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NINE MILE POINT
NUCLEAR STATION

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April 23, 2010

U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Nine Mile Point Nuclear Station
Unit No. 2; Docket No. 50-410
Core Operating Limits Report

Enclosed is a copy of the Core Operating Limits Report, COLR2-13, Revision 0, for Nine Mile Point Unit 2 (NMP2). This report is being submitted pursuant to NMP2 Technical Specification 5.6.5.d.

Should you have any questions regarding the information in this submittal, please contact T. F. Syrell, Licensing Director, at (315) 349-5219.

Very truly yours,

Joseph E. Pacher
Manager, Engineering Services

JEP/MHS

Enclosure: Nine Mile Point Unit 2 Core Operating Limits Report, COLR2-13, Revision 0

cc: NRC Regional Administrator, Region I
NRC Project Manager
NRC Senior Resident Inspector

A001
NRR

ENCLOSURE

Nine Mile Point Unit 2

Core Operating Limits Report

COLR2-13, Revision 0

Nine Mile Point Nuclear Station, LLC
April 23, 2010

NINE MILE POINT UNIT 2
CORE OPERATING LIMITS REPORT

Document No.: **COLR2-13**

Revision 0, Cycle 13

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This Controlled Document provides cycle specific core operating limits for use in conjunction with the Nine Mile Point Unit 2 Technical Specifications. Document pages may only be changed through a reissue of the entire document.

Table of Contents

1.0 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

1.1 Limits for Technical Specification 3.2.1

The APLHGR(s) for each fuel type as a function of AVERAGE PLANAR EXPOSURE shall not exceed the limits shown in Table 1.

The limits of Table 1 shall be reduced to a value of 0.78 times the two recirculation loop operation limit when in single recirculation loop operation.

TABLE 1
MAPLHGR Versus Average Planar Exposure

Average Planar Exposure (GWd/ST)	MAPLHGR Limits (kw/ft)
0.00	12.82
14.51	12.82
19.13	12.82
57.61	8.00
63.50	5.00

NOTE: (1) APLHGRs are interpolated between exposure points for which explicit values are given.

NOTE: (2) These APLHGR are not lattice dependent. The values shown also correspond to the limiting value for the most limiting lattice for use when hand calculations are required.

2.0 MINIMUM CRITICAL POWER RATIO (ODYN OPTION B)

2.1 Limits for Technical Specification 3.2.2

For 2-Pump Operation, the Minimum Critical Power Ratio (MCPR) shall be equal to or greater than the maximum of the appropriate MCPR(P) from Figures 2c, 2d and 2f or the MCPR(F) from Figure 2e.

For Single Loop Operation, the Minimum Critical Power Ratio (MCPR) shall be equal to or greater than the Minimum Critical Power Ratio for 2-Pump Operation plus 0.02.

NOTES: 1. For Figures 2a and 2b tau (or "t") defined as follows:

$\tau = (\tau_{ave} - \tau_B) / (\tau_A - \tau_B)$ where:

τ_A = 0.866 seconds, control rod average scram insertion time limit to notch 39 per Specification 3.1.4.

$$\tau_B = .672 + 1.65 * [\ N_l \ / \sum_{i=1}^{n} N_i\ ]^{1/2} * .016$$

$$\tau_{ave} = (\sum_{i=1}^{n} N_i \tau_i) / (\sum_{i=1}^{n} N_i)$$

n = number of surveillance tests performed in cycle

N_i = number of active control rods measured in the i^{th} surveillance test

τ_i = average scram time to notch 39 of all rods measured in the i^{th} surveillance test

N_l = total number of active rods measured in Specification 3.1.4.1.

τ = 1.0 prior to performance of the initial scram time measurements for the cycle.

2. ARTS provides for power- and flow-dependent thermal limit adjustments and multipliers, which allow for a more reliable administration of the MCPR thermal limit. The MCPR(P) curves are independent of EOC-RPT and scram time option, but are determined for other EOOS. The MCPR(P) limits for PROOS were converted to a K(P) consistent with the ARTS offrated limits. MCPR(F) is independent of Scram Time Option and all EOOS.

