August 5, 1985

Docket Nos. 50-315
and 50-316

DISTRIBUTION

Docket File	NRC PDR
L PDR	ORB#1 Rdg
Gray File 4	HThompson
OELD	SECY
DWigginton	CParrish
NTrehan	PKang
LHarmon	EJordan
BGrimes	JPartlow
TBarnhart 8	WJones
MVirgilio	ACRS 10
CMiles	RDiggs
RBallard	

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. 86 to Facility Operating License No. DPR-58 and Amendment No. 72 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 May 10, 1985, as supplemented by letter dated June 20, 1985.

These amendments revise the Technical Specifications relating to the electrical power system and, in response to Generic Letter 83-38, add surveillance requirements to periodically test the undervoltage trip attachments and shunt trip attachments.

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

Sincerely,

/s/DWigginton

David L. Wigginton, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. Amendment No. 86 to DPR-58
2. Amendment No. 72 to DPR-74
3. Safety Evaluation

cc: w/enclosures
See next page

ORB#1:DL	ORB#1:DL	BC-ORB#1:DL	OELD	AD-OR:DL
CParrish	DWigginton;ps	SVarga		GLainas
7/31/85	7/31/85	7/31/85	7/31/85	8/5/85

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

INDIANA AND MICHIGAN ELECTRIC COMPANY

DOCKET NO. 50-315

DONALD C. COOK NUCLEAR PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No 86
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 May 10, 1985, as supplemented by letter dated June 20, 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 86 , 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 60 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

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

Attachment:
Changes to the Technical Specifications

Date of Issuance: August 5, 1985

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. 72
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 May 10, 1985, as supplemented by letter dated June 20, 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:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 72 , 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 60 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

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

Attachment:
Changes to the Technical Specifications

Date of Issuance: August 5, 1985

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 86 FACILITY OPERATING LICENSE NO. DPR-58

AMENDMENT NO. 72 FACILITY OPERATING LICENSE NO. DPR-74

DOCKET NOS. 50-315 AND 50-316

Revise Appendix A as follows:

Remove Pages	Insert Pages
Unit 1	
3/4 8-8	3/4 8-8
3/4 8-9	3/4 8-9
3/4 8-10	3/4 8-10
3/4 8-11	3/4 8-11
3/4 8-12*	3/4 8-12*
3/4 8-13	3/4 8-13
3/4 8-14	3/4 8-14
B 3/4 8-1	B 3/4 8-1
3/4 3-12	3/4 3-12
3/4 3-13	3/4 3-13
Unit 2	
3/4 8-7*	3/4 8-7*
3/4 8-8	3/4 8-8
3/4 8-9	3/4 8-9
3/4 8-10	3/4 8-10
3/4 8-12	3/4 8-12
3/4 8-13	3/4 8-13
B 3/4 8-1	B 3/4 8-1
3/4 3-11	3/4 3-11
3/4 3-12	3/4 3-12

*Included for convenience only; no changes.

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be energized and OPERABLE with tie breakers between bus trains open:

TRAIN AB consisting of 250-volt D.C. bus AB, 250-volt D.C. battery bank No. 1 AB, and a full capacity charger.

TRAIN CD consisting of 250-volt D.C. bus CD, 250-volt D.C. battery bank No. 1 CD, and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION

a. With one 250-volt D.C. bus inoperable, restore the inoperable bus to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one 250-volt D.C. battery and/or its charger inoperable, restore the inoperable battery and/or charger to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized with the breakers open at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.3.2 Each 250-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks,

2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level (fluid at the bottom of the maximum level indication mark), is ≥ 1.200,

3. The pilot cell voltage is ≥ 2.10 volts, and

4. The overall battery voltage is ≥ 250 volts.

b. At least once per 92 days by verifying that:

1. The voltage of each connected cell is ≥ 2.10 volts under float charge and has not decreased more than 0.05 volts from the value observed during the original acceptance test, and

2. The specific gravity, corrected to 77°F and full electrolyte level (fluid at the bottom of the maximum level indication mark), of each connected cell is ≥ 1.200 and has not decreased more than 0.03 from the value observed during the previous test, and

3. The electrolyte level of each connected cell is between the top of the minimum level indication mark and the bottom of the maximum level indication mark.

