

The Light company

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File No.: G9.15
January 25, 1985

George W. Knighton, Chief
Licensing Branch No. 3
Division Of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Knighton:

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
NRC Question Responses

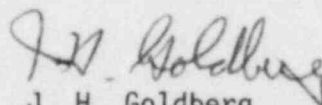
Please find attached our responses to the following NRC questions:

251.13N Material Engineering Branch

251.14N Material Engineering Branch

These responses will be provided in a later FSAR amendment. Please note that these questions were originally forwarded to HL&P by the NRC as 251.08N and 251.09N. However, these numbers have been previously used on other Material Engineering Branch questions. Based on discussions with V. Nerses, we have renumbered the questions as indicated above. If you have any questions, please contact Michael E. Powell at (713) 993-1328.

Very truly yours,



J. H. Goldberg
Vice President
Nuclear Engineering & Construction

JHG/ch

Attachment: NRC Question Responses

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South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
NRC Question Responses

NRC Q251.13N (SRP 5.3.1)

With regards to fracture toughness requirements of 10 CFR 50.55a and the May 27, 1983 revisions to Appendices G and H to 10 CFR 50 (48 FR 24009; 48 FR 24011):

- a. Identify any ferritic reactor coolant pressure boundary materials that do not comply with these requirements.
- b. For any materials that cannot meet these requirements provide alternative fracture toughness data and analyses to demonstrate equivalence to the requirements of 10 CFR Part 50.

Response

All reactor coolant pressure boundary materials comply with the requirements of 10 CFR 50.55a and the May 27, 1983 revisions to Appendices G and H to 10 CFR 50. (See also the response to NRC Q251.14N).

NRC Q251.14N (SRP 5.3.1)

To demonstrate compliance with Appendix G, 10 CFR Part 50, as revised May 27, 1983 (48 FR 24009), submit fracture mechanics analyses, or pressure-temperature limit curves for the closure flange region of the Unit 1 and Unit 2 reactor pressure vessels.