3. The Operating Limit MCPR values for Turbine Bypass Out of Service and EOC-RPT Out of Service are higher (more limiting) than for the standard normal operation case, and are therefore specifically identified where appropriate. The OLMCPR values for all other analyzed EOOS transient events are bounded by the Normal Operation limits.

4. EOR is the End of Rated exposure as defined in the Cycle Management Report.

Figure 2a
MCPR Operating Limits
(Beginning Of Cycle to EOR-2628 MWd/ST)

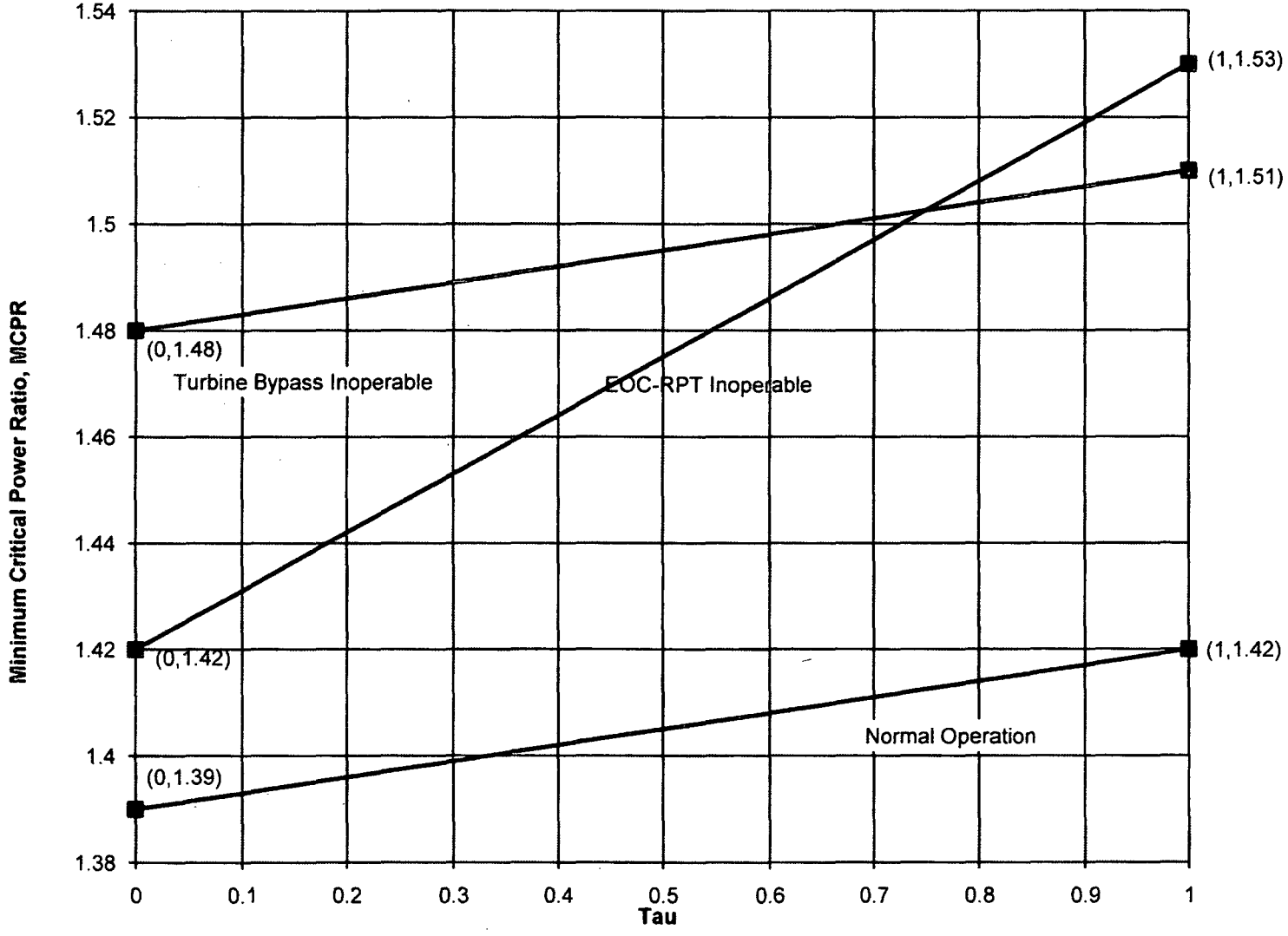


Figure 2b
MCPR Operating Limits
(EOR-2628 MWd/ST to End Of Cycle)

