

Omaha Public Power District
4 South 16th Street Mall
Omaha, Nebraska 68102-2247
402/636-2000

March 13, 1992
LIC-92-087R

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, DC 20555

References: 1. Docket No. 50-285
2. Letter from OPPD (W. G. Gates) to NRC (Document Control Desk),
dated November 22, 1991 (LIC-91-315R)

Gentlemen:

SUBJECT: Supporting Documentation for Data Transmitted via the Emergency
Response Data System

In response to a request from Mr. J. R. Jolicoeur of your staff, attached is a series of graphs from the Fort Calhoun Station Emergency Plan Implementing Procedures and Technical Data Book. These graphs are for use in evaluating and interpreting data to be transmitted via the Emergency Response Data System (ERDS). The graphs include:

1. Attachment 6.2 to EPIP-TSC-8 - For evaluating RCS inventory (cubic feet) from pressurizer level (percent).
2. Technical Data Book Figures TDB-III.1.a through TDB-III.2 - For converting indicated pressurizer level (percent) to actual pressurizer level (percent).
3. Attachment 6.3 to EPIP-TSC-8 - For evaluating RCS inventory (cubic feet) from Reactor Vessel Level Monitoring System (RVLMS) indication (percent).
4. Technical Data Book Figure TDB-III.28 - For evaluating liquid level in the reactor vessel (percent) from the RVLMS indication.
5. Technical Data Book Figures III.3.h through III.3.o - For converting steam generator level (percent) between narrow and wide range and evaluating indicated versus actual steam generator wide range level (percent).
6. Technical Data Book Figure TDB-III-3.p - Shows the steam generator component elevations (including level indication taps).
7. Appendix 6 to EPIP-TSC-8 - For evaluating containment building water level (feet) versus volume of water in containment (cubic feet) for the wide range containment water level instrumentation.

9203190189 920313
PDR ADOCK 05000285
F PDR

45-5124

160086

Employment with Equal Opportunity
Male/Female

AO26 1/1

8. Appendix 7 to EPIP-TSC-8 - For evaluating containment sump water volume (gallons and cubic feet) versus indicated level (inches) for the narrow range containment water level parameter.

Clarification was also requested for the sensitivity factors provided in Reference 2 for the radiation monitor readings which are transmitted via the ERDS. These factors account for a conversion from counts per minute (CPM) provided by the monitor to an isotope radioactivity level in microcuries per milliliter ($\mu\text{Ci/ml}$). For monitors RM063H, RM057 and RM064, the monitored isotope is XE-133. For monitors RM056A, RM054A and RM054B, the monitored isotope is CS-137.

Any questions pertaining to this data can be answered by our ERDS contact, Mr. T. A. Heng at (402) 636-3416.

If you should have any questions, please contact me.

Sincerely,



W. G. Gates
Division Manager
Nuclear Operations

WGG/sel

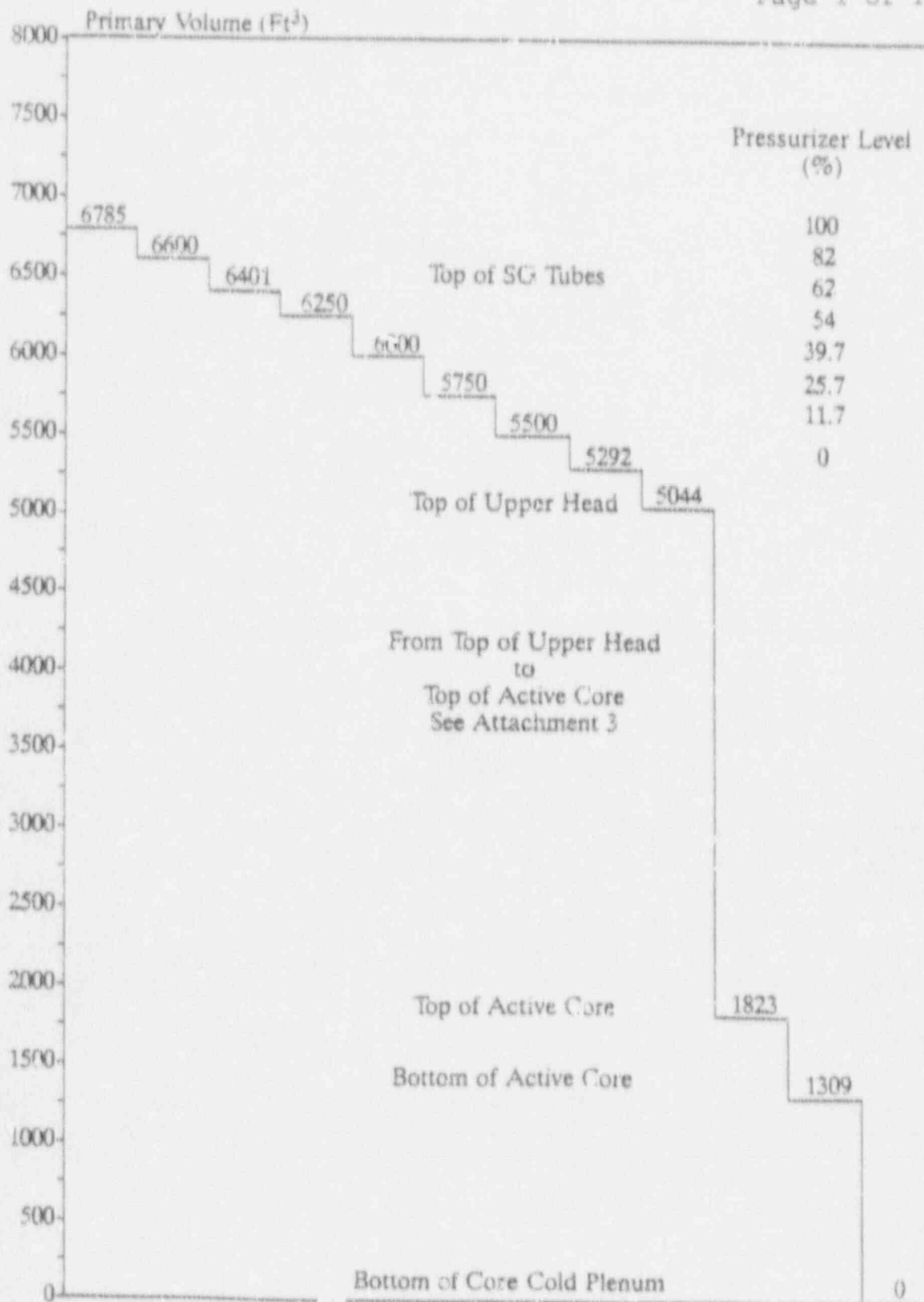
Attachment

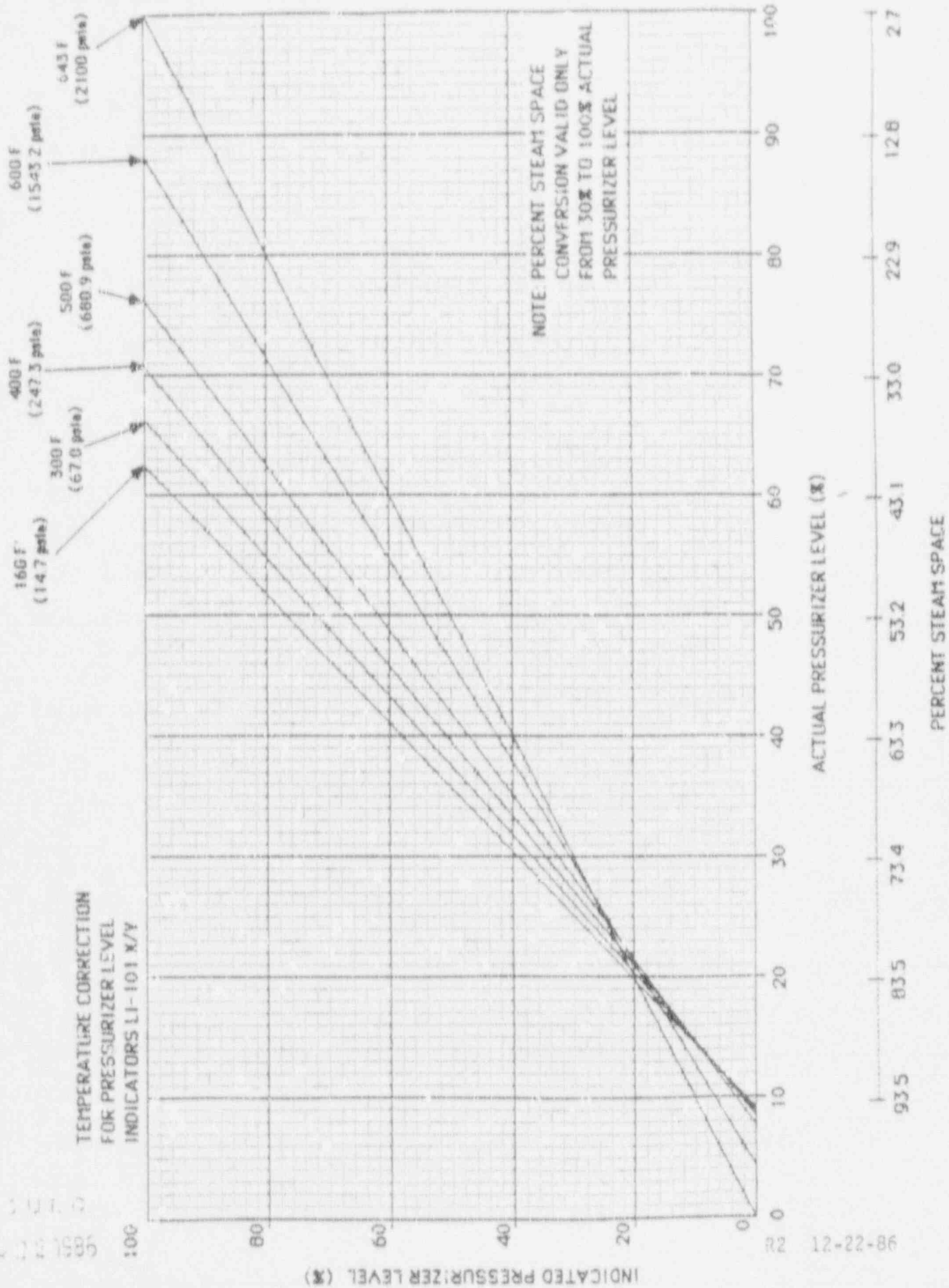
c: Leboeuf, Lamb, Leiby & MacRae
R. D. Martin, NRC Regional Administrator, Region IV
D. L. Wiggington, NRC Senior Project Manager
J. R. Jolicœur, NRC AEOD
S. D. Bloom, NRC Project Engineer
R. P. Mullikin, NRC Senior Resident Inspector
H. Borchert, Director - Division of Radiological Health,
Nebraska Department of Health
T. P. LaRosa, Halliburton NUS

