ATTACHMENT A

EXISTING TECHNICAL SPECIFICATIONS AND BASES UNIT 3

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LIMITING CONDITION FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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3/4.4.8 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR UPERATION

3.4.8.1 With the reactor vessel head bolts tensioned*, 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, 3.4-4, and 3.4-5 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

- A maximum heatup as specified by Figure 3.4-3 in any 1-hour period with RCS cold leg temperature less than 153°F. A maximum heatup of 60°F. in any 1-hour period with RCS cold leg temperature greater than 153°F.
- b. A maximum cooldown as specified by Figure 3.4-5 in any 1-hour period with RCS cold leg temperature less than 126°F. A maximum cooldown of 100°F in any 1-hour period with RCS cold leg temperature greater than 126°F.
- c. A maximum temperature change of 10°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.
- d. A minimum temperature of 86°F to tension reactor vessel head bolts.

with the reactor vessel head bolts detensioned, the Reactor Coolant System (except the pressurizer) temperature shall be limited to a maximum heatup or cooldown of 60°F in any 1-hour period.

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 and pressure to less than 200°F and 500 psia, respectively, within the following 30 hours.

^{*}With the reactor vessel head bolts detensioned, RCS cold leg temperature may be less than 86°F.

3/4 4 B PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENTS

- 4.4.8.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heztup, cooldown, and inservice leak and hydrostatic testing operations.
- 4.4.8.1.2 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 small be used to update Figures 3.4-2 and 3.4-3. Recalculate the Adjusted Reference Temperature based on the greater of the following:
 - a. The actual shift in reference temperature for plate C-6802-1 as determined by impact testing, or
 - The predicted shift in reference temperature for weld seams 2-203A. 2-2038, or 2-2030 as determined by Regulatory Guide 1.99, Revision 2," Radiation Embrittlement of Reactor Vessel Materials," May 1988.



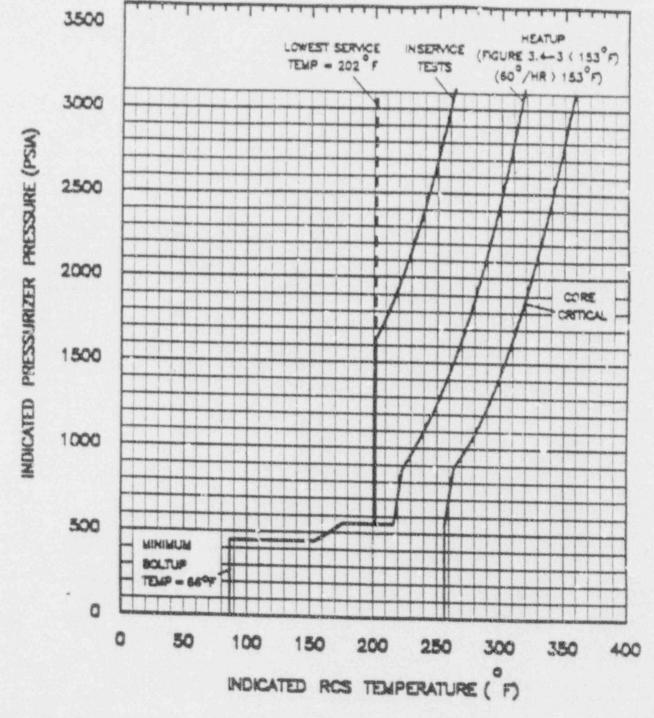


FIGURE 3.4-2

SONGS 3 RCS PRESSURE/TEMPERATURE LIMITATION FOR 4-8 EFPY

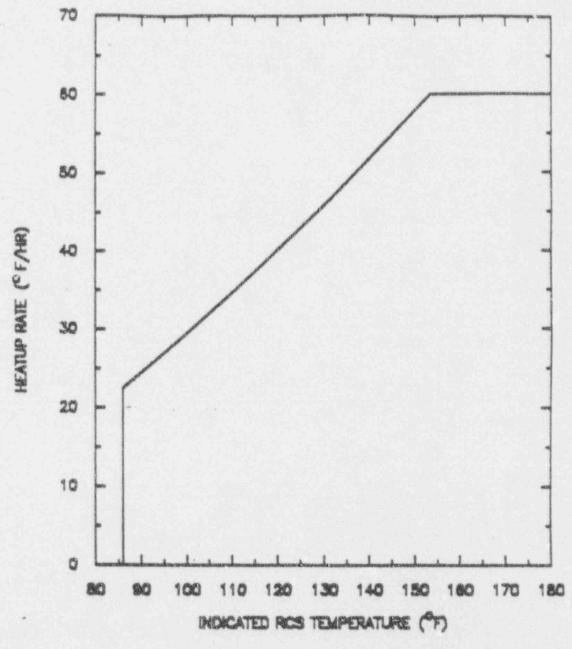
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3/4 4-30