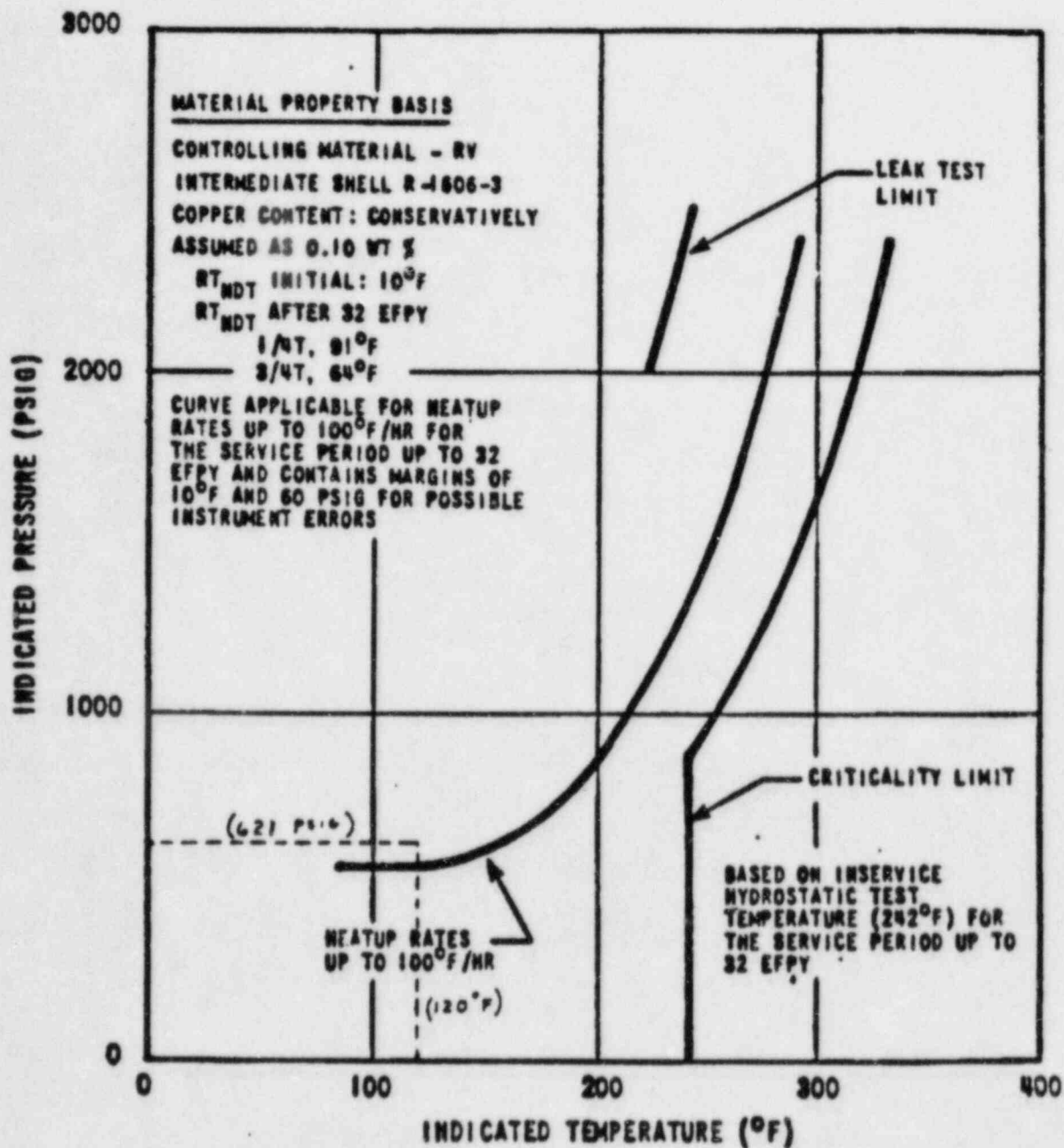
Response

South Texas Unit 1:

The new 10 CFR 50 Appendix G rule states that the minimum metal temperature of the closure flange regions should be at least 120° higher than the limiting RT_{NDT} for these regions when the pressure exceeds 20 percent of the preservice hydrostatic test pressure (621 psig for Westinghouse plants). For South Texas Unit 1 the minimum temperature of the closure flange and vessel flange regions is 120°F since the limiting RT_{NDT} is 0°F (see FSAR Table 5.3-3). The South Texas Unit 1 heatup curve shown in Figure 251.14N-1 is not impacted by the new 10 CFR 50 rule. However, the current South Texas Unit 1 cooldown curve is impacted by the new 10 CFR 50 rule. A revised Unit 1 cooldown curve which meets the Appendix G requirement (see Figure 251.14N-2) will be provided in the Technical Specifications.

For South Texas Unit 2, the minimum temperature of the closure flange and vessel flange regions is 110°F since the limiting RT_{NDT} is -10°F (see FSAR Table 5.3-4). The South Texas Unit 2 heatup and cooldown curves shown in Figures 251.14N-3 and 251.14N-4 respectively are not impacted by the 10 CFR 50 rule.