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material.

3. The battery charger will supply at least 140 amperes at ≥ 250 volts for at least 4 hours.

d. At least once per 18 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status the emergency loads for the times specified in Table 4.8-1A with the battery charger disconnected. The battery terminal voltage shall be maintained ≥ 210 volts throughout the battery service test.

e. At least once per 60 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed in place of the battery service test.

SURVEILLANCE REQUIREMENTS (Continued)

TABLE 4.8-1A
BATTERY EMERGENCY LOADS

AB Battery Loads	Minimum Time
1. Channel III static inverter**	3 hrs
2. Channel IV static inverter**	3 hrs
3. Computer static inverter*	3 hrs
4. Feed pump turbine 1E oil pump	1 hr
5. Control room emergency lighting	8 hrs
6. Main turbine backup oil pump	3 hrs
7. Isolation valve control	8 hrs
8. All control circuits	8 hrs
CD Battery Loads	
1. Channel I static inverter**	3 hrs
2. Channel II static inverter**	3 hrs
3. BOP static inverter*	3 hrs
4. Feed pump turbine 1W oil pump	1 hr
5. Generator seal oil pump	8 hrs
6. Turbine emergency oil pump	3 hrs
7. Isolation valves	8 hrs
8. Annunciators	8 hrs
9. All control circuits	8 hrs

* AC power sources to the inverters shall be turned off at the start of the test and may be turned on at the end of the specified time interval. Inverters may be left in this operating mode for the duration of the discharge test.

**With actual or simulated connected loads added to the battery.

SURVEILLANCE REQUIREMENTS (Continued)

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ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.4 As a minimum, the following D.C. electrical equipment and bus shall be energized and OPERABLE:

1 - 250-volt D.C. bus, and

1 - 250-volt battery bank and charger associated with the above D.C. bus.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above complement of D.C. equipment and bus OPERABLE, establish CONTAINMENT INTEGRITY within 8 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.4.1 The above required 250-volt D.C. bus shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.4.2 The above required 250-volt battery bank and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING - TRAIN N BATTERY SYSTEM

LIMITING CONDITION FOR OPERATION

3.8.2.5 The following D.C. bus train shall be energized and OPERABLE:

TRAIN N consisting of 250-volt D.C. bus N, 250-volt D.C. battery bank No. N, and a full capacity charger.

APPLICABILITY: MODES 1, 2, and 3.

ACTION

With the Train N battery system inoperable, declare the turbine driven Auxiliary Feedwater Pump inoperable and follow the ACTION statement of Specification 3.7.1.2.

SURVEILLANCE REQUIREMENTS

4.8.2.5.1 The D.C. bus train N shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.5.2 The 250-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks,

SURVEILLANCE REQUIREMENTS (Continued)

2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level (fluid at the bottom of the maximum level indication mark), is ≥ 1.200.

3. The pilot cell voltage is ≥ 2.10 volts, and

4. The overall battery voltage is ≥ 250 volts.

b. At least once per 92 days by verifying that:

1. The voltage of each connected cell is ≥ 2.10 volts under float charge and has not decreased more than 0.05 volts from the value observed during the original acceptance test, and

2. The specific gravity, corrected to 77°F and full electrolyte level (fluid at the bottom of the maximum level indication mark), of each connected cell is ≥ 1.200 and has not decreased more than 0.03 from the value observed during the previous test, and

3. The electrolyte level of each connected cell is between the top of the minimum level indication mark and the bottom of the maximum level indication mark.