ATTACHMENT 6.2

RC: INVENTORY USING PRESSURIZER LEVEL

Page 1 of 1



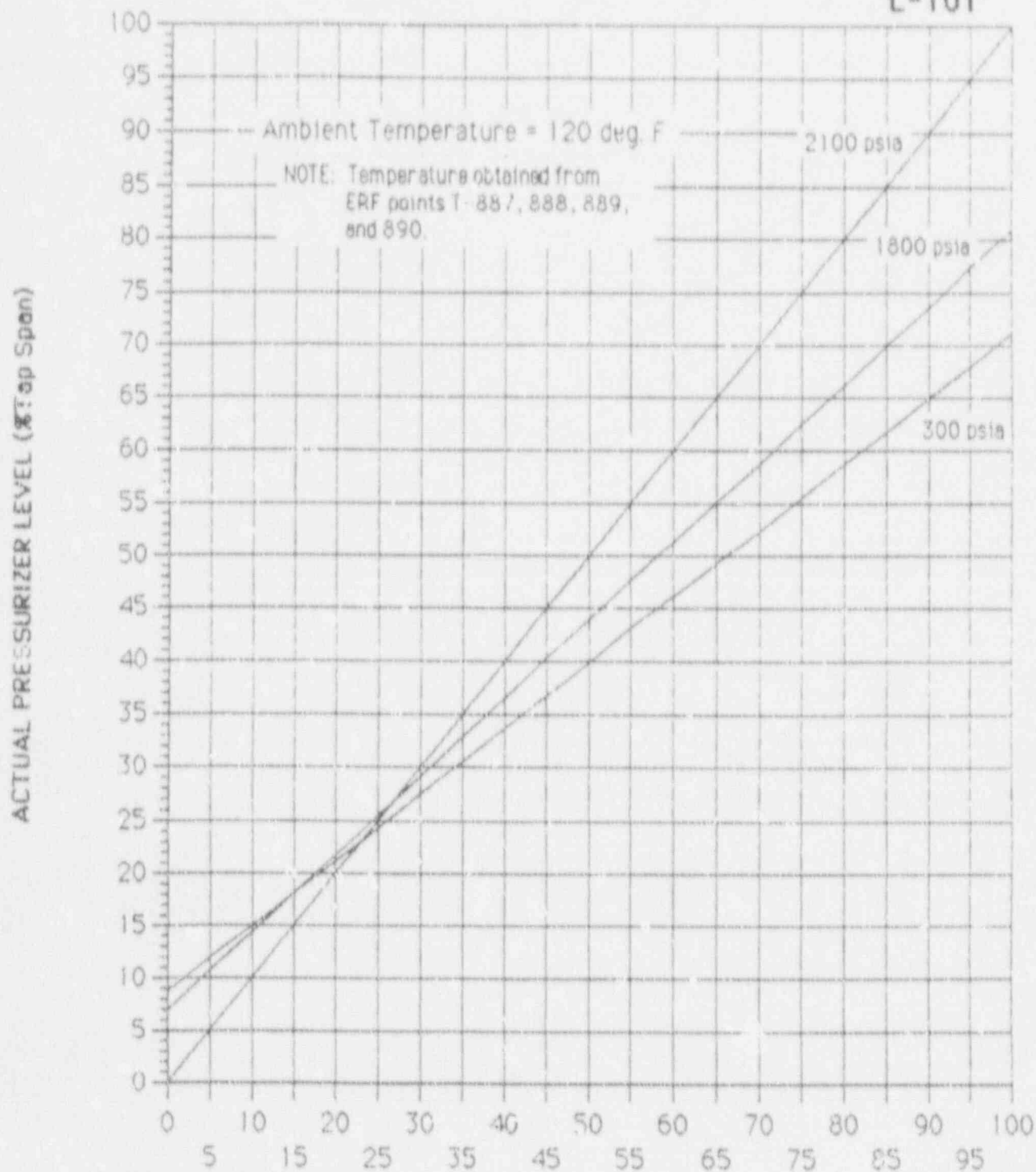


9851 12 030
0 11 1 1

98-22-21 12-22-86

PRESSURIZER LEVEL CORRECTION (Density Effects Correction)

L-101



103000

SEP 08 1987

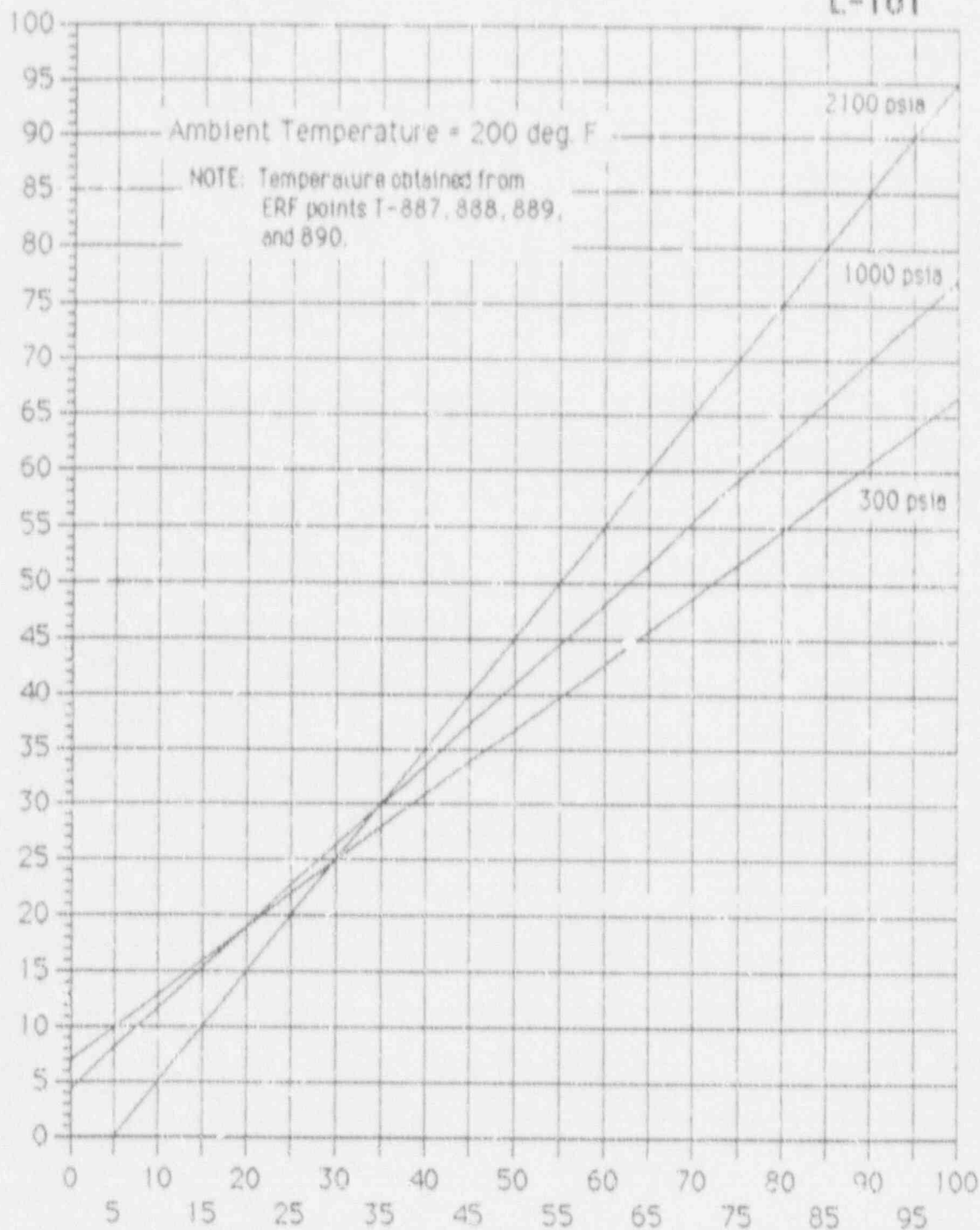
INDICATED PRESSURIZER LEVEL
(% Tap Span)

R2 09-08 87

PRESSURIZER LEVEL CORRECTION (Density Effects Correction)

L-101

ACTUAL PRESSURIZER LEVEL (% Tap Span)



