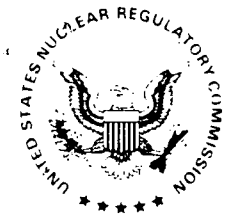


UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 204
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 July 14, 1993, as supplemented August 24 and September 22, 1993, 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-38 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 204 , 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

Loren R. Plisco, Acting Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: January 25, 1994

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. 204
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 July 14, 1993, as supplemented August 24 and September 22, 1993, 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. 204 , 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

Loren R. Plisco

Loren R. Plisco, Acting Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: January 25, 1994

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. 201
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 July 14, 1993, as supplemented August 24 and September 22, 1993, 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. 201 , 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

Loren R. Plisco, Acting Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: January 25, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 204

FACILITY OPERATING LICENSE NO. DPR-38

DOCKET NO. 50-269

AND

TO LICENSE AMENDMENT NO. 204

FACILITY OPERATING LICENSE NO. DPR-47

DOCKET NO. 50-270

AND

TO LICENSE AMENDMENT NO. 201

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	Insert Pages
3.1-3a	3.1-3a
3.1-3b	3.1-3b
3.1-4	3.1-4
3.1-4a	3.1-4a
3.1-4b	3.1-4b
3.1-6	3.1-6
3.1-6a	3.1-6a
3.1-6b	3.1-6b
3.1-7	3.1-7
3.1-7a	3.1-7a
3.1-7b	3.1-7b
3.1-7c	3.1-7c
3.1-7d	3.1-7d
3.1-7e	3.1-7e

3.1.2.7 Not used

3.1.2.8 Not used

3.1.2.9 1. The requirements of 2 below shall be met when both of the following conditions apply:

a) The temperature of one or more of the RCS cold legs is ≤ 325°F, and

b) An RCS vent path capable of mitigating the most limiting LTOP event is not open.

2. a) Two trains of the low temperature overpressure protection (LTOP) system shall be operable,

b) HPI train A and B shall be deactivated, and

c) Both core flood tanks shall be deactivated.

3. One LTOP train is comprised of the PORV with a lift setting of ≤ 480 psig.

a) The PORV is not required to be operable when no HPI pumps are running and RCS pressure is < 100 psig.

4. The second LTOP train is comprised of the controls which assure that 10 minutes are available for operator action to mitigate an LTOP event. The following controls comprise the second LTOP train:

a) RCS pressure is limited to ≤ 345 psig for an RCS temperature < 220°F.

b) Pressurizer level shall be controlled such that 10 minutes are available for operator action to mitigate an LTOP event.

c) Makeup flow shall be restricted such that 10 minutes are available for operator action to mitigate an LTOP event.

d) Alarms shall be provided such that 10 minutes are available for operator action to mitigate an LTOP event.

e) The high pressure nitrogen system shall be controlled such that 10 minutes are available for operator action to mitigate an LTOP event.

5. a. If one or more HPI trains or CFTs are not deactivated, the HPI trains and CFTs shall be deactivated immediately.

b. If the PORV is inoperable, the PORV shall be returned to operable status or the RCS shall be heated above 325°F within 24 hours, or within 36 hours the RCS shall be depressurized to < 100 psig and HPI shall be removed from service.

c. If the second LTOP train is inoperable, the second train shall be restored to operable status or compensatory measures shall be provided to monitor for initiation of an LTOP event within 4 hours, or within 16 hours the RCS shall be depressurized and a vent path capable of mitigating the most limiting LTOP event shall be opened.

Bases - Units 1, 2 and 3

All components in the Reactor Coolant System are designed to withstand the effects of cyclic loads due to system temperature and pressure changes. These cyclic loads are introduced by normal load transients, reactor trips, startup and shutdown operations, and inservice leak and hydrostatic tests. The various categories of load cycles used for design purposes are provided in Table 5.2-1 of the FSAR.

The major components of the reactor coolant pressure boundary have been analyzed in accordance with Appendix G to 10 CFR 50. Results of this analysis, including the actual pressure-temperature limitations of the reactor coolant pressure boundary, are given in BAW-1699 and BAW-1697.

The Figures specified in 3.1.2-1, 3.1.2-2 and 3.1.2-3 present the pressure-temperature limit curves for normal heatup, normal cooldown and hydrostatic tests respectively. The limit curves are applicable up to the indicated effective full power years of operation. These curves will be adjusted to include possible errors in the pressure and temperature sensing instruments. The pressure limit is also adjusted for the pressure differential between the point of system pressure measurement and the limiting component for all operating reactor coolant pump combinations.

The cooldown limit curves are not applicable to conditions of off-normal operation (e.g., small LOCA and extended loss of feedwater) where cooling is achieved for extended periods of time by circulating water from the HPI through the core. If core cooling is restricted to meet the cooldown limits under other than normal operation, core integrity could be jeopardized.

The pressure-temperature limit lines shown on the figures specified in 3.1.2-1 for reactor criticality and on the figures referred to in 3.1.2-3 for hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50 for reactor criticality and for inservice hydrostatic testing.

The limitations on steam generator pressure and temperature provide protection against nonductile failure of the secondary side of the steam generator. At metal temperatures lower than the RT_{NDT} of +60°F, the protection against nonductile failure is achieved by limiting the secondary coolant pressure to 20 percent of the preoperational system hydrostatic test pressure.

The limitations of 110°F and 237 psig are based on the highest estimated RT_{NDT} of +40°F and the preoperational system hydrostatic test pressure of 1312 psig. The average metal temperature is assumed to be equal to or greater than the coolant temperature. The limitations include margins of 25 psi and 10°F for possible instrument error.

The requirements to perform leakage tests of systems outside of containment which could potentially contain radioactivity were established by the NRC following TMI. Oconee performs the leak test of LPI by establishing RCS pressure at about 300 psig and with LPI at this same pressure, checking for leakage. Such a test is within the scope of testing upon which the curves referenced in Specification 3.1.2.2 are based--that is, they are not routine evolutions, such as heatup and cooldown, but rather infrequent leak tests conducted on a refueling outage basis. As such, the hydrostatic/leak test pressure-temperature limitations are applicable for the RCS when performing leak tests of the LPI system.

The spray temperature difference is imposed to maintain the thermal stresses at the pressurized spray line nozzle below the design limit.