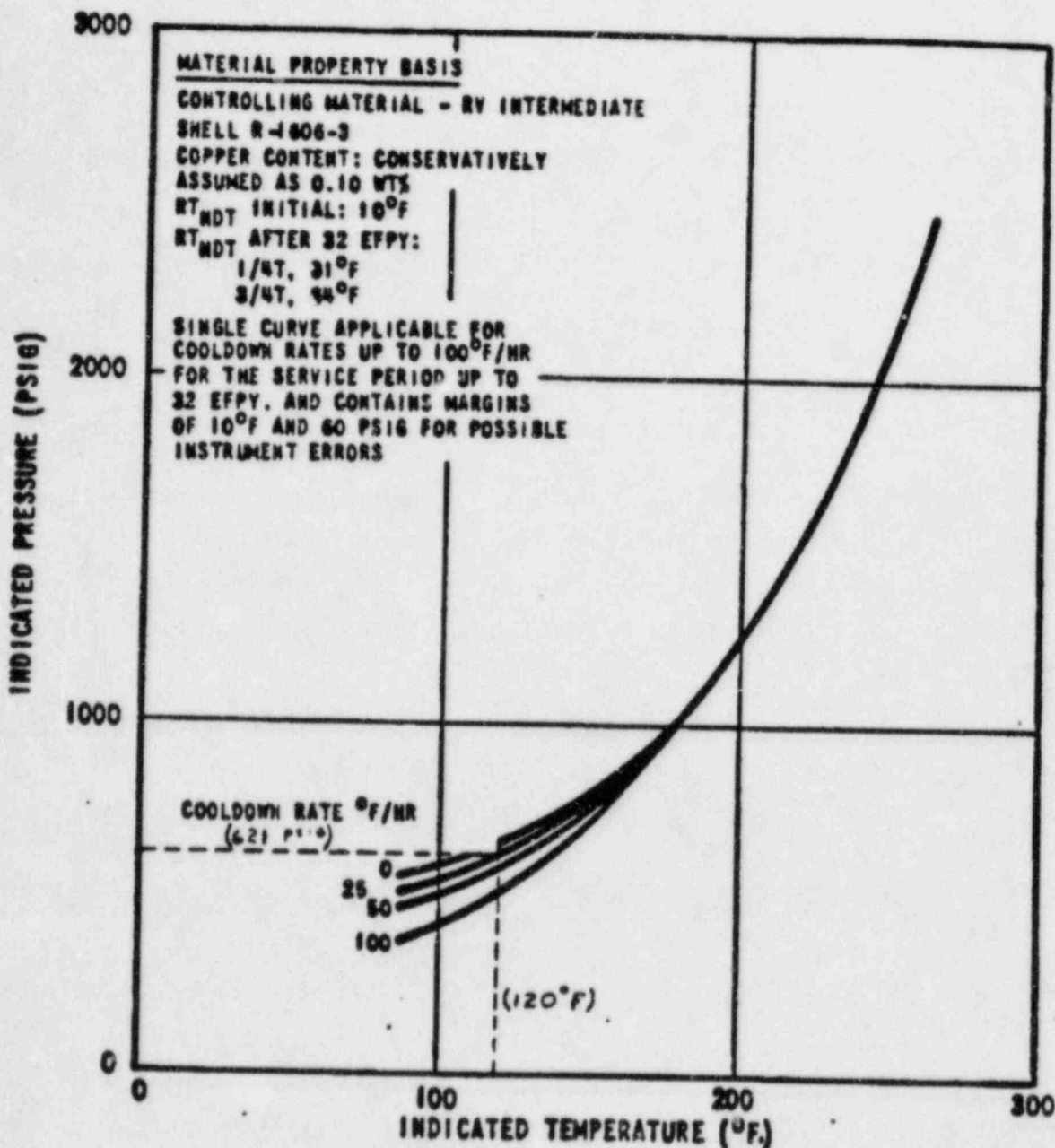
The above referenced figures will be included in the STP Technical Specifications.



DEC 28 1973

SOUTH TEXAS PROJECT UNIT 1

Reactor Coolant System Heatup
 Limitations Applicable to 32EFPY
 Figure 251.14N-1