AMENCMENT NO. 71



NOTE: A MAXIMUM HEATUP RATE OF 80°F/HR IS ALLOWED AT ANY TEMPERATURE ABOVE 153°F

FIGURE 3.4-3

SUNGS 3 RCS PRESSURE/TEMPERATURE LIMITS MAXIMUM ALLOWABLE HEATUP RATES (4-8 EFPY)

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3/4 4-30a

AMENOMENT NO. 71

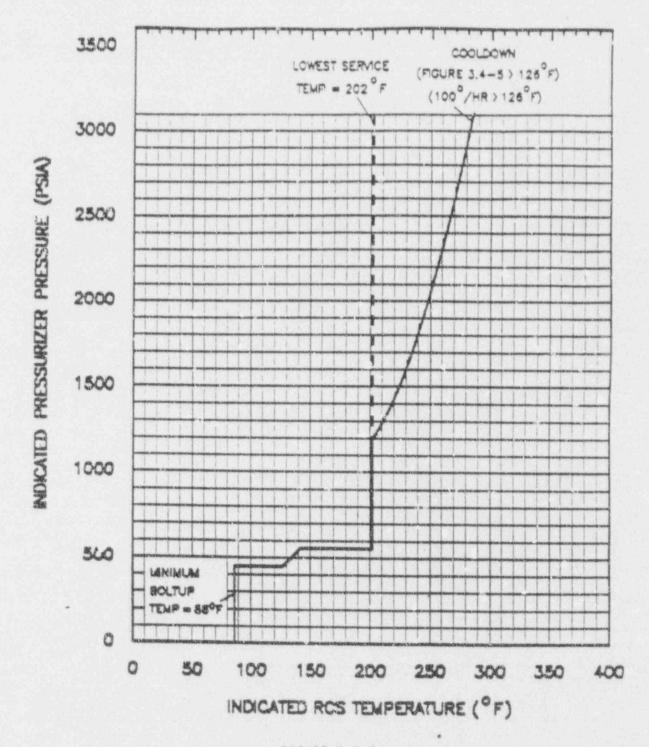


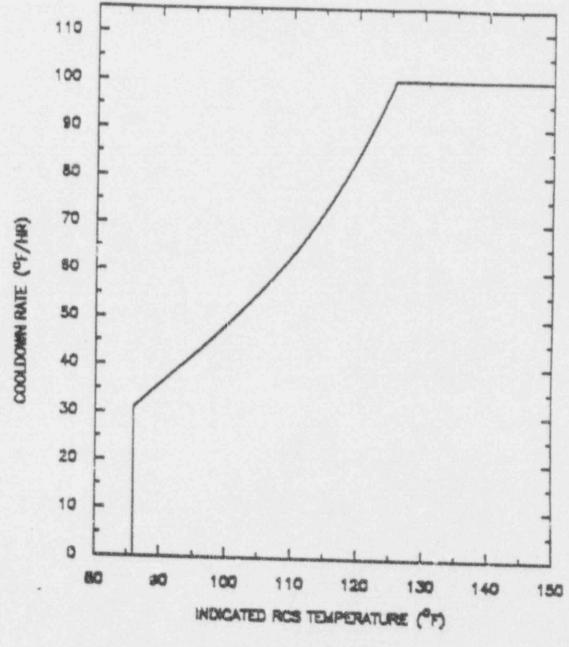
FIGURE 3.4-4

SONGS 3 RCS PRESSURE/TEMPERATURE LIMITATIONS FOR 4-8 EFPY

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3/4 4-31

AMENDMENT NO. 71



NOTE: A MAXIMUM COOLDOWN RATE OF 100°F/HR IS ALLOWED AT ANY TEMPERATURE ABOVE 128°F

FIGURE 3.4-5

SONGS 3 RCS PRESSURE/TEMPERATURE LIMITS MAXIMUM ALLOWABLE COOLDOWN RATES (4-8 EFPY)

SAN ONOFRE - UNIT 3

2/4 4-31a AMENOMENT NO.71

Table 3.4-3

Low Temperature RCS Overpressure Protection Range

Operating Period, EFPY	Cold Leg Ten	erature, °F		
	Ouring	During		
	Heatup	Cooldown		
4 to 8	≤ 302	≤ 267		

OVERPRESSURE PROTECTION SYSTEMS

RCS TEMPERATURE \$ 302°F

LIMITING CONDITION FOR OPERATION

- 3.4.8.3.1 At least one of the following overpressure protection systems sh. 11 be OPERABLE:
 - a. The Shutdown Cooling System Relief Valve (PSV9349) with:
 - 1) A lift setting of 406 ± 10 psig*, and
 - Relief valve isolation valves 3HV9337, 3HV9339, 3HV9377, and 3HV9378 open, or,
 - b. The Reactor Coolant System depressurized with an RCS vent of greater than or equal to 5.6 square inches.

APPLICABILITY: MODE 4 when the temperature of any one RCS cold leg is less than or equal to that specified in Table 3.4-3; MODE 5; MODE 6 with the reactor vessel head on.