The reactor vessel is protected against damage due to excessive pressures at low temperatures by the Low Temperature Overpressure Protection (LTOP) System. LTOP vulnerability is assumed when RCS cold leg temperature is ≤ 325°F and a RCS vent path is not capable of mitigating the most limiting LTOP event . The LTOP enable temperature of 325°F is based on RT_{NDT} + 90°, with additional margin.

The LTOP System consists of two trains. One train is the pressurizer PORV calibrated to a low setpoint of less than or equal to 480 psig. The PORV block valve must be open, both trains of HPI must be deactivated, and both CFTs must be deactivated for the PORV to be operable. The capacity of the pressurizer PORV is sufficient to maintain the RCS pressure below the appropriate brittle fracture pressure limits during LTOP events in which boiling does not occur in the core. PORV operability is not required when RCS pressure is < 100 psig and HPI pumps are not operating since credible LTOP events progress relatively slowly, thus giving the operator ample time to respond. In addition, the PORV cannot be tested until there is sufficient RCS pressure. The remaining train is operator action and is based on an operating philosophy that precludes the plant from being in a water solid condition (except for system hydrotests). The fact that the Oconee units are operated with a steam or gas space in the pressurizer allows sufficient time for operator action to terminate an LTOP event prior to exceeding the appropriate brittle fracture pressure limits. Assuming an LTOP event was to occur at Oconee, and a single failure disables either train, the remaining train must be capable of maintaining RCS pressure below the appropriate brittle fracture pressure limits.

The Oconee LTOP System provides protection from pressure transients at low temperatures, by limiting the pressure of such a transient to below the limits set by 10CFR 50 Appendix G utilizing a conservative safety factor of 1.5. In addition, the following conditions are imposed by the NRC for the evaluation of the

acceptability of LTOP Systems:

a. The most limiting initial conditions must be used.
b. The most limiting single failure, distinct from the initiating event, must be used.
c. No credit can be taken for mitigative operator action until 10 minutes after the operators become aware that a pressure transient is in progress.

For the Oconee units, the most limiting single failure is failure of the single pressurizer PORV to open at its low pressure setpoint. Operator awareness is assumed to be achieved by actuation of control room alarms. The following scenarios have the potential to result in an LTOP event:

1) Makeup control Valve (HP-120) fails full open.

2) Erroneous opening of a core flood tank (CFT) discharge valve.

3) Erroneous actuation of the HPI system.

4) All pressurizer heaters erroneously energized.

5) Temporary loss of decay heat removal.

6) Thermal expansion of the RCS after starting an RCP due to stored energy in the steam generator.

7) Erroneous addition of high pressure nitrogen.

Specification 3.1.2.9.2 requires that both CFTs and both HPI trains be isolated from the RCS, thus preventing these scenarios. PORV capacity may not be sufficient to mitigate the erroneous opening of a CFT discharge valve or HPI actuation. Physical restriction of makeup flow, control of pressurizer level, and alarms ensure that at least 10 minutes are available for operator action to mitigate the remaining events. Unit specific values required to meet the 10 minute operator action criterion and the description of RCS vent paths capable of mitigating the most limiting LTOP event are provided within the Selected Licensee Commitment Manual.

In order to assure 10 minutes are available for operator action, the operational restrictions of Specification 3.1.2.9.4 must be implemented:

Deactivating train A of HPI is accomplished by one of the following methods:
1) Shutting and deactivating valve HP-26 by tagging open the valve breaker and tagging the valve handwheel in the closed position, shutting valve HP-410 and tagging the valve switch in the closed position.
2) Deactivating all HPI pumps aligned to A HPI train and tagging the pump breakers open.

Deactivating train B of HPI is accomplished by one of the following methods:
1) Shutting and deactivating valve HP-27 by tagging open the valve breaker and tagging the valve handwheel in the closed position, shutting valve HP-409 and tagging the valve switch in the closed position.
2) Deactivating all HPI pumps aligned to B HPI train and tagging the pump breakers open.

Deactivating both core flood tanks is accomplished by shutting valves CF-1 and CF-2, tagging open the valve breaker, and tagging the valves in the closed position. Alternately, core flood tanks may be deactivated by maintaining core flood tank pressure below the maximum allowable RCS pressure for the existing RCS temperature (per Figures 3.1.2-1 and 3.1.2-2).

Makeup flow must be restricted such that 10 minutes are available for operator action to mitigate the event.

Audible alarms must be provided such that 10 minutes are available for operator action to mitigate the event.

The high pressure nitrogen system shall be controlled such that 10 minutes are available for operator action to mitigate an LTOP event.

The intent of the action statements provided in Specification 3.1.2.9.5 is to place the reactor vessel in a condition in which it is not vulnerable to an LTOP event via the safest and most prompt course of action. In some cases, it may be more prudent to heat up above 325°F (cold leg temperature) rather than depressurize and open an RCS vent.

The allowable outage times (AOTs) provided in Specification 3.1.2.9.5 have been established based on the following considerations:

a. In the event one or more HPI trains or CFTs are not deactivated, the HPI trains and CFTs must be deactivated immediately since PORV capacity may not be sufficient, nor are 10 minutes available for operator action, to mitigate these LTOP events.

b. When the PORV is inoperable, 24 hours is an acceptable period of time to restore the PORV to operable status based on the low likelihood of an LTOP event requiring actuation of the PORV and the time available for operator action to mitigate the event.

c. In the event of "2nd train" inoperabilities, a time period of 4 hours is sufficient to return the train to operable status or to implement the compensatory measures. For example, establishing a dedicated operator to monitor for initiation of an LTOP event, is sufficient to compensate for inoperability of the makeup flow restriction, inoperability of required alarms, or deviation from Specification 3.1.2.9.4 pressure, temperature, or level limits. Establishing a dedicated operator is not sufficient to compensate for not deactivating HPI or CFTs.