ISSUED

SEP 08 1987

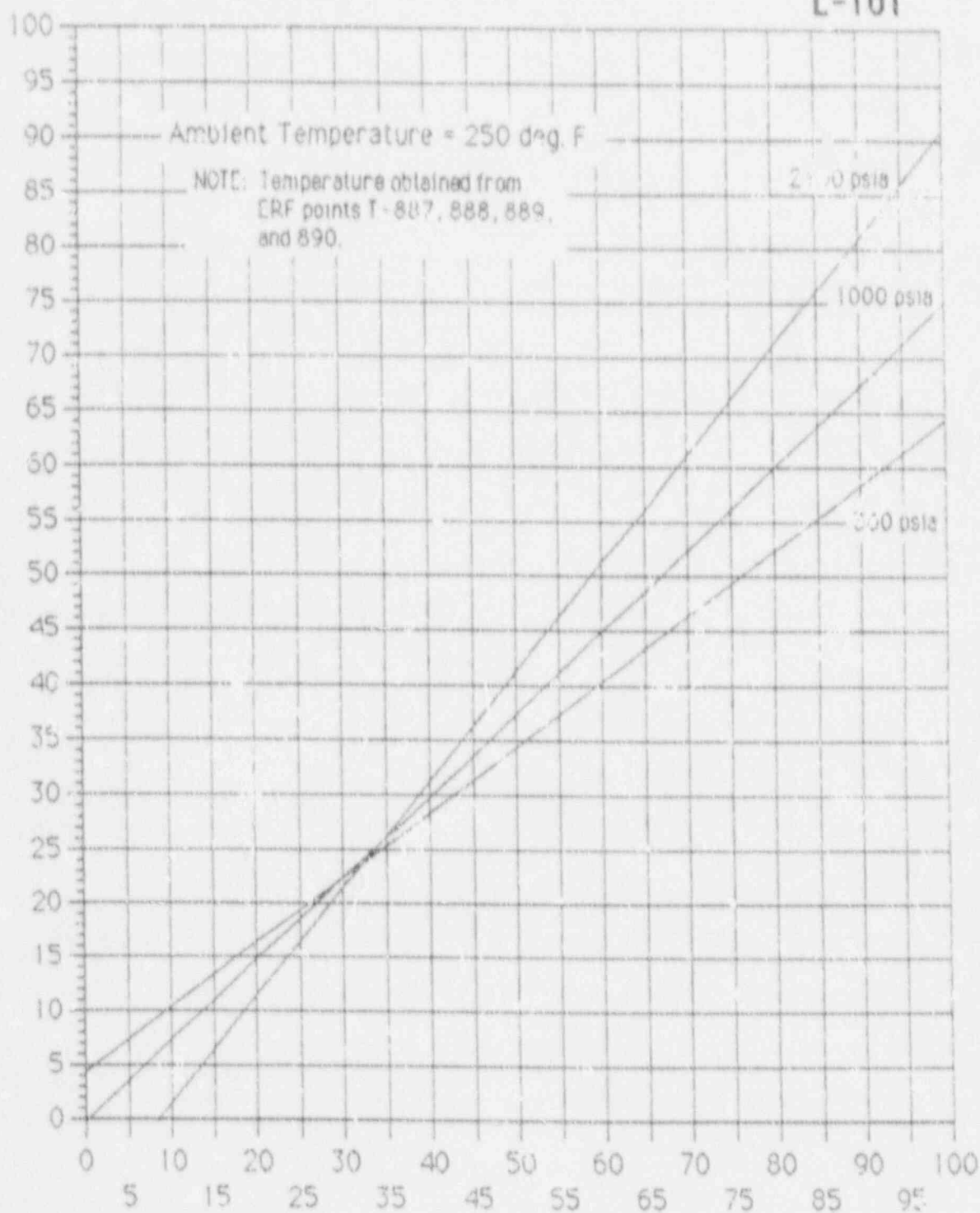
INDICATED PRESSURIZER LEVEL
(% Tap Span)

R2 09-08-87

PRESSURIZER LEVEL CORRECTION (Density Effects Correction)

L-101

ACTUAL PRESSURIZER LEVEL (% Tap Span)



ISSUED

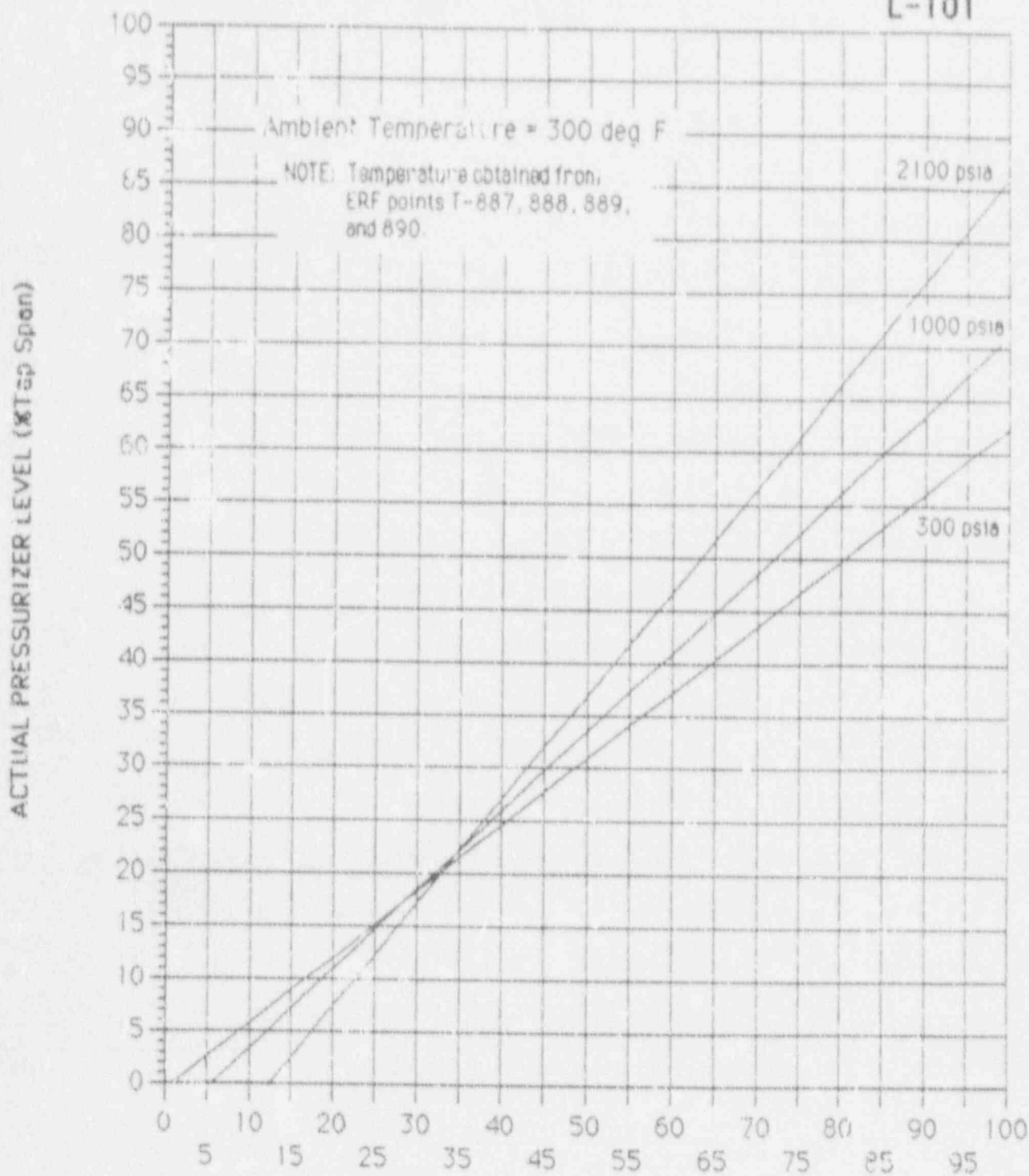
SEP 08 1987

INDICATED PRESSURIZER LEVEL
(% Tap Span)

R2 09-08-87

PRESSURIZER LEVEL CORRECTION (Density Effects Correction)

L-101



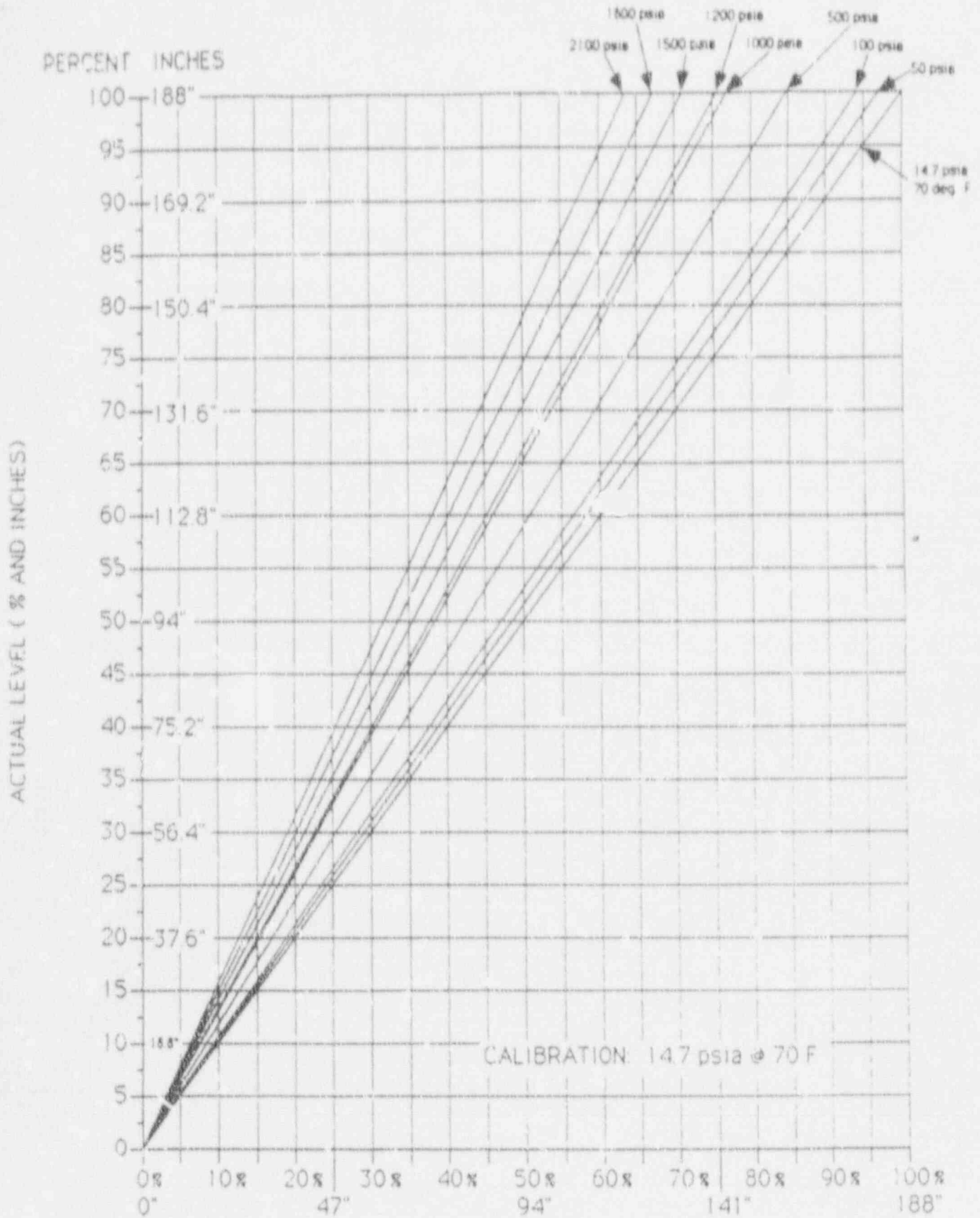
ISSUED
SEP 08 1987

INDICATED PRESSURIZER LEVEL
(% Tap Span)