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material,

3. The battery charger will supply at least 10 amperes at ≥ 250 volts for at least 4 hours.

d. At least once per 18 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status the emergency loads for the times specified in Table 4.8-2 with the battery charger disconnected. The battery terminal voltage shall be maintained ≥ 210 volts throughout the battery service test.

e. At least once per 60 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed in place of the battery service test.

BASES

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

The train N station battery system provides an independent 250 volt DC power supply for power and control of the turbine driven auxiliary feedwater pump train. The limiting conditions of operation for the train N battery are consistent with the requirements of the auxiliary feedwater system. The surveillance requirements for the train N battery system are consistent with the requirements of the AB and CD station batteries. The train N battery loads are derived from equipment in the turbine driven auxiliary feedwater pump train and battery sizing is consistent with the functional requirements of these components. Simulated loads for battery tests are loads equivalent to measured actual loads.

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Manual Reactor Trip				
A. Shunt Trip Function	N.A.	N.A.	S/U(1)	N.A.
B. Undervoltage Trip Function	N.A.	N.A.	S/U(1)	N.A.
2. Power Range, Neutron Flux	S	D(2), M(3) and Q(6)	M	1, 2
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R (6)	M	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A.	R (6)	M	1, 2
5. Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2 and *
6. Source Range, Neutron Flux	S	R(6)	M and S/U(1)	2(7), 3(7), 4 and 5
7. Overtemperature ΔT	S	R	M	1, 2
8. Overpower ΔT	S	R	M	1, 2
9. Pressurizer Pressure--Low	S	R	M	1, 2
10. Pressurizer Pressure--High	S	R	M	1, 2
11. Pressurizer Water Level--High	S	R	M	1, 2
12. Loss of Flow - Single Loop	S	R	M	1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
13. Loss of Flow - Two Loops	S	R	N.A.	1
14. Steam Generator Water Level--Low-Low	S	R	M	1, 2
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	M	1, 2
16. Undervoltage - Reactor Coolant Pumps	N.A.	R	M	1
17. Underfrequency - Reactor Coolant Pumps	N.A.	R	M	1
18. Turbine Trip				
A. Low Fluid Oil Pressure	N.A.	N.A.	S/U(1)	1, 2
B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	1, 2
19. Safety Injection Input from ESF	N.A.	N.A.	M(4)	1, 2
20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R	N.A.
21. Reactor Trip Breaker				
A. Shunt Trip Function	N.A.	N.A.	M(5) and S/U(1)	1, 2*
B. Undervoltage Trip Function	N.A.	N.A.	M(5) and S/U(1)	1, 2*
22. Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2*

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following A.C. electrical busses shall be OPERABLE:

1 - 4160 volt Emergency Bus

1 - 600 volt Emergency Bus

2 - 120 volt A.C. Vital Busses

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above complement of A.C. busses OPERABLE and energized, establish CONTAINMENT INTEGRITY within 8 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The specified A.C. busses shall be determined OPERABLE at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be energized and OPERABLE with tie breakers between bus trains open:

TRAIN AB consisting of 250-volt D.C. bus AB, 250-volt D.C. battery bank No. 2 AB, and a full capacity charger.

TRAIN CD consisting of 250-volt D.C. bus CD, 250-volt D.C. battery bank No. 2 CD, and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION

a. With one 250-volt D.C. bus inoperable, restore the inoperable bus to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one 250-volt D.C. battery and/or its charger inoperable, restore the inoperable battery and/or charger to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized with the breakers open at least once per 7 days by verifying correct breaker alignment and indicated power availability.

4.8.2.3.2 Each 250-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks,

SURVEILLANCE REQUIREMENTS (Continued)

2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level (fluid at the bottom of the maximum level indication mark), is ≥ 1.200.