REFERENCES

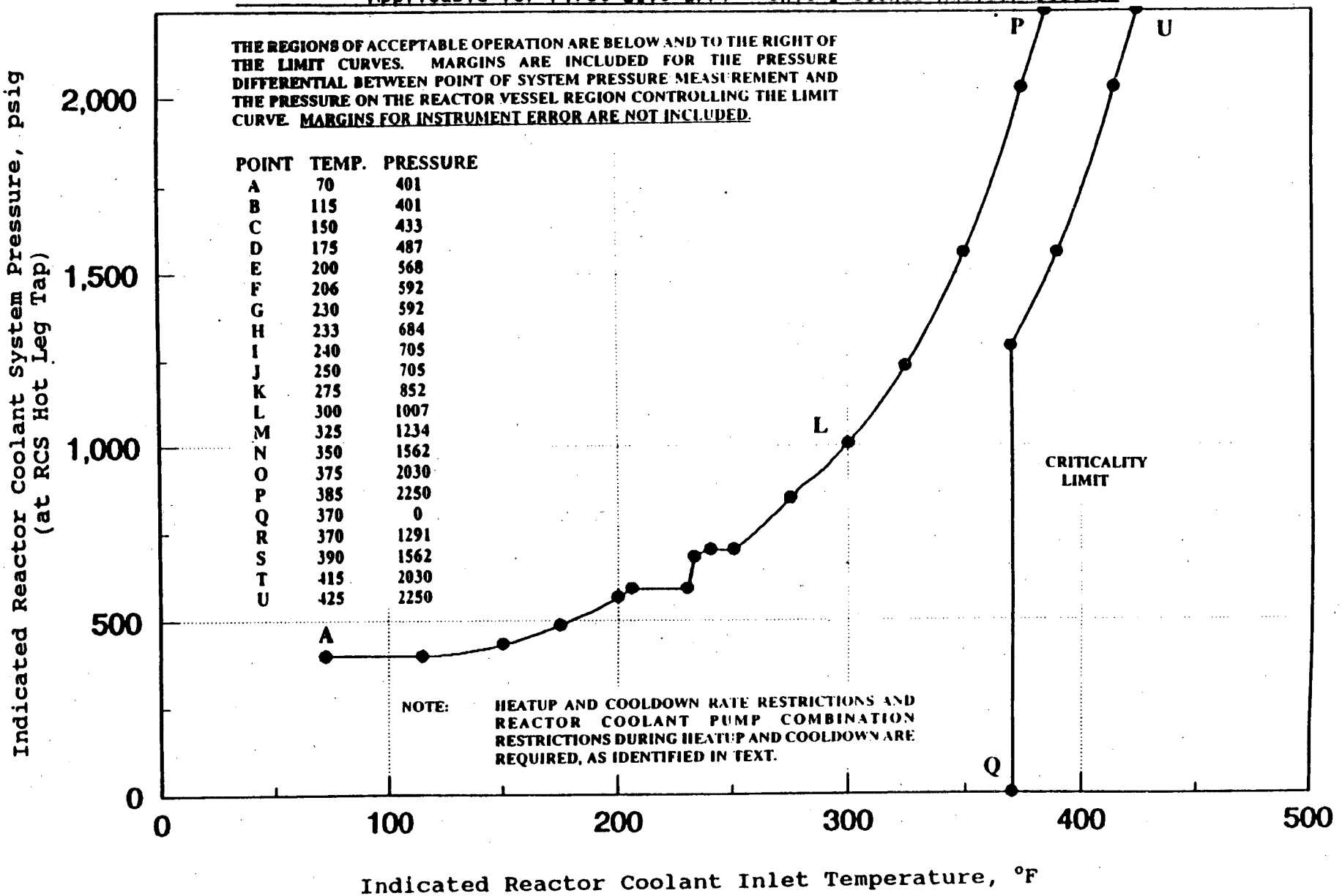
(1) Analysis of Capsule OCII-E from Duke Power Company Oconee Unit 2 Reactor Vessel Materials Surveillance Program, BAW-2051, October, 1988.

(2) Analysis of Capsule OCIII-D from Duke Power Company Oconee Unit 3 Reactor Vessel Materials Surveillance Program, BAW-2128, Rev. 1, May 1992.

(3) Analysis of Capsule OCI-C from Duke Power Company Oconee Unit 1 Reactor Vessel Materials Surveillance Program, BAW-2050, October, 1988.

Figure 3.1.2-1A

Reactor Coolant System Normal Operational Heatup Limitations
Applicable for First 21.0 EFPY - Unit 1 Oconee Nuclear Station



Amendment No. 204 (Unit 1)
Amendment No. 204 (Unit 2)
Amendment No. 201 (Unit 3)