R2 09-08-87

ACTUAL LEVEL IN PRESSURIZER VS. INDICATED LEVEL IN PRESSURIZER

TDB-111.2



100-111.2

DEC 22 1986

LI-106

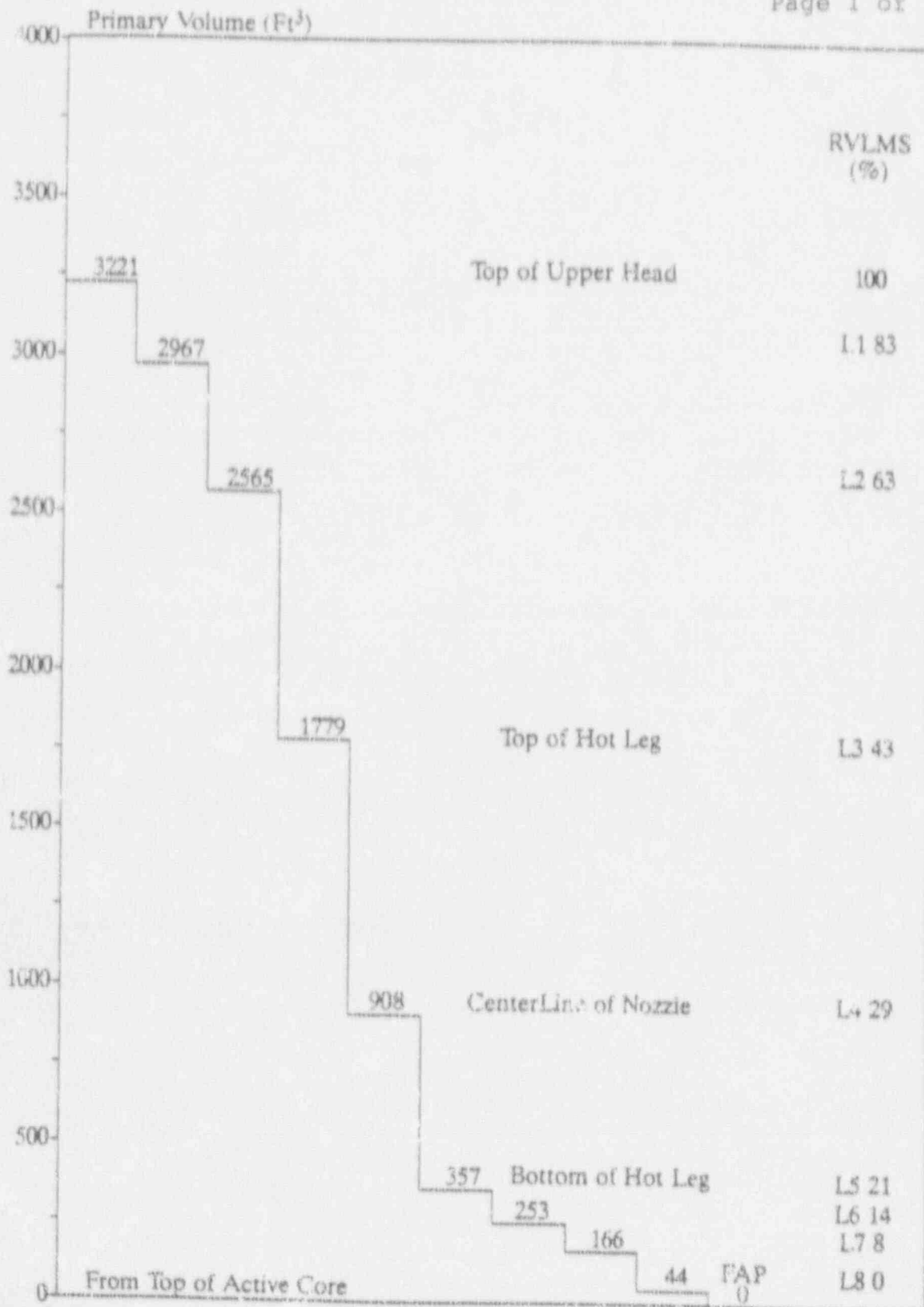
INDICATED LEVEL (% AND INCHES)

R2 12-22-86

ATTACHMENT 6.3

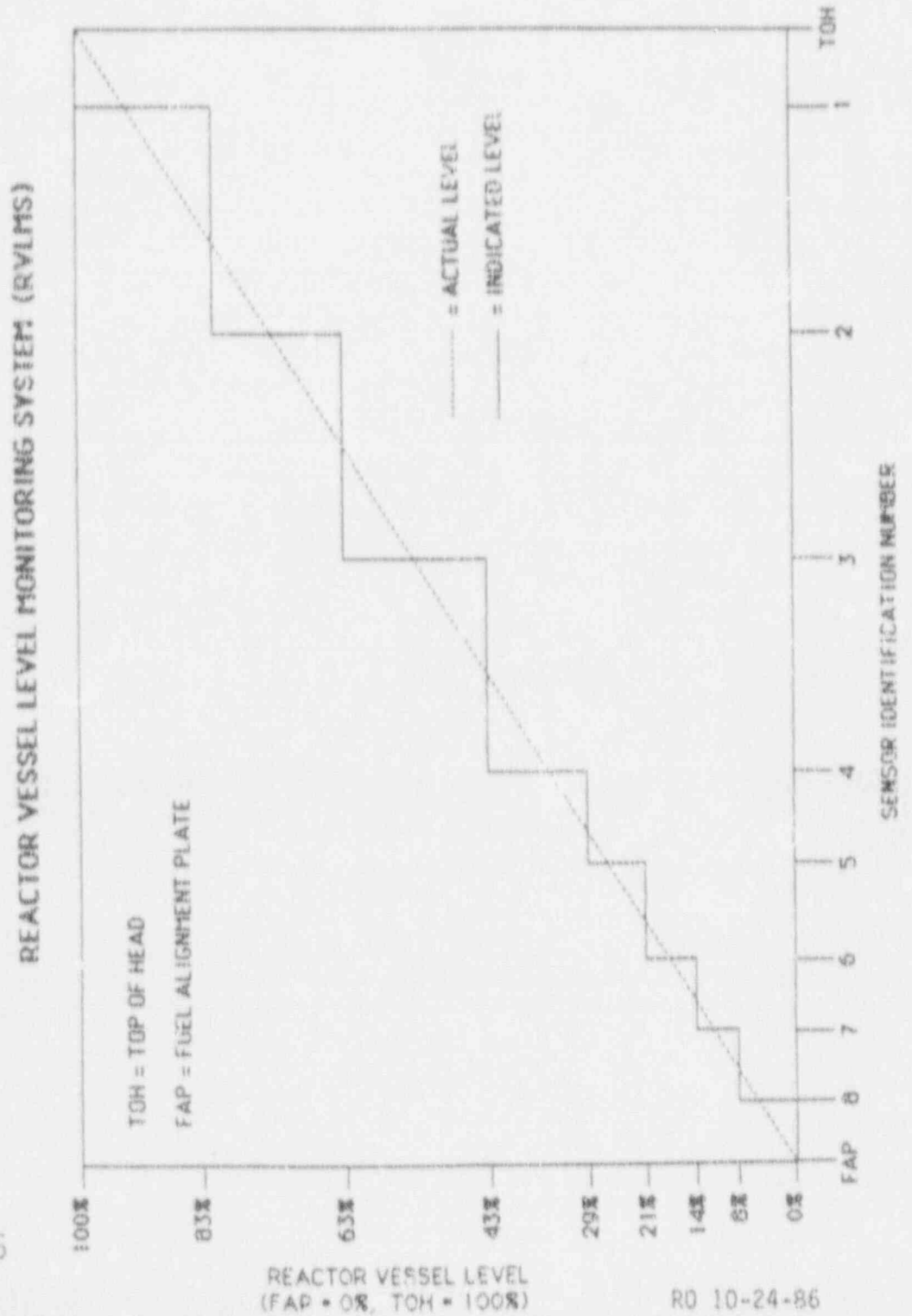
RCS INVENTORY USING RVLMS

Page 1 of 1



SENSOR	HEIGHT (INCHES ABOVE FAP)	SENSOR LEVEL	INDICATED LEVEL	POSITION
			100.00%	TOP OF HEAD
1	180.22	92.55%	83.00%	14 INCHES BELOW TOP OF HEAD
2	142.34	73.10%	63.00%	TOP OF UPPER GUIDE STRUCTURE
3	104.53	53.68%	43.00%	
4	66.62	34.22%	29.00%	TOP OF HOT LEG
5	50.62	26.00%	21.00%	MIDDLE OF HOTLEG
6	34.62	17.78%	14.00%	BOTTOM OF HOTLEG
7	22.34	11.47%	8.00%	
8	10.09	5.16%	0.00%	10 INCHES ABOVE FAP

FAP = FUEL ALIGNMENT PLATE



ISSUED
OCT 14 1986

ISSUED

NOV 30 1982

STEAM GENERATOR

WIDE RANGE TO NARROW RANGE CONVERSION

$NR (\%) = 0.4148 * WR + 58.5405$
 $WR (\%) = 0.3558 * NR + 58.2051$
 $NR (\%) = 2.4120 * WR - 141.1882$
 $WR (\%) = 2.6123 * NR - 156.0848$

