

ATTACHMENT A

UNIT 1 REVISED

TECHNICAL SPECIFICATION

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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 Figure 3.4-2 during heatup, cooldown, criticality, and inservice leak and hydrostatic testing with:

- a. A maximum heatup of:

<u>Maximum Allowable Heatup Rate</u>	<u>RCS Temperature</u>
40°F in any one hour period	70°F to 313°F
10°F in any one hour period	314°F to 327°F
60°F in any one hour period	> 327°F

- b. A maximum cooldown of:

<u>Maximum Allowable Cooldown Rate</u>	<u>RCS Temperature</u>
100°F in any one hour period	> 250°F
20°F in any one hour period	250°F to 170°F
10°F in any one hour period	< 170°F

- c. A maximum temperature change of 5°F in any one hour period, during hydrostatic testing operations above system design pressure.

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 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 and 300 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.

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, shown in Table 4.4-5. The results of these examinations shall be used to update Figure 3.4-2.

required by 10 CFR Part 50, Appendix H.

TABLE 4.4-5

REACTOR VESSEL MATERIAL IRRADIATION SURVEILLANCE SCHEDULE

<u>SPECIMEN</u>	<u>REMOVAL INTERVAL</u>
1. Capsule No. 1	5 years
2. Capsule No. 2	14 years
3. Capsule No. 3	23 years
4. Capsule No. 4	30 years
5. Capsule No. 5	35 years
6. Capsule No. 6	40 years

DELETED

REACTOR COOLANT SYSTEM

BASES

steam generator tube rupture accident in conjunction with an assumed steady state primary-to-secondary steam generator leakage rate of 1.0 gpm and a concurrent loss of offsite electrical power. The values for the limits on specific activity represent interim limits based upon a parametric evaluation by the NRC of typical site locations. These values are conservative in that specific site parameters of the Calvert Cliffs site, such as site boundary location and meteorological conditions, were not considered in this evaluation. The NRC is finalizing site specific criteria which will be used as the basis for the reevaluation of the specific activity limits of this site. This reevaluation may result in higher limits.

The ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity >1.0 uCi/gram DOSE EQUIVALENT I-131, but within the allowable limit shown on Figure 3.4-1, accommodates possible iodine spiking phenomenon which may occur following changes in THERMAL POWER. Operation with specific activity levels exceeding 1.0 uCi/gram DOSE EQUIVALENT I-131 but within the limits shown on Figure 3.4-1 must be restricted to no more than 10 percent of the unit's yearly operating time since the activity levels allowed by Figure 3.4-1 increase the 2 hour thyroid dose at the site boundary by a factor of up to 20 following a postulated steam generator tube rupture.

Reducing T_{avg} to $< 500^{\circ}\text{F}$ prevents the release of activity should a steam generator tube rupture since the saturation pressure of the primary coolant is below the lift pressure of the atmospheric steam relief valves. The surveillance requirements provide adequate assurance that excessive specific activity levels in the primary coolant will be detected in sufficient time to take corrective action. Information obtained on iodine spiking will be used to assess the parameters associated with spiking phenomena. A reduction in frequency of isotopic analyses following power changes may be permissible if justified by the data obtained.

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

Operation within the appropriate heatup and cooldown curves assures the integrity of the reactor vessel against fracture induced by combinative thermal and pressure stresses. As the vessel is subjected to increasing fluence, the toughness of the limiting material continues to decline, and ever more restrictive Pressure/Temperature limits must be observed. The current limits, Figures 3.4-2a and 3.4-2b, are for up to and including 12 Effective Full Power Years (EFPY) of operation.

The shift in the material fracture toughness, as represented by RT_{NDT} , is calculated using Regulatory Guide 1.99, Revision 2. For 12 EFPY, at the $1/4$ T position, the adjusted reference temperature (ART)

INSERTS FOR BASES SECTION 3/4.4.9
"PRESSURE/TEMPERATURE LIMITS"

INSERT "A"

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 operation. The various categories of load cycles used for design purposes are provided in Section 4.1.1 of the UFSAR. 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.

INSERT "B"

The reactor vessel materials have been tested to determine their initial RT_{NDT} ; the results of these tests are shown in Section 4.1.5 of the UFSAR. Reactor operation and resultant fast neutron ($E > 1$ Mev) irradiation will cause an increase in the RT_{NDT} . The actual shift in RT_{NDT} of the vessel material will be established periodically during operation by removing and evaluating reactor vessel material irradiation surveillance specimens installed near the inside wall of the reactor vessel in the core area. The number of reactor vessel irradiation surveillance specimens and the frequencies for removing and testing these specimens are provided in UFSAR Table 4-13 and are approved by the NRC prior to implementation in compliance with the requirements of Appendix H to 10 CFR Part 50.

ATTACHMENT B

UNIT 2 REVISED

TECHNICAL SPECIFICATION

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REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS

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