbine is equipped with several turbine valves which control turbine speed and load during normal plant operations and protect it from overspeed during abnormal conditions. These valves are the high pressure turbine control valves and main stop valves, and the low pressure turbine reheat stop valves and reheat intercept valves. The turbine overspeed protection system consists of two independent mechanical sensing devices which are capable of initiating fast closure of the turbine valves through two independent trip circuits. Each of these circuits are exercised weekly to verify their operability.

The D. C. Cook Unit 2 turbine has two independent mechanical overspeed trips, one set at 110% and the other at 112% of rated speed. They are installed on a stub shaft gear, driven by the main turbine shaft. Each overspeed trip device has a spring-loaded bolt with its center of gravity eccentric to the axis of rotation. If the turbine overspeeds, the centrifugal force on the bolt will cause it to extend past the edge of the rotating cylinder. Once the bolt comes out of the cylinder it strikes a latch which opens a drain on the emergency circuit depressurizing it. Each overspeed trip device operates through a separate channel to trip the turbine if its setpoint is reached. When the emergency circuit is depressurized, all of the control, main stop, reheat stop, and reheat intercept valves are closed. Each major steam line entering the turbine has two independent valves in series such that a failure of one in each steam line would not necessarily cause a turbine to overspeed. Therefore, because of the redundancy and diversity of the overspeed protection systems, the possibility of an overspeed condition occurring which could potentially generate a turbine missile is extremely remote.

In addition to the turbine overspeed system, the normal control system would act to limit any excessive increase in turbine speed and the acceleration limiter would act to limit any rapid increase in turbine speed. Both of these systems use the control valves to adjust steam flow to the turbine and the acceleration limiter also uses the intercept valves.

The maintenance and test history of the control, main stop, reheat stop, and reheat intercept valves has been good with few instances of repairs required. Most work has been related to items found during routine inspections and maintenance and did not affect valve operability. The surveillance for the turbine overspeed protection on Unit 2 will be performed as a plant procedure as part of the Preventive Maintenance Program in accordance with operating experience at the Cook Nuclear Plant, applicable industry experience, and consideration of the turbine manufacturer's recommendations. This is in accordance with the maintenance program requirements of 10 CFR 50.65. This is also consistent with the actions for D. C. Cook Unit 1, which has never had TS requirements for the turbine overspeed system. Changes to the plant procedure will receive a technical review in accordance with TS 6.5.3.1 and will require an independent technical review by an individual qualified to appropriate standards.

The elimination of the TS requirement for overspeed protection will allow the licensee to perform testing and inspection of the system at frequencies based upon manufacturer's recommendations and operational experience or constraints.

This will allow an appropriate decrease in the weekly testing frequency which will reduce the challenges to plant equipment and personnel and by so doing, the potential of a plant transient is reduced and safety is enhanced.

Probabilistic safety assessments (PRA) and operating experience have demonstrated that proper maintenance of the turbine overspeed control valves is important to minimize the potential for overspeed events and turbine damage; however that experience has also demonstrated that there is low likelihood of significant risk to public health and safety because of turbine overspeed events. The Cook Nuclear Plant Individual Plant Examination of External Events examined the potential for turbine missile generation from normal operating conditions, and found the probability of turbine missile-induced core damage to be significantly less than the individual plant safety objective of 10^{-7} /year. Further, the potential for and consequences of turbine overspeed events are diminished by the licensee's inservice inspection program, which must comply with 10 CFR 50.55(a), and a surveillance program for the turbine control and stop valves derived from the manufacturer's recommendations.

The NRC staff also notes that the proposed deletion of TS 3/4.3.4 would make the D. C. Cook Unit 2 TS consistent with the guidance provided in the NRC's Standard Technical Specifications, Westinghouse Plants, NUREG-1431, in that the NRC's Standard Technical Specifications do not include TS requiring the operability of a Turbine Overspeed Protection System.

Accordingly, the staff concluded that the requirements for turbine overspeed controls do not meet the TS criteria in the Final Policy Statement. The limiting conditions for operation and surveillance requirements for turbine overspeed controls were removed from the Standard Technical Specifications.

On this basis, the staff concludes that these requirements are not required to be in the TS under 10 CFR 50.36 or Section 182a of the Atomic Energy Act, and are not required in order to provide adequate protection to the health and safety of the public. Further, they do not fall within any of the four criteria set forth in the Commission's Final Policy Statement, discussed above. In addition, the NRC staff finds that sufficient regulatory controls exist under TS 6.5.3.1 and 10 CFR 50.65 to ensure that future changes to these requirements are acceptable. Accordingly, the staff has concluded that deletion of TS 3/4.3.4 and its associated Bases is acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Michigan State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no

significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (59 FR 14890). The June 29, 1995 supplement provided additional supporting information for the request, did not change the scope of the request, and did not affect the no significant hazards consideration. Accordingly, the amendment meets 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 the amendment.

5.0 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: John Hickman, NRR

Date: September 1, 1995