Figure 3.1.2-1B

Reactor Coolant System Normal Operational Heatup Limitations

Applicable for First 19.0 EFPY - Unit 2 Oconee Nuclear Station

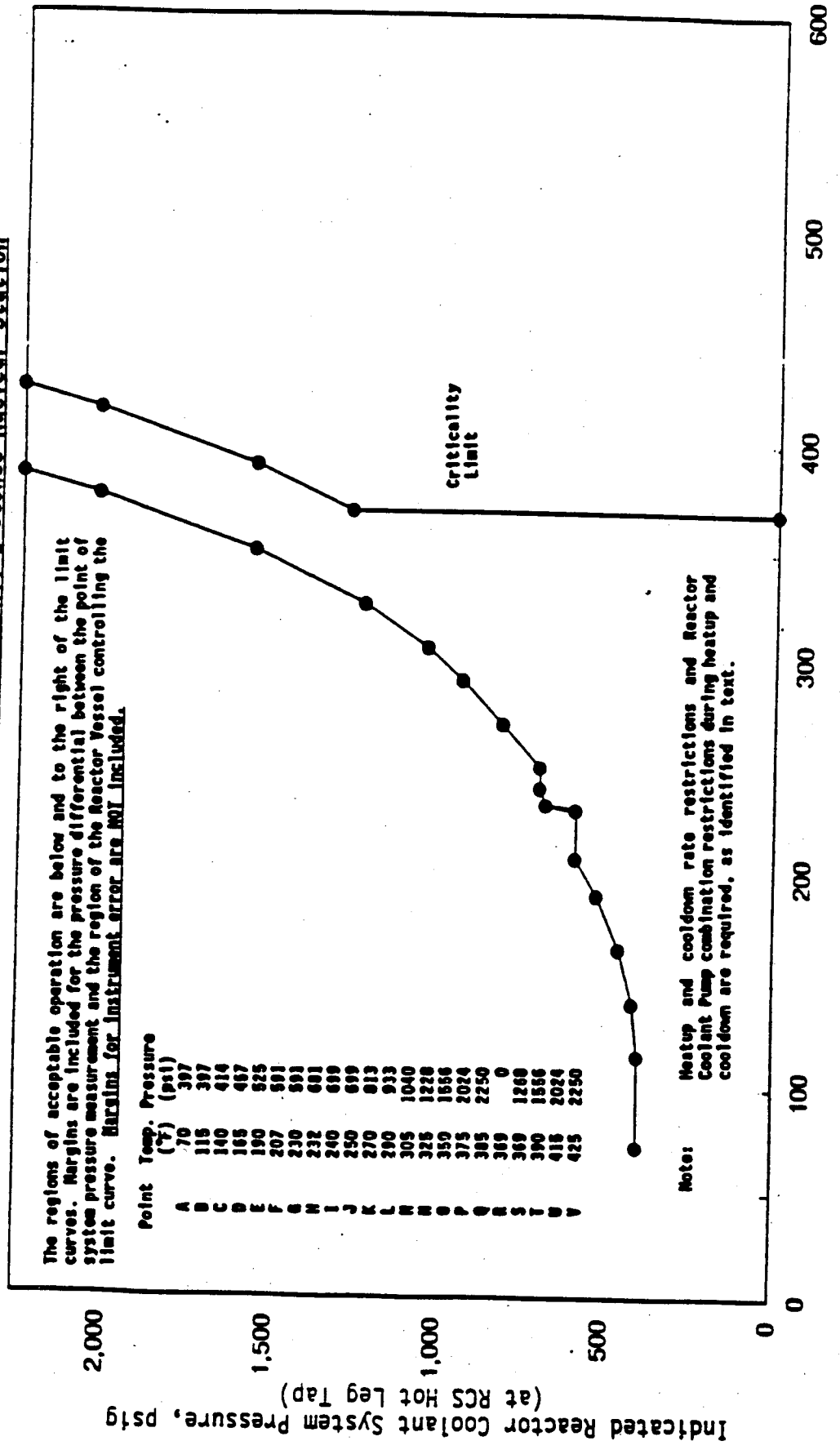
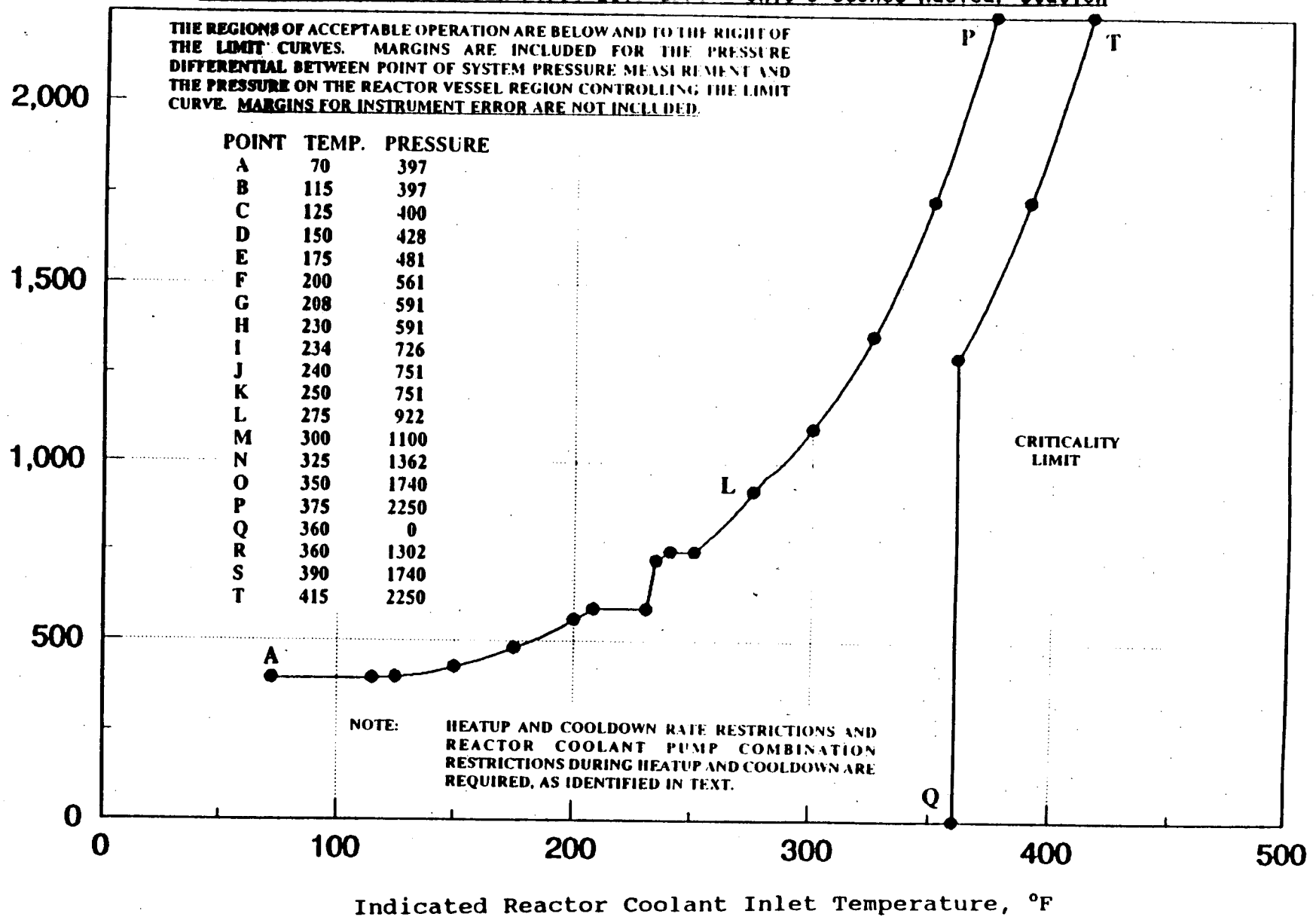


Figure 3.1.2-1C

Reactor Coolant System Normal Operation Heatup Limitations
Applicable for First 21.0 EFPY - Unit 3 Oconee Nuclear Station



