ATTACHMENT 1

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-RCS

~~1.16~~ LOW TEMPERATURE ~~RCS~~ OVERPRESSURE PROTECTION RANGE

1.16 The LOW TEMPERATURE ~~RCS~~ OVERPRESSURE PROTECTION RANGE is that operating condition when (1) the RCS cold leg temperature is less than or equal to that specified in Table 3.4-3 ~~for the applicable operating period~~, and (2) the Reactor Coolant System is not vented to containment by an opening of at least 3.58 square inches.

MEMBER(S) OF THE PUBLIC

1.17 MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the licensee, its contractors or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational or other purposes not associated with the plant.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.18 The OFFSITE DOSE CALCULATION MANUAL shall contain the current methodology and parameters used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and shall include the Radiological Environmental Monitoring Sample point locations.

OPERABLE - OPERABILITY

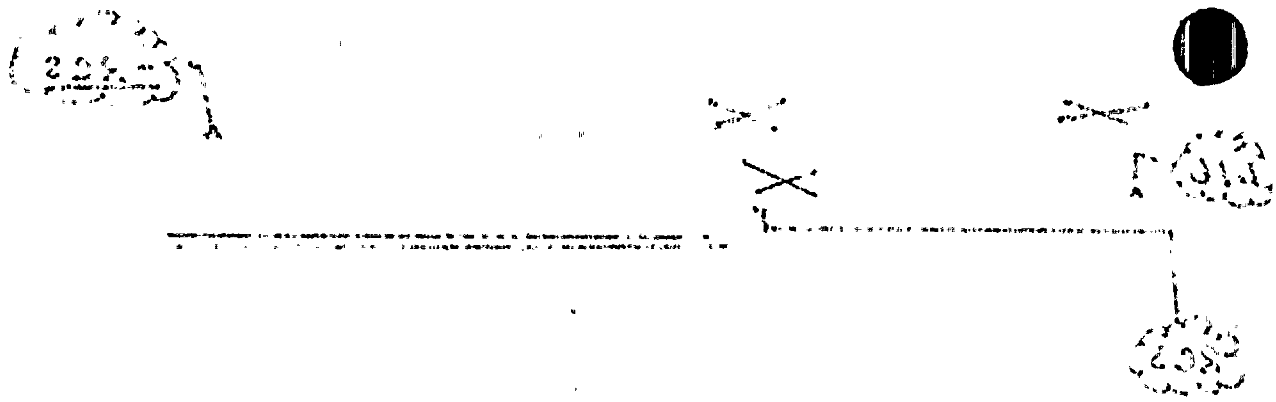
1.19 A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s), and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).

OPERATIONAL MODE - MODE

1.20 An OPERATIONAL MODE (i.e. MODE) shall correspond to any one inclusive combination of core reactivity condition, power level and average reactor coolant temperature specified in Table 1.2.

PHYSICS TESTS

1.21 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and (1) described in Chapter 14.0 of the FSAR, (2) authorized under the provisions of 10 CFR 50.59, or (3) otherwise approved by the Commission.



LIMITING CONDITION FOR OPERATION

3.4.1.3 At least two of the loop(s)/train(s) listed below shall be OPERABLE and at least one Reactor Coolant and/or shutdown cooling loops shall be in operation.*

a. Reactor Coolant Loop 2A and its associated steam generator and at least one associated Reactor Coolant pump,**

b. Reactor Coolant Loop 2B and its associated steam generator and at least one associated Reactor Coolant pump,**

c. Shutdown Cooling Train 2A,

d. Shutdown Cooling Train 2B.

APPLICABILITY: MODE 4.

ACTION:

a. With less than the above required Reactor Coolant and/or shutdown cooling loops OPERABLE, immediately initiate corective action to return the required loops to OPERABLE status as soon as possible; if the remaining OPERABLE loop is a shutdown cooling loop, be in COLD SHUTDOWN within 30 hours.

b. With no Reactor Coolant or shutdown cooling loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required coolant loop to operation.

*All Reactor Coolant pumps and shutdown cooling pumps may be de-energized for up to 1 hour provided (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

**A Reactor Coolant pump shall not be started with two idle loops and one or more of the Reactor Coolant System cold leg temperatures less than or equal to that specified in Table 3.4-3 ~~for the applicable operating period~~ unless the secondary water temperature of each steam generator is less than 40°F above each of the Reactor Coolant System cold leg temperatures.

[illegible]

REACTOR COOLANT SYSTEM

COLD SHUTDOWN - LOOPS FILLED

LIMITING CONDITION FOR OPERATION

3.4.1.4.1 At least one shutdown cooling loop shall be OPERABLE and in operation*, and either:

a. One additional shutdown cooling loop shall be OPERABLE#, or

b. The secondary side water level of at least two steam generators shall be greater than 10% indicated narrow range level.

APPLICABILITY: MODE 5 with Reactor Coolant loops filled##.

ACTION:

a. With one of the shutdown cooling loops inoperable and with less than the required steam generator level, immediately initiate corrective action to return the inoperable shutdown cooling loop to OPERABLE status or to restore the required steam generator level as soon as possible.

b. With no shutdown cooling loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required shutdown cooling loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.4.1.1 The secondary side water level of at least two steam generators when required shall be determined to be within limits at least once per 12 hours.

4.4.1.4.1.2 At least one shutdown cooling loop shall be determined to be in operation and circulating reactor coolant at least once per 12 hours.

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*The shutdown cooling pump may be de-energized for up to 1 hour provided 1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

#One shutdown cooling loop may be inoperable for up to 2 hours for surveillance testing provided the other shutdown cooling loop is OPERABLE and in operation.

##A Reactor Coolant pump shall not be started with two idle loops ~~and one or more of the Reactor Coolant System cold leg temperatures less than or equal to that specified in Table 3.4-3 for the applicable operating period~~ unless the secondary water temperature of each steam generator is less than 40°F above each of the Reactor Coolant System cold leg temperatures.

[illegible]

[illegible]

[illegible]

REACTOR COOLANT SYSTEM

3/4.4.4 PORV BLOCK VALVES

LIMITING CONDITION FOR OPERATION

3.4.4 Each Power Operated Relief Valve (PORV) Block valve shall be OPERABLE. No more than one block valve shall be open at any one time.

APPLICABILITY: MODES 1, 2, and 3.~~#~~ ← Delete

ACTION:

a. With one or more block valve(s) inoperable, within 1 hour either restore the block valve(s) to OPERABLE status or close the block valve(s) and remove power from the block valve(s); otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With both block valves open, close one block valve within 1 hour, otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. The provisions of specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.4 Each block valve shall be demonstrated OPERABLE at least once per 92 days by operating the valve through one complete cycle of full travel unless the block valve is closed with power removed in order to meet the requirements of Action a. or b. above.

