

Docket Nos. 50-315
and 50-316

DEC 31 1985

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

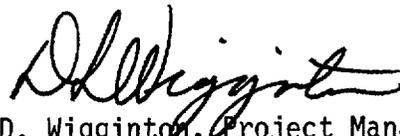
Dear Mr. Dolan:

The Commission has issued the enclosed Amendment No. 92 to Facility Operating License No. DPR-58 and Amendment No. 77 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 transmitted by letter dated April 23, 1985.

These amendments revise the Technical Specifications for operation of the auxiliary feedwater systems.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,



D. Wigginton, Project Manager
PWR Project Directorate #4
Division of PWR Licensing-A, NRR

Enclosures:

1. Amendment No. 92 to DPR-58
2. Amendment No. 77 to DPR-74
3. Safety Evaluation

cc: w/enclosures
See next page

DISTRIBUTION:
SEE ATTACHED PAGE


PWR#4: DPWR-A
DWigginton:kab
12/13/85


PWR#4: DPWR-A
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BJYoungblood
12/30/85

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PDR ADOCK 05000315
P PDR

DEC 31 1985

Mr. John Dolan
Indiana and Michigan Electric Company

Donald C. Cook Nuclear Plant

cc:

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Vice President
Nuclear Operations
American Electric Power Service
Corporation
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Washington, DC 20515

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Lansing, Michigan 48909

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Monitoring Section Office
Division of Radiological Health
Department of Public Health
3500 N. Logan Street
Post Office Box 30035
Lansing, Michigan 48909

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DC COOK, UNITS 1 AND 2
AMENDMENT NOS. 92 AND 77

DATED: DEC 31 1985



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
DEC 31 1985

INDIANA AND MICHIGAN ELECTRIC COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 92
License No. DPR-58

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 23, 1985, 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-58 is hereby amended to read as follows:

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DEC 31 1985

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 92, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

- 3. The change in Technical Specifications is to become effective within 45 days of issuance of the amendment. In the period between issuance of the amendment and the effective date of the new Technical Specifications the licensee shall adhere to the Technical Specifications for the systems, components, or operation existing at the time. The period of time during changeover of systems, components or operation shall be minimized or compensated for by suitable temporary alternatives.
- 4. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

ORIGINAL SIGNED BY:

B. J. Youngblood, Director
PWR Project Directorate #4
Division of PWR Licensing-A, NRR

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 31, 1985

[Signature]
PWR#4:DPWR-A
DWigginton:kab
12/11/85

[Signature]
PWR#4/DPWR-A
MDuncan
12/11/85

[Signature]
OELD
12/23/85

[Signature]
PWR#4/DPWR-A
BJYoungblood
12/19/85



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

DEC 3 1 1985

INDIANA AND MICHIGAN ELECTRIC COMPANY

DOCKET NO. 50-316

DONALD C. COOK NUCLEAR PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 77
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 23, 1985, 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:

DEC 31 1985

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 77, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

- 3. The change in Technical Specifications is to become effective within 45 days of issuance of the amendment. In the period between issuance of the amendment and the effective date of the new Technical Specifications the licensee shall adhere to the Technical Specifications for the systems, components, or operation existing at the time. The period of time during changeover of systems, components or operation shall be minimized or compensated for by suitable temporary alternatives.
- 4. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

ORIGINAL SIGNED BY:

B. J. Youngblood, Director
PWR Project Directorate #4
Division of PWR Licensing-A, NRR

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 31, 1985

DW
PWR#4:DPWR-A
DWigginton:kab
12/11/85

MD
PWR#4/DPWR-A
MDuncan
12/11/85

OELD
se
12/23/85

BJ
PWR#4/DPWR-A
BJYoungblood
12/23/85

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 92 FACILITY OPERATING LICENSE NO. DPR-58

AMENDMENT NO. 77 FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NOS. 50-315 AND 50-316

Revise Appendix A as follows:

Remove Pages

Unit 1

3/4 3-21a
3/4 7-5
3/4 7-6
B 3/4 7-1*
B 3/4 7-2
B 3/4 7-3
B 3/4 7-4*

Unit 2

3/4 3-20a
3/4 7-5
3/4 7-6
B 3/4 7-1*
B 3/4 7-2
B 3/4 7-3
B 3/4 7-4*

Insert Pages

Unit 1

3/4 3-21a
3/4 7-5
3/4 7-6
B 3/4 7-1*
B 3/4 7-2
B 3/4 7-3
B 3/4 7-4*

Unit 2

3/4 3-20a
3/4 7-5
3/4 7-6
B 3/4 7-1*
B 3/4 7-2
B 3/4 7-3
B 3/4 7-4*

*Included for convenience only

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. 4 kv Bus Loss of Voltage	2/Bus	2/Bus	2/Bus	1, 2, 3	14*
c. Safety Injection	2	1	2	1, 2, 3	18*
d. Loss of Main Feedwater Pumps	2	2	2	1, 2	18*
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19*
8. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*
b. 4 kv Bus Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