Amendment No. 204 (Unit 1)
Amendment No. 204 (Unit 2)
Amendment No. 201 (Unit 3)

Figure 3.1.2-2A

Reactor Coolant System Normal Operational Cooldown Limitations

Applicable for First 21.0 EFPY - Unit 1 Oconee Nuclear Station

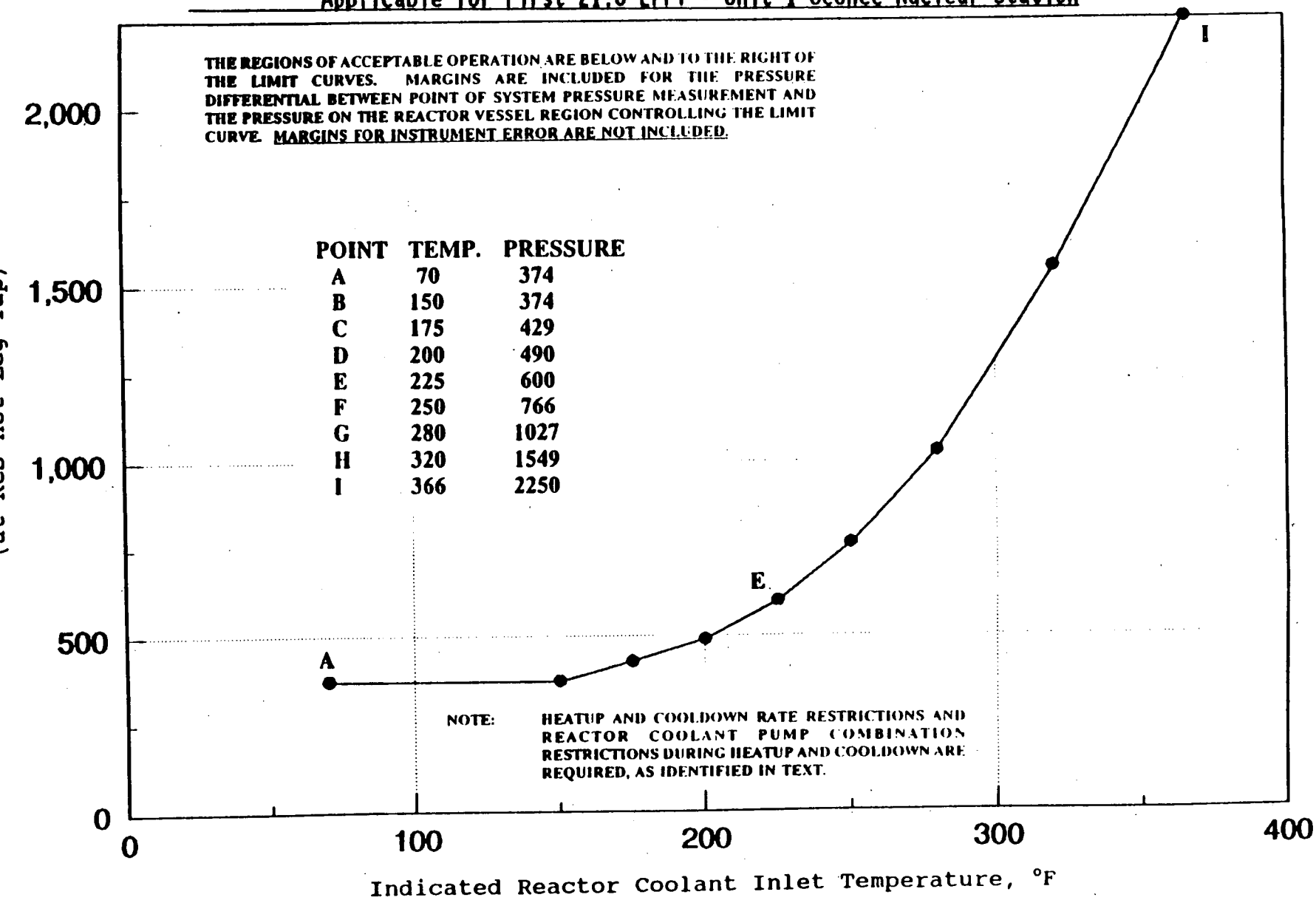