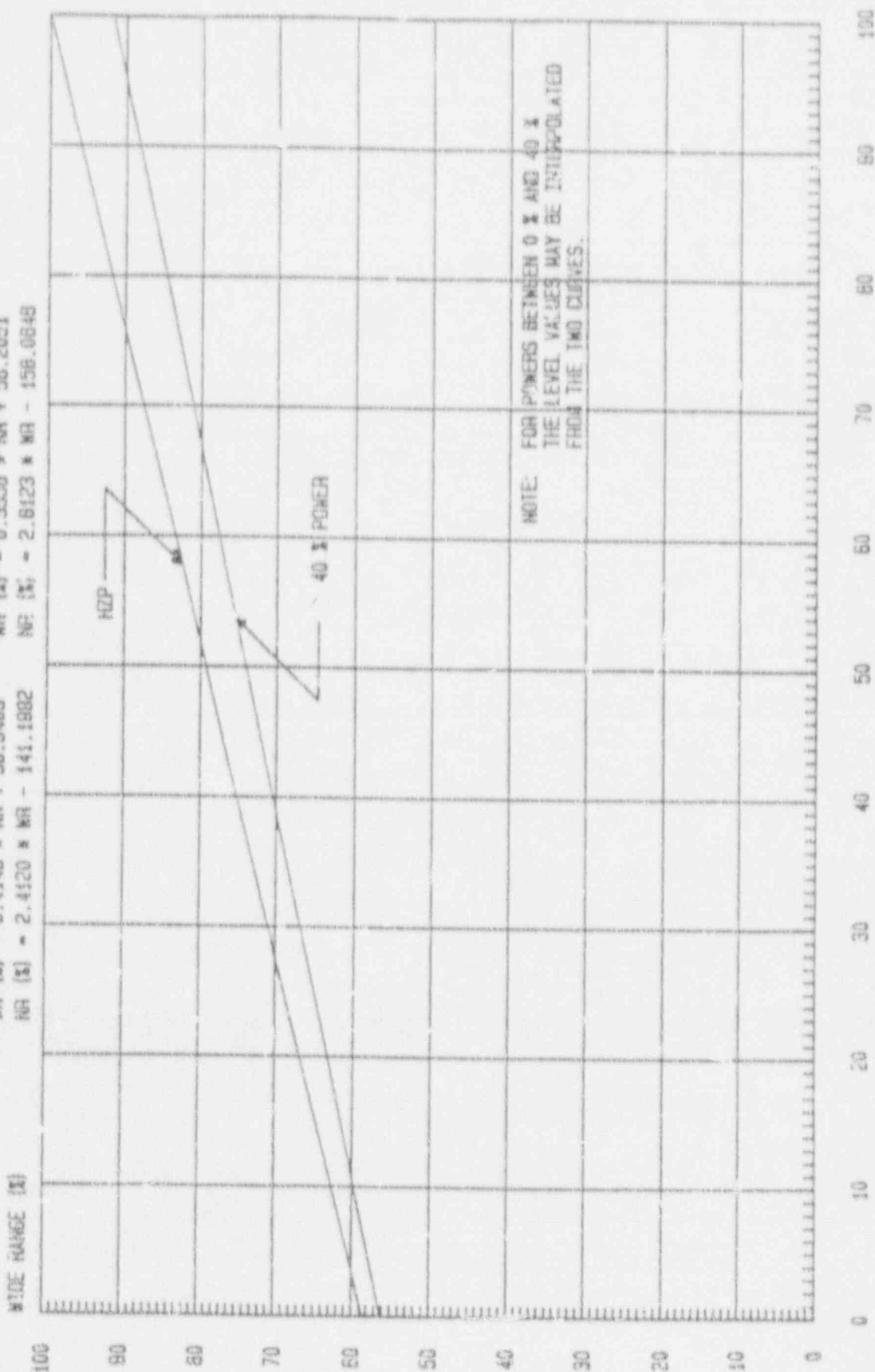
HZP

2.40 % POWER

HZP

40 % POWER

NOTE: FOR POWERS BETWEEN 0 % AND 40 %
THE LEVEL VALUES MAY BE INTERPOLATED
FROM THE TWO CURVES.



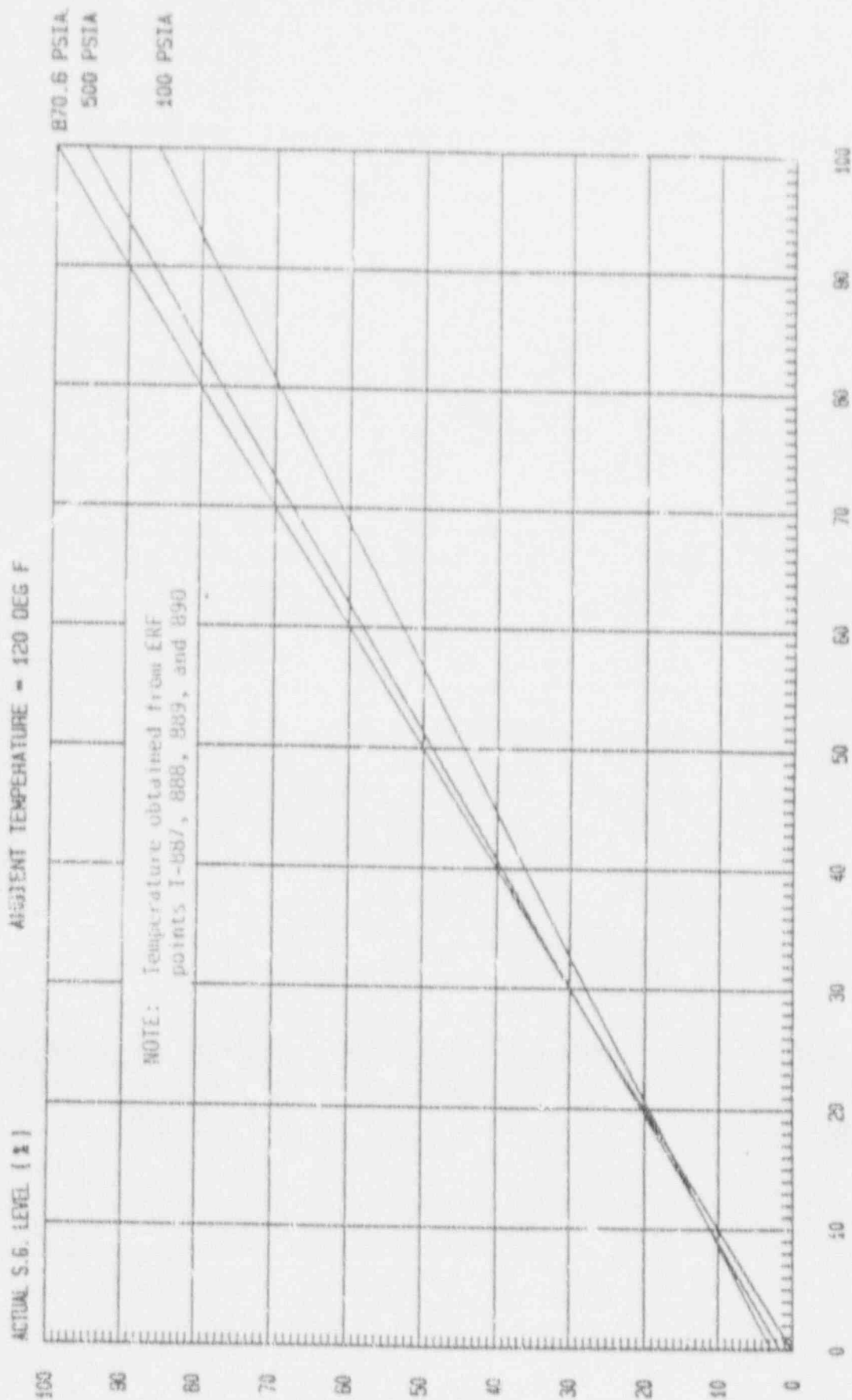
111.3.5

RI 11-30-82

WIDE RANGE STEAM GEN. LEVEL CORRECTION

(DENSITY EFFECT CORRECTION)

