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

YANKEE ATOMIC ELECTRIC COMPANY

DOCKET NO. 50-29

YANKEE NUCLEAR POWER STATION (YANKEE-ROWE)

AMENDMENT TO FACILITY OPERATION LICENSE

Amendment No. 53
License No. DPR-3

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Yankee Atomic Electric Company (the licensee) dated December 14, 1977 (Proposed Change No. 155), as supplemented by letters dated April 6, 1978, May 11, 1978, June 15, 1978, and October 4, 1978, 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;

   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-3 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 53 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 24, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 53

FACILITY OPERATING LICENSE NO. DPR-3

DOCKET NO. 50-29

Revise Appendix A Technical Specifications by removing the following pages and inserting the enclosed pages. The revised pages contain the captioned amendment number and vertical lines indicating the area of change. Overleaf pages are included for document completeness.

REMOVE	INSERT
3/4 2-2	3/4 2-2
3/4 2-3	3/4 2-3
3/4 2-9	3/4 2-9
3/4 2-11	3/4 2-11
3/4 3-23	3/4 3-23

3/4.2 POWER DISTRIBUTION LIMITS

PEAK LINEAR HEAT GENERATION RATE

LIMITING CONDITION FOR OPERATION

3.2.1 The peak linear heat generation rate (LHGR) shall not exceed the limits of Figure 3.2-1 during steady state operation in Cycle XIII.*

APPLICABILITY: MODE 1

ACTION:

With the peak LHGR exceeding the limits of Figure 3.2-1;

a. Within 15 minutes reduce THERMAL POWER to not more than that fraction of the THERMAL POWER allowable for the main coolant pump combination in operation, as expressed below:

$$\text{Fraction of THERMAL POWER} = \frac{\text{Limiting LHGR}}{\text{Peak Full Power LHGR}}$$

b. Within 4 hours reduce the Power Range and Intermediate Power Range Neutron Flux high trip setpoint to $\leq$ 108% of the fraction of THERMAL POWER allowable for the main coolant pump combination.

SURVEILLANCE REQUIREMENTS

4.2.1.1 The peak LHGR shall be determined to be within the limits of Figure 3.2-1 using incore instrumentation to obtain a power distribution map:

a. Prior to initial operation above 75% of RATED THERMAL POWER after each fuel loading, and

b. At least once per 1,000 EFPH.

c. The provisions of Specification 4.0.4 are not applicable.

*Operation in the 3-Loop mode is not permitted until appropriate LOCA analyses for this mode have been approved by the NRC.

SURVEILLANCE REQUIREMENTS (Continued)

4.2.1.2 The below factors shall be included in the calculation of peak full power LHGR:

a. Heat flux power peaking factor, F_q^N, measured using incore instrumentation at a power $\geq$ 10%.

b. Effect of inserting the control group from its position at the time of measurement to its insertion limit, F_I, as shown in Figure 3.2-2. The rod insertion limit is shown in Figure 3.1-1.

c. The multiplier for xenon redistribution is a function of core lifetime as given in Figure 3.2-3. In addition, if control rod Group C is inserted below 75 inches, allowable power may not be regained until power has been at a reduced level defined below for at least twenty four hours with control rod Group C between 75 and 90 inches.

Reduced power = allowable fraction of full power times multiplier given in Figure 3.2-4.

Exceptions: 1. If the rods are inserted below 75 inches and power does not go below the reduced power calculated above, hold at the lowest attained power level for at least twenty four hours with control rod Group C between 75 and 90 inches before returning to allowable power.

2. If the rods are inserted below 75 inches and zero power is held for more than 48 hours, no reduced power level need be held on the way to the allowable fraction of full power.

d. Shortened stack height factor, 1.009.

e. Measurement uncertainty:

1. 1.05, when at least 17 incore detection system neutron detector thimbles are OPERABLE, or

2. 1.068, when less than 17 incore detection system neutron detector thimbles are OPERABLE.

SURVEILLANCE REQUIREMENTS (Continued)

f. Power level uncertainty, 1.03.