Figure 3.1.2-2B

Reactor Coolant System Normal Operational Cooldown Limitations

Applicable for First 19.0 EFPY - Unit 2 Oconee Nuclear Station

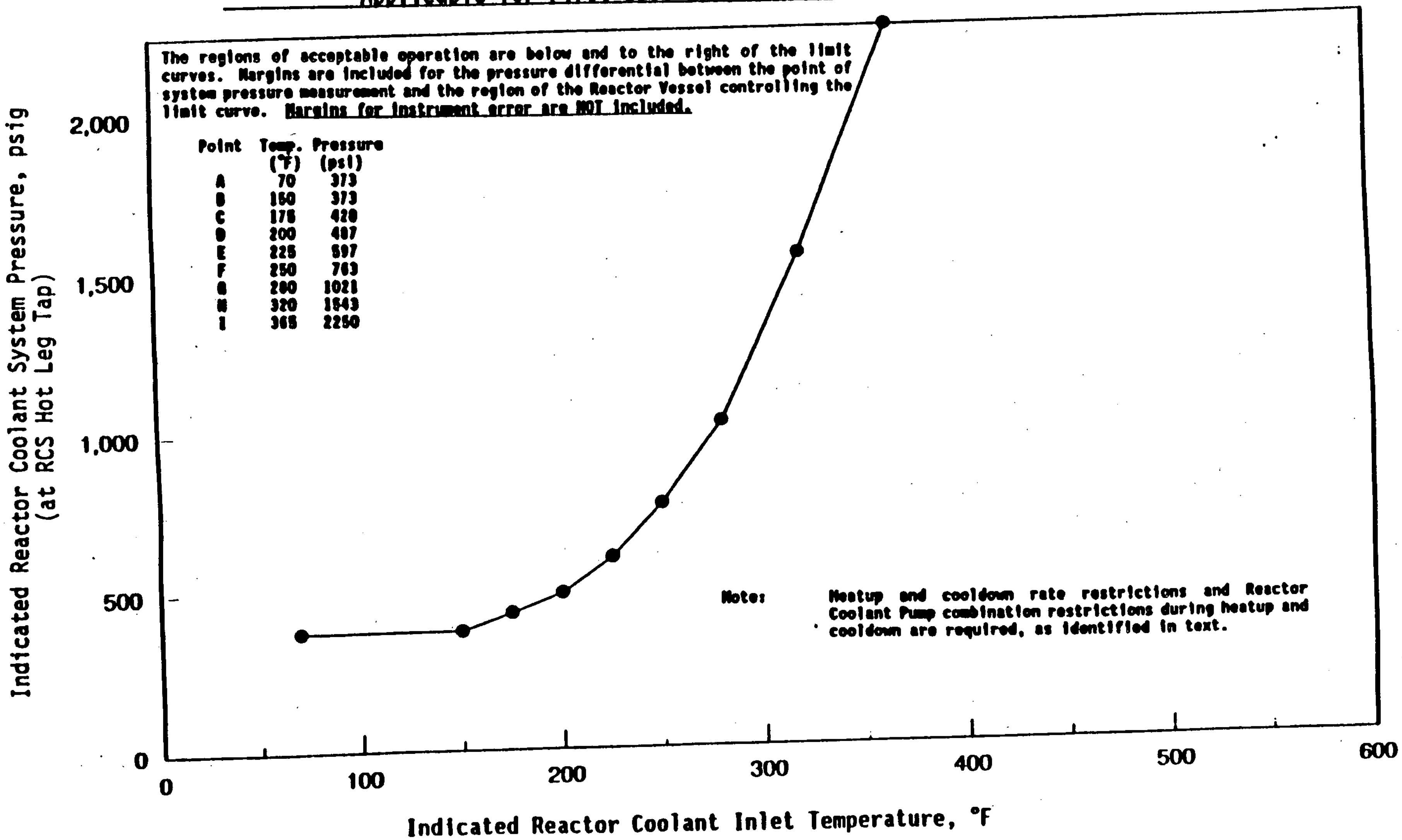
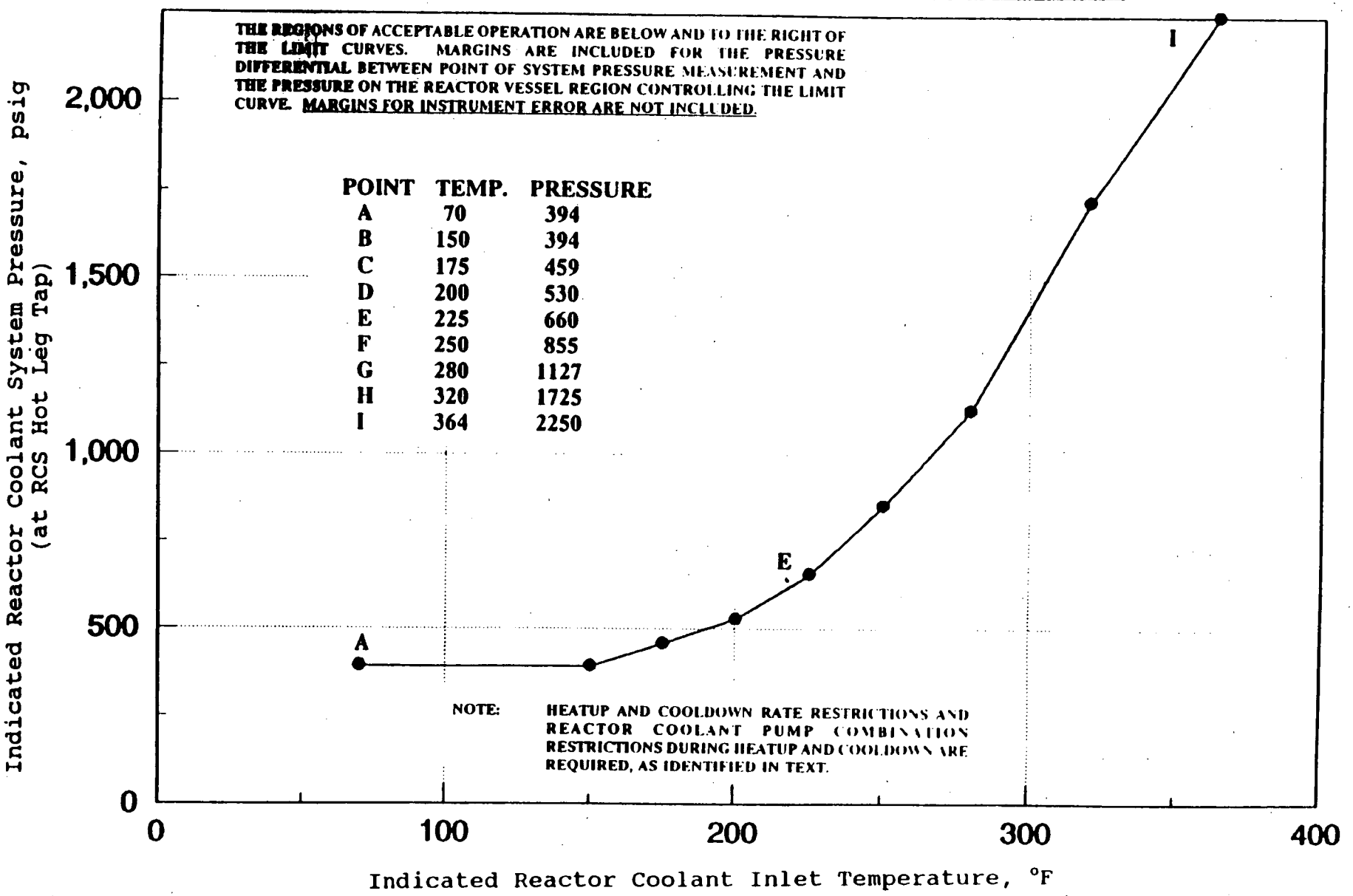