ACTION:

- a. With the SDCS Relief Valve inoperable, reduce T avg to less than 200°F, depressurize and vent the RCS through a greater than or equal to 5.6 square inch vent within the next 8 hours.
- b. With one or both SDCS Relief Valve isolation valves in a single SDCS Relief Valve isolation valve pair (valve pair 3HV9337 and 3HV9339 or valve pair 3HV9377 and 3HV9378) closed, open the closed valve(s) within 7 days or reduce T to less than 200°F, depressurize and vent the RCS through a greater than or equal to 5.6 inch vent within the next 8 hours.
- In the event either the SDCS Relief Valve or an RCS vent is used to mitigate an RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the SDCS Relief Valve or RCS vent on the transient and any corrective action necessary to prevent recurrence.
- d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.4.8.3.1.1 The SDCS Relief Valve shall be demonstrated OPERABLE by:
 - Verifying at least once per 72 hours when the SDCS Relief Valve is being used for overpressure protection that SDCS Relief Valve isolation valves 3HV9337, 3HV9339, 3HV9377, and 3HV9378 are open.

^{*}The lift setting pressure applicable to valve temperatures of less than or equal to 130°F.

OVERPRESSURE PROTECTION SYSTEMS

RCS TEMPERATURE > 302°F

LIMITING CONDITION FOR OPERATION

- 3.4.8.3.2 At least one of the following overpressure protection systems shall be DPERABLE:
 - a. The Shutdown Cooling System Pelief Valve (PSV9349) with:
 - 1) A lift setting of 406 ± 10 psig*, and
 - Relief valve isolation valves 3HV9337, 3HV9339, 3HV9377, and 3HV9378 open, pr,
 - b. A minimum of one pressurizer code safety valve with a lift setting of 2500 psia + 1%**.

APPLICABILITY: MODE 4 with RCS temperature above that specified in Table 3.4-3. ACTION:

- a. With no safety or relief valve OPERABLE, be in COLD SHUTDOWN and vent the RCS through a greater than or equal to 5.6 square inch vent within the next 3 hours.
- b. In the event the SDCS Relief Valve or an RCS vent is used to mitigate an RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the SDCS Relief Valve code safety valve or RCS vent on the transient and any corrective action necessary to prevent recurrence.

SURVEILLANCE REQUIREMENTS

- 4.4.8.3.2.1 The SDCS Relief Valve shall be demonstrated OPERABLE by:
 - a. Verifying at least once per 72 hours that the SDCS Relief Valve isolation valves 3HV9337, 3HV9339, 3HV9377 and 3HV9378 are open when the SDCS Relief Valve is being used for overpressure protection.
 - b. Verifying relief valve satpoint at least once per 30 months when tested pursuant to Specification 4.0.5.
- 4.4.8.3.2.2 The pressurizer code safety valve has no additional surveillance requirements other than those required by Specification 4.0.5.
- 4.4.8.3.2. The RC5 vent shall be verified to be open at least once per 12 hours when the vent is being used for overprassure protection, except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open at least once per 31 days.

^{*}The lift setting pressure applicable to valve temperatures of loss than or equal to 130°F.

^{**}The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

PRESSURE/TEMPERATURE LIMITS (Continued)

The heatup and cooldown limit curves (Figures 3.4-2 and 3.4-3) 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 60°F/hr or cooldown rate of up to 100°F/hr. The heatup and cooldown curves were prepared based upon the most limiting value of the predicted adjusted reference temperature at the end of the service period indicated on Figures 3.4-2 and 3.4-3.

The reactor vessel materials have been tested to determine their initial RT not; the results of these tests are shown in Table 8 3/4.4-1. Reactor operation and resultant fast neutron (F treater than 1 MeV) irradiation will cause an increase in the RT not. Therefore, an adjusted reference temperature, based upon the fluence and appear and nickel content of the material in question, can be predicted using FSAR Table 5.2-5 and the recommendations of Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials." The heatup and cooldown limit curves, Figures 3.4-2 and 3.4-3, include predicted adjustments for this shift in RT not at the end 3: the applicable service period, as well as adjustments for possible errors in the pressure and temperature sensing instruments.

The actual shift in RT NOT 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 slown 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 taking into account the location of the sample closer to the core than the vessel wall by means of the Lead Factor. The heatup and cooldown curves must be recalculated when the delta RT of determined from the surveillance capsule is different from the calculated delta RT for the equivalent capsule radiation exposure.

The pressure-temperature limit lines shown on Figures 3.4-2 and 3.4-3 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_{NOT} for all Reactor Coolant System pressure-retaining materials, with the exception of the reactor pressure vessel, has been determined to be 90°F. The Lowest Service Temperature limit line shown on Figures 3.4-2 and 3.4-3 is based upon this 's not since Article M8-2332 (Summer Addenda of 1972) of Section III of the ASME Boller and Pressure Vessel Code requires the Lowest Service Temperature to be RT_{NOT} + 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.

