REACTOR COOLANT SYSTEM

MATERIAL PROPERTY BASIS

LIMITING MATERIAL: INTERMEDIATE SHELL PLATE A9154-1

LIMITING ART VALUES @ 56 EFPY: 1/4T, 153°F

3/4T, 138°F

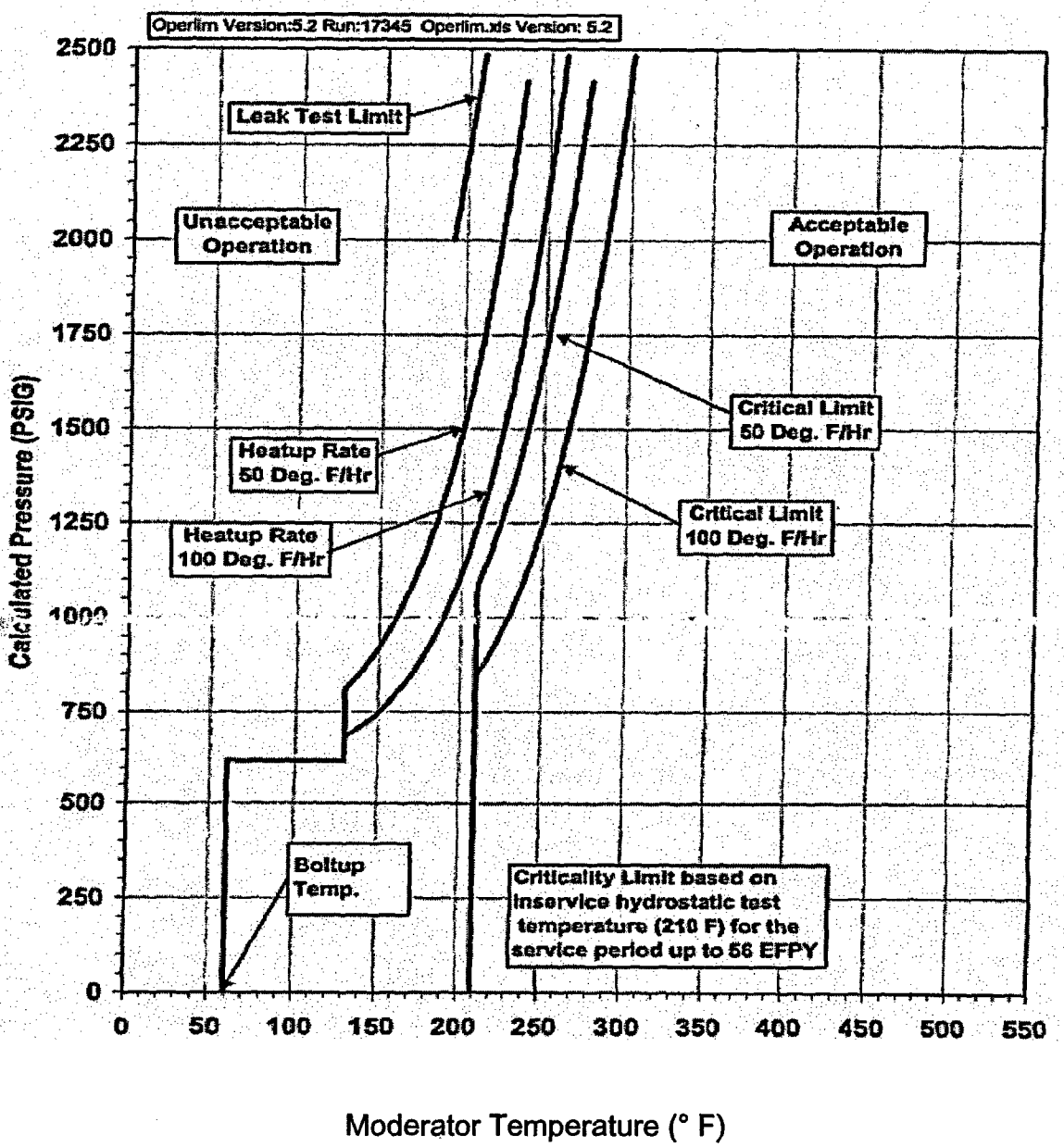

FIGURE 3.4-2 V. C. Summer Unit 1 Reactor Coolant System Heatup Limitations (Heatup Rates of 50 and 100°F/hr) Applicable for 56 EFPY (Without Margins for Instrumentation Errors) Using 1998 Appendix G Methodology