Figure 3.1.2-2C

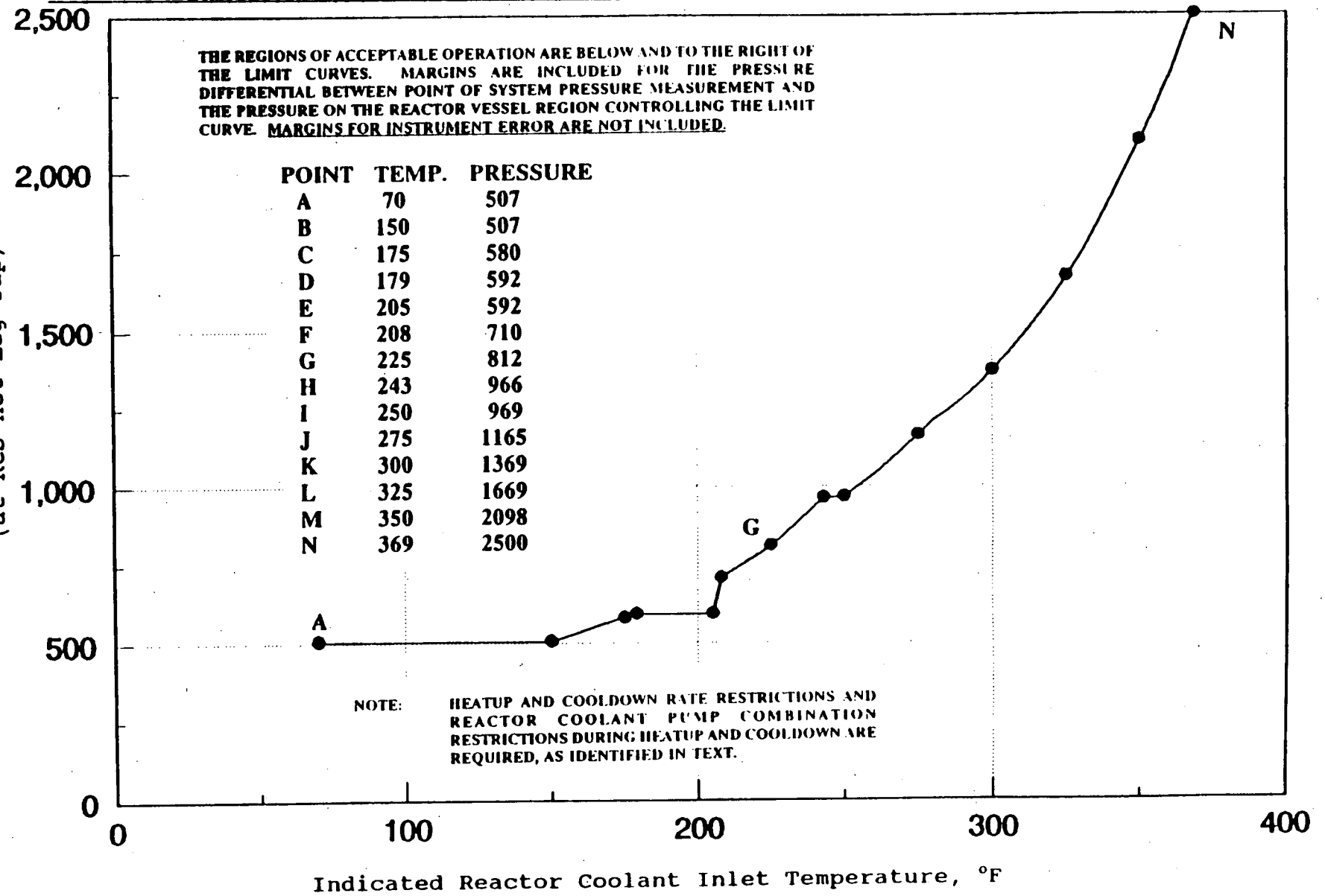
Reactor Coolant System Normal Operation Cooldown Limitations
Applicable for First 21.0 EFPY - Unit 3 Oconee Nuclear Station



Amendment No. 204 (Unit 1)
Amendment No. 204(Unit 2)
Amendment No. 201 (Unit 3)

Figure 3.1.2-3A

Reactor Coolant System Inservice Leak and Hydrostatic Test Heatup and Cooldown Limitation Applicable for First 21.0 EFPY - Unit 1 Oconee Nuclear Station



Amendment No. 204 (Unit 1)
Amendment No. 204 (Unit 2)
Amendment No. 201 (Unit 3)