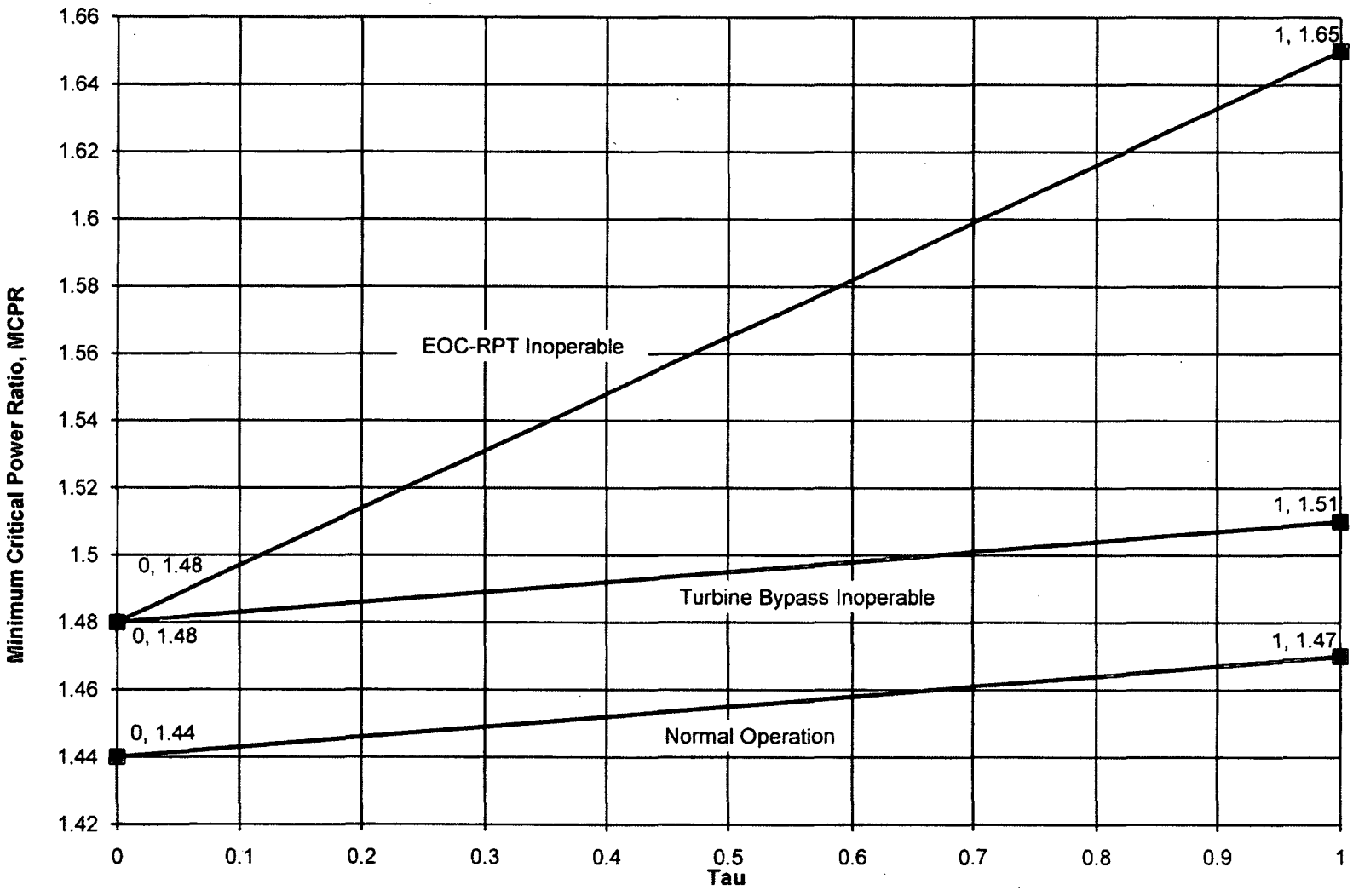


Figure 2c
MCPR(P) for <30%Power, ≤75%Flow
K(P) for ≥30% Power
For Equipment In Service and Recirculation Pump Trip Out of Service