REACTOR COOLANT SYSTEM

MATERIAL PROPERTY BASIS

LIMITING MATERIAL: INTERMEDIATE SHELL PLATE A9154-1

LIMITING ART VALUES @ 56 EFPY: 1/4T, 153°F

3/4T, 138°F

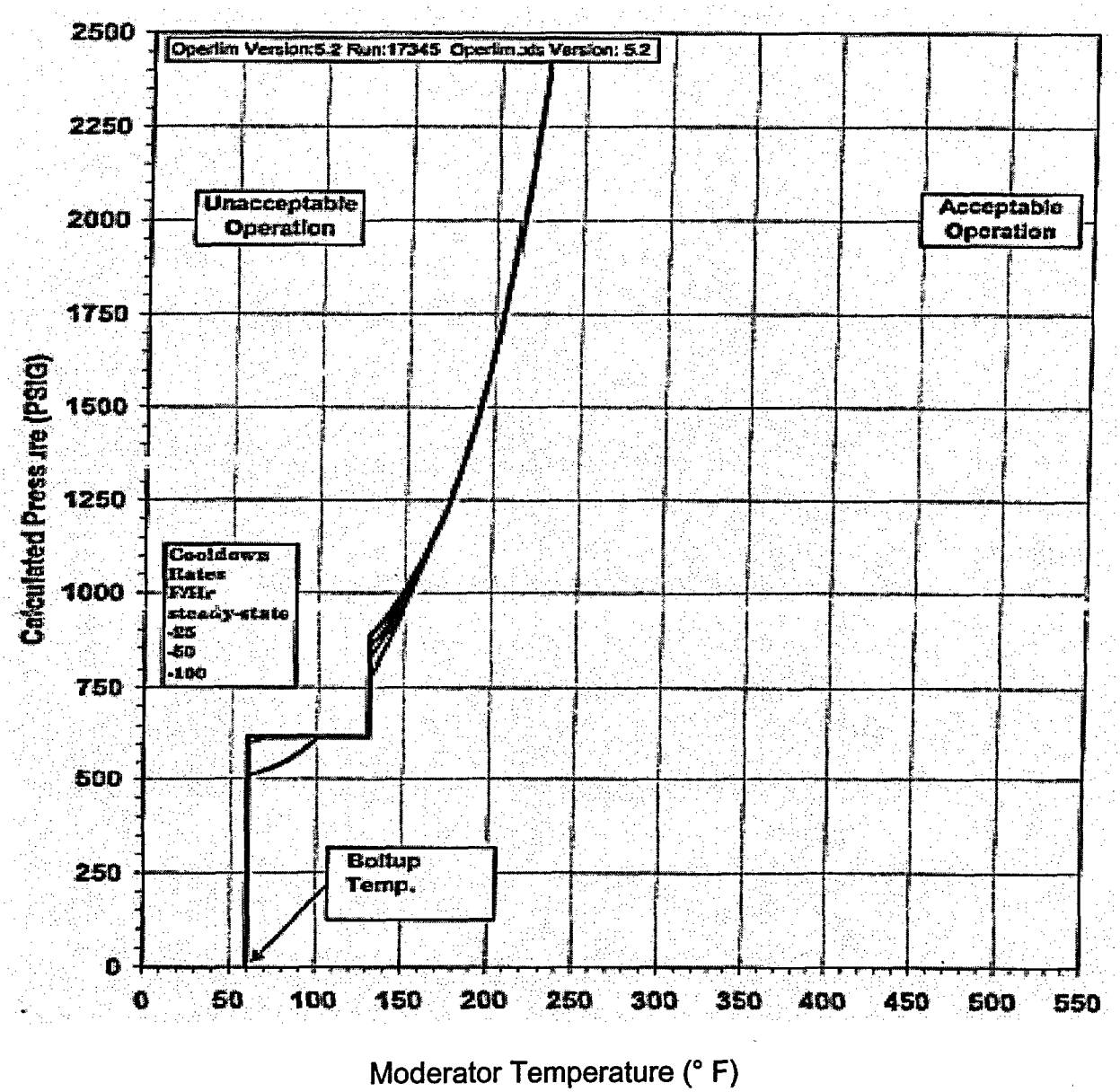

FIGURE 3.4-3 V. C. Summer Unit 1 Reactor Coolant System Cooldown Limitations (Cooldown Rates up to 100°F/hr) Applicable for 56 EFPY (Without Margins for Instrumentation Errors) Using 1998 Appendix G Methodology

3/4.4.8 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2 hour doses at the site boundary will not exceed an appropriately small fraction of Part 100 limits following a steam generator tube rupture accident in conjunction with an assumed steady state primary-to-secondary steam generator leakage rate of 1.0 GPM. The values for the limits on specific activity represent limits based upon a parametric evaluation by the NRC of typical site locations. These values are conservative in that specific site parameters of the Virgil C. Summer site, such as site boundary location and meteorological conditions, were not considered in this evaluation.

The ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity greater than 1.0 microcuries/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.

Reducing T_{avg} to less than 500°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

The temperature and pressure changes during heatup and cool down are limited by curves developed using the methodology from Westinghouse Topical Report, WCAP-14040-NP-A, updated to include the requirements of the 1998 ASME Boiler and Pressure Vessel Code, Section XI, through the 2000 Addenda, Appendix G, along with ASME Code Case N-641.

1) The reactor coolant temperature and pressure and system heatup and cooldown rates (with the exception of the pressurizer) shall be limited in accordance with Figures 3.4-2 and 3.4-3.

   a) Allowable combinations of pressure and temperature for specific temperature change rates are below and to the right of the limit lines shown. Limit lines for cooldown rates between those presented may be obtained by interpolation.

PRESSURE/TEMPERATURE LIMITS (Continued)

Limit curves for normal heatup and cooldown of the primary Reactor Coolant System have been calculated as described in Westinghouse Topical Report, WCAP-16305-NP, Revision 0, "V. C. Summer Heatup and Cooldown Curves for Normal Operation".