3/4.4.9 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2 and 3.4-3 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

a. A maximum heatup of 100°F in any one hour period,

b. A maximum cooldown of 100°F in any one hour period, and

c. A maximum temperature change of less than or equal to 10°F in any one hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the fracture toughness properties of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.9.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.9.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, at the intervals required by 10 CFR 50, Appendix H. ~~in accordance with the schedule in Table 4.4-5.~~ The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3.

9210140265 921006
PDR ADOCK 05000395
P PDR

TABLE 4.4-5

REACTOR VESSEL MATERIAL SURVEILLANCE PROGRAM - WITHDRAWAL SCHEDULE

CAPSULE IDENTIFICATION	VESSEL LOCATION	LEAD FACTOR	WITHDRAWAL TIME, EFPY
U	343°	3.7	1st Refueling
V	107°	3.1	3rd Refueling
X	287°	3.1	5th Refueling
W	110°	2.7	10th Refueling
Y	290°	2.7	17th Refueling
Z	340°	2.7	STANDBY

DELETE

This page intentionally left blank.

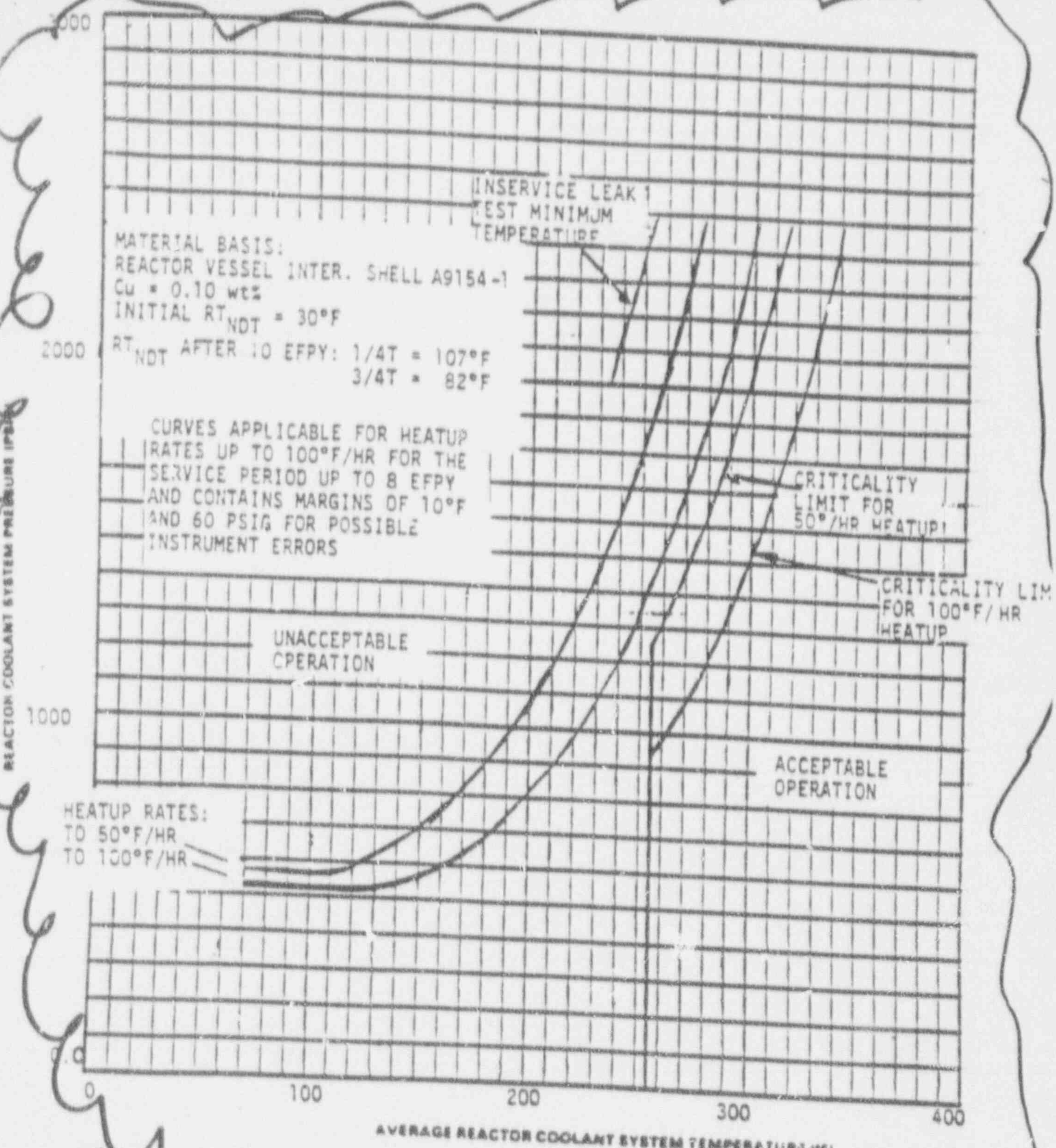

Figure 3.4-2 Reactor Coolant System Pressure - Temperature Limits Versus 100°F/Hour and 50°F/Hour Heatup Rate - Criticality Limit and Inservice Leak Test Limit

Replace with new curve.