Figure 3.1.2-3B

Reactor Coolant System Inservice Leak and Hydrostatic Test Heatup and Cooldown

Limitation Applicable for First 19.0 EFPY - Unit 2 Oconee Nuclear Station

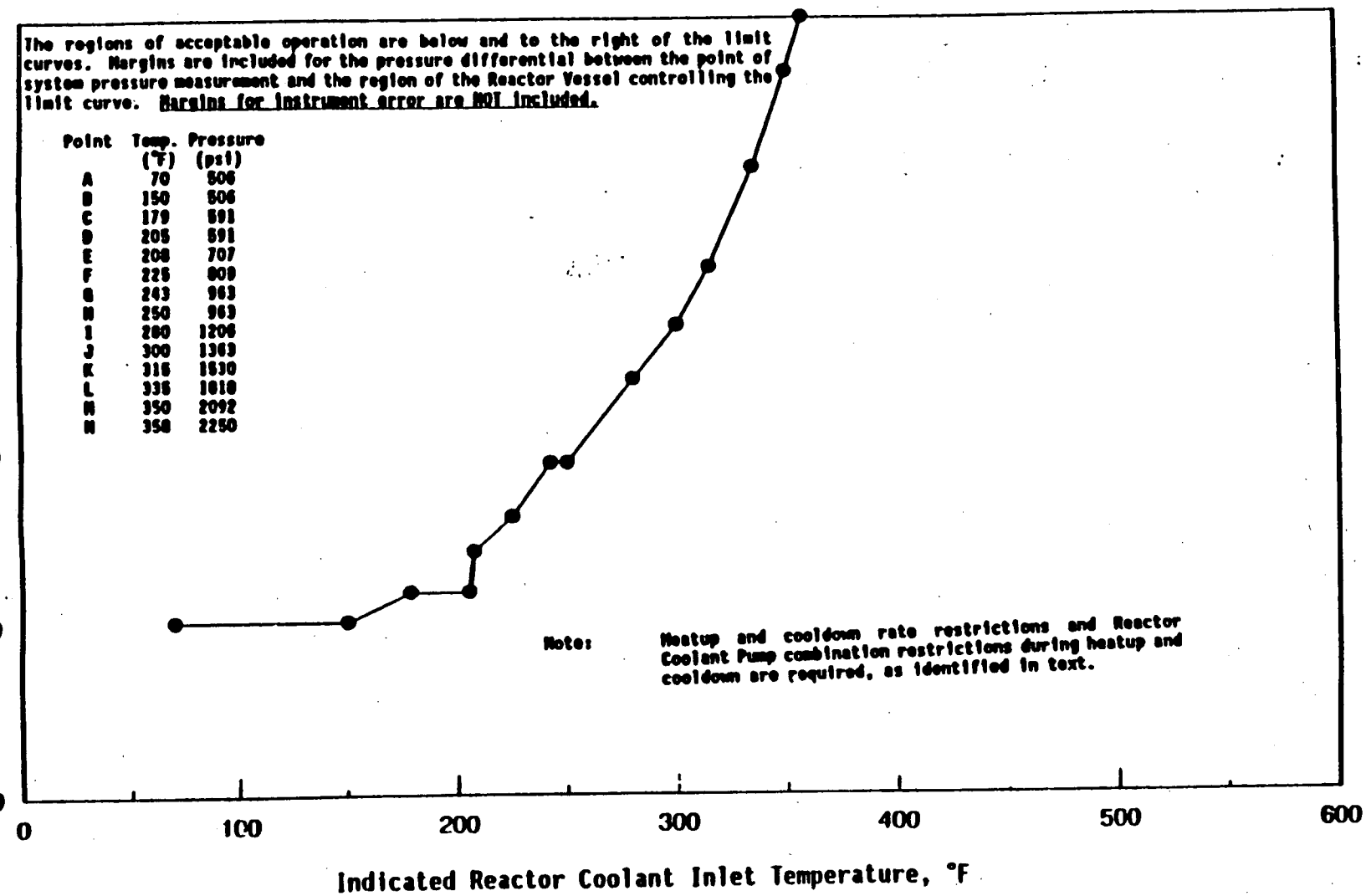
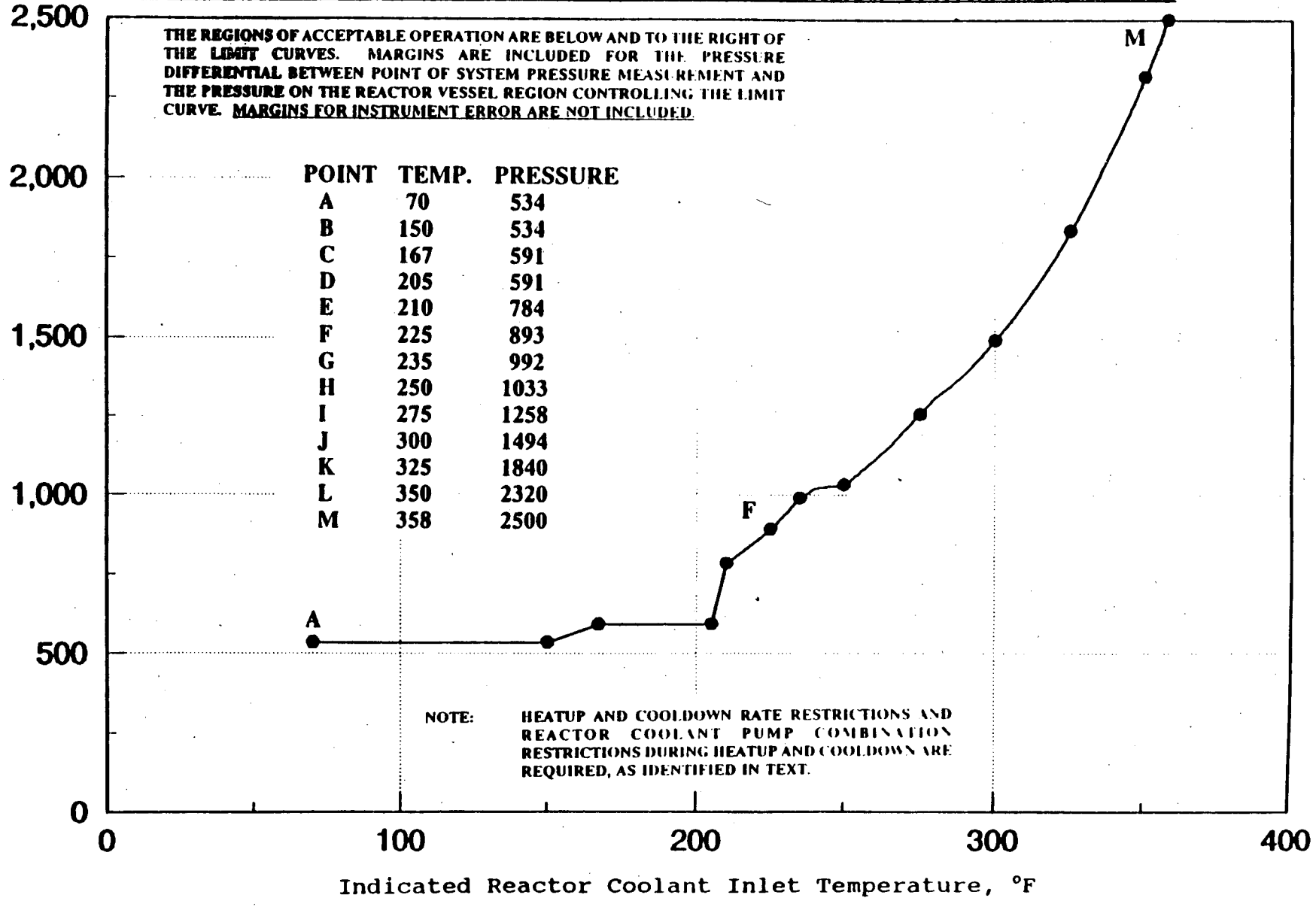


Figure 3.1.2-3C

Reactor Coolant System Inservice Leak and Hydrostatic Test Heatup and Cooldown Limitations for First 21.0 EFPY - Unit 3 Oconee Nuclear Station



Amendment No. 204 (Unit 1)
Amendment No. 204 (Unit 2)
Amendment No. 201 (Unit 3)