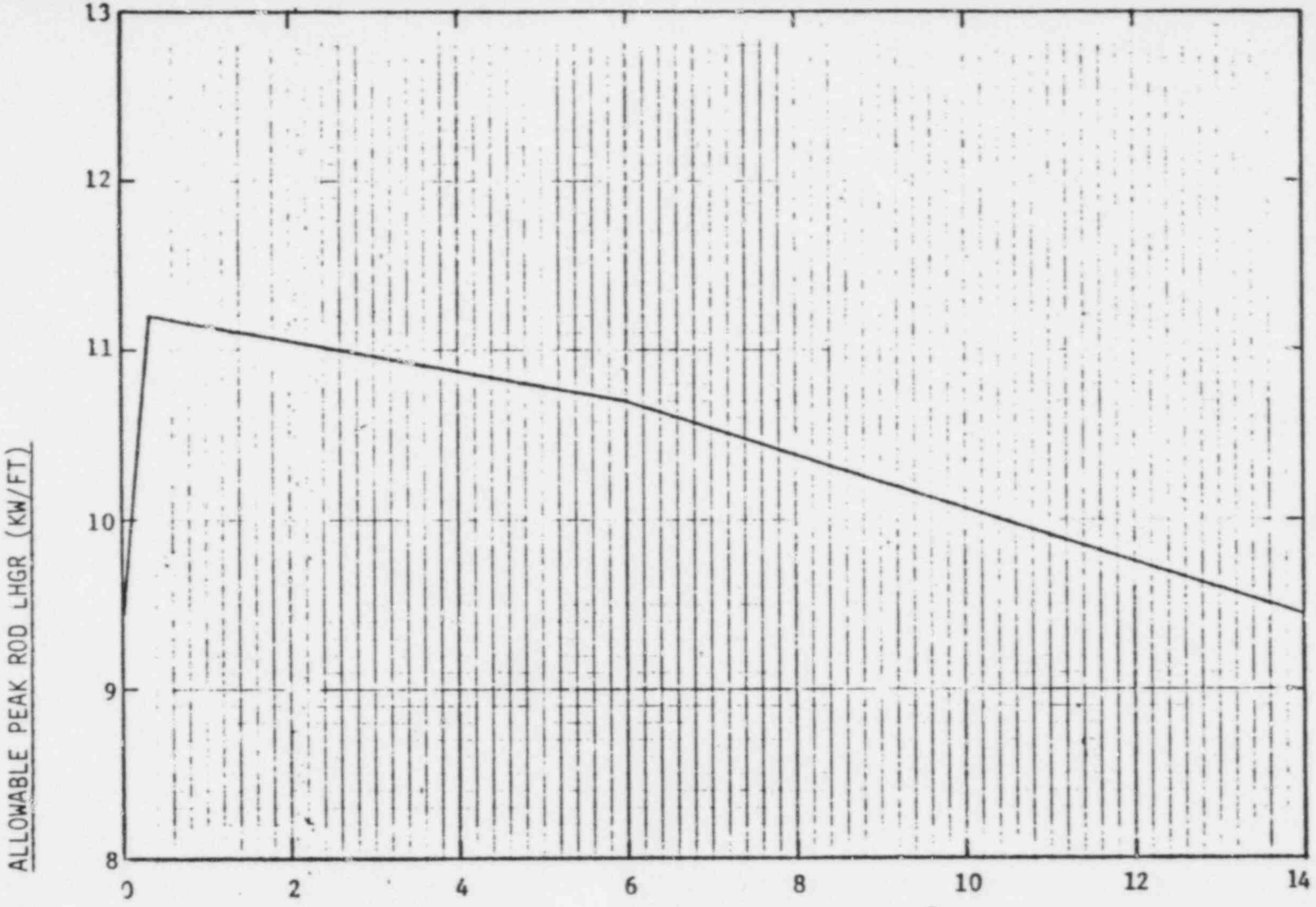
g. Heat flux engineering factor, F_q^E, 1.04.

h. Core average linear heat generation rate at full power, 4.40 kw/ft.

4.2.1.3 At least once per 1000 EFPH the following limits shall be determined by calculation not to be exceeded at RATED THERMAL POWER:

a. Hottest channel exit coolant temperature $\leq$ 602°F, and

b. Maximum clad surface temperature in hottest channel $\leq$ 637°F.



CORE XIII ALLOWABLE PEAK ROD LHGR VERSUS CYCLE BURNUP

Figure 3.2.1

SURVEILLANCE REQUIREMENTS

4.2.2.1 F_q shall be determined to be within its limit by:

a. Using the movable incore detectors to obtain a power distribution map:

1. Prior to initial operation above 75% of RATED THERMAL POWER after each fuel loading, and

2. At least once per 1000 Effective Full Power Hours.

b. Increasing the measured F_q component of the power distribution map by:

1. 4% to account for engineering tolerances,

2. 5%, when at least 17 incore detection system neutron detector thimbles are OPERABLE, to account for measurement uncertainty,

3. 6.8%, when less than 17 incore detection system neutron detector thimbles are OPERABLE, to account for measurement uncertainty, and

4. 3% to account for fuel densification.