~~#When the RCS cold leg temperature is above the LOW TEMPERATURE RCS OVERPRESSURE PROTECTION RANGE of Table 3.4-3.~~

[illegible]

REACTOR COOLANT SYSTEM

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, 3.4-3 and 3.4-4 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing.

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 structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operations 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 within the next 30 hours in accordance with Figures 3.4-3 and 3.4-4 ~~and 500 psia, 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.

Delete, replace with attached new figure 3.4-2

FIGURE 3.4-2

ST. LUCIE-2 P/T LIMITS, 6 EFPY
HEATUP AND CORE CRITICAL

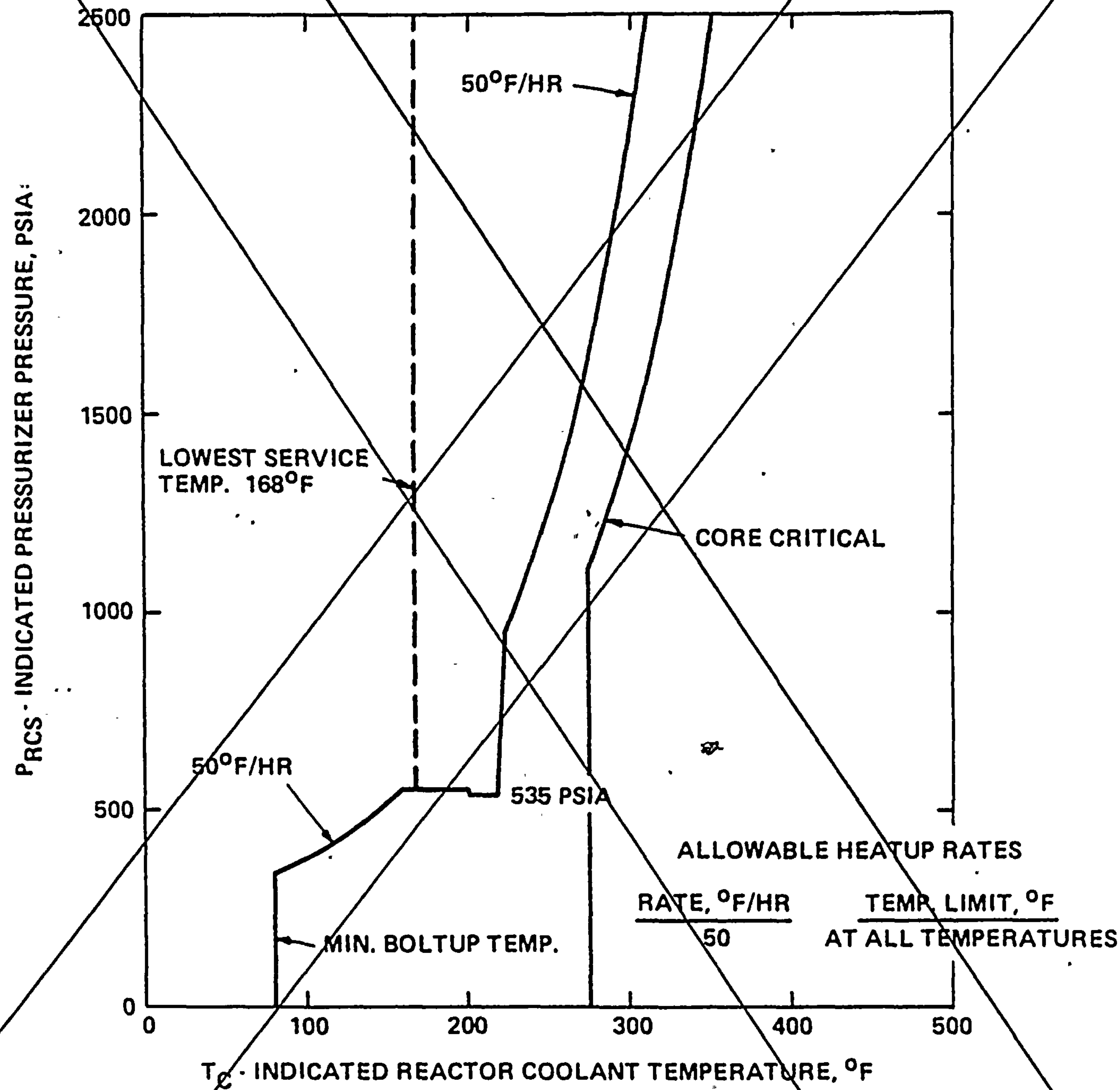


FIGURE 3.4-2
ST. LUCIE-2 P/T LIMITS, 15 EFPY
HEATUP AND CORE CRITICAL

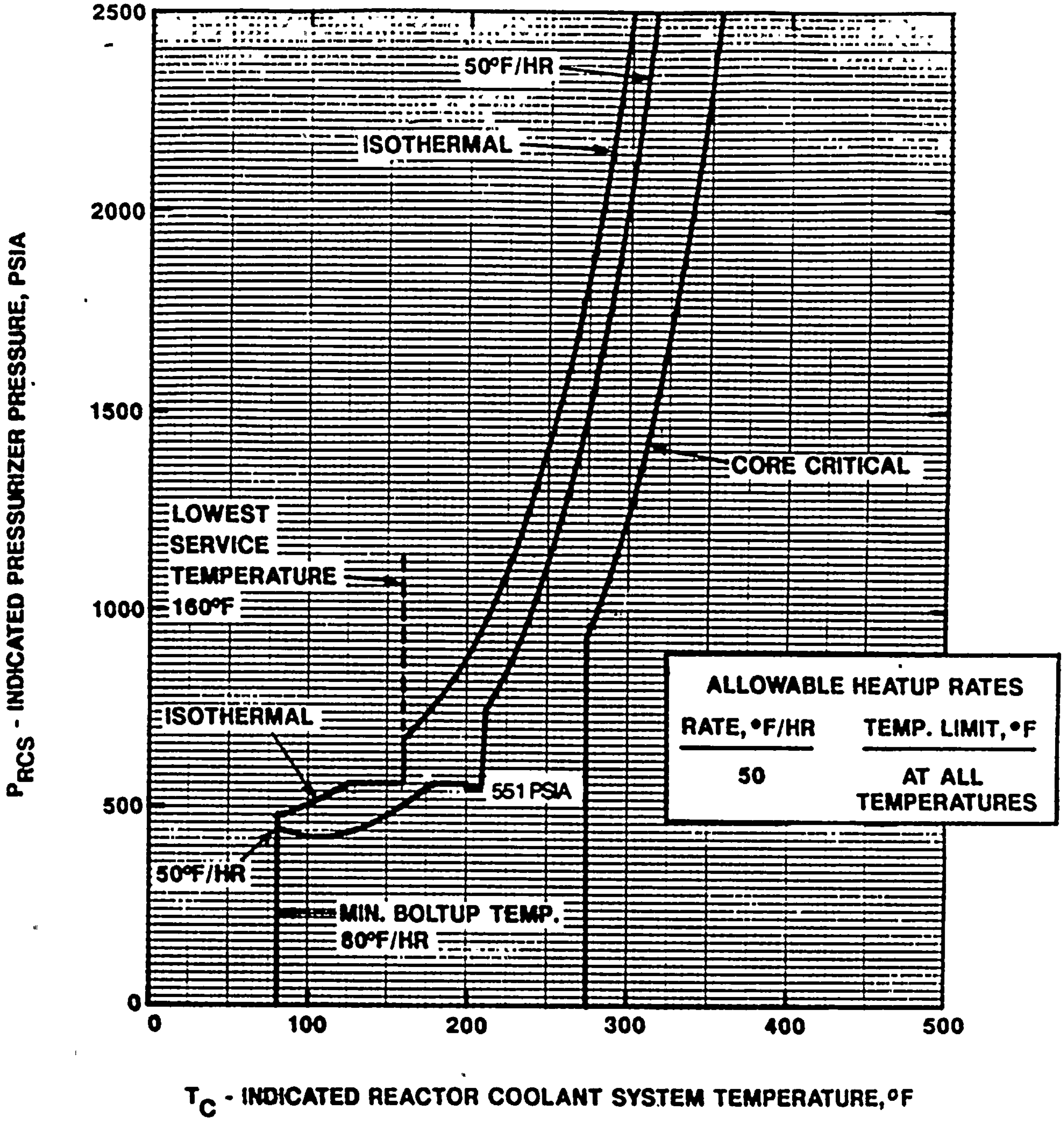
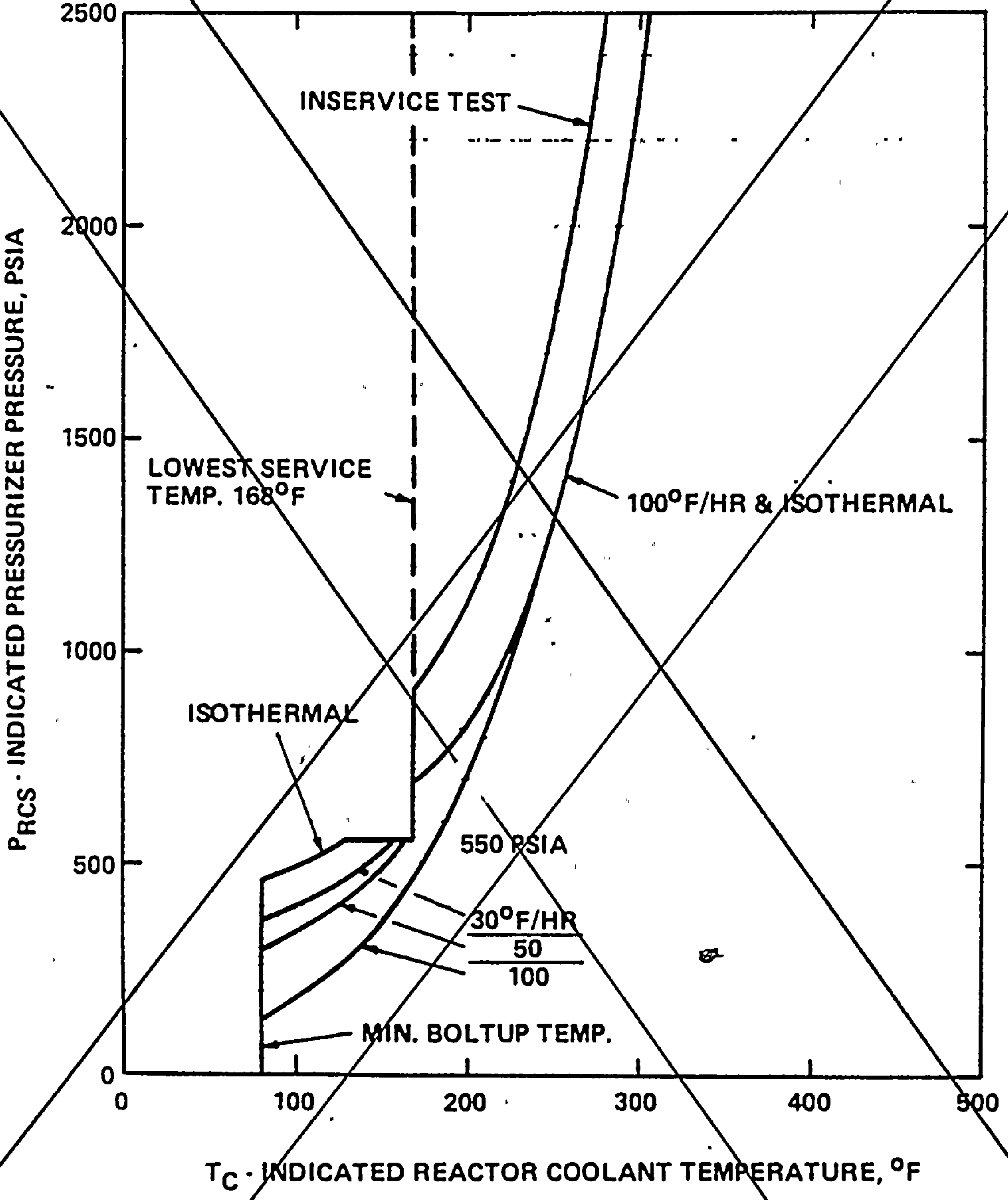