- a. Two feedwater pumps, each capable of being powered from separate emergency busses, and
- b. One feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE:

- a. At least once per 31 days by:
 1. Verifying that each motor driven pump develops an equivalent discharge pressure of ≥ 1375 psig at 60°F on recirculation flow.
 2. Verifying that the steam turbine driven pump develops an equivalent discharge pressure of ≥ 1285 psig at 60°F and at a flow of ≥ 700 gpm when the secondary steam supply pressure is greater than 310 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
 4. Verifying that each automatic valve in the flow path is in the fully open position whenever the auxiliary feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER. This requirement is not applicable for those portions of the Auxiliary Feedwater System being used intermittently to maintain steam generator level.
- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.
 2. Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.

3/4.7 PLANT SYSTEMS

BASES

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within its design pressure of 1085 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is 17,153,800 lbs/hr which is approximately 121 percent of the total secondary steam flow of 14,120,000 lbs/hr at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per operable steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-2.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Range Neutron Flux channels. The reactor trip setpoint reductions are derived on the following bases:

For 4 loop operation

$$SP = \frac{(X) - (Y)(V)}{X} \times (109)$$

For 3 loop operation

$$SP = \frac{(X) - (Y)(U)}{X} \times (76)$$

Where:

SP = reduced reactor trip setpoint in percent of RATED THERMAL POWER

V = maximum number of inoperable safety valves per steam line = 1, 2 or 3.

PLANT SYSTEMS

BASES

- U = maximum number of inoperable safety valves per operating steam line = 1, 2 or 3.
- (109) = Power Range Neutron Flux-High Trip Setpoint for 4 loop operation
- (76) = Maximum percent of RATED THERMAL POWER permissible by P-8 Setpoint for 3 loop operation.
- X = Total relieving capacity of all safety valves per steam line = 4,288,450 lbs/hour.
- Y = Maximum relieving capacity of any one safety valve = 857,690 lbs/hour.

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power.

Each electric driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 450 gpm at a pressure of 1065 psig to the entrance of the steam generators. The steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 900 gpm at a pressure of 1065 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

The acceptance discharge pressures for the auxiliary feedwater pumps are based on a fluid temperature of 60°F. Water density corrections are permitted to allow comparison of test results which vary depending on ambient conditions.

In addition to its safety design function, the AFW system is used to maintain steam generator level during startup (including low power operation). During this time, the system design allows for automatic initiation of the auxiliary feedwater pumps and their related automatic valves in the flow path.

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 9 hours with steam discharge to the atmosphere concurrent with total loss of off-site power.

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 gpm primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 STEAM GENERATOR STOP VALVES

The OPERABILITY of the steam generator stop valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the steam generator stop valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

PLANT SYSTEMS

BASES

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on average steam generator impact values taken at +10°F and are sufficient to prevent brittle fracture.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

The OPERABILITY of the essential service water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. 4 kv Bus Loss of Voltage	2/Bus	2/Bus	2/Bus	1, 2, 3	14*
c. Safety Injection	2	1	2	1, 2, 3	18*
d. Loss of Main Feedwater Pumps	2	2	2	1, 2	18*
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14*
b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19*
8. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*
b. 4 Kv Bus Degraded Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14*

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:
- a. Two feedwater pumps, each capable of being powered from separate emergency busses, and
 - b. One feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

- 4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE:
- a. At least once per 31 days by:
 1. Verifying that each motor driven pump develops an equivalent discharge pressure of ≥ 1375 psig at 60°F on recirculation flow.
 2. Verifying that the steam turbine driven pump develops an equivalent discharge pressure of ≥ 1285 psig at 60°F and at a flow of ≥ 700 gpm when the secondary steam supply pressure is greater than 310 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
 4. Verifying that each automatic valve in the flow path is in the fully open position whenever the auxiliary feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER. This requirement is not applicable for those portions of the Auxiliary Feedwater System being used intermittently to maintain steam generator level.
- b. At least once per 18 months during shutdown by:
1. Verifying that each automatic valve in the flow path actuates to its correct position upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.
 2. Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.