ASSUMED TEMPERATURE = 120 DEG F

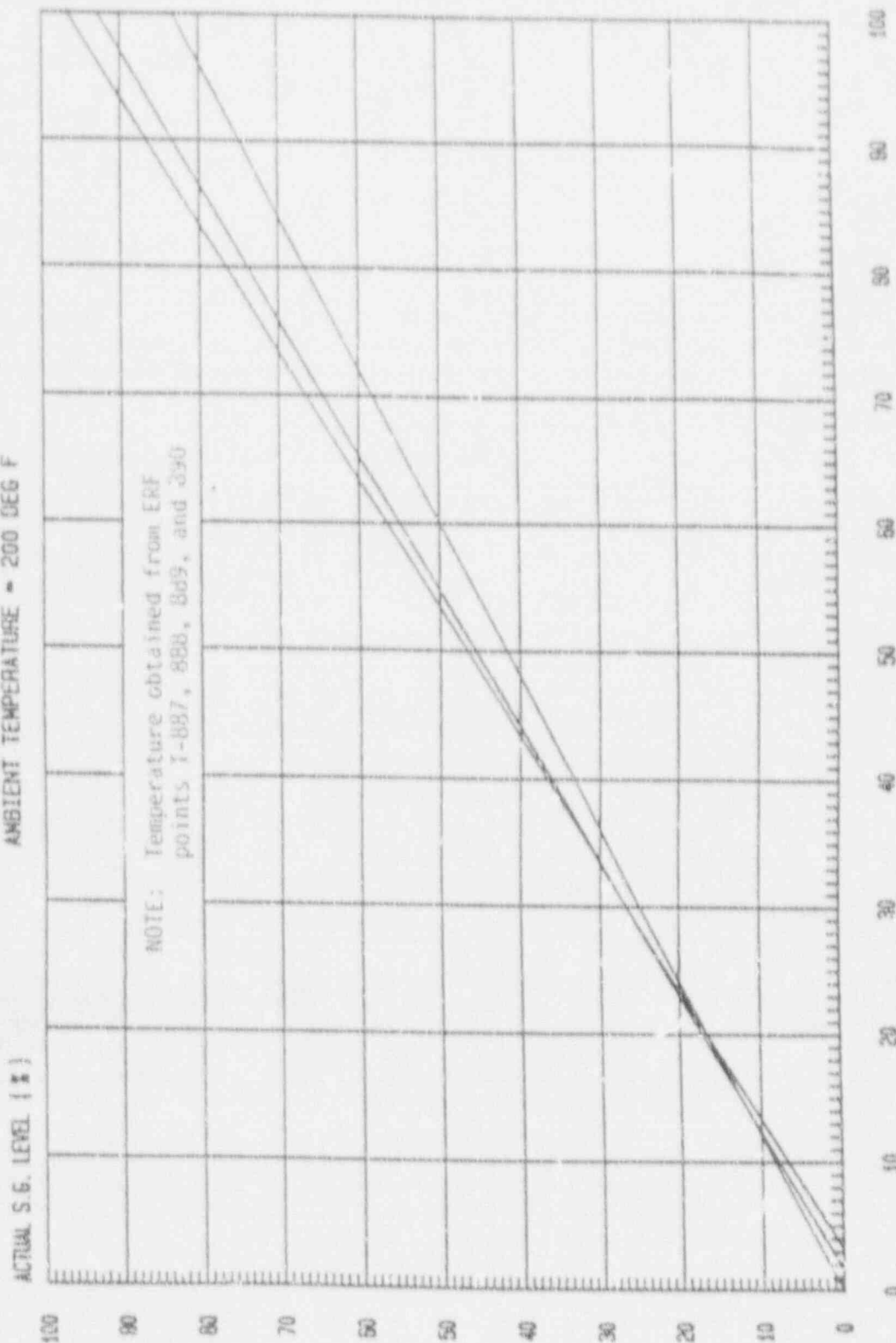


WIDE RANGE STEAM GEN. LEVEL CORRECTION

(DENSITY EFFECT CORRECTION)

AMBIENT TEMPERATURE = 200 DEG F

870.6 PSIA
500 PSIA
100 PSIA



ISSUED

SEP 08 1987

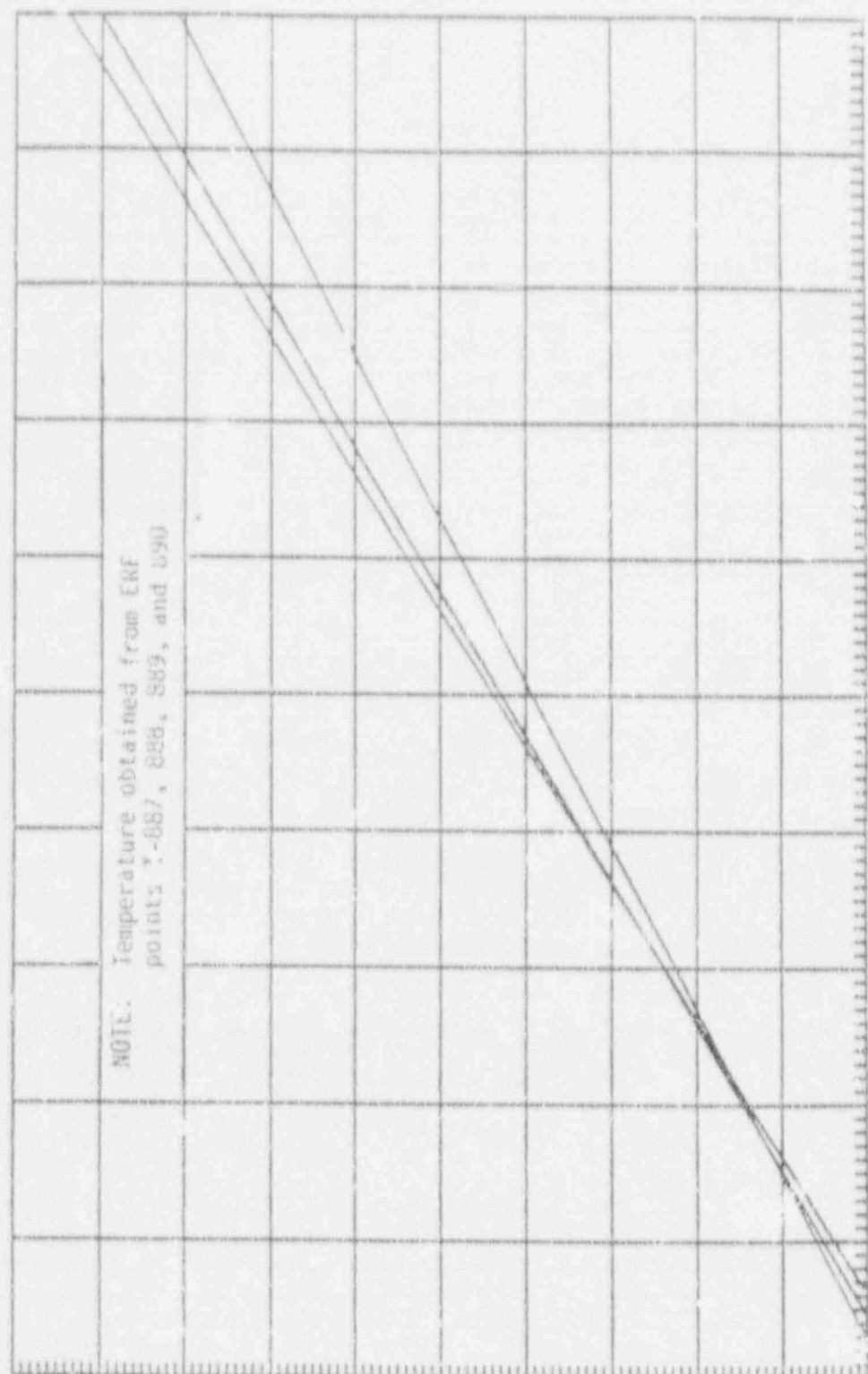
R1 09-08-87

WIDE RANGE STEAM GEN. LEVEL CORRECTION

(DENSITY EFFECT CORRECTION)

AMBIENT TEMPERATURE = 250 DEG F

ACTUAL S.G. LEVEL (%)



INDICATED S.G. LEVEL (%)

100000

SEP 08 1987

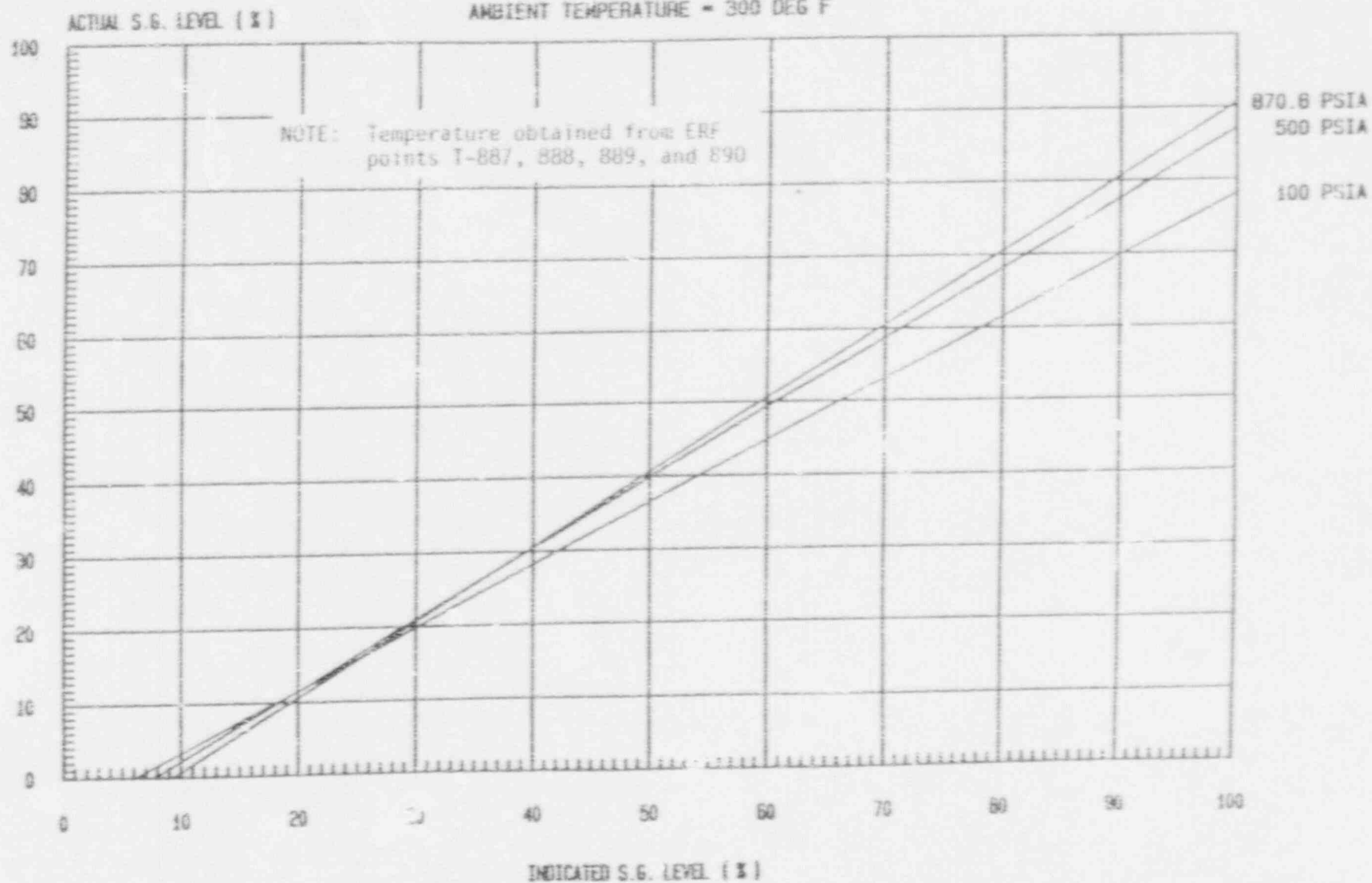
SEP 08 1987

135000

WIDE RANGE STEAM GEN. LEVEL CORRECTION

(DENSITY EFFECTS CORRECTION)