Replace with new curve

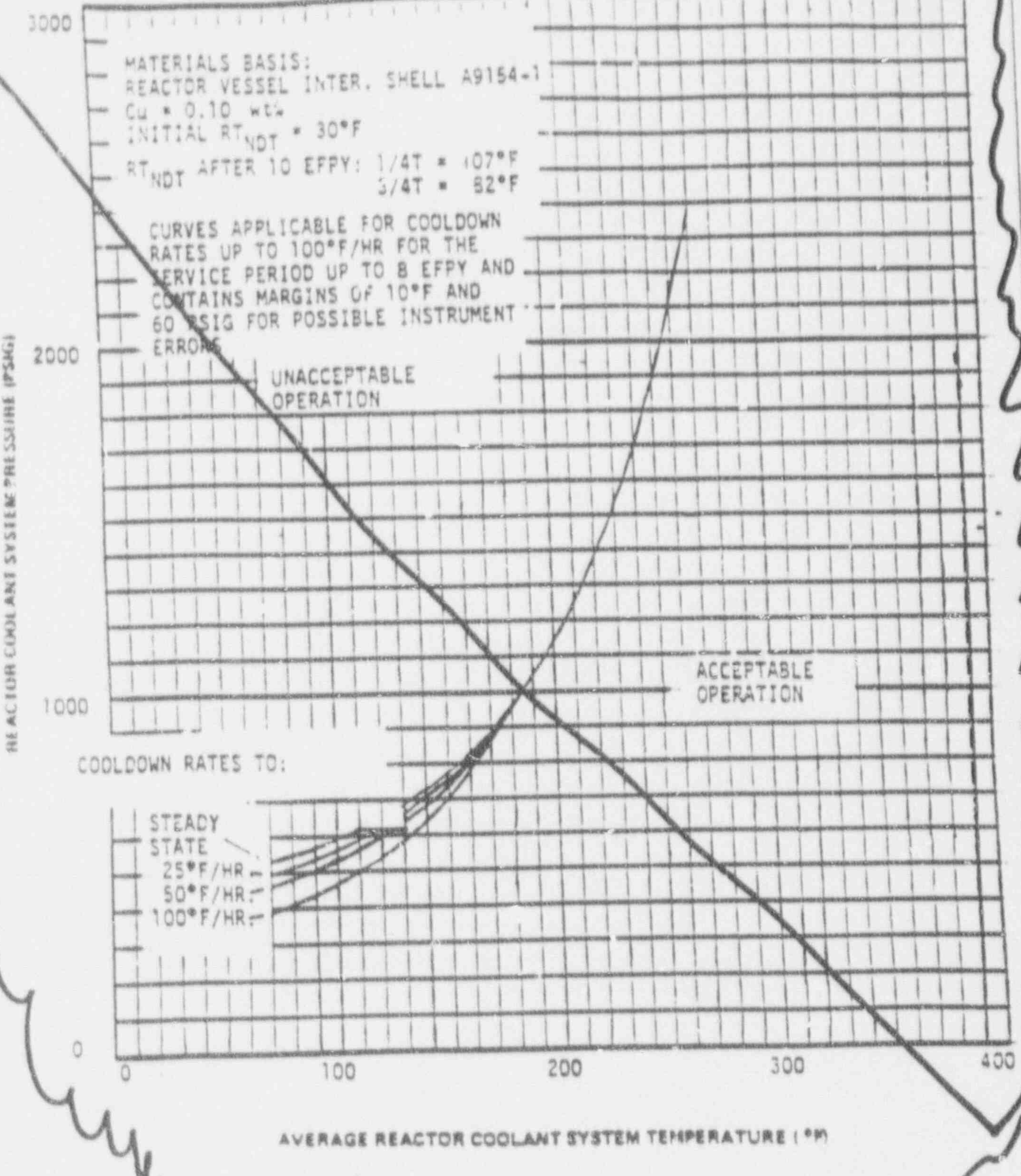

Figure 3.4-3
Reactor Coolant System Pressure - Temperature Limits
Versus Cooldown Rates

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2 and 3.4-3 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

a. A maximum heatup of 100°F in any one hour period,

b. A maximum cooldown of 100°F in any one hour period, and

c. A maximum temperature change of less than or equal to 10°F in any one hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the fracture toughness properties of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation or be in at least HOT STANDBY within the next 6 hours and reduce the RCS T_{avg} and pressure to less than 200°F and 500 psig, respectively, within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.9.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.9.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, at the intervals required by 10 CFR 50, Appendix H. The results of these examinations shall be used to update Figures 3.4-2 and 3.4-3.