3/4.7 PLANT SYSTEMS

BASES

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line code safety valves ensures that the secondary system pressure will be limited to within 110% of its design pressure of 1085 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a turbine trip from 100% RATED THERMAL POWER coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is 17,153,800 lbs/hr which is 117 percent of the total secondary steam flow of 14,674,000 lbs/hr at 100% RATED THERMAL POWER. A minimum of 2 OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-2.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in secondary system steam flow and THERMAL POWER required by the reduced reactor trip settings of the Power Range Neutron Flux channels. The reactor trip setpoint reductions are derived on the following bases:

For 4 loop operation

$$SP = \frac{(X) - (Y)(V)}{X} \times (109)$$

For 3 loop operation

$$SP = \frac{(X) - (Y)(U)}{X} \times (76)$$

Where:

SP = reduced reactor trip setpoint in percent of RATED THERMAL POWER

V = maximum number of inoperable safety valves per steam line

PLANT SYSTEMS

BASES

- U = maximum number of inoperable safety valves per operating steam line
- 109 = Power Range Neutron Flux-High Trip Setpoint for 4 loop operation
- 76 = Maximum percent of RATED THERMAL POWER permissible by P-8 Setpoint for 3 loop operation.
- X = Total relieving capacity of all safety valves per steam line in lbs/hour = 4,288,450.
- Y = Maximum relieving capacity of any one safety valve in lbs/hour = 857,690.

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the auxiliary feedwater system ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a total loss of off-site power.

Each electric driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 450 gpm at a pressure of 1065 psig to the entrance of the steam generators. The steam driven auxiliary feedwater pump is capable of delivering a total feedwater flow of 900 gpm at a pressure of 1065 psig to the entrance of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

The acceptance discharge pressures for the auxiliary feedwater pumps are based on a fluid temperature of 60°C. Water density corrections are permitted to allow comparison of test results which vary depending on ambient conditions.

In addition to its safety design function, the AFW system is used to maintain steam generator level during startup (including low power operation). During this time, the system design allows for automatic initiation of the auxiliary feedwater pumps and their related automatic valves in the flow path.

3/4.7.1.3 CONDENSATE STORAGE TANK

The OPERABILITY of the condensate storage tank with the minimum water volume ensures that sufficient water is available to maintain the RCS at HOT STANDBY conditions for 9 hours with steam discharge to the atmosphere concurrent with total loss of off-site power. The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

PLANT SYSTEMS

BASES

3/4.7.1.4 ACTIVITY

The limitations on secondary system specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 limits in the event of a steam line rupture. This dose also includes the effects of a coincident 1.0 GPM primary to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the accident analyses.

3/4.7.1.5 STEAM GENERATOR STOP VALVES

The OPERABILITY of the steam generator stop valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to 1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and 2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the steam generator stop valves within the closure times of the surveillance requirements are consistent with the assumptions used in the accident analyses.

PLANT SYSTEMS

BASES

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on average steam generator impact values taken at +10°F and are sufficient to prevent brittle fracture.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

The OPERABILITY of the essential service water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident conditions within acceptable limits.

3/4.7.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

The OPERABILITY of the control room EMERGENCY ventilation system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
DEC 31 1985

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NOS. 92 AND 77 TO FACILITY OPERATING LICENSES
NOS. DPR-58 AND DPR-74
INDIANA AND MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 50-315 AND 50-316

Introduction

By letter dated April 23, 1985, Indiana and Michigan Electric Company (the licensee) submitted proposed amendments for the Auxiliary Feedwater System (AFWS) Technical Specification (TS) for the D. C. Cook Plant, Units 1 and 2. The proposed changes affect operability and surveillance requirements for the AFWS contained in TS Table 3.3-3, TSs 3.7.1.2, 4.7.1.2.a, and TS Bases Sections 3/4.7.1.2 and 3/4.7.1.4.

The changes affect pages 3/4 3-21a, 3/4 7-5, 3/4 7-6, B 3/4 7-2 and B 3/74 7-3 of the Unit 1 TS and pages 3/4 3-20a, 3/4 7-5, 3/4 7-6, and B 3/4 7-2 of the Unit 2 TS.

This Safety Evaluation is a review of the requested changes and their impact on the operation and administration of plant activities.

Summary of Evaluation

The changes proposed by the licensee, discussed in detail below, establish conformance between the Unit 1 and Unit 2 TS and the Westinghouse Standard Technical Specifications (STS), NUREG-0452, Revision 4 with one exception. The one exception relates to a monthly AFW automatic valve position verification surveillance requirement. The current D.C. Cook TS reflect STS requirements. The proposed change relaxes the conditions under which this surveillance requirement must be performed.