3. The pilot cell voltage is ≥ 2.10 volts, and

4. The overall battery voltage is ≥ 250 volts.

b. At least once per 92 days by verifying that:

1. The voltage of each connected cell is ≥ 2.10 volts under float charge and has not decreased more than 0.05 volts from the value observed during the original acceptance test, and

2. The specific gravity, corrected to 77°F and full electrolyle level (fluid at the bottom of the maximum level indication mark), of each connected cell is ≥ 1.200 and has not decreased more than 0.03 from the value observed during the previous test, and

3. The electrolyte level of each connected cell is between the top of the minimum level indication mark and the bottom of the maximum level indication mark.

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material,

3. The battery charger will supply at least 140 amperes at ≥ 250 volts for at least 4 hours.

d. At least once per 18 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status the emergency loads for the times specified in Table 4.8-1A with the battery charger disconnected. The battery terminal voltage shall be maintained ≥ 210 volts throughout the battery service test.

e. At least once per 60 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed in place of the battery service test.

TABLE 4.8-1A

BATTERY EMERGENCY LOADS

AB Battery Loads		Minimum Time
1.	Channel III static inverter**	3 hrs
2.	Channel IV static inverter**	3 hrs
3.	Computer static inverter*	3 hrs
4.	BOP static inverter*	3 hrs
5.	Feed pump turbine 2E oil pump	1 hr
6.	Control room emergency lighting	8 hrs
7.	Main turbine oil pump "E"	3 hrs
8.	Isolation valve control	8 hrs
9.	All control circuits	8 hrs

CD Battery Loads		
1.	Channel I static inverter**	3 hrs
2.	Channel II static inverter**	3 hrs
3.	Feed pump turbine 2W oil pump	1 hr
4.	Generator seal oil pump	5 hrs
5.	Main turbine oil pump "W"	3 hrs
6.	Isolation valves	8 hrs
7.	Annunciators	8 hrs
8.	All control circuits	8 hrs

* AC power sources to the inverters shall be turned off at the start of the test and may be turned on at the end of the specified time interval. Inverters may be left in this operating mode for the duration of the discharge test.

**With actual or simulated connected loads added to the battery.

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING - TRAIN N BATTERY SYSTEM

LIMITING CONDITION FOR OPERATION

3.8.2.5 The following D.C. bus train shall be energized and OPERABLE:

TRAIN N consisting of 250 volt D.C. bus N, 250 volt D.C. battery bank No. N and a full capacity charger.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

With the Train N battery system inoperable, declare the turbine driven Auxiliary Feedwater Pump inoperable and follow the ACTION statement of Specification 3.7.1.2.

SURVEILLANCE REQUIREMENTS

4.8.2.5.1 The D.C. bus train N shall be determined OPERABLE and energized at least once per 7 days as verifying correct breaker alignment and indicated power availability.

4.8.2.5.2 The 250 volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks,

SURVEILLANCE REQUIREMENTS (Continued)

2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level (fluid at the bottom of the maximum level indication mark), is ≥ 1.200.

3. The pilot cell voltage is ≥ 2.10 volts, and

4. The overall battery voltage is ≥ 250 volts.

b. At least once per 92 days by verifying that:

1. The voltage of each connected cell is ≥ 2.10 volts under float charge and has not decreased more than 0.05 volts from the value observed during the original acceptance test, and

2. The specific gravity, corrected to 77°F and full electrolyte level (fluid at the bottom of the maximum level indication mark), of each connected cell is ≥ 1.200 and has not decreased more than 0.03 from the value observed during the previous test, and

3. The electrolyte level of each connected cell is between the top of the minimum level indication mark and the bottom of the maximum level indication mark.

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration.

2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material,

3. The battery charger will supply at least 10 amperes at ≥ 250 volts for at least 4 hours.

d. At least once per 18 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status the emergency loads for the times specified in Table 4.8.2 with the battery charger disconnected. The battery terminal voltage shall be maintained ≥ 210 volts throughout the battery service test.

e. At least once per 60 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed in place of the battery service test.