DEC 28 1963

SOUTH TEXAS PROJECT UNIT 1

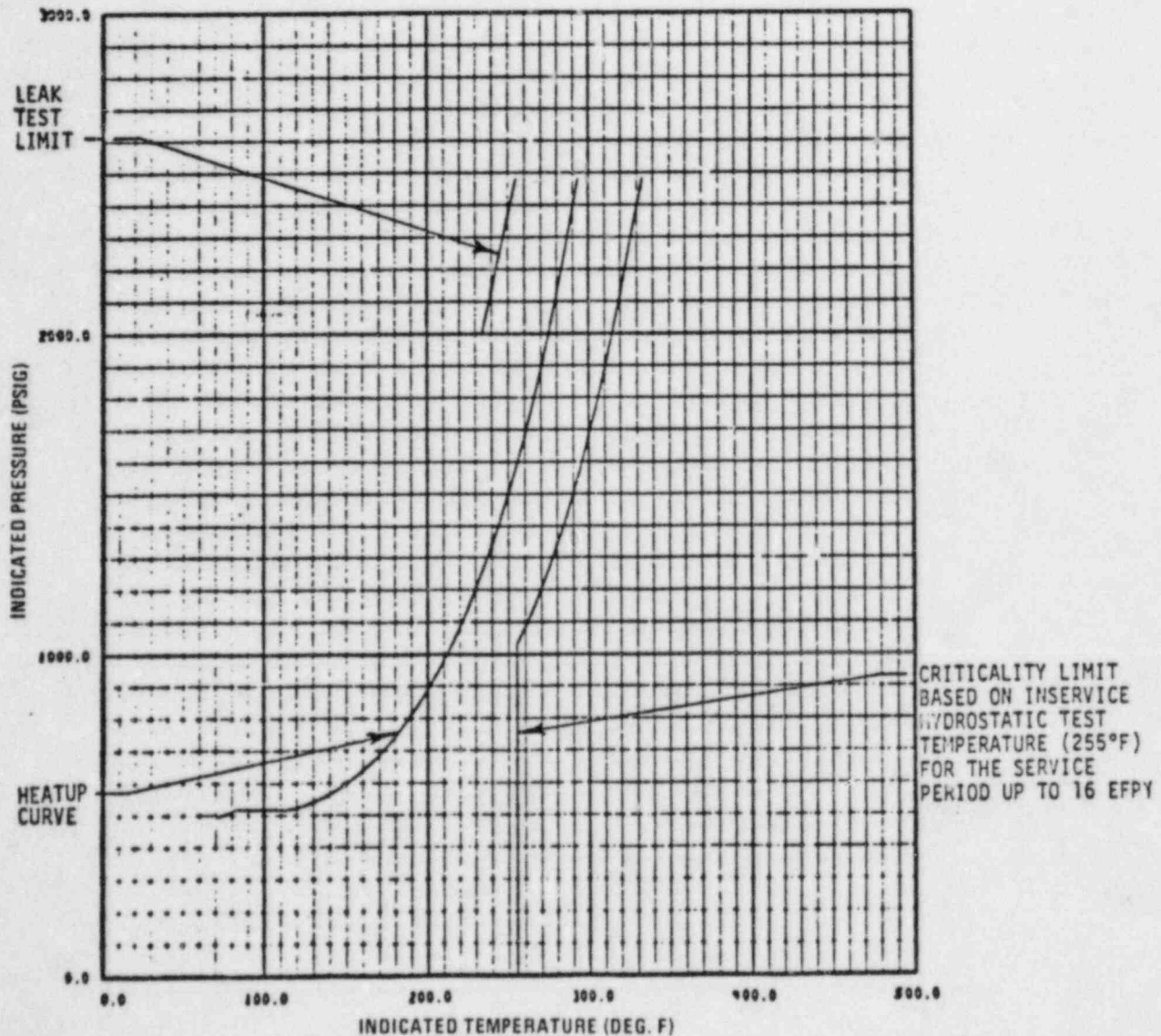
Reactor Coolant System Cooldown
 Limitations Applicable to 32EFY

Figure 251.14N-2

MATERIAL PROPERTY BASIS

COPPER CONTENT : CONSERVATIVELY ASSUMED TO BE 0.10 WT% (ACTUAL CONTENT = 0.05 WT%)
 RT_{NDT} INITIAL : CONSERVATIVELY ASSUMED TO BE 40°F (ACTUAL RT_{NDT} = -10°F)
 RT_{NDT} AFTER 16 EFPY : 1/4T, 110°F
 3/4T, 87°F

CURVE APPLICABLE FOR HEATUP RATES UP TO 60°F/HR FOR THE SERVICE PERIOD UP TO 16 EFPY AND CONTAINS MARGINS OF 10°F AND 60 PSIG FOR POSSIBLE INSTRUMENT ERRORS