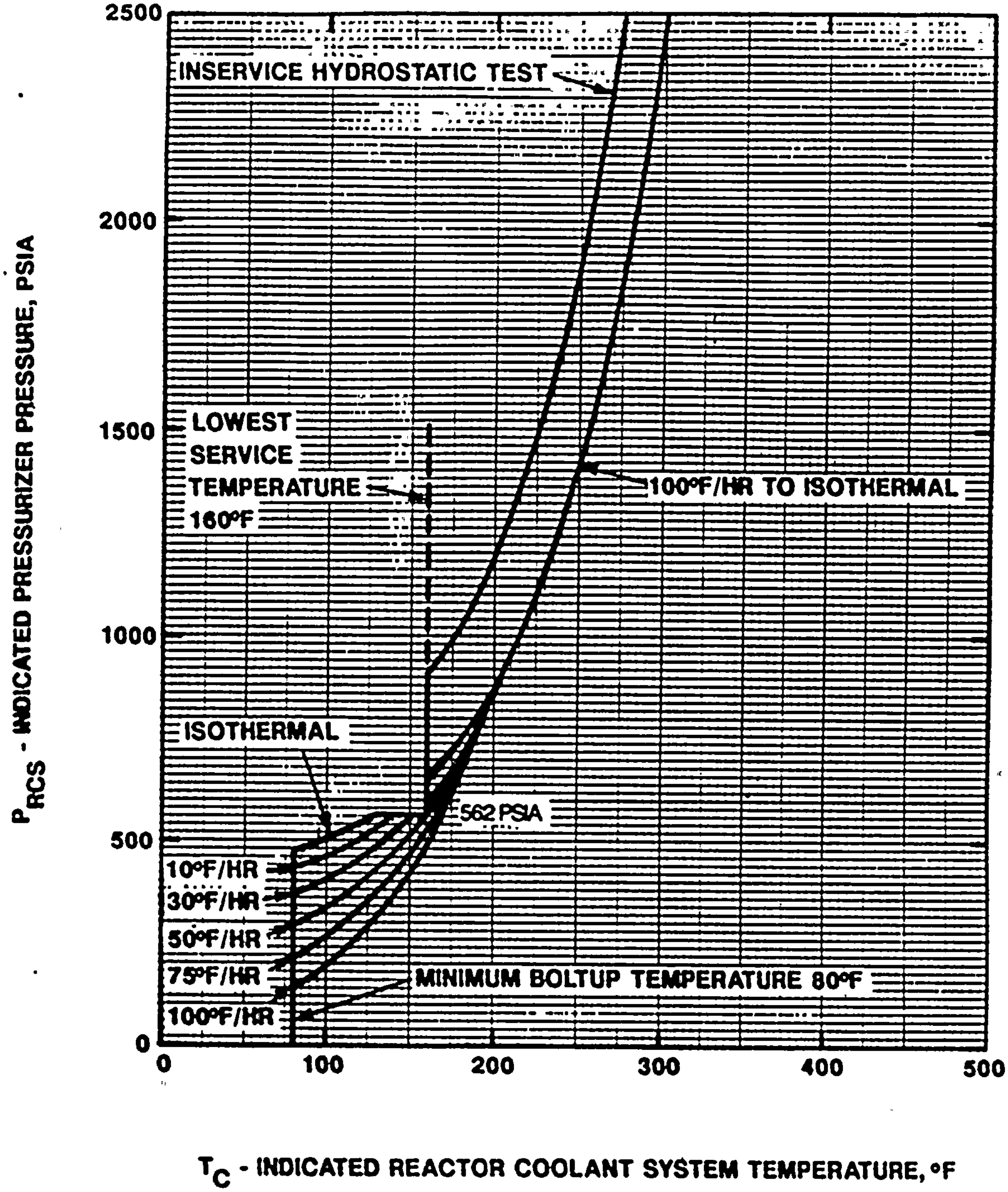
FIGURE 3.4-3

ST. LUCIE-2 P/T LIMITS, 6 EFPY
COOLDOWN AND INSERVICE TEST



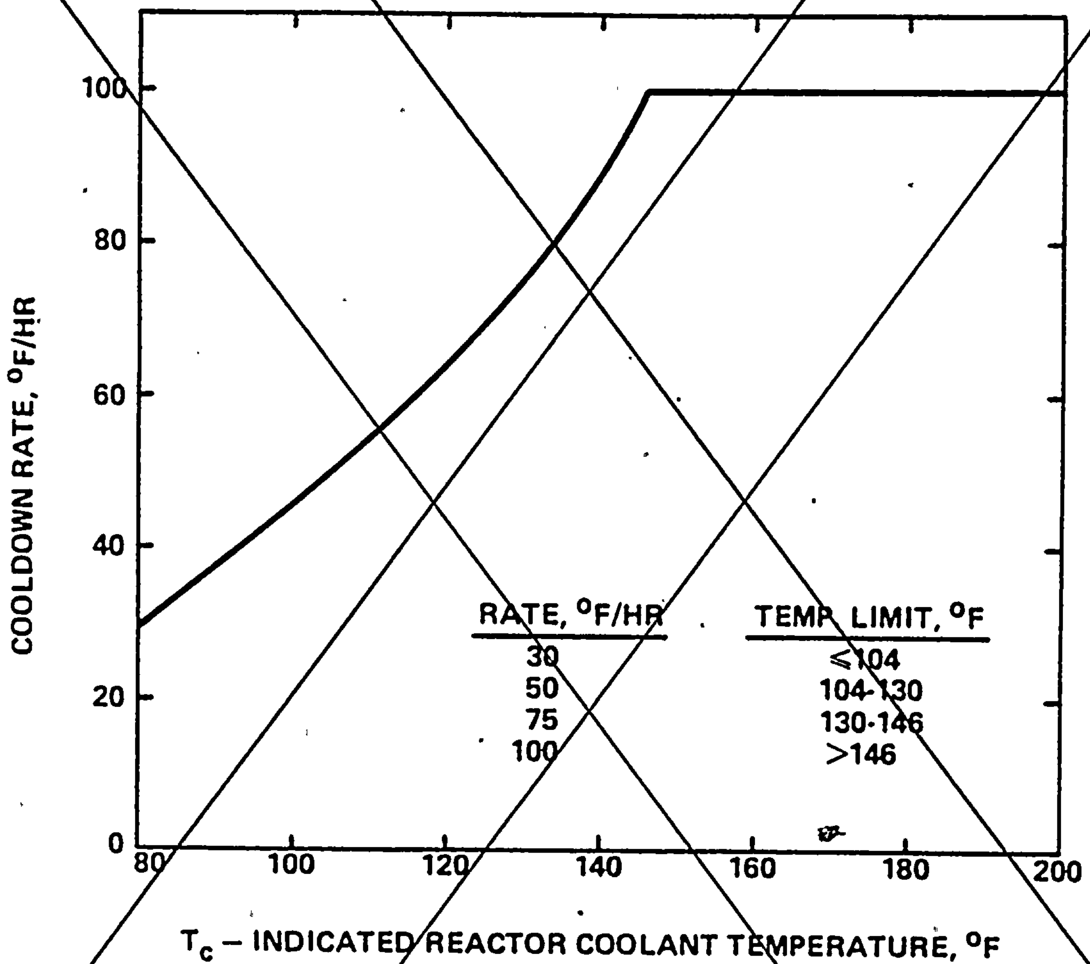
Delete, replace with attached new figure 3.4-3