THIS PAGE INTENTIONALLY LEFT BLANK

MATERIAL PROPERTY BASIS

CONTROLLING MATERIAL: LOWER SHELL
INITIAL RT_{NDT}: 30°F
ART AFTER 14 EFPY: 1/4T, 96°F
3/4T, 83°F

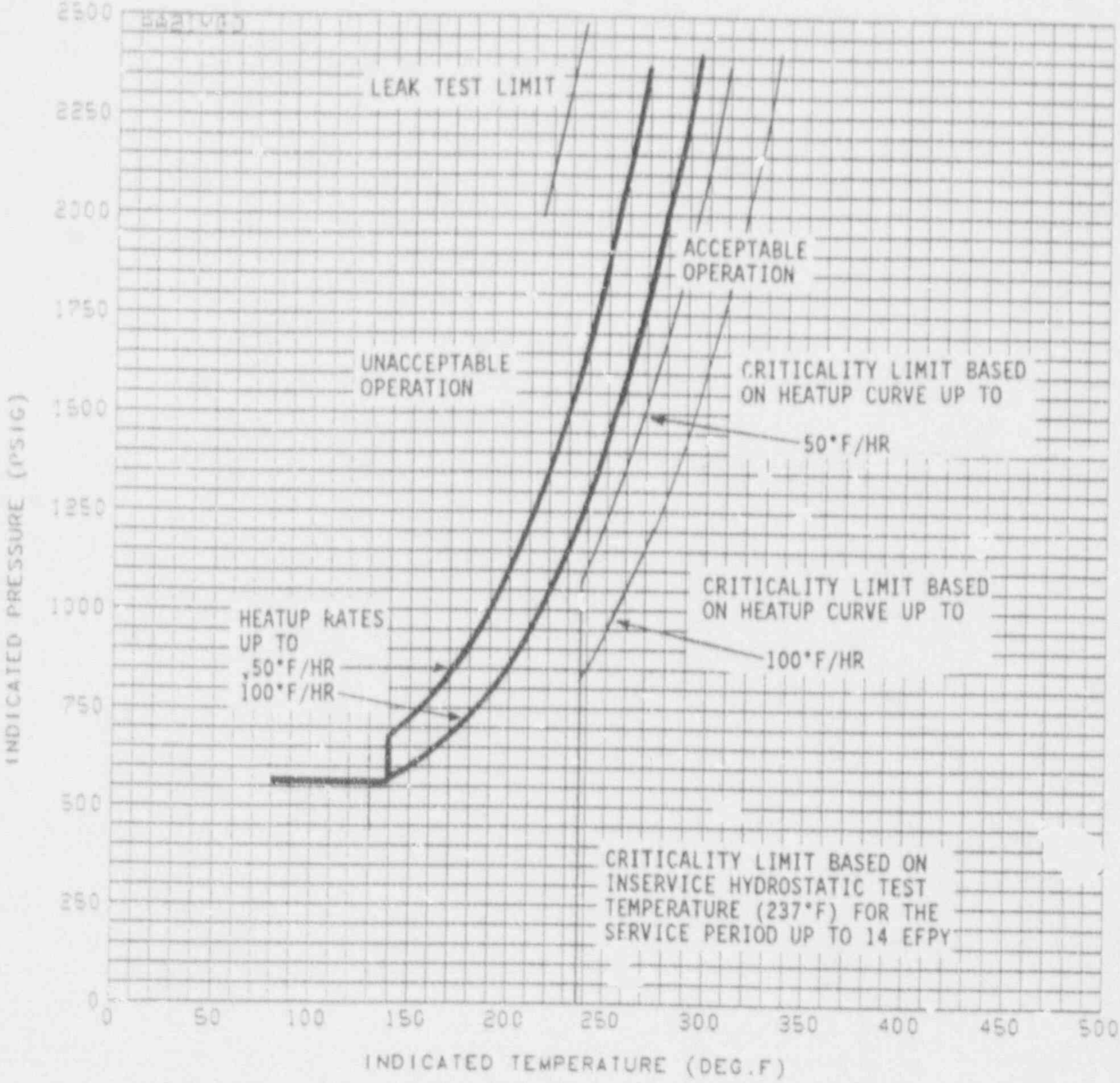

Figure 3.4-2 V. C. Summer Unit 1 Reactor Coolant System Heatup Limitations (Heat up rates up to 50 and 100°F/hr) Applicable for the First 14 EFPY (With Margins 10°F and 60 psig For Instrumentation Errors)