The staff agrees with the changes described in the proposed amendment.

Evaluation

Proposed Change to TS Table 3.3-3 for Units 1 and 2

Description of Change

Item 6.d of TS Table 3.3-3 is revised to delete the requirement for automatic start of the Motor Driven Auxiliary Feedwater Pumps (MDAFWP) on a loss of Main Feedwater Pumps in MODE 3.

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Evaluation

The proposed change reflects the fact that the Main Feedwater Pumps are normally not operated in MODE 3. As a result, each time MODE 3 is entered, an unnecessary automatic MDAFWP start signal is generated. This creates the potential for the uncontrolled addition of cold auxiliary feedwater to a hot steam generator and results in unnecessary safety system challenges. These factors are reflected in STS which only require automatic start of the MDAFWPs on a loss of main feedwater pumps in MODES 1 and 2.

The proposed change is acceptable for both Unit 1 and Unit 2 TS.

Proposed Changes to TS 3.7.1.2 for Units 1 and 2

Description of Changes

The ACTION requirements for inoperable Auxiliary Feedwater Pumps (AFWPs) are revised for both Unit 1 and Unit 2 to specify the following:

- a. With one AFWP inoperable, restore the required AFWP to operable status within 72 hours or be in HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. With two AFWPs inoperable, be in at least HOT STANDBY within 6 hours and in HOT SHUTDOWN within the following 6 hours.
- c. With three AFWPs inoperable, immediately initiate corrective action to restore one AFWP to OPERABLE status as soon as possible.

In addition, the word "independent" is added to the wording of the Unit 2 Limiting Condition for Operation (LCO) of TS 3.7.1.2.

Evaluation

Existing ACTION requirements of the D. C. Cook TS specify that with one AFWP inoperable, restore at least three AFWPs to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours. With more than one AFWP inoperable, the actions specified by TS 3.0.3 would have to be taken, namely, within one hour action would have to be initiated to place the unit in HOT STANDBY within the next 6 hours, HOT SHUTDOWN in the following 6 hours, and COLD SHUTDOWN in the following 24 hours.

In light of existing requirements, the proposed changes, which are consistent with STS, are more conservative than the existing requirements for the following reasons:

- a. The proposed changes require that HOT STANDBY be achieved within 78 hours and HOT SHUTDOWN be achieved within 84 hours of discovery of a single inoperable AFWP. The existing requirement only specifies the achievement of HOT SHUTDOWN in 84 hours.

- b. The proposed changes require that HOT STANDBY be achieved within 6 hours and HOT SHUTDOWN within 12 hours of discovery of two inoperable AFWPs. Existing requirements of TS 3.0.3 would allow an additional hour to attain these conditions.
- c. The current requirements could be interpreted to mean that if three pumps were inoperable, the plant would have to shutdown without decay heat removal capability. That is unacceptable. The proposed requirement to get a pump repaired as soon as possible is consistent with safety requirements. For three pumps inoperable, T. S. 3.0.3 is not to be applied.

The addition of the word "independent" to the wording of the LCO of TS 3.7.1.2 for Unit 2 establishes conformance in the wording in the Unit 1 and Unit 2 TS. As such, it is purely administrative in nature.

The staff agrees with the proposed changes and finds them acceptable.

Proposed Changes to TSs 4.7.1.2a.1 and 4.7.1.2a.2

Description of Changes

For Unit 1, the existing monthly surveillance requirement to start the AFWPs from the control room is being deleted. For Units 1 and 2, the monthly AFWP surveillance requirements for measuring pump discharge pressure and flow are being modified to reference these performance parameters to a pumped water temperature of 60°F. Additionally, the monthly surveillance requirement to measure the Unit 1 Turbine Driven AFWP (TDAFWP) discharge pressure and flow is being changed to specify that the surveillance need not be performed prior to entry into MODE 3.

Evaluation

Deletion of the Unit 1 requirement to start the AFWPs monthly from the control room is acceptable for the following reasons:

- a. The definition of OPERABLE is interpreted to mean, start from the position where the controls are normally located. There are local controls but normal location for control of the AFWPS is the control room. The STS had been revised to remove the duplicate requirement.
- b. This requirement does not exist in current Unit 2 TS, hence, consistency is established between Unit 1 and Unit 2 TS.
- c. The normal control station for the AFWPs is the control room. The AFWPs will normally be started from the control room for both surveillance test purposes and for routine operation. This provides adequate assurance that any problems in control room AFWP start capability will be detected and corrected in a timely manner.
- d. Automatic AFWP start surveillance test requirements remain unchanged.