BASES

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

The train N station battery system provides an independent 250 volt DC. power supply for power and control of the turbine driven auxiliary feedwater pump train. The limiting conditions of operation for the train N battery are consistent with the requirements of the auxiliary feedwater system. The surveillance requirements for the train N battery system are consistent with the requirements of the AB and CD station batteries. The train N battery loads are derived from equipment in the turbine-driven auxiliary feedwater pump train and battery sizing is consistent with the functional requirements of these components. Simulated loads for battery tests are loads equivalent to measured actual loads.

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Manual Reactor Trip**				
A. Shunt Trip Function	N.A.	N.A.	S/U(1)	N.A.
B. Undervoltage Trip Function	N.A.	N.A.	S/U(1)	N.A.
2. Power Range, Neutron Flux	S	D(2), M(3) and Q(6)	M	1, 2
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R (6)	M	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A.	R (6)	M	1, 2
5. Intermediate Range, Neutron Flux	S	R(6)	S/U(1)	1, 2 and *
6. Source Range, Neutron Flux	S	R(6)	M and S/U(1)	2(7), 3(7), 4 and
7. Overtemperature Δ T	S	R	M	1, 2
8. Overpower Δ T	S	R	M	1, 2
9. Pressurizer Pressure--Low	S	R	M	1, 2
10. Pressurizer Pressure--High	S	R	M	1, 2
11. Pressurizer Water Level--High	S	R	M	1, 2
12. Loss of Flow - Single Loop	S	R	M	1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
13. Loss of Flow - Two Loops	S	R	N.A.	1
14. Steam Generator Water Level--Low-Low	S	R	M	1, 2
15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S	R	M	1, 2
16. Undervoltage - Reactor Coolant Pumps	N.A.	R	M	1
17. Underfrequency - Reactor Coolant Pumps	N.A.	R	M	1
18. Turbine Trip				
A. Low Fluid Oil Pressure	N.A.	N.A.	S/U(1)	1, 2
B. Turbine Stop Valve Closure	N.A.	N.A.	S/U(1)	1, 2
19. Safety Injection Input from ESF	N.A.	N.A.	M(4)	1, 2
20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R	N.A.
21. Reactor Trip Breaker **				
A. Shunt Trip Function	N.A.	N.A.	M(5) and S/U(1)	1, 2*
B. Undervoltage Trip Function	N.A.	N.A.	M(5) and S/U(1)	1, 2*
22. Automatic Trip Logic	N.A.	N.A.	M(5)	1, 2*

** This surveillance does not become effective until after the 1985 Unit 2 refueling outage.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 86 TO FACILITY OPERATING LICENSE NO. DPR-58

AND AMENDMENT NO. 72 TO FACILITY OPERATING LICENSE NO. DPR-74

INDIANA AND MICHIGAN ELECTRIC COMPANY

DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2

DOCKET NOS. 50-315 AND 50-316

Introduction

By letter dated May 10, 1985, the Indiana and Michigan Electric Company (IMEC) submitted seven changes to the electrical power system technical specifications, and proposed new technical specifications to add requirements for the undervoltage trip attachments and shunt trip attachments for the Donald C. Cook Nuclear Plant, Unit Nos. 1 and 2. The new technical specifications are in partial response to Generic Letter 83-28 item 4.3, Reactor Trip Systems Reliability (Automatic Actuation of the Shunt Trip Attachment for Westinghouse Plants). The staff's safety evaluation of the Westinghouse Owners Group, June 14, 1983 submittal of the generic Westinghouse design identified the following items:

a) Confirmation that shunt trip components have been seismically qualified.

b) Submission of the proposed technical specifications appropriate for this modification.

Our evaluation of the seven changes to the electrical power system section and the addition of requirements for the undervoltage trip attachments and shunt trip attachments (item 8 below); follows.

Evaluation

1. The licensee proposes to add the following qualifiers in the technical specification (T/S) in an effort to make both Units 1 and 2 identical and to be able to identify the required battery bank precisely.