MATERIAL PROPERTY BASIS

CONTROLLING MATERIAL: LOWER SHELL
INITIAL RT_{NDT}: 10°F
ART AFTER 14 EFPY: 1/4T, 96°F
3/4T, 83°F

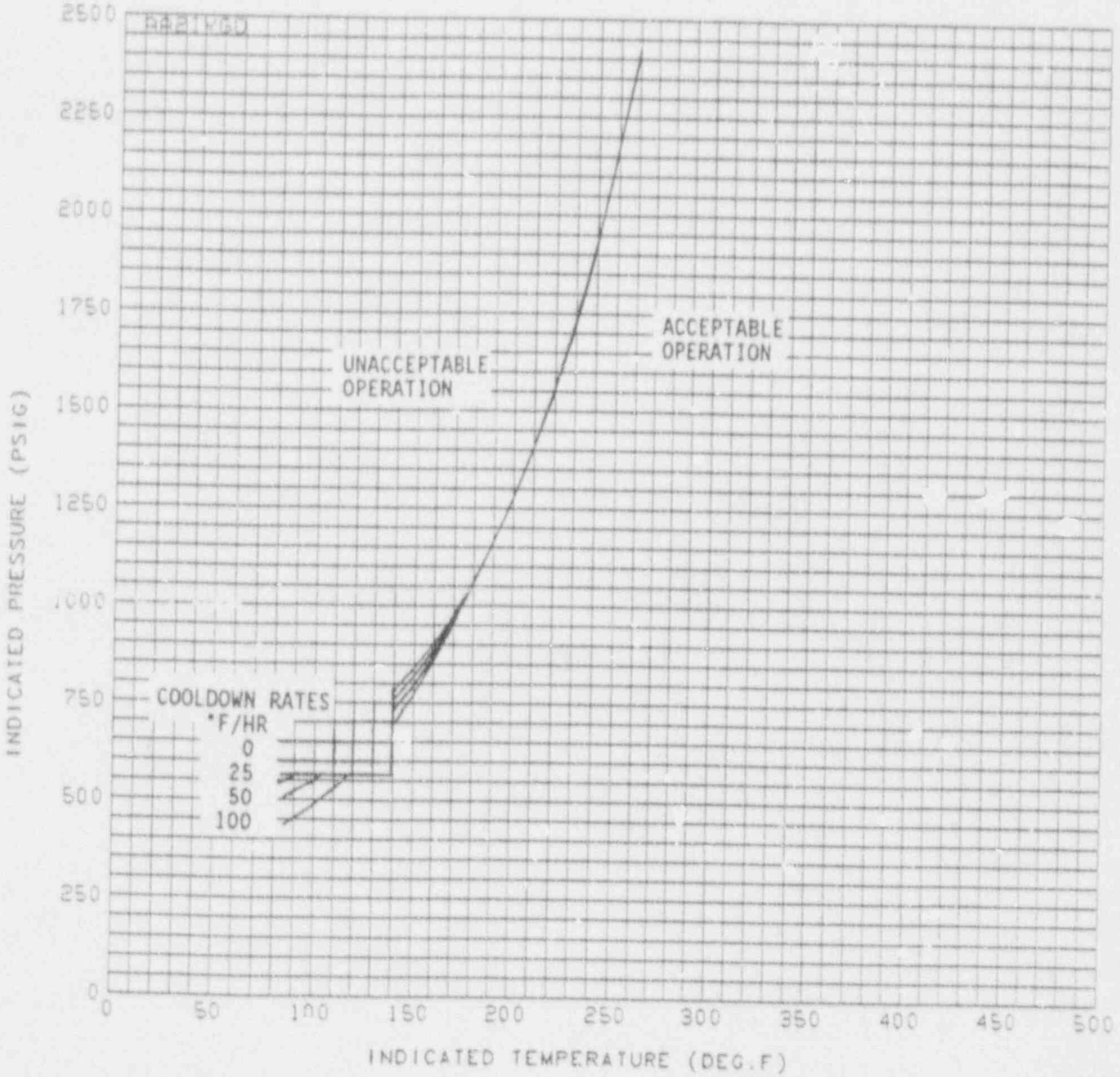

Figure 3.4-3 V. C. Summer Unit 1 Reactor Coolant System Cooldown (Cooldown rates up to 100°F/hr) Limitations Applicable for the First 14 EFPY (With Margins 10°F and 60 psig For Instrumentation Errors)

PROPOSED TECHNICAL SPECIFICATION CHANGE - TSP 910005
VIRGIL C. SUMMER NUCLEAR STATION

LIST OF AFFECTED PAGES

Page	Specification	Description of Changes
3/4 4-29	4.4.9.1.2	Deleted reference to the Reactor Vessel Material Surveillance Program Withdrawal Schedule
3/4 4-30	Table 4.4.3	Deleted Table 4.4-5 - Page intentionally left blank
3/4 4-31	Figure 3.4-2	Replaced with new curve
3/4 4-32	Figure 3.4-3	Replaced with new curve

PROPOSED TECHNICAL SPECIFICATION CHANGE - TSP 910005
VIRGIL C. SUMMER NUCLEAR STATION

DESCRIPTION AND SAFETY EVALUATION

DESCRIPTION OF AMENDMENT REQUEST

SCE&G proposes to modify the VCSNS TS, Section 3/4.4.9, Figures 3.4-2 and 3.4-3, to provide new PT curves consistent with analysis results of examination of specimen X of VCSNS Radiation Surveillance Program. Tabl 4.4-5 and the reference it in Surveillance Requirement 4.4.9.1.2 are deleted in agreement wi e guidance provi Generic Letter 91-01.

