



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

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 223  
License No. DPR-38

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 1 (the facility) Facility Operating License No. DPR-38 filed by the Duke Power Company (the licensee) dated February 5, 1997, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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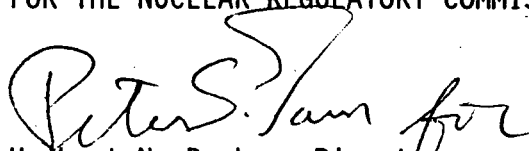
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Facility Operating License No. DPR-38 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 223, 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 its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: March 31, 1997



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

DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 223  
License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 2 (the facility) Facility Operating License No. DPR-47 filed by the Duke Power Company (the licensee) dated February 5, 1997, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;
  - 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 hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Facility Operating License No. DPR-47 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 223, 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 its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: March 31, 1997



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

DUKE POWER COMPANY

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 220  
License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 3 (the facility) Facility Operating License No. DPR-55 filed by the Duke Power Company (the licensee) dated February 5, 1997, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;
  - 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 hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Facility Operating License No. DPR-55 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 220, 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 its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: March 31, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 223

FACILITY OPERATING LICENSE NO. DPR-38

DOCKET NO. 50-269

AND

TO LICENSE AMENDMENT NO. 223

FACILITY OPERATING LICENSE NO. DPR-47

DOCKET NO. 50-270

AND

TO LICENSE AMENDMENT NO. 220

FACILITY OPERATING LICENSE NO. DPR-55

DOCKET NO. 50-287

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change.

Remove Pages

3.1-20  
3.5-1  
3.5-2  
3.5-4  
3.5-5c  
-----  
3.5-45  
3.5-46  
-----  
4.1-3

Insert Pages

3.1.20  
3.5-1  
3.5-2  
3.5-4  
3.5-5c  
3.5-5d  
3.5-45  
3.5-46  
3.5-47  
4.1-3

### 3.1.9 Low Power Physics Testing Restrictions

#### Specification

The following special limitations are placed on low power physics testing.

#### 3.1.9.1 Reactor Protective System Requirements

- a. Below 1720 psig shutdown bypass trip setting limits shall apply in accordance with Table 2.3-1.
- b. Above 1800 psig nuclear overpower trip shall be set at less than 5.0 percent. Other settings shall be in accordance with Table 2.3-1.

3.1.9.2 Startup rate rod withdrawal hold shall be in effect at all times. This applies to the wide range.

3.1.9.3 Shutdown margin may not be reduced below  $1.0\% \Delta k/k$  as required by Specification 3.5.2.1 with the exception that the stuck rod worth criterion does not apply during rod worth measurements.

#### Bases

Technical Specification 3.1.9.2 will apply to the wide range.

The above specification provides additional safety margins during low power physics testing.



## Bases

Every reasonable effort will be made to maintain all safety instrumentation in operation. A startup is not permitted unless three power range neutron instrument channels and three channels each of the following are operable: reactor coolant temperature, reactor coolant pressure, pressure-temperature, flux-imbalance flow, power-number of pumps, and high reactor building pressure. The engineered safety features actuation system must have three analog channels and two digital channels functioning correctly prior to a startup. Additional operability requirements are provided by Technical Specifications 3.1.12 and 3.4 for equipment which is not part of the RPS or ESFAS.

Operation at rated power is permitted as long as the systems have at least the minimum number of operable channels given in Column C (Table 3.5.1-1). This is in agreement with redundancy and single failure criteria of IEEE-279 as described in FSAR Section 7.

There are four reactor protective channels. A fifth channel that is isolated from the reactor protective system is provided as a part of the reactor control system. Normal trip logic is two out of four. The minimum number of operable channels required is three. While a bypassed channel is considered inoperable, a channel placed in the tripped condition is considered operable. Thus, only one channel may be placed in bypass at any one time in order to maintain the minimum number of required channels. This results in a trip logic of two out of three. It should be noted that an effective trip logic of one out of two can be achieved by placing one channel in bypass and one channel in the tripped condition.

The four reactor protective channels are provided with key operated bypass switches to allow on-line testing or maintenance on only one channel at a time during power operation. Each channel is provided alarm and lights to indicate when that channel is bypassed. There will be one reactor protective system bypass switch key permitted in the control room. That key will be under the administrative control of the Shift Supervisor. Spare keys will be maintained in a locked storage accessible only to the Station Manager.

Each reactor protective channel key operated shutdown bypass switch is provided with alarm and lights to indicate when the shutdown bypass switch is being used. There are four shutdown bypass keys in the control room under the administrative control of the Shift Supervisor. The use of a key operated shutdown bypass switch for on-line testing or maintenance during reactor power operation has no significance when used in conjunction with a key operated channel bypass switch since the channel trip relay is locked in the untripped state. The use of a key operated shutdown bypass switch alone during power operation will cause the channel to trip. When the shutdown bypass switch is operated for on-line testing or maintenance during reactor power operation, reactor power and RCS pressure limits as specified in Table 2.3-1 are not applicable.

Overlap between the the Source Range and Wide Range verifies proper instrument operation prior to dependency on that instrument.