Addition of the 60°F pumped water temperature reference value to the Unit 1 and Unit 2 monthly AFWP performance surveillance tests will allow the licensee to convert measured values of pump discharge pressure and flow to a fixed reference condition. This, in turn, will allow the licensee to

clearly establish whether measured changes in pump performance are due to system degradation or to fluid conditions, thereby minimizing the potential for unnecessarily declaring a pump inoperable.

This change is acceptable to the staff.

The change to the Unit 1 TS specifying that monthly TDAFWP performance surveillance testing need not be performed prior to entry into MODE 3 is acceptable to the staff for the following reasons:

- a. The test cannot be performed in MODES 4, 5, or 6 due to inadequate steam pressure to operate the TDAFWP under the specified test conditions.
- b. This provision is included in both the Unit 2 TS and the STS and, as such, has previously been found acceptable.

As discussed above, the staff finds the proposed changes to TSs 4.7.1.2a.1 and 4.7.1.2a.2 for Units 1 and 2 acceptable.

Proposed Change to TS 4.7.1.2a.3 for Unit 1 and Unit 2

This monthly flow path verification surveillance requirement is being changed to delete the requirement to verify the position of automatic valves.

Evaluation

The staff finds the proposed change acceptable for both units for the following reasons:

- a. The revised wording is identical to that contained in STS and, as such, has been previously evaluated and found acceptable.
- b. Automatic valve position verification is required to be performed monthly by TS 4.7.1.2a.4. As such, the existing requirement of TS 4.7.1.2a.3 automatic valve position verification is unnecessary.

Proposed Change to TS 4.7.1.2a.4 for Unit 1 and Unit 2

Description of Change

The licensee has proposed to change the conditions under which the monthly verification that AFWS automatic valves are open is performed from whenever the system is placed in automatic operation or when above 10% RATED THERMAL POWER, to when above 10% RATED THERMAL POWER only with an added requirement to verify that the AFWPs are in automatic control above 10% RATED THERMAL POWER.

Evaluation

The proposed change would delete the requirement to verify that automatic AFWS valves are fully open monthly when at or below 10% RATED THERMAL POWER. The licensee's justification for the proposed change, contained in their April 23, 1985 submittal to the NRC, is that it is their belief that the fully open

position is not always the correct position for the valves. At various times, particularly during startup or accident conditions, the licensee contends that it is appropriate to run the AFWPs and regulate flow by adjusting the valves. As further justification, the licensee notes that an AFWS initiating signal will move the automatic valves to their fully open position.

While we agree that the licensee's concerns have merit, only portions of the system are taken out of automatic during intermittent low power steam generator feeding. The remainder of the system is left in automatic and must be capable of responding to a valid initiation signal. Failure to conduct the valve position verifications on those portions of the system remaining in automatic could lead to a failure to identify a condition of inoperability. We have discussed this with the licensee and have agreed to the following wording for TS 4.7.1.2a.4:

Verifying that each automatic valve in the flowpath is in the fully open position whenever the auxiliary feedwater system is placed in automatic control or when above 10% rated thermal power. This requirement is not applicable for those portions of the Auxiliary Feedwater System being used intermittently to maintain steam generator level.

This change is acceptable for the following reasons:

1. It requires AFW automatic valve position verification in Modes 1, 2, and 3 for those portions of the system in automatic control.
2. Operability of those portions of AFW being used to intermittently feed steam generators is adequately demonstrated by the fact that the steam generators are being fed.

Proposed Change to TS Bases 3/4.7.1.2 for Units 1 and Unit 2

Description of Change

The licensee proposes adding two paragraphs to the subject Bases. The first paragraph discusses the 60°F pumped water temperature reference value added to TS 4.7.1.2a.1. The second paragraph discusses AFWS operation during startup and low power operation.

Evaluation

Addition of the first paragraph is consistent with the change proposed to TS 4.7.1.2a.1 and accepted by the staff and is, therefore, acceptable to the staff.

The second paragraph proposed is purely descriptive. As such, this change is editorial only and is acceptable to the staff.

Proposed Change to TS Bases 3/4.7.1.4 for Unit 1

Description of Change

The licensee is adding the word "of" to the first sentence of the subject bases.

Evaluation

The proposed change, which makes the first sentence of TS Bases 3/4.7.1.4 grammatically correct, is purely editorial and, as such, is acceptable to the staff.

Environmental Consideration

This amendment involves changes in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the 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 effluents 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 amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the 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 further 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.

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