FIGURE 3.4-3
ST. LUCIE-2 P/T LIMITS, 15 EFPY
COOLDOWN AND INSERVICE-TEST



Delete, replace with attached new figure 3.4-4

FIGURE 3.4-4
ST. LUCIE-2 P/T LIMITS, 6 EFPY
MAXIMUM ALLOWABLE COOLDOWN RATES

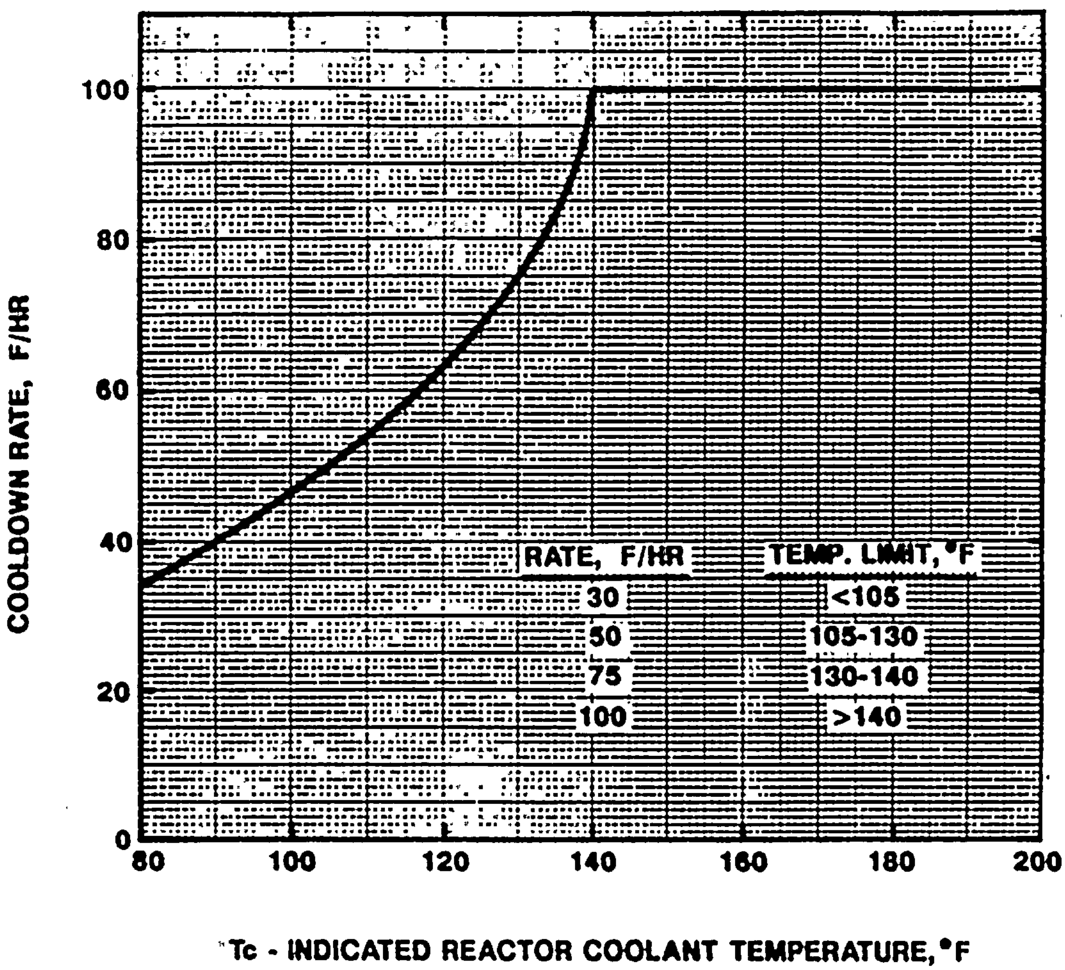


NOTE: A MAXIMUM COOLDOWN RATE OF 100°F/HR IS ALLOWED AT ANY TEMPERATURE ABOVE 146°F

FIGURE 3.4-4

ST. LUCIE-2 P/T LIMITS, 15 EFPY

MAXIMUM ALLOWABLE COOLDOWN RATES



NOTE: A MAXIMUM COOLDOWN RATE OF 100 F/HR IS ALLOWED AT ANY TEMPERATURE ABOVE 140°F

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 Unless the RCS is depressurized and vented by at least 3.58 square inches, at least one of the following overpressure protection systems shall be OPERABLE:

a. Two power-operated relief valves (PORVs) with a lift setting of less than or equal to 470 psia and with their associated block valves open. These valves may only be used to satisfy low temperature overpressure protection (LTOP) when the RCS cold leg temperature is greater than the temperature listed in Table 3.4-4.

b. Two shutdown cooling relief valves (SDCRVs) with a lift setting of less than or equal to 350 psia.

c. One PORV with a lift setting of less than or equal to 470 psia and with its associated block valve open in conjunction with the use of one SDCRV with a lift setting of less than or equal to 350 psia. This combination may only be used to satisfy LTOP when the RCS cold leg temperature is greater than the temperature listed in Table 3.4-4.

APPLICABILITY: MODES ~~3#,~~ 4#, 5 and 6. *delete*

ACTION:

a. With either a PORV or an SDCRV being used for LTOP inoperable, restore at least two overpressure protection devices to OPERABLE status within 7 days or:

1. Depressurize and vent the RCS with a minimum vent area of 3.58 square inches within the next 8 hours; OR

2. Be at a temperature above the LOW TEMPERATURE RCS OVERPRESSURE PROTECTION RANGE of Table 3.4-3 within the next 8 hours.

b. With none of the overpressure protection devices being used for LTOP OPERABLE, within the next eight hours either:

1. Restore at least one overpressure protection device to OPERABLE status or vent the RCS; OR

2. Be at a temperature above the LOW TEMPERATURE RCS OVERPRESSURE PROTECTION RANGE of Table 3.4-3.

#With cold leg temperature within the LOW TEMPERATURE RCS OVERPRESSURE PROTECTION RANGE of Table 3.4-3.

TABLE 3.4-3

LOW TEMPERATURE RCS OVERPRESSURE PROTECTION RANGE

Operating Period, EFPY	Cold Leg Temperature, °F During Heatup	Cold Leg Temperature, °F During Cooldown
~~≤ 4 ≥ 6~~ 6 < operating period ≤ 15	~~≤ 313~~ ≤ 247	~~≤ 304~~ ≤ 230

TABLE 3.4-4

MINIMUM COLD LEG TEMPERATURE FOR PORV USE FOR LTOP

Operating Period EFPY	T_{cold}, °F During Heatup	T_{cold}, °F During Cooldown
~~≤ 4 – 6~~ 6 < operating period ≤ 15	~~156~~ 165	~~179~~ 165

3/4.4.1 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

The plant is designed to operate with both reactor coolant loops and associated reactor coolant pumps in operation, and maintain DNBR above 1.20 during all normal operations and anticipated transients. In MODES 1 and 2 with one reactor coolant loop not in operation, this specification requires that the plant be in at least HOT STANDBY within 1 hour.