TABLE B 3/4.4-1

REACTOR VESSEL TOUGHNESS

Piece No.	Cade No.	Material	Vessel Location	Drop Weight Results	Temperati Charpy V @ 30 (ft - 1b -	Notch 0 50	Minimum Upper Shelf Cv energy for Longitudinal Direction-ft lb
-	And the Control of th	A533GRBCL1	Upper Shell Plate	-20	28	64	115
215-01	C-6801-1	A533GRBCL1	Upper Shell Plate	-20	-6	34	106
215-01	C-6801-2	A533GRBCL1	Upper Shell Plate	-20	18	16	115
215-01	C-6801-3	ADDRIBUEL 1	opper sileri i racc				
215-02	C-6802-4	A533GRBCL1	Lower Shell Plate	- 30	32	62	115
215-02	C-6802-5	A533GRBCL1	Lower Shell Plate	0	36	64	1.0
215-02	C-6802-6	A533GRBCL1	Lower Shell Plate	0	32	100	90
217 02							Ar.
215-03	C-6802-1	A533GRBCL1	Intermediate Shel!	-20	56	100	95
215-03	€-6892-2	A533GRBCL1	Intermediate Shel	-20	40	66	113
215-03	C-6802-3	A533GRBCL1	Intermediate She	-10	44	80	101
203-02	C-6823	A508CL2	Vessel Flange Forging	0	-30	-15	NA
209-02	C-6824-1	A508CL2	Closure Read Flange Forging	-40	-100	-100	NA
205-02	C-5829-1	A508CL2	Inlet Nozzle Forging	10	-35	-5	109
205-02	C-6829-2	A508CL2	Inlet Nozzle Forging	0	-55	-35	156
209-02	7 C-6829-3	A508CL2	Telet Mozzle Forging	10	-25	35	112
201 62	6-6829-4	A508CL2	Inlet Nozzle Forging	10	-30	25	108
1Z	1		Catal Manala Familia	-10	-39	-15	125
206906 -	C-6830-1	A508CL2	Outlet Nozzle Forging	-10	-20	-5	131
201906 3	C-6830-2	ASPOCL2	Outlet Nozzle Forging	10	20		
20 SUED 22 SUED	C-6840-1	A533GRBCL1	Bottom Head Forus	-50	-10	0	107
26202 6	C-6841-1	A533GRBC11	Bottom Head Dome	-49	10	20	39
LOCATION A							

ATTACHMENT B

PROPOSED TECHNICAL SPECIFICATIONS AND BASES UNIT 3

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3/4.4.8 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.8.1 With the reactor vessel head bolts tensioned, 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, 3.4-4, and 3.4-5, 3.4-6, and 3.4-7 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

- a. A maximum heatup as specified by Figure 3.4-3 in any 1-hour period with RCS cold leg temperature less than 153 180°F. A maximum heatup of 60°F in any 1-hour period with RCS cold leg temperature greater than 153 180°F.
- b. A maximum cooldown as specified by Figure 3.4-5 in any 1-hour period with RCS cold leg temperature less than 126 175°F. A maximum cooldown of 100°F in any 1-hour period with RCS cold leg temperature greater than 126 175°F.
- c. A maximum temperature change of 10°F in any 1-hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.
- d. A minimum temperature of 86°F to tension reactor vessel head bolts.

With the reactor vessel head bolts detensioned, the Reactor Coolant System (except the pressurizer) temperature shall be limited to a maximum heatup or cooldown of 60°F in any 1-hour period.

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 $T_{\rm avg}$ and pressure to less than 200°F and 500 psia, respectively, within the following 30 hours.

^{*} With the reactor vessel head bolts detensioned, RCS cold leg temperature may be less than 86°F.

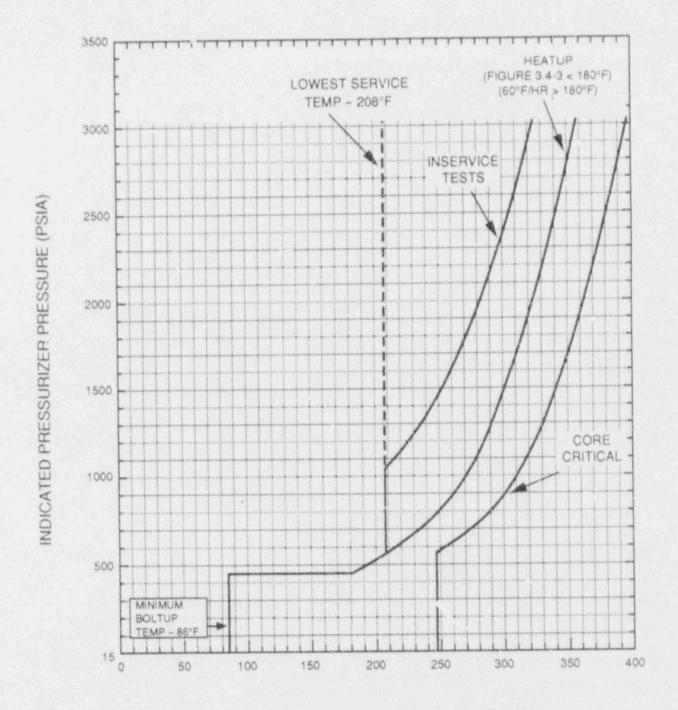
3/4.4.8 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENTS