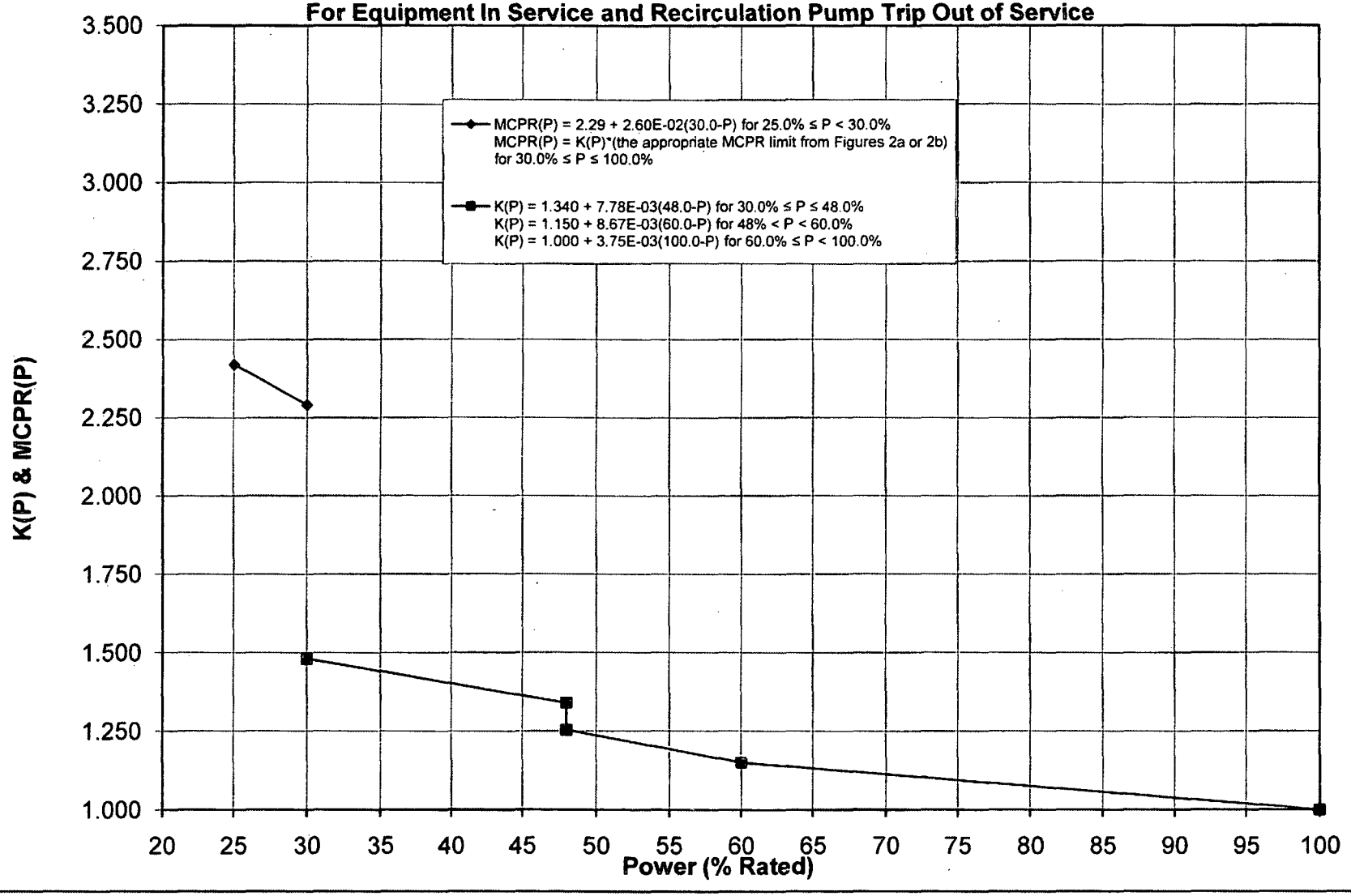


Figure 2d
MCPR(P) for <30%Power, ≤75%Flow
K(P) for ≥30% Power
for Turbine Bypass Out of Service