In MODE 3, a single reactor coolant loop provides sufficient heat removal capability for removing decay heat; however, single failure considerations require that two loops be OPERABLE.

In MODE 4, and in MODE 5 with reactor coolant loops filled, a single reactor coolant loop or shutdown cooling loop provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops (either shutdown cooling or RCS) be OPERABLE.

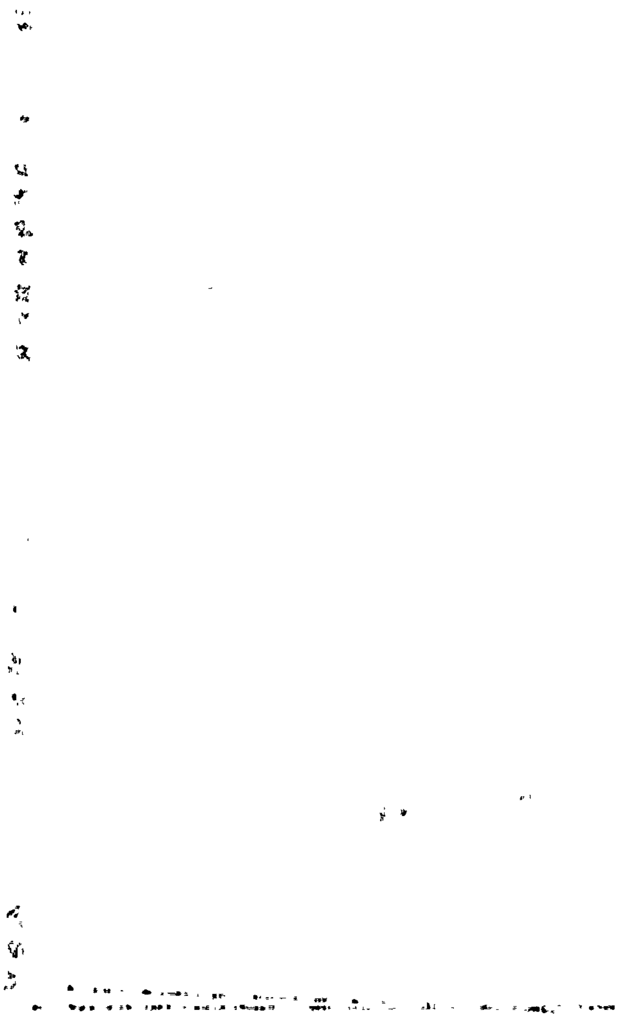
In MODE 5 with reactor coolant loops not filled, a single shutdown cooling loop provides sufficient heat removal capability for removing decay heat; but single failure considerations, and the unavailability of the steam generators as a heat removing component, require that at least two shutdown cooling loops be OPERABLE.

The operation of one reactor coolant pump or one shutdown cooling pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reductions will, therefore, be within the capability of operator recognition and control.

The restriction on starting a reactor coolant pump in MODES 4 and 5, with two idle loops and one or more RCS cold leg temperatures less than or equal to that specified in Table 3.4-3 ~~for the applicable operating period~~ is provided to prevent RCS pressure transients, caused by energy additions from the secondary system from exceeding the limits of Appendix G to 10 CFR Part 50. The RCS will be protected against overpressure transients by (1) sizing each PORV to mitigate the pressure transient of an inadvertent safety injection actuation in a water=solid RCS with pressurizer heaters energized, (2) restricting starting of the RCPs to when the secondary water temperature of each steam generator is less than 40°F above each of the RCS cold leg temperatures, (3) using SDCRVs to mitigate RCP start transients and the transients caused by inadvertent SIAS actuation and charging water, and (4) rendering one HPSI pump inoperable when the RCS is at low temperatures.

3/4.4.2 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2750 psia. Each safety valve is designed to relieve 212,182 lbs per hour of saturated steam at the valve setpoint. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that no safety valves are OPERABLE, an operating shutdown cooling loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. In addition, the Overpressure Protection System provides a diverse means of protection against RCS overpressurization at low temperatures.



3/4.4.4 PORV BLOCK VALVES

The power-operated relief valves (PORVs) and steam bubble function to relieve RCS pressure during all design transients up to and including the design step load decrease with steam dump. Operation of the PORVs in conjunction with a reactor trip on a Pressurizer Pressure-High signal minimizes the undesirable opening of the spring-loaded pressurizer code safety valves. The opening of the PORVs fulfills no safety-related function and no credit is taken for their operation in the safety analysis for MODE 1, 2, or 3.

Each PORV has a remotely operated block valve to provide a positive shutoff capability should a relief valve become inoperable. Since it is impractical and undesirable to actually open the PORVs to demonstate their reclosing, it becomes necessary to verify OPERABILITY of the PORV block valves to ensure the capability to isolate a malfunctioning PORV. As the PORVs are pilot operated and require some system pressure to operate, it is impractical to test them with the block valve closed.

The PORVs are sized to provide low temperature overpressure protection (LTOP). Since both PORVs must be OPERABLE when used for LTOP, both block valves will be open during operation within the LTOP range. As the PORV capacity required to perform the LTOP function is excessive for operation in MODE 1, 2, or 3, it is necessary that the operation of more than one PORV be precluded during these MODES. Thus, one block valve must be shut during MODES 1, 2, and 3.

~~The applicability of this technical specification to only a part of MODE 3 is due to the LTOP range slightly overlapping MODE 3 in the operating period beyond 15 EFPY. Both block valves will be open during operation in these lower temperature portions of MODE 3.~~

3/4.4.5 STEAM GENERATORS

The Surveillance Requirements for inspection of the steam generator tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice Inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion.

[illegible]
[illegible]
[illegible]
[illegible]

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

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, and startup and shutdown operations. The various categories of load cycles used for design purposes are provided in Section 5.2 of the FSAR.. During startup and shutdown, the rates of temperature and pressure changes are limited so that the maximum specified heatup and cooldown rates are consistent with the design assumptions and satisfy the stress limits for cyclic operation.

During heatup, the thermal gradients through the reactor vessel wall produce thermal stresses which are compressive at the reactor vessel inside surface and which are tensile at the reactor vessel outside surface. Since reactor vessel internal pressure always produces tensile stresses at both the inside and outside surface locations, the total applied stress is greatest at the outside surface location. However, since neutron irradiation damage is larger at the inside surface location when compared to the outside surface, the inside surface flaw may be more limiting. Consequently, for the heatup analysis both the inside and outside surface flaw locations must be analyzed for the specific pressure and thermal loadings to determine which is more limiting.