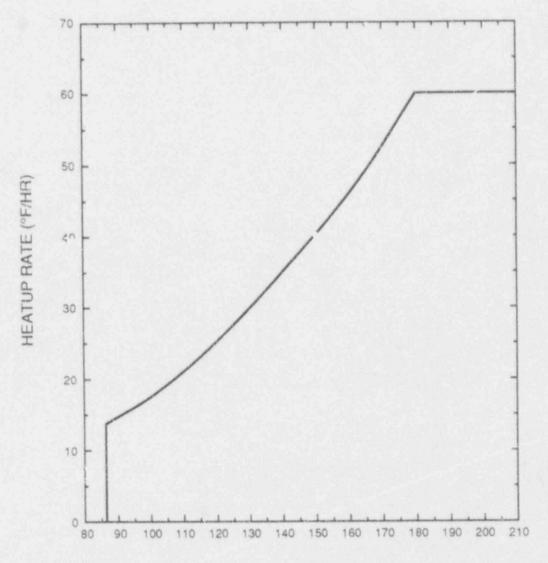
- 4.4.8.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.
- 4.4.8.1.2 The reactor vessel materia: irradiation surveillance specimens shall 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 through 3.4-7. Recalculate the Adjusted Reference Temperature based on the greater of the following: in accordance with Regulatory Guide 1.99 Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988.
 - a. The actual shift in reference temperature for plate 0 6802 1 as determined by impact testing, or
 - b. The predicted shift in reference temperature for weld seams 2 203A, 2 203B, or 2 203C as determined by Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials," May 1988.



INDICATED RCS TEMPERATURE (°F)

FIGURE 3.4-2

SONGS 3 HEATUP RCS PRESSURE/TEMPERATURE LIMITATIONS FOR —4— 8 EFPY Normal Operation

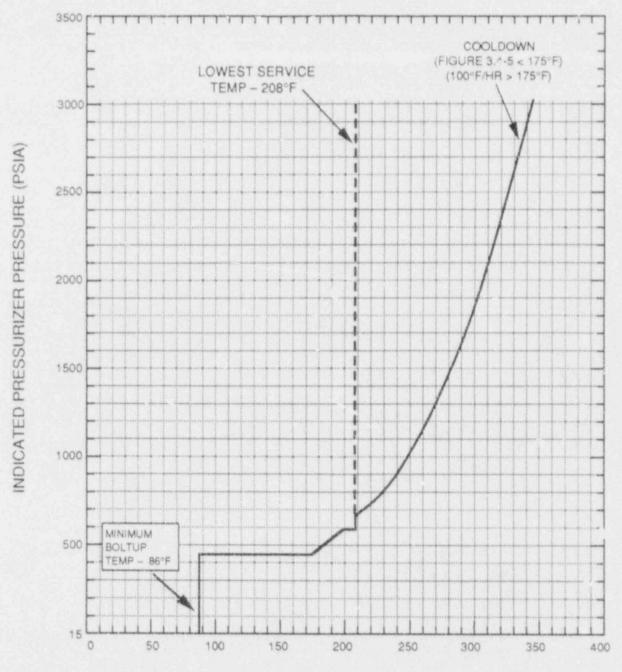


INDICATED RCS TEMPERATURE (°F)

NOTE: A MAXIMUM HEATUP RATE OF 60°F/HR IS ALLOWED AT ANY TEMPERATURE ABOVE 153°F 180°F

FIGURE 3.4-3

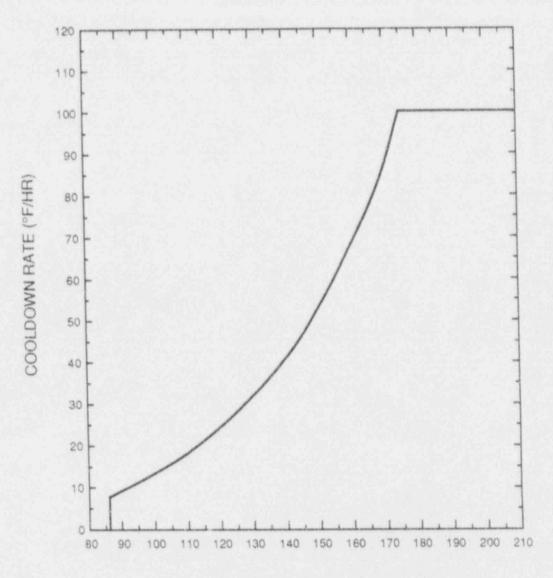
SONGS 3 RCS PRESSURE/TEMPERATURE LIMITS MAXIMUM ALLOWABLE HEATUP RATES (-4 8 EFPY) Normal Operation



INDICATED RCS TEMPERATURE (°F)