Power is normally supplied to the control rod drive mechanisms from two separate parallel 600 volt sources. Each voltage source and its associated breakers and SCR control relays comprise a trip system. Thus, the two trip systems and their associated trip devices form a 1-out-of-2 logic used twice which is referred to as a 1-out-of-2x2 logic.

TABLE 3.5.1-1  
INSTRUMENTS OPERATING CONDITIONS

<u>FUNCTIONAL UNIT</u>	(A) <u>TOTAL NO. OF CHANNELS</u>	(B) <u>CHANNELS TO TRIP</u>	(C) <u>MINIMUM CHANNELS OPERABLE</u>	(D) <u>Operator Action If Conditions of Column C Cannot Be Met</u>
1. Nuclear Instrumentation Wide Range Channels	4	NA	2	Bring to hot shutdown within 12 hours (b)
2. Nuclear Instrumentation Source Range Channels	4	NA	2	Bring to hot shutdown within 12 hours (b) (c)
3. RPS Manual Pushbutton	1	1	1	Bring to hot shutdown within 12 hours
4. RPS Power Range Instrument Channels	4	2	3(a)	Bring to hot shutdown within 12 hours
5. RPS Reactor Coolant Temperature Instrument Channels	4	2	3(a)	Bring to hot shutdown within 12 hours
6. RPS Pressure-Temperature Instrument Channels	4	2	3(a)	Bring to hot shutdown within 12 hours
7. RPS Flux Imbalance Flow Instrument Channels	4	2	3(a)	Bring to hot shutdown within 12 hours
8. RPS Reactor Coolant Pressure a. High Reactor Coolant Pressure Instrument Channels	4	2	3(a)	Bring to hot shutdown within 12 hours
b. Low Reactor Coolant Pressure Channels	4	2	3(a)	Bring to hot shutdown within 12 hours
9. RPS Power-Number of Pumps Instrument Channels	4	2	3(a)	Bring to hot shutdown within 12 hours (h)

TABLE 3.5.1-1

INSTRUMENTS OPERATING CONDITIONS (cont'd)

NOTES:

- (a) For channel testing, calibration, or maintenance, the minimum of three operable channels may be maintained by placing one channel in bypass and one channel in the tripped condition, leaving an effective one out of two trip logic.
- (b) When 2 of 4 power range instrument channels are greater than 10% rated power, hot shutdown is not required.
- (c) When 2 of 4 wide range instrument channels are greater than  $4 \times 10^{-4}$  % rated power, hot shutdown is not required.
- (d) (Deleted)
- (e) If minimum conditions are not met within 48 hours after hot shutdown, the unit shall be in the cold shutdown within 24 hours.
- (f)
  - 1. Place the inoperable Reactor Trip Module output in the tripped condition within one hour or
  - 2. Remove the power supplied to the control rod trip devices associated with the inoperable Reactor Trip Module within one hour.
- (g) (Deleted)
- (h) The RCP monitors provide inputs to this logic. For operability to be met either all RCP monitor channels must be operable or 3 operable with the remaining channel in the tripped state.
- (i)
  - 1. The power supplied to the control rod drive mechanisms through the failed CRD Trip Breaker shall be removed within one hour or
  - 2. With one of the CRD Trip Breaker diverse features (undervoltage or shunt trip device) inoperable, restore it to OPERABLE status in 48 hours or place the breaker in trip in the next hour.

TABLE 3.5.1-1

INSTRUMENTS OPERATING CONDITIONS (cont'd)

NOTES:

- (j)
1. With one SCR Control Relay inoperable in logic channel C or D, restore the inoperable SCR Control Relay to OPERABLE status in 48 hours or remove power from the CRD mechanisms supplied by the inoperable channel's SCR Control Relay within the next hour.
  2. With two or more SCR Control Relays inoperable in logic channel C or D, remove power from the CRD mechanisms supplied by the inoperable channel's SCR Control Relay within one hour.

## 3.5 INSTRUMENTATION SYSTEMS

### 3.5.1 Operation Safety Instrumentation

#### Applicability

Applies to unit instrumentation and control systems.

#### Objective

To delineate the conditions of the unit instrumentation and safety circuits necessary to assure reactor safety.

#### Specifications

- 3.5.1.1 The reactor shall not be in a startup mode or in a critical state unless the requirements of Table 3.5.1-1, Column C are met.
- 3.5.1.2 In the event that the number of protective channels operable falls below the limit given under Table 3.5.1-1, Column C; operation shall be limited as specified in Column D.
- 3.5.1.3 For on-line testing or in the event of a protective instrument or channel failure, a key-operated channel bypass switch associated with each reactor protective channel may be used to lock the channel trip relay in the untripped state. Status of the untripped state shall be indicated by a light. Only one channel bypass key shall be accessible for use in the control room. Only one channel shall be locked in this untripped state or contain a dummy bistable at any one time.
- 3.5.1.4 For on-line testing or maintenance during reactor power operation, a key-operated shutdown bypass switch associated with each reactor protective channel may be used in conjunction with a key-operated channel bypass switch as limited by 3.5.1.3. Status of the shutdown bypass switch shall be indicated by a light.
- 3.5.1.5 During startup when the wide range instruments come on scale, the overlap between the wide range and the source range instrumentation shall not be less than one decade. If the overlap is less than one decade, the flux level shall not be greater than that readable on the source range instruments until the one decade overlap is achieved.