During cooldown, the thermal gradients through the reactor vessel wall produce thermal stresses which are tensile at the reactor vessel inside surface and which are compressive at the reactor vessel outside surface. Since reactor vessel internal pressure always produces tensile stresses at both the inside and outside surface locations, the total applied stress is greatest at the inside surface location. Since the neutron indication damage is also greatest at the inside surface location the inside surface flaw is the limiting location. Consequently, only the inside surface flaw must be evaluated for the cooldown analysis.

The heatup and cooldown limit curves Figures 3.4-2, 3.4-3 and 3.4-4 are composite curves which were prepared by determining the most conservative case, with either the inside or outside wall controlling, for any heatup rate of up to 50 degress F per hour or cooldown rate of up to 100 degrees F per hour. The heatup and cooldown curves were prepared based upon the most limiting value of the predicted adjusted reference temperature at [15 EFPY,] ~~the end of the service period,~~ and they include adjustments for ~~possible errors in the pressure and temperature sensing instruments.~~ [pressure differences between the reactor vessel beltline and pressurizer instrument taps.]

The reactor vessel materials have been tested to determine their initial RT_{NDT}; the results of these tests are shown in Table B 3/4.4-1. Reactor operation and resultant fast neutron (E greater than 1 MeV) irradiation will cause an increase in the RT_{NDT}. An adjusted reference temperature can be predicted using a) the initial RT_{NDT}, b) the fluence (E greater than 1 MeV), including appropriate adjustments for neutron attenuation and neutron energy spectrum variations through the wall thickness, c) the copper and nickel contents of the material, and d) the transition temperature shift from the curve shown in Figure B 3/4.4-1 as recommended by Regulatory Guide 1.99, Revision 2 ~~(Draft)~~, "Effects of Residual Elements on Predicted Radiation Damage to Reactor Vessel Materials." The heatup and cooldown limit curves Figures 3.4-2, 3.4-3 and 3.4-4 include predicted adjustments for this shift in RT_{NDT} at [15 EFPY] ~~the end of the applicable service period~~.

BASES

The actual shift in RT_{NDT} of the vessel material will be established periodically during operation by removing and evaluating, in accordance with ASTM E185-73 and 10 CFR Appendix H, reactor vessel material irradiation surveillance specimens installed near the inside wall of the reactor vessel in the core area. The surveillance specimen withdrawal schedule is shown in Table 4.4-5. Since the neutron spectra at the irradiation samples and vessel inside radius are essentially identical, the measured transition shift for a sample can be applied with confidence to the adjacent section of the reactor vessel. The heatup and cooldown curves must be recalculated when the delta RT_{NDT} determined from the surveillance capsule is different from the calculated delta RT_{NDT} for the equivalent capsule radiation exposure. The lead factors shown in Table 4.4-5 are the ratio of neutron flux at the surveillance capsule to that at the reactor inside surface.

The pressure-temperature limit lines shown on Figures 3.4-2, 3.4-3 and 3.4-4 for reactor criticality and for inservice leak and hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50.

The maximum RT_{NDT} for all Reactor Coolant System pressure-retaining materials, with the exception of the reactor pressure vessel, has been determined to be 60°F. The Lowest Service Temperature limit line shown on Figures 3.4-2, 3.4-3 and 3.4-4 is based upon this RT_{NDT} since Article NB-2332 (Summer Addenda of 1972) of Section III of the ASME Boiler and Pressure Vessel Code requires the Lowest Service Temperature to be RT_{NDT} + 100°F for piping, pumps, and valves. Below this temperature, the system pressure must be limited to a maximum of 20% of the system's hydrostatic test pressure of 3125 psia.

The limitations imposed on the pressurizer heatup and cooldown rates and spray water temperature differential are provided to assure that the pressurizer is operated within the design criteria assumed for the fatigue analysis performed in accordance with the ASME Code requirements.

The OPERABILITY of two PORVs, two SDCRVs or an RCS vent opening of greater than 3.58 square inches ensures that the RCS will be protected from pressure transients which could exceed the limits of Appendix G to 10 CFR Part 50 when one or more of the RCS cold leg temperatures are less than or equal to the ~~applicable maximum~~ LTOP temperatures. The Low Temperature Overpressure Protection System has adequate relieving capability to protect the RCS from overpressurization when the transient is limited to either (1) a safety injection actuation in a water-solid RCS with the pressurizer heaters energized or (2) the start of an idle RCP with the secondary water temperature of the steam generator less than or equal to 40°F above the RCS cold leg temperatures with the pressurizer water-solid.

[illegible]
[illegible]

ATTACHMENT 2

SAFETY ANALYSIS

Description of Change

The current St.Lucie Unit 2 Technical Specifications for Reactor Coolant System (RCS) pressure-temperature (P-T) limits are applicable up to 6 effective full power years (EFPY) of operation. The existing low temperature overpressure protection (LTOP) analysis that is based upon these P-T limits is also applicable up to 6 EFPY.

To ensure that the reactor coolant pressure boundary will continue to behave in a non-brittle manner while operating at low RCS temperatures during the operating period starting at 6 EFPY, new P-T limits have been developed and a new LTOP analysis has been performed, based upon the revised P-T limits. The LTOP analysis yielded Limiting Conditions for Operation (LCO) that constitute Low Temperature Overpressure Protection (LTOP) System alignments beyond 6 EFPY.

The proposed P-T limits (which are based upon fluence predictions at 15 EFPY) and revised LCOs ensure that all RCS components will be able to withstand the effects of cyclic loads due to system temperature and pressure changes without their functions or performance being impaired. These cyclic loads are introduced by normal load transients, reactor trips, and startup and shutdown operations. Overpressure protection provided by the LTOP system ensures RCS overpressurization below certain temperatures would be prevented, thus maintaining reactor coolant pressure boundary integrity.

The proposed changes are as follows:

a. Definition 1.16 for the Low Temperature RCS Overpressure Protection Range currently defines this operating condition when (1) the cold leg temperature is less than or equal to that specified in Table 3.4-3 for the applicable operating period, and (2) when the RCS is not vented to containment by an opening of at least 3.58 square inches.

   The proposed amendment would make administrative changes to the definition. Definition 1.16 would read "Low Temperature Overpressure Protection - RCS".

b. Footnote (**) appended to LCO 3.4.1.3 currently states that a reactor coolant pump (RCP) shall not be started with two idle loops and one or more RCS cold leg temperatures less than or equal to that specified in Table 3.4-3 for the applicable operating period, unless the secondary water temperature of each steam generator is less than 40° F above the RCS cold leg temperatures.