FIGURE 3.4-4

SONGS 3 COOLDOWN RCS PRESSURE/TEMPERATURE LIMITATIONS FOR —4—8 EFPY
Normal Operation



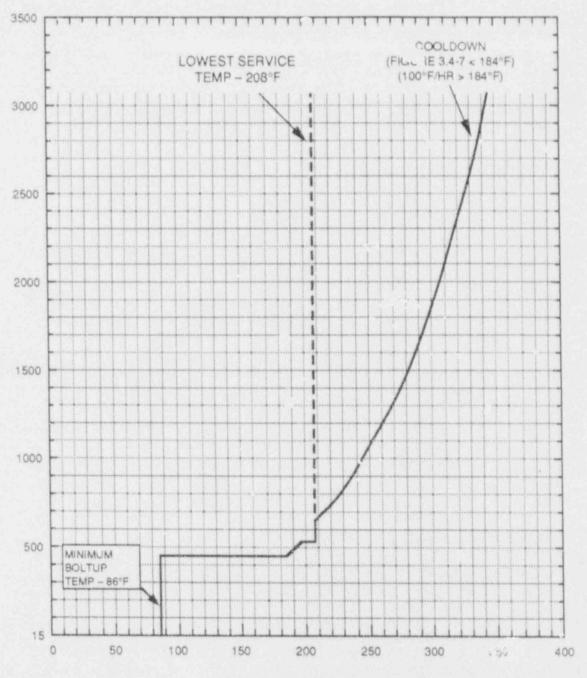
INDICATED RCS TEMPERATURE (°F)

NOTE: A MAXIMUM COOLDOWN RATE OF 100°F/HR IS ALLOWED AT ANY TEMPERATURE ABOVE 126°F 175°F

FIGURE 3.4-5

SONGS 3 RCS PRESSURE/TEMPERATURE LIMITS
MAXIMUM ALLOWABLE COOLDOWN RATES (-4 8 EFPY)
Normal Operation

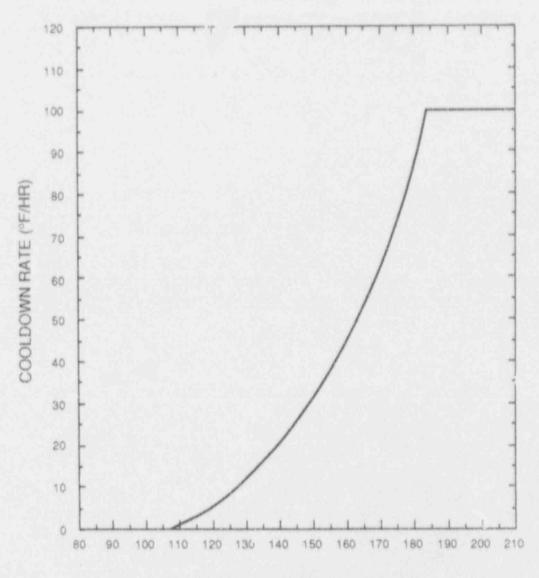




INDICATED RCS TEMPERATURE (°F)

FIGURE 3.4-6

SONGS 3 COOLDOWN RCS PRESSURE/TEMPERATURE
LIMITATIONS FOR 8 EFPY
Remote Shutdown Operation



INDICATED RCS TEMPERATURE (°F)

NOTE: A MAXIMUM COULDOWN RATE OF 100 F/HR IS ALLOWED AT ANY TEMPERATURE ABOVE 184°F

FIGURE 3.4-7

SONGS 3 RCS PRESSURE/TEMPERATURE LIMITS MAXIMUM ALLOWABLE COOLDOWN RATES (8 EFPY) Remote Shutdown Operation

TABLE 3.4-3

low Temperature RCS Overpressure Protection Range

Operating Period, EFPY	Cold Leg Temperature, of			
	During <u>Heatup</u>	During Cooldown		
4 Up to 8 (Normal Operation)	≤ 302 265	≤ 267 249		
Up to 8 (Remote Shutdown Operation)	***************************************	≤ 249		

Heatup operations are not normally performed from the Remote Shutdown panels.

OVERPRESSURE PROTECTION SYSTEMS

RCS TEMPER'TURE ≤ 302 265°F

LIMITING CONDITION FOR OPERATION

3.4.8.3.1 At least one of the following overpressure protection systems shall be OPERABLE:

- a. The Shutdown Cooling System Relief Valve (PSV 9349) with:
 - 1) A lift setting of 406 ± 10 psig*, and
 - 2) Relief valve isolation valves 3HV9337, 3HV9339, 3HV9377, and 3HV9378 open, or,
- b. The Reactor Coolant System depressurized with an RCS vent of greater than or equal to 5.6 square in as.

APPLICABILITY: Mode 4 when the temperature of any one RCS cold leg is less than or equal to that specified in Table 3.4-3; MODE 5; MODE 6 with the reactor vessel head on.