4.2.2.2 When F_q is measured pursuant to Specification 4.10.2.2, an overall measured F_q shall be obtained from a power distribution map and increased by:

1. 4% to account for engineering tolerances,

2. 5%, when at least 17 incore detection system neutron detector thimbles are OPERABLE, to account for measurement uncertainty,

3. 6.8%, when less than 17 incore detection system neutron detector thimbles are OPERABLE, to account for measurement uncertainty, and

4. 3% to account for fuel densification.

4.2.2.3 The provisions of Specification 4.0.4 are not applicable.

POWER DISTRIBUTION LIMITS

NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR - $F^N_{\Delta H}$

LIMITING CONDITION FOR OPERATION

3.2.3 $F^N_{\Delta H}$ shall be limited by the following relationship:

$$F^N_{\Delta H} \leq 1.80 \left[1.0 + 0.2 (1-P)\right]$$

where $P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$, and

APPLICABILITY: MODE 1

ACTION:

With $F^N_{\Delta H}$ exceeding its limit:

a. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 2 hours and reduce the Power Range and Intermediate Power Range Neutron Flux-high trip setpoints to $\leq$ 55% of RATED THERMAL POWER within the next 4 hours,

b. Demonstrate through in-core mapping that $F^N_{\Delta H}$ is within its limit within 24 hours after exceeding the limit or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 2 hours, and

c. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER above the reduced limit required by a or b, above; subsequent POWER OPERATION may proceed provided that $F^N_{\Delta H}$ is demonstrated through in-core mapping to be within its limit at a nominal 50% of RATED THERMAL POWER prior to exceeding this THERMAL POWER, at a nominal 75% of RATED THERMAL POWER prior to exceeding this THERMAL power and within 24 hours after attaining 95% or greater RATED THERMAL POWER.

SURVEILLANCE REQUIREMENTS

4.2.3.1 $F^N_{\Delta H}$ shall be determined to be within its limit by using the movable incore detectors to obtain a power distribution map:

a. Prior to operation above 75% of RATED THERMAL POWER after each fuel loading, and

b. At least once per 1000 Effective Full Power Hours.

c. The provisions of Specification 4.0.4 are not applicable.

4.2.3.2 The measured $F^N_{\Delta H}$ of 4.2.3.1 above shall be increased, for measurement uncertainty, by:

a. 5%, when at least 17 incore detection system neutron detector thimbles are OPERABLE, or

b. 6.8%, when less than 17 incore detection system neutron detector thimbles are OPERABLE.

POWER DISTRIBUTION LIMITS

DNB PARAMETERS

LIMITING CONDITION FOR OPERATION

3.2.4 The following DNB related parameters shall be maintained within the limits shown on Table 3.2-1:

a. Main Coolant System Inlet Temperature.

b. Main Coolant System Pressure

c. Main Coolant System Total Flow Rate

APPLICABILITY: MODE 1

ACTION:

With any of the above parameters exceeding its limit, restore the parameter to within its limit within 2 hours or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.4.1 Each of the parameters of Table 3.2-1 shall be verified to be within their limits at least once per 12 hours.

4.2.4.2 The Main Coolant System total flow rate shall be determined to be within its limit by measurement at least once per 18 months.

INSTRUMENTATION

INCORE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.3.2 The incore detection system shall be OPERABLE with:

a. At least twelve neutron detector thimbles OPERABLE,

b. A minimum of 2 OPERABLE neutron detector thimbles per core quadrant, and

c. Sufficient OPERABLE movable neutron detectors, drive, and readout equipment to map these thimbles.

d. At least ten OPERABLE radial position thermocouples with an OPERABLE thermocouple in at least one of the two calculated hottest instrumented fuel assemblies.

APPLICABILITY: When the incore detection system is used for core power distribution measurements.

ACTION:

With the incore detection system inoperable, do not use the system for the above applicable monitoring or calibration functions. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.2 The incore neutron detectors shall be demonstrated OPERABLE by normalizing each detector output to be used within 24 hours prior to its use for core power distribution measurements.

INSTRUMENTATION

METEOROLOGICAL INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.3 The meteorological monitoring instrumentation channels shown in Table 3.3-5 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

With one or more required meteorological monitoring channels inoperable for more than 7 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.6 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.3 Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-4.