Unit 1: T/S 3.8.2.3 (page 3/4 8-8) and T/S 3.8.2.5 (page 3/4 8-13)

Qualifiers are to be added on the following T/S, so that it would read

1) on T/S 3.8.2.3: change from battery bank AB to battery bank No. 1 AB

2) on T/S 3.8.2.5: change from battery bank N to battery bank No. N

Unit 2: T/S 3.8.2.3 (page 3/4 8-8)

Qualifiers are to be added on T/S 3.8.2.3 so that it would read from battery bank No. 1 to battery bank No. 2 AB and from battery bank No. 2 to battery bank No. 2 CD.

The above changes will help to identify the battery banks within a unit and the proposed change neither affects plant operations nor represents a change in plant safety basis. Therefore, the above proposed T/S change request for Units 1 and 2 is acceptable.

2. To clarify the definition of "cell electrolyte level" to be when the level of the cell is up to the bottom of the maximum level indication mark, the licensee proposes to add a phrase "and full electrolyte level (fluid at the bottom of the maximum level indication mark)" in the following T/S of Units 1 and 2:

Unit 1:	T/S	4.8.2.3.2.a.2	(page 3/4 8-9)
		4.8.2.3.2.b.2	(page 3/4 8-9)
		4.8.2.5.2.a.2	(page 3/4 8-14)
		4.8.2.5.2.b.2	(page 3/4 8-14)
Unit 2	T/S	4.8.2.3.2.a.2	(page 3/4 8-9)
		4.8.2.3.2.b.2	(page 3/4 8-9)
		4.8.2.5.2.a.2	(page 3/4 8-13)
		4.8.2.5.2.b.2	(page 3/4 8-13)

The licensee explains that this change is needed because the maximum level indication mark is approximately as large as the space between the level graduations themselves and this added phrase specifies the exact maximum level. In our review, we determined that 4.8.2.3.2.b.3 should also be clarified as to the level indication marks. The licensee has agreed to these changes. Also, the licensee included a change in the temperature that specific gravity is measured at (or corrected to) from the present 70°F to 77°F in Unit 2 T/S 4.8.2.3.2.b.2. This change was previously approved and the additional change is made as a correction to the previous oversight.

In view of the fact that the subject change involves neither any existing battery parameters nor a significant change in plant safety basis, the above T/S changes are acceptable.

3. The proposed change to Unit 1 T/S 4.8.2.3.2.c.3 has been modified to address the battery charger test, which happens to be a current provision on T/S 4.8.2.3.2.c.4 and proposes to delete the T/S 4.8.2.3.2.c.4, while the existing content of T/S 4.8.2.3.2.c.3 on the battery service test has been moved to T/S 4.8.2.3.2.d. Subsequently, existing T/S 4.8.2.3.2.d

moves to T/S 4.8.2.3.2.e. This proposed realignment was necessary to be consistent with the Unit 2 T/S and the standard T/S format. Therefore, the proposed request of T/S rearrangement is acceptable and these changes should be reflected on No. 4 and No. 5 of the following T/S changes.

4. The proposed change replaces the existing Unit 1 and 2 T/S 4.8.2.5.2.d for battery train N and T/S 4.8.2.3.2.d for battery train AB and CD. It reads

> "d. At least once per 18 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status the emergency loads for the times specified in Table 4.8-1A with the battery charger disconnected. The battery terminal voltage shall be maintained $\geq$ 210 volts throughout the battery service test."

The intent of this request is to clarify the term "shutdown" to mean MODES 5 or 6. Also, the surveillance is properly identified as the battery service test. The request involves no change in battery parameters and conforms with the standard T/S format. Therefore, this request is acceptable.