ACTION:

- a. With the SDCS Relief Valve inoperable, reduce $T_{\rm avg}$ to less than 200°F, depressurize and vent the RCS through a greater than or equal to 5.6 square inch vent within the next 8 hours.
- b. With one or both SDCS Relief Valve isolation valves in a single SDCS Relief Valve isolation valve pair (valve pair 3HV9337 and 3HV9339 or valve pair 3HV9377 and 3HV9378) closed, open the closed valve(s) within 7 days or reduce T_{avg} to less than 200°F, depressurize and vent the RCS through a greater than or equal to 5.6 inch vent within the next 8 hours.
- c. In the event either the SDCS Relief Valve or an RCS vent is used to mitigate an RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the SDCS Relief Valve or RCS vent on the transient and any corrective action necessary to prevent recurrence.
- d. The provisions of Technical Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.4.8.3.1.1 The SDCS Relief Valve shall be demonstrated OPERABLE by:
 - a. Verifying at least once per 72 hours when the SDCS Relief Valve is being used for overpressure protection that SDCS Relief Valve isolation valves 3HV9337, 3HV9339, 3HV9377 and 3HV9378 are open.

The lift setting pressure applicable to valve temperatures of less than or equal to 130°F.

OVERPRESSURE PROTECTION SYSTEMS

RCS TEMPERATURE >302 265°F

LIMITING CONDITION FOR OPERATION

- 3.4.8.3.2 At least one of the following overpressure protection systems shall be OPERABLE:
 - a. The Shutdown Cooling System Relief Valve (PSV 9349) with:
 - 1) A lift setting of 406 ± 10 psig*, and
 - 2) Relief valve isolation valves 3HV9337, 3HV9339, 3HV9377, and 3HV9378 open, or.
 - b. A minimum of one pressurizer code safety valve with a lift setting of 2500 psia \pm 1%.

APPLICABILITY: Mode 4 with RCS temperature above that specified in Table 3.4-3.

ACTION:

- a. With no safety or relief valve OPERABLE, be in COLD SHUTDOWN and vent the RCS through a greater than or equal to 5.6 square inch vent within the next 8 hours.
- b. In the event the SDCS Relief Valve or an RCS vent is used to mitigate an RCS pressure transient, a Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 30 days. The report shall describe the circumstances initiating the transient, the effect of the SDCS Relief Valve code safety valve or RCS vent on the transient and any corrective action necessary to prevent recurrence.

SURVEILLANCE REQUIREMENTS

- 4.4.8.3.2.1 The SDCS Relief Valve shall be demonstrated OPERABLE by:
 - a. Verifying at least once per 72 hours that the SDCS Relief Valve isolation valves 3HV9337, 3HV9339, 3HV9377 and 3HV9378 are open when the SDCS Relief Valve is being used for overpressure protection.
 - b. Verifying relief valve setpoint at least once per 30 months when tested pursuant to Specification 4.0.5
- 4.4.8.3.2.2 The pressurizer code safety valve has no additional surveillance requirements other than those required by Specification 4.0.5.
- 4.4.8.3.2.3 The RCS vent shall be verified to be open at least once per 12 hours when the vent is being used for overpressure protection, except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open at least once per 31 days.

The lift setting pressure applicable to valve temperatures of less than or equal to 130°F.

[&]quot;The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

PRESSURE/TEMPERATURE LIMITS (Continued)

The heatup and cooldown limit curves for normal operation (Figures 3.4-2 and 3.4-34) and the cooldown limit curve for remote shutdown operation (Figure 3.4-6) 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 60°F/hr or cooldown rate of up to 100°F/hr. The limit curves for Remote Shutdown operation are determined using the Total Loop Uncertaintias (TLUs) for temperature and pressure for the Remote Shutdown Panel instruments in which the pressure TLUs are higher than those for the Control Room shutdown instruments. The heatup and cooldown curves were prepared based upon the most limiting value of the predicted adjusted reference temperature at the end of the service period indicated on Figures 3.4-2 and 3.4-34 for normal operation and Figure 3.4-6 for Remote Shutdown operation.

The reactor vessel materials have been were tested prior to reactor startup to determine their initial RT_{NDT}. The results of these tests and the updates in response to Generic Letter 92-01, "Reactor Vessel Structural Integrity," Revision 1 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}. Therefore, an adjusted reference temperature based upon the fluence and copper and nickel content of the material in question, can be predicted using UFSAR Table 5.2-5 6 and the recommendations of Regulatory Guide 1.99, Revision 2, "Radiation Embrittlement of Reactor Vessel Materials." The heatup limit curve (Figure 3.4-2) and the cooldown limit curves, Figures 3.4-24, and 3.4-36, include predicted adjustments for this shift in RT_{NDT} at the end of the applicable service period, as well as adjustments for possible errors in the pressure and temperature sensing instruments.

Ine actual snift 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 50 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 taking into account the location of the sample closer to the core than the vessel wall by means of the Lead Factor. 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 pressure-temperature limit lines shown on Figures 3.4-2 and 3.4-3 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.

BASES

PRESSURE/TEMPERATURE LIMITS (Continued)

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 90°F. The Lowest Service Temperature limit line shown on Figures 3.4-2, 3.4-4, and 3.4-36 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 Low Temperature Overpressure Protection (LTOP) enable temperatures are based upon the recommendations of NUREG-0800 Branch Technical Position (BTP) RSB 5-2, Revision 1, "Overpressurization Protection of Pressurized Water Reactors While Operating at Low Temperatures." BTP RSB 5-2, Revision 1 defines the enable temperature as "the water temperature corresponding to a metal temperature of at least RT_{NOT} + 90°F at the beltline location (1/4t or 3/4t) that is controlling in the Appendix G limit calculations."