SOUTH TEXAS PROJECT UNIT 2

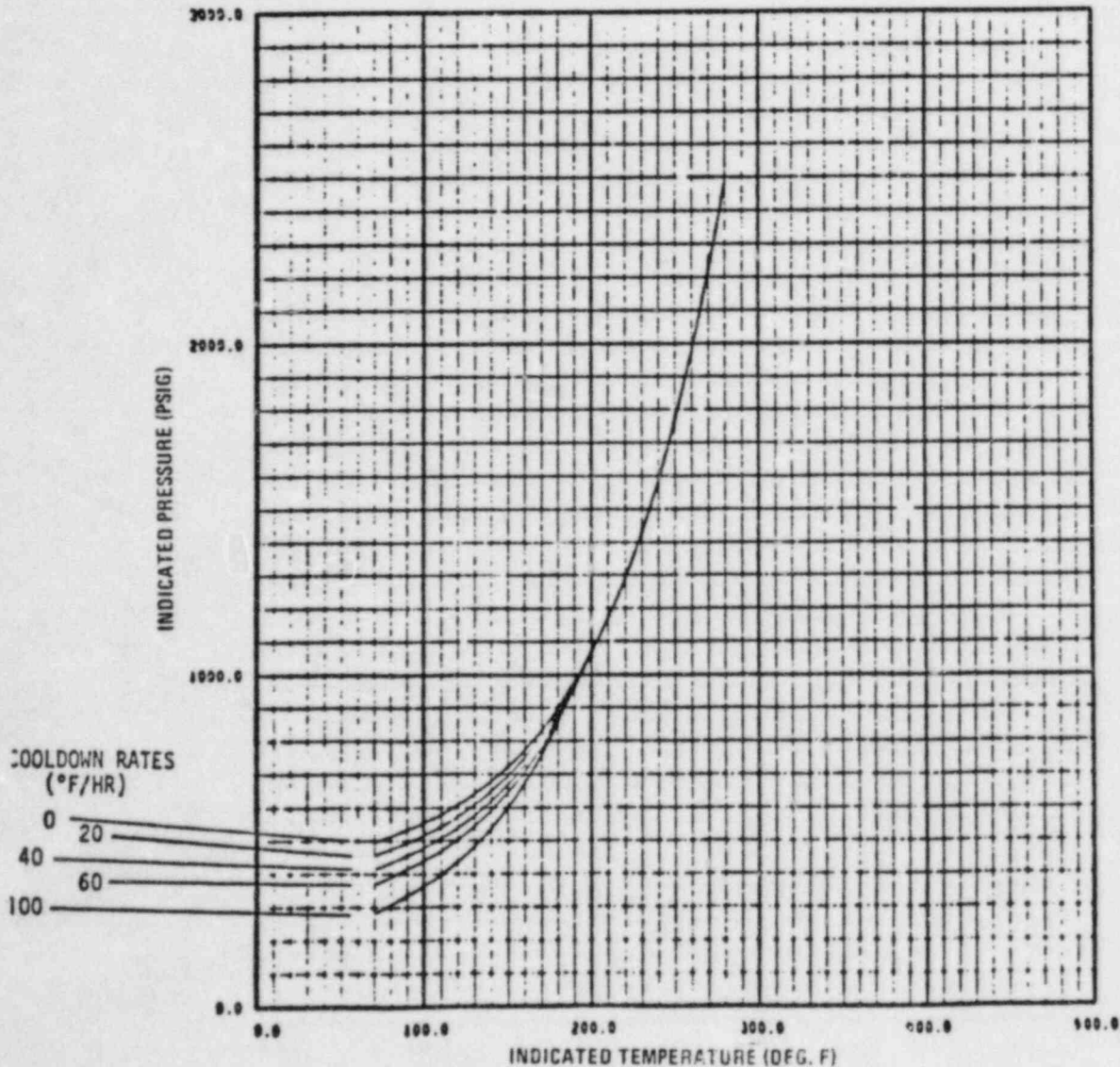
**REACTOR COOLANT SYSTEM
HEATUP LIMITATIONS TO 16 EFPY**

Figure 251-14N-3

MATERIAL PROPERTY BASIS

COPPER CONTENT : CONSERVATIVELY ASSUMED TO BE 0.10 WT% (ACTUAL CON-
TENT = 0.05 WT%)
RT_{NDT} INITIAL : CONSERVATIVELY ASSUMED TO BE 40°F (ACTUAL RT_{NDT} = -10°F)
RT_{NDT} AFTER 16 EFPY : 1/4T, 110°F
 3/4T, 87°F

CURVE APPLICABLE FOR COOLDOWN RATES UP TO 100°F/HR FOR THE SERVICE
PERIOD UP TO 16 EFPY AND CONTAINS MARGINS OF 10°F AND 60 PSIG FOR
POSSIBLE INSTRUMENT ERRORS



**SOUTH TEXAS PROJECT
UNIT 2**

REACTOR COOLANT SYSTEM
COOLDOWN LIMITATIONS TO 16 EFPY

Figure 251.14N-4