**Table 3.5.6-1  
 ACCIDENT MONITORING INSTRUMENTATION**

	<u>Instrument</u>	(A) Required Operable Channels	(B) Action	(C) Applicability
1.	Containment Pressure Monitor (PT-230, -231)	2 of 2	1	Above hot shutdown
2.	Containment Water Level Monitor Wide Range (LT-90, -91)	2 of 2	2	Above hot shutdown
3.	Containment High-Range Radiation Monitor (RIA-57, -58)	2 of 2	2	Above hot shutdown
4.	Containment Hydrogen Monitor (MT-80, -81)	2 of 2	2	Above hot shutdown
5.	Wide Range Hot Leg Level (RC-LT0123, RC-LT0124)	2 of 2	3	Above hot shutdown
6.	Reactor Vessel Head Level (RC-LT0125, RC-LT0126)	2 of 2	3	Above hot shutdown
7.	Qualified Core Exit Thermocouple Trains	2 of 2 (a)	2	Above hot shutdown
8.	Subcooling Monitors	2 (b)	4	When RCS temperature is > 300°F
9.	Wide Range Nuclear Instrumentation	2 of 4	5	Above hot shutdown

Table 3.5.6-1 (CONTINUED)  
ACCIDENT MONITORING INSTRUMENTATION

ACTIONS

- Action 1:** If one channel is inoperable, the channel shall be restored to operable status within 7 days, or the unit shall be in hot shutdown within the next 12 hours.
- If two channels are inoperable, at least one channel shall be restored to operable status within 48 hours, or the unit shall be in hot shutdown within the next 12 hours.
- Action 2:** If one channel is inoperable, the channel shall be restored to operable status within 30 days, or the unit shall be in hot shutdown within the next 12 hours.
- If two channels are inoperable, at least one channel shall be restored to operable status within 48 hours, or the unit shall be in hot shutdown within the next 12 hours.
- Action 3:** If one channel is inoperable, the channel shall be restored to operable status within 7 days, or a report shall be submitted to the Commission within the next 30 days outlining the cause of the inoperability and the plans and schedule for restoring the channel to operable status.
- If two channels are inoperable, at least one channel shall be restored to operable status within 7 days, or the unit shall be in hot shutdown within the next 12 hours.
- Action 4:** If one of the required channels is inoperable, at least one channel shall be restored to operable status within 30 days or the unit shall be in hot shutdown within the next 12 hours and below 300°F within the next 24 hours.
- If two of the required channels are inoperable, at least one channel shall be restored to operable status within 48 hours or the unit shall be in hot shutdown within the next 12 hours and below 300°F within the next 24 hours.

Table 3.5.6-1 (CONTINUED)  
ACCIDENT MONITORING INSTRUMENTATION

Action 5: If 3 channels are inoperable, at least one of the inoperable channels shall be restored to operable status within 30 days, or a report shall be submitted to the NRC within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause for the inoperability, and the plans and schedule for restoring the instrumentation channel to operable status.

If 4 channels are inoperable, at least one channel shall be restored to operable status within 7 days or the unit shall be placed in hot shutdown within an additional 12 hours

NOTES

- (a) 5 of 12 qualified core exit thermocouples must be operable per train for a train to be considered operable
- (b) Operable subcooling margin monitors must consist of:
  - 1) One direct indication for 1 of 2 RCS hot legs and one direct indication for the core; or
  - 2) One direct indication for each RCS hot leg.



Table 4.1-1  
INSTRUMENT SURVEILLANCE REQUIREMENTS

<u>Channel Description</u>	<u>Check</u>	<u>Test</u>	<u>Calibrate</u>		<u>Remarks</u>
1. Protective Channel Coincidence Logic in the Reactor Trip Modules	NA	MO	NA		
2. Control Rod Drive Trip Breaker, SCR Control Relays E and F	NA	MO(1)	NA	(1)	This test shall independently confirm the operability of the shunt trip device and the undervoltage device.
3. Power Range Amplifier	ES(1)	NA	(1)	(1)	Heat balance check each shift. Heat balance calibration whenever indicated core thermal power exceeds neutron power by more than 2 percent.
4. Power Range	ES	45 Days STB	MO(1)(2)	(1) (2)	Using incore instrumentation. Axial offset upper and lower chambers after each startup if not done previous week.
5. Wide Range	ES(1)	PS	NA	(1)	When in service.
6. Source Range	ES(1)	PS	NA	(1)	When in service.
7. Reactor Coolant Temperature	ES	45 Days STB	RF		
8. High Reactor Coolant Pressure	ES	45 Days STB	RF		
9. Low Reactor Coolant Pressure	ES	45 Days STB	RF		
10. Flux-Reactor Coolant Flow Comparator	ES	45 Days STB	RF		
11. Reactor Coolant Pressure Temperature Comparator	ES	45 Days STB	RF		