5. Under the present T/S at least once per 60 months, the discharge test is performed to verify the battery capacity is at least 80% of the manufacturer's rating and, in addition, this discharge test is to be performed subsequent to the satisfactory completion of the required battery service test. This deviates from the standard T/S requirement which eliminates the requirement to do a battery service test if a performance discharge test has been performed. The basis is that the performance discharge test is a more severe test than the service test and adequately demonstrates the capacity and capability of the battery to perform its function. Thus, it is deemed unnecessary to perform the service test at the time when the discharge test is performed. To avoid the unwarranted degradation of the battery due to two successive discharge tests, at every five years when the performance test discharge is performed, the service test is not required. The licensee proposes to replace the existing T/S to read as follows. The changes are applicable to T/S 4.8.2.3.2.e for battery train AB and CB and T/S 4.8.2.5.2.e for battery train N of both Units 1 and 2.

> "e. At least once per 60 months, during shutdown (MODES 5 or 6), by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed in place of the battery service test.

In view of the fact that the proposed change conforms with the standard T/S and makes both unit's T/S identical, the proposed T/S change is acceptable.

6. The licensee proposed to remove the asterisks shown on Table 4.8-1A on page 3/4 8-10 for both units for their two DC load divisions (AB battery loads and CD battery loads). The asterisks are used to indicate that the AC power sources to the inverters should be turned off at the start of the test and turned on at the end of the specified time interval. The licensee stated that the above procedure is no longer applicable as a result of design changes made in the critical reactor instrumentation. (The equipment in question will not have AC power sources.) Thus, the footnote designating when such power sources should be turned on or off is no longer applicable. The proposed request is acceptable. In our review we also determined that the licensee modification might remove some of the loads during test. In discussions with the licensee it was agreed that a footnote would be added to table 4.8-1A indicating that the channel static inverters would be replaced during tests with actual or simulated connected loads. We find this acceptable.

7. The licensee proposed to delete the reference to tie breakers between bus trains (i.e., AB or CD) being open from Unit 1 and 2 T/S 3.8.2.5 and 4.8.2.5.1 and to delete the sentence "standby circuits provide the capability to connect the train N battery system to the AB or CD station battery trains," from both the Unit 1 and Unit 2 bases, page B 3/4 8-1.

The licensee explained that the standby circuits were disconnected because mechanical interlocks could not be provided for the manually operated switches whereby the reference to them should be removed from the T/S and the bases. However, by letter dated June 20, 1985, the licensee informed us that the interlocking capability for the battery chargers will remain intact so that there will not be any incident wherein both trains could be connected at the same time. We find the proposed T/S change acceptable.

8. The licensee has not responded whether the shunt trip components have been seismically qualified. The licensee has agreed to confirm this in their response to Generic Letter 85-09. The licensee proposed a revision to the technical specifications Table 4.3-1, "Reactor Trip System Instrumentation Surveillance Requirements". The staff has found that the proposed Technical Specifications address independent testing of the undervoltage and the shunt trip attachments during power operation for reactor trip breakers only and independent testing of the control room manual switch contacts during each refueling outage. The proposed Technical Specifications do not address independent testing of the undervoltage and shunt trip attachments during power operation for reactor trip bypass breakers. The tests are necessary to ensure reliable reactor trip breaker operation. Generic Letter 85-09 which was sent to the licensee on May 23, 1985, provided the additional guidance. Since Generic Letter 85-09 was sent to the licensee after the licensee had proposed this amendment, the licensee has agreed to comply with the requirements of Generic Letter 85-09 regarding the surveillance requirements of reactor trip bypass breakers.

The staff has reviewed the licensee's submittal of May 10, 1985 and concludes that the proposed technical specifications address independent

testing of the undervoltage and shunt trip attachments during power operation for reactor trip breakers and independent testing of the control room manual switch contacts during each refueling outage and are, therefore, acceptable. However, the licensee should submit proposed technical specifications for independent testing of the undervoltage and shunt trip attachments during power operation for bypass breakers as outlined in Generic Letter 85-09.

Environmental Consideration

These amendments involve a change in the installation or use of the facilities' components located within the restricted areas as defined in 10 CFR 20. The staff has determined that these 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 issued 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 Sec 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

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

Dated: August 5, 1985

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