AMBIENT TEMPERATURE = 300 DEG F



R1 09-08-87

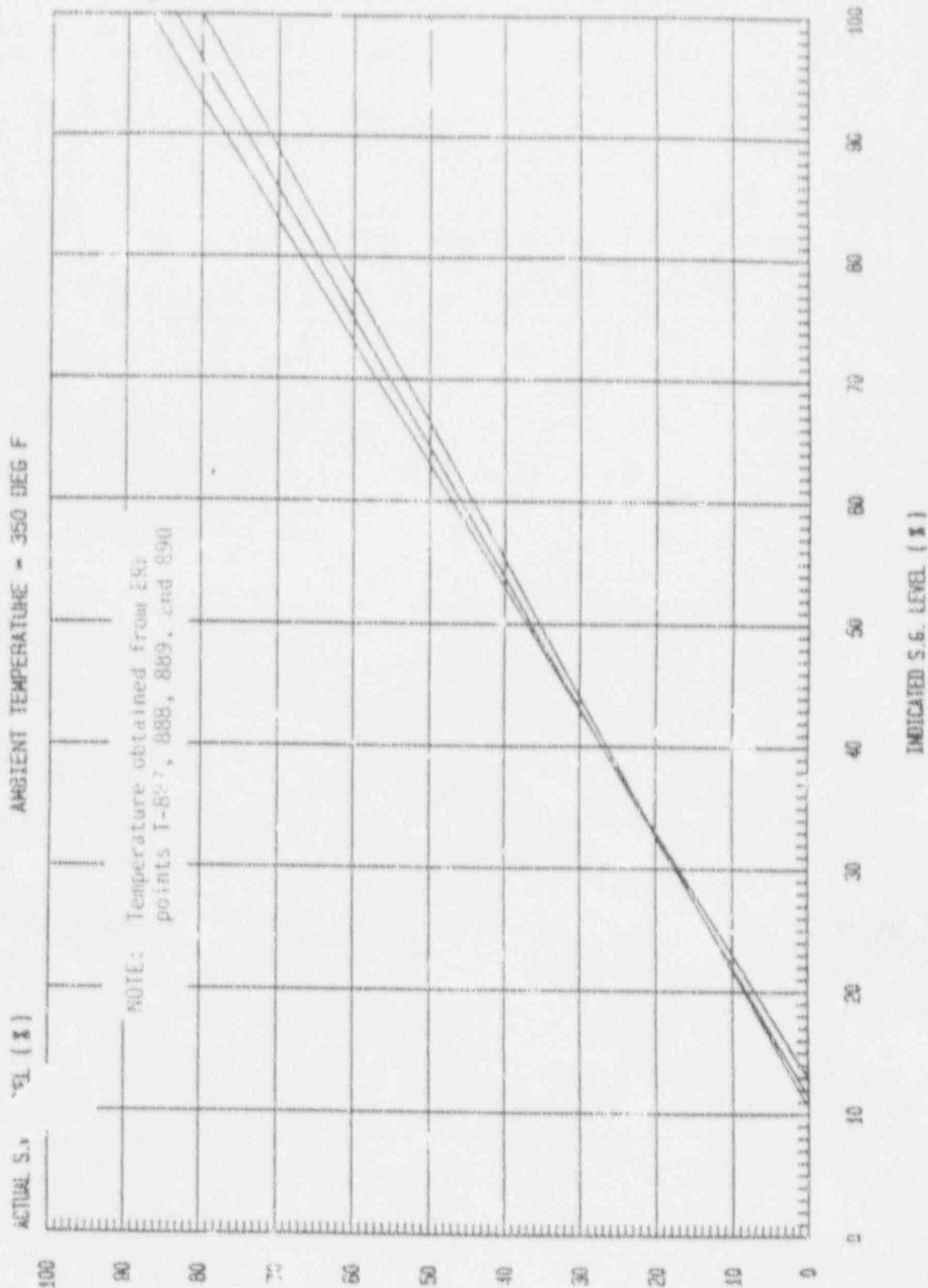
11.1.1

WIDE RANGE STEAM G/L. LEVEL CORRECTION

(DENSITY EFFECTS CORRECTION)

AMBIENT TEMPERATURE = 350 DEG F

870.6 PSIA
500 PSIA
300 PSIA



188044

SEP 08 1967

R1 09-08-87

WIDE RANGE STEAM GEN. LEVEL CORRECTION

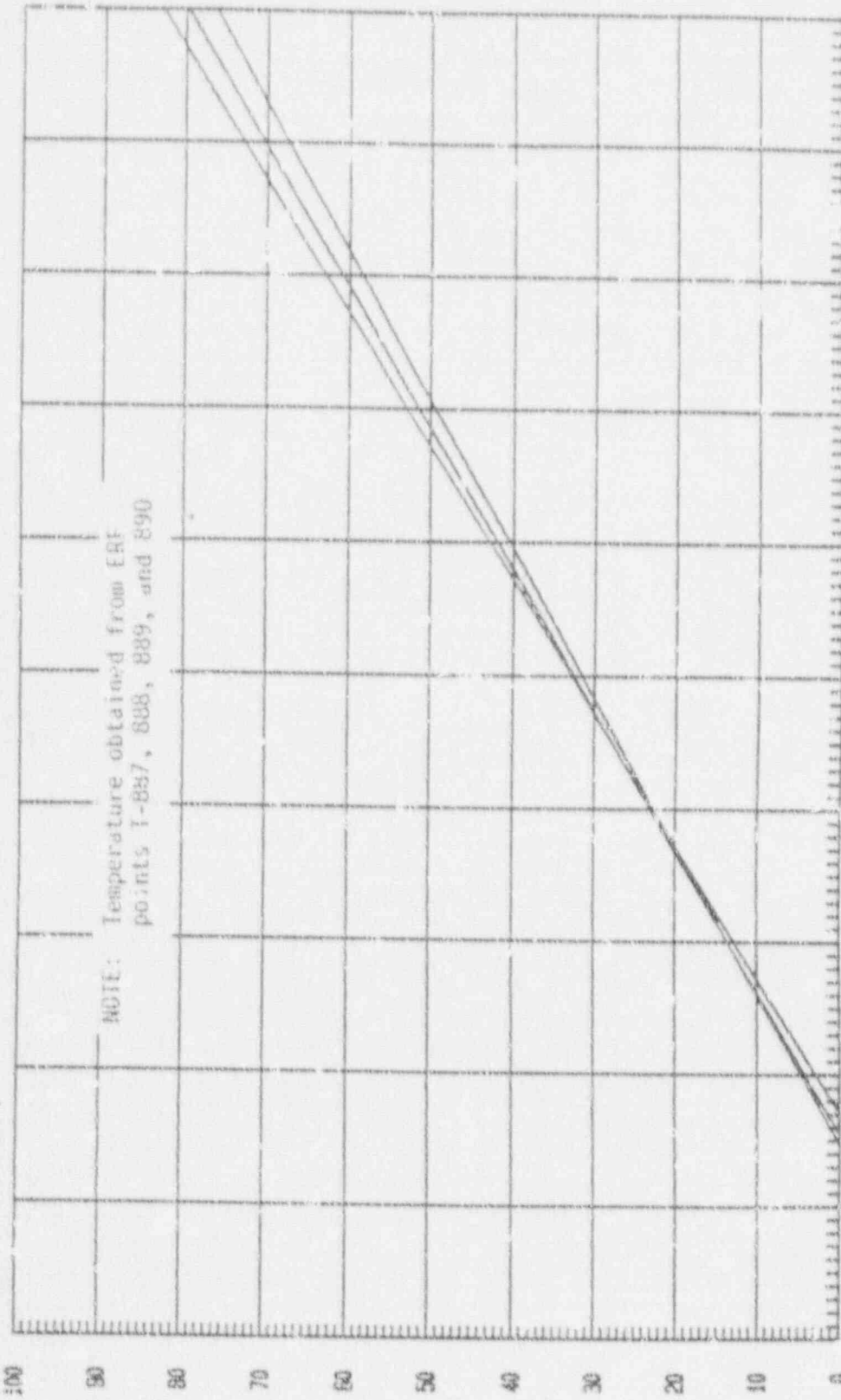
(DENSITY EFFECTS CORRECTION)

AMBIENT TEMPERATURE = 400 DEG F

ACTUAL S.G. LEVEL (%)

NOTE: Temperature obtained from ERF points T-8857, 8888, 8889, and 890

870.6 PSIA
500 PSIA
300 PSIA



INDICATED S.G. LEVEL (%)