TABLE B 3/4.4-1 REACTOR VESSEL TOUGHNESS

NOFRE-UNIT	Piece No.	Code No.	Material	Vessel Location	Orop Weight Results	Temperatu Charpy V- @ 30 ft - 1b	Notch	Minimum Upper Shelf Cv energy for Longitudinal Direction-ft 1b	
ç.i		C-6801-1	A533GRBCL1	Upper Shell Plate	-20	28	64	115	
	215-01	C-6801-2	A533GRBCL1	Upper Shell Plate	-20	-6	34	106	
	215-01	C-6801-3	A533GRBCL1	Upper Shell Plate	-20	18	36	115	
	715-02	C-6802-4	A533GRBCL1	Lower Shell Plate	-30	3240	6270	1158	-
	215-02	C-6802-5	A533GRBCL1	Lower Shell Plate	0	3640	6470	1106	ı
	215-02	C-6802-6	A533GKBCL1	Lower Shell Plate	-40	3240	10080	9092	
	215-03	€-6802-1	A533GRBCL1	Intermediate Shell	- 2010	56110	100135	9594	descriptions.
(CT)		C-6802-2	A533GRBCL1	Intermediate Shell	-20	40	6670	1135	1
3/4		C-6802-3	A533GRBCL1	Intermediate Shell	-10	4460	80	1015	control
4	203-02	C-6823	A508CL2	Vessel Flange Forging	0	-30	-15	NA	
00	209-02	C-5824-1	A508CL2	Closure Head Flange Forging	-40	-100	-100	NA	
	205-02	C-6829-1	A508CL2	Inlet Nozzle Forging	10	-35	-5	109	
	205-02	C-1829-2	A508CL2	Inlet Nozzle Forging	0	-55	-35	156	
	205-02	C-6829-3	A508CL2	Inlet Nozzle Forging	10	-25	35	112	
	205-02	C-6829-4	A508CL2	Inlet Nozzle Forging	10	-30	25	108	
	205-06	C-6830-1	A508CL2	Outlet Nozzle Forging	-10	-30	-15	125	
AME		€-6830-2	A508CL2	Outlet Nozzle Forging		-20	-5	131	
AMENDMEN	232-01	C-6840-1	A533GRBCL1	Bottom Head Torus	-50	-13	0	107	
EN	232-02	C-6841-1	A533GRBCLI	Bottom Head Dome	-40	10	20	99	

ENCLOSURE 2

CHANGES TO 15 3.4.8.3.1 PAGES WHICH WERE PREVIOUSLY REQUESTED IN AMENDMENT APPLICATION NO. 97 (PCN-358) DATED DECEMBER 20, 1991 AND ARE BEING REQUESTED IN PCN-359

SAN ONOFRE UNIT 3

OVERPRESSURE PROTECTION SYSTEMS

RCS TEMPERATURE ≤ 302 265°F

PCN 359

LIMITING CONDITION FOR OPERATION

3.4.8.3.1 No more than two high-pressure safety injection pumps shall be OPERABLE and at least one of the following overpressure protection systems shall be OPERABLE:

PCN 358

- a. The Shutdown Cooling System Relief Valve (PSV9349) with:
 - 1) A lift setting of 406 ± 10 psig*, and
 - 2) Relief valve isolation valves 3HV9337, 3HV9339, 3HV9377, and 3HV9378 open, or,

or,

PCN 358

b. The Reactor Coolant System depressurized with an RCS vent of greater tan or equal to 5.6 square inches.

APPLICABILITY:

MODE 4 when the temperature of any one RCS cold leg is less than or equal to that the enable temperatures specified in Table 3.4-3; MODE 5; and MODE 6 with when the reactor vessel head is on the reactor vessel and the RCS is not vented.

PCN 358

ACTION:

- a. With the SDCS Relief Valve inoperable, reduce $T_{\rm avg}$ to less than 200°F, depressurize and vent the RCS through a greater than or equal to 5.6 square inch vent within the next 8 hours.
- b. With one or both SDCS Relief Valve isolation valves in a single SDCS Relief Valve isolation valve pair (valve pair 3HV9337 and 3HV9339 or valve pair 3HV9377 and 3HV9378) closed, open the closed valve(s) or power-lock open the other SDCS Relief Valve isolation valve pair within 7 days 24 hours, or reduce Tave to less than 200°F, depressurize and vent the RCS through a greater than or equal to 5.6 inch vent within the next 8 hours.

PCN 358

with more than two high-pressure safety injection pumps OPERABLE, secure the third high-pressure safety injection pump by racking out its motor circuit breaker or locking close its discharge valve within 8 hours.

PCN 358

^{*} The lift setting pressure applicable to valve temperatures of less than or equal to 130°F.