   The proposed amendment would revise this statement by deleting "for the applicable operating period". The proposed amendment is valid for only one operating period, i.e., to 15 EFPY.

c. Footnote (##) appended to LCO 3.4.1.4.1 currently states that an RCP shall not be started with two idle loops and one or more RCS cold leg temperatures less than or equal to that specified in Table 3.4-3 unless the secondary water temperature of each steam generator is less than 40° F above the RCS cold leg temperatures.

The proposed amendment would revise this statement since this LCO is applicable only to Mode 5, which is entirely within the LTOP temperature range. The footnote would be revised to require that an RCP shall not be started with two idle loops unless the secondary water temperature of each steam generator is less than 40° F above each of the RCS cold leg temperatures.

d. The APPLICABILITY of LCO 3.4.4 is currently for Modes 1 and 2, and Mode 3 when the cold leg temperature is above the RCS LTOP range of Table 3.4-3.

The proposed amendment would revise the applicability to Modes 1, 2 and 3, since the new LTOP range would not extend into Mode 3.

e. LCO 3.4.9.1 currently provides the pressure and temperature limits in terms of Figures 3.4-2, 3.4-3 and 3.4-4 of the RCS (except the pressurizer) during heatup, cooldown, criticality, and inservice leak and hydrostatic testing for 6 EFPY.

The proposed amendment would replace these three figures with three new figures, 3.4-2, 3.4-3 and 3.4-4 that are applicable for operation up to 15 EFPY.

f. The ACTION statement of LCO 3.4.9.1 currently requires that the unit be in at least HOT STANDBY within the next 6 hours and RCS T_{avg} and pressure be reduced to less than 200° F and 500 psia, respectively, within the following 30 hours.

The proposed amendment would revise this statement to require the unit to be in at least HOT STANDBY within the next 6 hours and RCS T_{avg} be reduced to less than 200° F within the next 30 hours, in accordance with Figures 3.4-3 and 3.4-4.

g. The APPLICABILITY of LCO 3.4.9.3 (Overpressure Protection Systems) is currently Modes 5 and 6, and Modes 3 and 4 whenever the cold leg temperature is within the Low Temperature RCS Overprotection Range of Table 3.4-3.

The proposed amendment would revise the APPLICABILITY to Modes 5 and 6 and to Mode 4 whenever the cold leg temperature is within the range specified of Table 3.4-3.

h. Table 3.4-3 of LCO 3.4.9.3, "Low Temperature RCS Overpressure Protection Range" lists the enable temperatures during heatup and cooldown which indicate when LTOP is required. That is, during heatup, LTOP is required when the cold leg temperature is less than or equal to 313° F, and during cooldown, when the cold leg temperature is less than or equal to 304° F.

   The proposed amendment would significantly reduce the LTOP range. The Table 3.4-3 would be revised to require LTOP with a cold leg temperature of less than or equal to 247° F during heatup and less than or equal to 230° F during cooldown. These new LTOP enable temperatures were determined in accordance with Standard Review Plan (SRP) 5.2.2 Rev. 2.

i. Table 3.4-4 of LCO 3.4.9.3 "Minimum Cold Leg Temperature for PORV Use for LTOP" lists the minimum temperature that either two power operated relief valves (PORVs) or a PORV in conjunction with one shutdown cooling relief valve (SDCRV) can be used for LTOP. The minimum cold leg temperature is currently 156° F during heatup and 179° F during cooldown.

   The proposed amendment would revise Table 3.4-4 to indicate the minimum cold leg temperature for PORV use for LTOP as 165° F during heatup or during cooldown.

j. Finally, the proposed amendment would revise the appropriate Bases.

A detailed report on the methodology used to calculate the new P-T limits and determine the new LTOP requirements that provide a basis for this amendment is provided in Attachment 4.

ATTACHMENT 3

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

The standards used to arrive at a determination that a request for amendment involves no significant hazards consideration are included in the Commissions's regulation, 10CFR50.92, which states that no significant hazards considerations are involved if the operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. Each standard is discussed below:

(1) Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

The pressure-temperature (P-T) limit curves in the Technical Specifications are conservatively generated in accordance with the fracture toughness requirements of 10CFR50 Appendix G as supplemented by the ASME Code Section III, Appendix G recommendations. The RT_{NDT} values for the revised curves are based on Regulatory Guide 1.99, Revision 02 shift prediction and attenuation formulas. Analyses of reactor vessel material irradiation surveillance specimens are used to verify the validity of the fluence predictions and the P-T limit curves. Use of the revised curves, in conjunction with the surveillance specimen program, ensures that the reactor coolant pressure boundary will behave in a non-brittle manner and that the possibility of rapidly propagating fracture is minimized.

In conjunction with revising the P-T limit curves for operation up to 15 EFPY, a low temperature overpressure protection (LTOP) analysis has been performed to confirm that the current LTOP setpoints for the power-operated relief valves (PORVs) and shutdown cooling relief valves (SDCRVs) will provide the appropriate overpressure protection at the low Reactor Coolant System (RCS) temperatures. The LTOP analysis also revised the current values of the limiting temperatures for the PORV and SDCRV setpoints' applicability, heatup and cooldown rates, based upon the revised P-T limits.

To ensure compliance with the P-T limit curves, overpressure protection is provided to keep the RCS pressure below the P-T limits for any given temperature after the initiation of assumed pressure transients (energy-addition and mass-addition transients) while operating below the enable temperatures that were determined in accordance with Standard Review Plan 5.2.2, Revision 02.

The revised P-T curves and LTOP system temperature ranges do not represent a significant change in the configuration or operation of the plant. The results of the LTOP analysis show that the limiting pressures for given temperatures are not exceeded for the assumed transients and that reactor vessel integrity is maintained. Thus, the proposed amendment does not involve an increase in the probability or consequences of accidents previously evaluated.

(2) Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

The evaluation performed has resulted in revised P-T limits based on the fracture toughness requirements of 10CFR50 Appendix G, and in revised LTOP system temperature ranges based on standard energy and mass addition transients. Since there is no significant change in the configuration or operation of the facility as a result of the proposed amendment, the use of revised P-T limits and the LTOP ranges does not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

The proposed amendment does not involve a significant reduction in a margin of safety, because the fracture toughness requirements of 10CFR50 Appendix G are satisfied and conservative operating restrictions are applied for the purpose of low temperature overpressure protection.

In conclusion, based on the analysis performed, we have determined that the amendment request does not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the probability of a new and different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety; and therefore does not involve a significant hazards consideration.