ISSUED

SEP 08 1987

RI 09-08-87

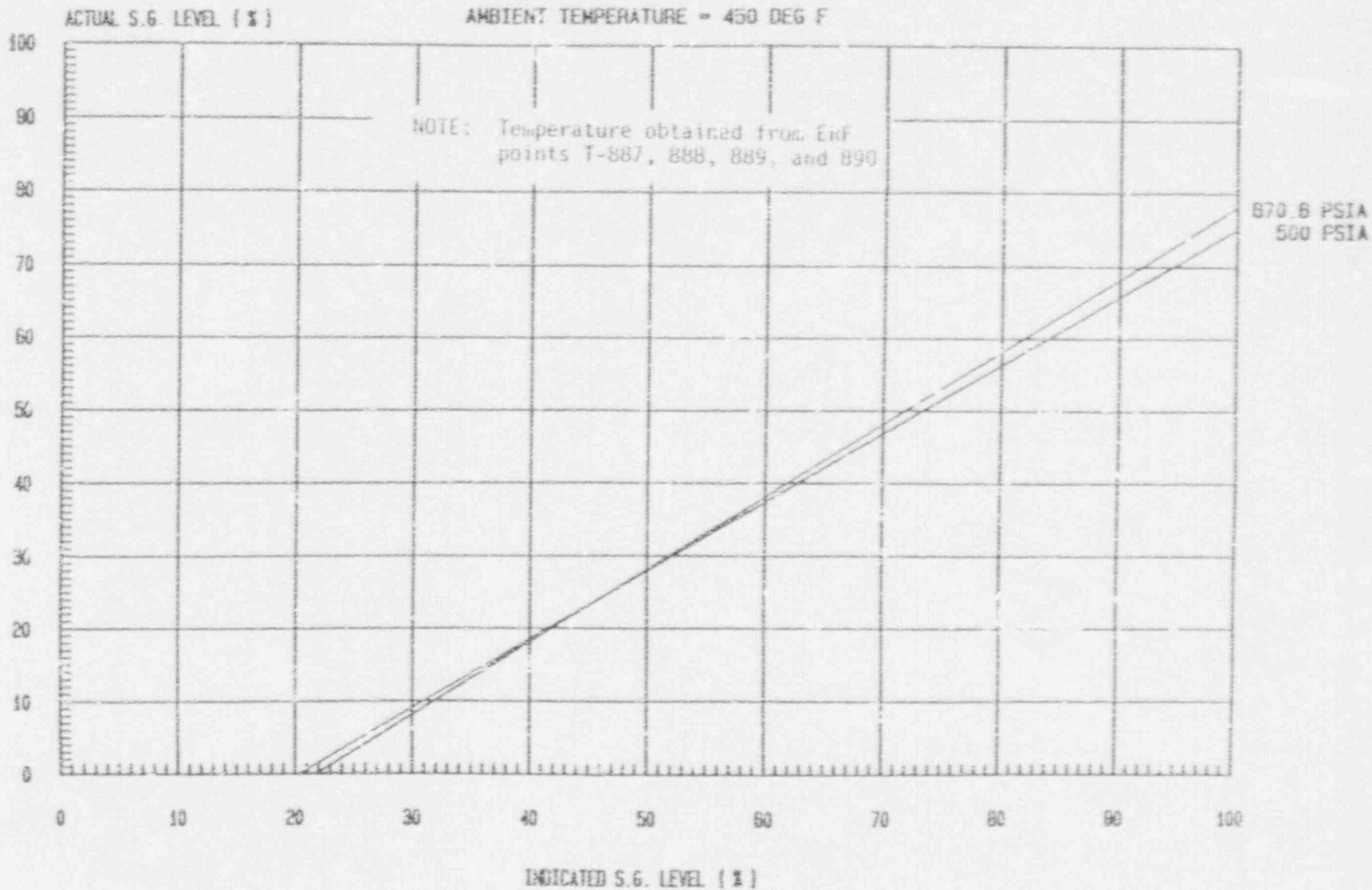
SEP 08 1987

R1 09-08-87

WIDE RANGE STEAM GEN. LEVEL CORRECTION

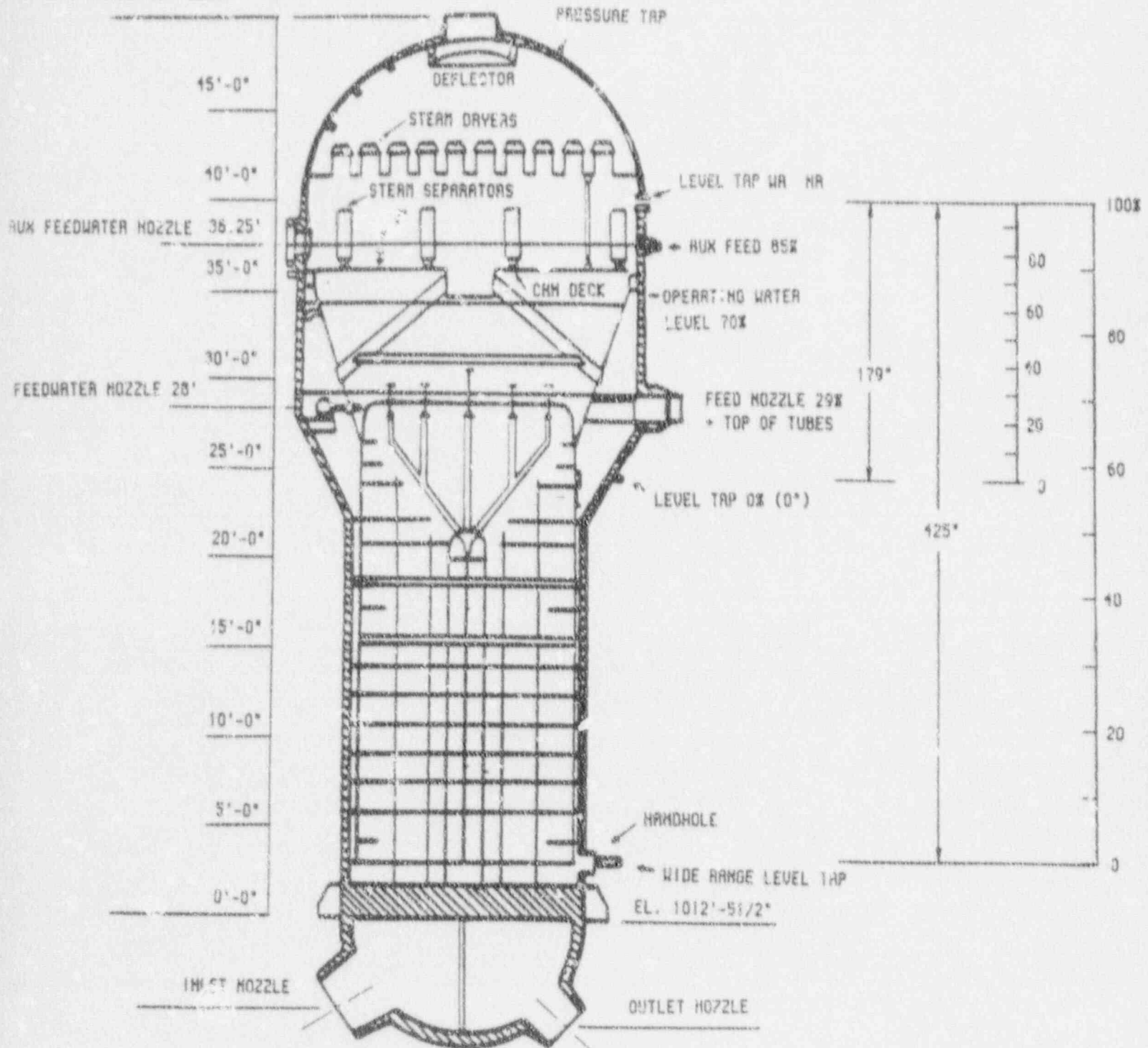
(DENSITY EFFECTS CORRECTION)

AMBIENT TEMPERATURE = 450 DEG F



STEAM GENERATOR COMPONENT ELEVATIONS

STEAM GENERATOR NOZZLE 10.7'



ISSUED

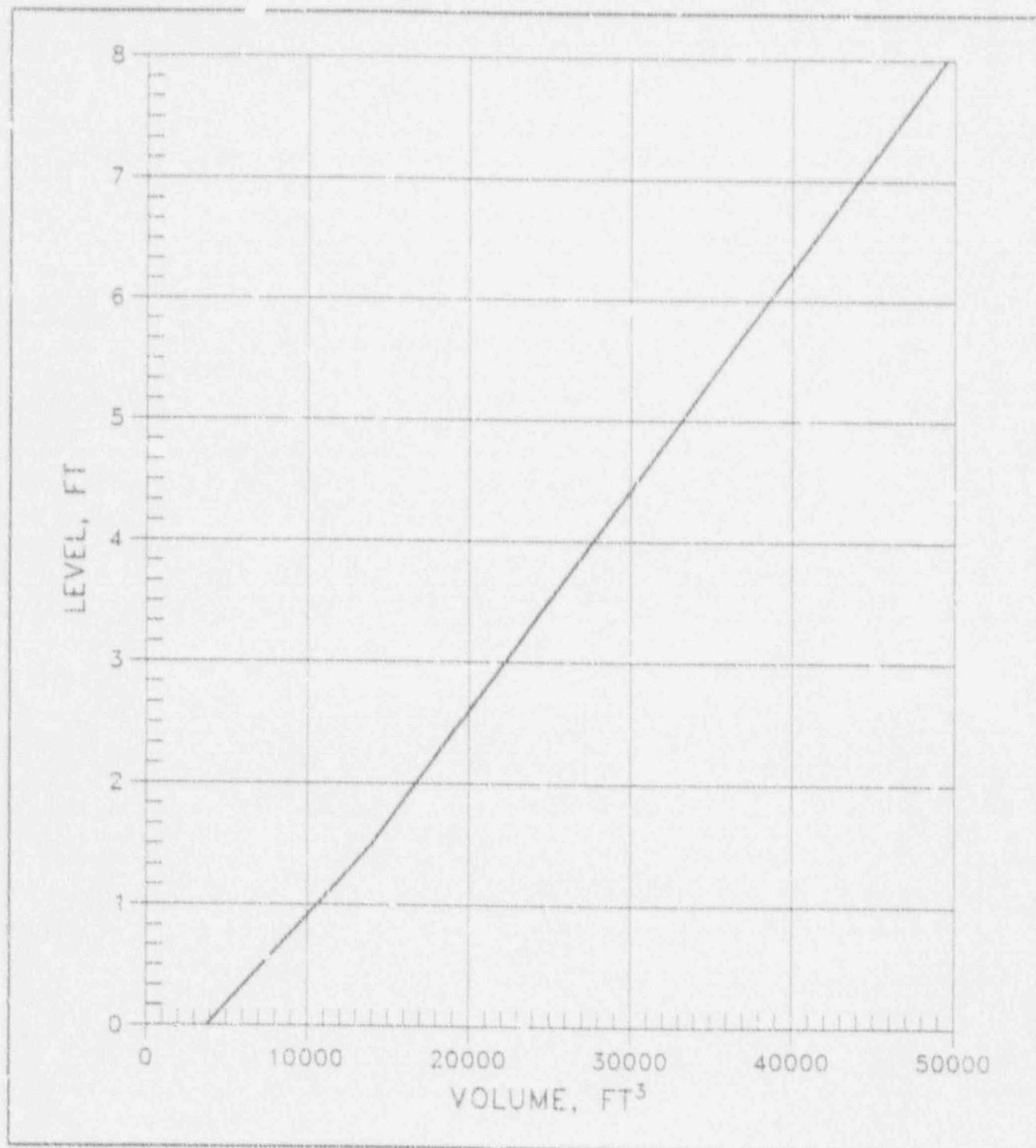
MAY 24 1966

ATTACHMENT 6.10
(Continued)

Page 12 of 10

APPENDIX 6

CONTAINMENT BUILDING WATER LEVEL vs. VOLUME



ATTACHMENT 6.10
(Continued)

Page 13 of 16

APPENDIX 7

CONTAINMENT SUMP CURVE LEVEL vs. VOLUME