SAFETY EVALUATION

The pr hange to the PT curves reflect the results of the analysis perfo n specimen X, and calculations prepared using the guidance of Regulat uide 1.99, Rev. 2, Radiation Embrittlement of Reactor Vessel Materials, and Appendix G to 10CFR50, "Fracture Toughness Requirements."

The new PT curves continue to provide conservative administrative restrictions on the RCS pressure to minimize stresses on the RCS due to normal operating transients, thus minimizing the likelihood of brittle fracture due to pressure transients at low temperatures.

Deletion of the schedule for removal of the reactor pressure vessel material surveillance capsules from the VCSNS Technical Specifications does not impact the safety of the plant. The schedule is controlled by the requirements of 10CFR50, Appendix H, and the schedule will be included in a future revision of the FSAR.

PROPOSED TECHNICAL SPECIFICATION CHANGE - TSP910005
VIRGIL C. SUMMER NUCLEAR STATION

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

DESCRIPTION OF AMENDMENT REQUEST

SCE&G proposes to modify the VCSNS TS, Section 3/4.4.9, Figures 3.4-2 and 3.4-3, to provide new PT curves consistent with analysis results of examination of specimen X of VCSNS's Radiation Surveillance Program. Table 4.4-5 and the reference to it in Surveillance Requirement 4.4.9.1.2 are deleted in agreement with the guidance provided by Generic Letter 91-01.

BASIS FOR DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

SCE&G has evaluated the proposed TS change and has determined that it does not represent a significant hazards consideration, based on the criteria established in 10CFR50.92(c). Operation of VCSNS in accordance with the proposed action will not:

(1) Involve a significant increase in the probability or the consequences of an accident previously evaluated.

The proposed change provides up-to-date pressure and temperature limits for operation of the reactor coolant system during heat up, cool down, criticality, and hydrotesting, thus protecting the reactor vessel from brittle fracture by clearly separating the region of acceptable operation from the region where potential brittle fracture of the reactor vessel may occur. Failure of the reactor vessel is not a VCSNS design basis accident, and, in general, reactor vessel failure has a low probability of occurrence and is not considered in the safety analysis. The new PT curves will provide additional conservatism, making the reactor vessel failure an even less credible event.

Deletion of the schedule for removal of the reactor vessel material surveillance capsules from the Technical Specifications and inserting it in the FSAR is administrative in nature, since the schedule is a duplicate of the 10CFR50, Appendix H, requirements.

(2) Create the possibility of a new or different kind of accident from any previously analyzed

The proposed change does not introduce a plant design change or a new operating procedure. It simply adjusts the PT curves to reflect the shift in nil-ductility reference temperature of the reactor vessel due to neutron irradiation.

Deletion of the schedule for removal of the reactor vessel material surveillance capsules from the Technical Specifications and inserting it in the FSAR is administrative in nature, since the schedule is a duplicate of the 10CFR50, Appendix H, requirements.

(3) Involve a significant reduction in a margin of safety.

The new PT curves ensure that the 10CFR50, Appendix G, requirements are not exceeded during normal operation including reactor coolant system transients during heat up, cool down, criticality, and hydrotesting. The new PT curves were prepared for a projected reactor vessel exposure of 14 EFPY. The new curves shift to more conservative limitations, thus providing increased margin against non-ductile fractures. Since administrative limits remain in place to ensure that 10CFR50, Appendix G, limits are not challenged, the margin of safety specified in the TS Bases is not significantly reduced by the proposed change.

Deletion of the schedule for removal of the reactor vessel material surveillance capsules from the Technical Specifications and inserting it in the FSAR is administrative in nature, since the schedule is a duplicate of the 10CFR50, Appendix H, requirements.