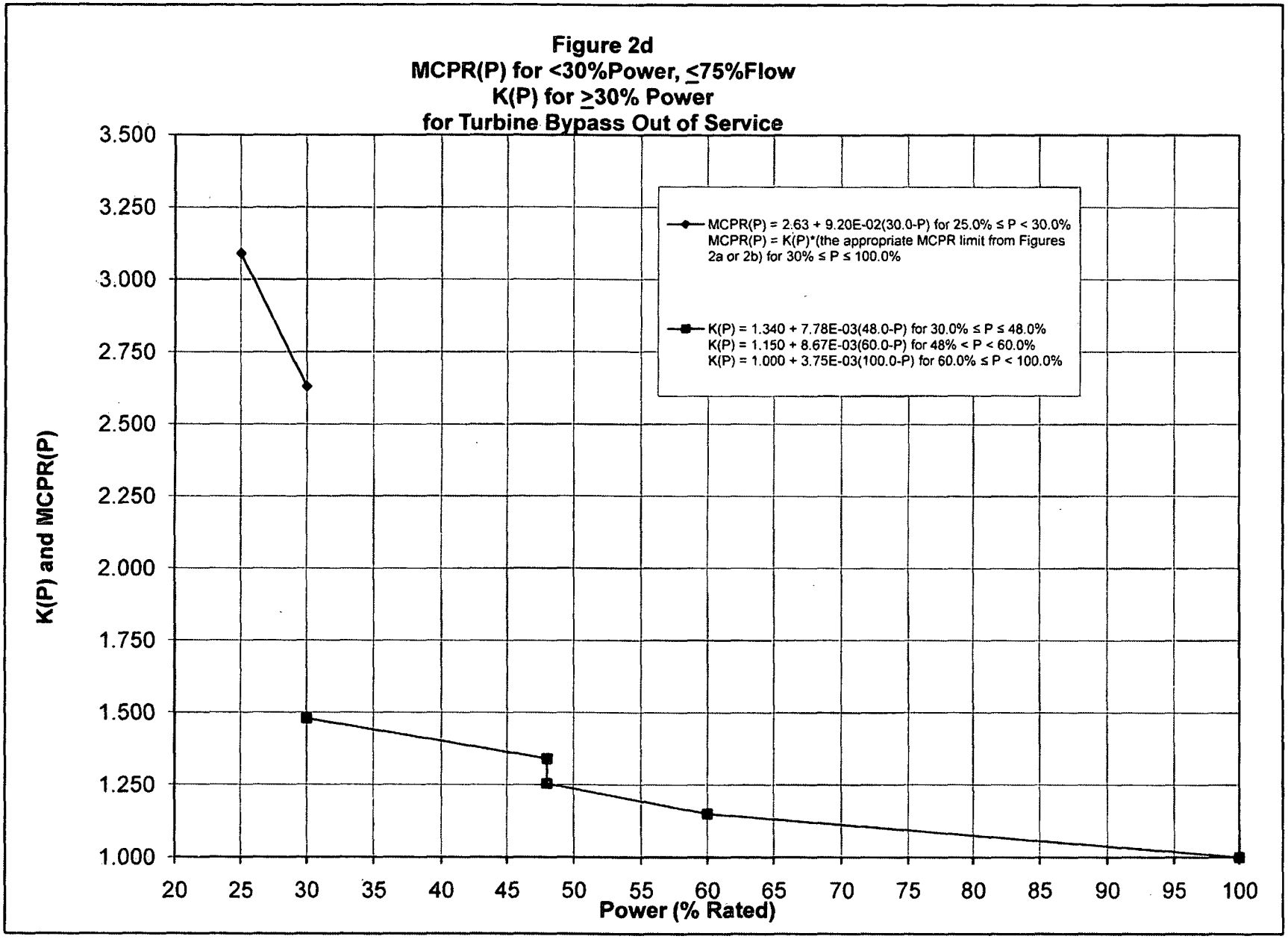


Figure 2e
Flow-Dependent MCPR Limits
MCPR(F)

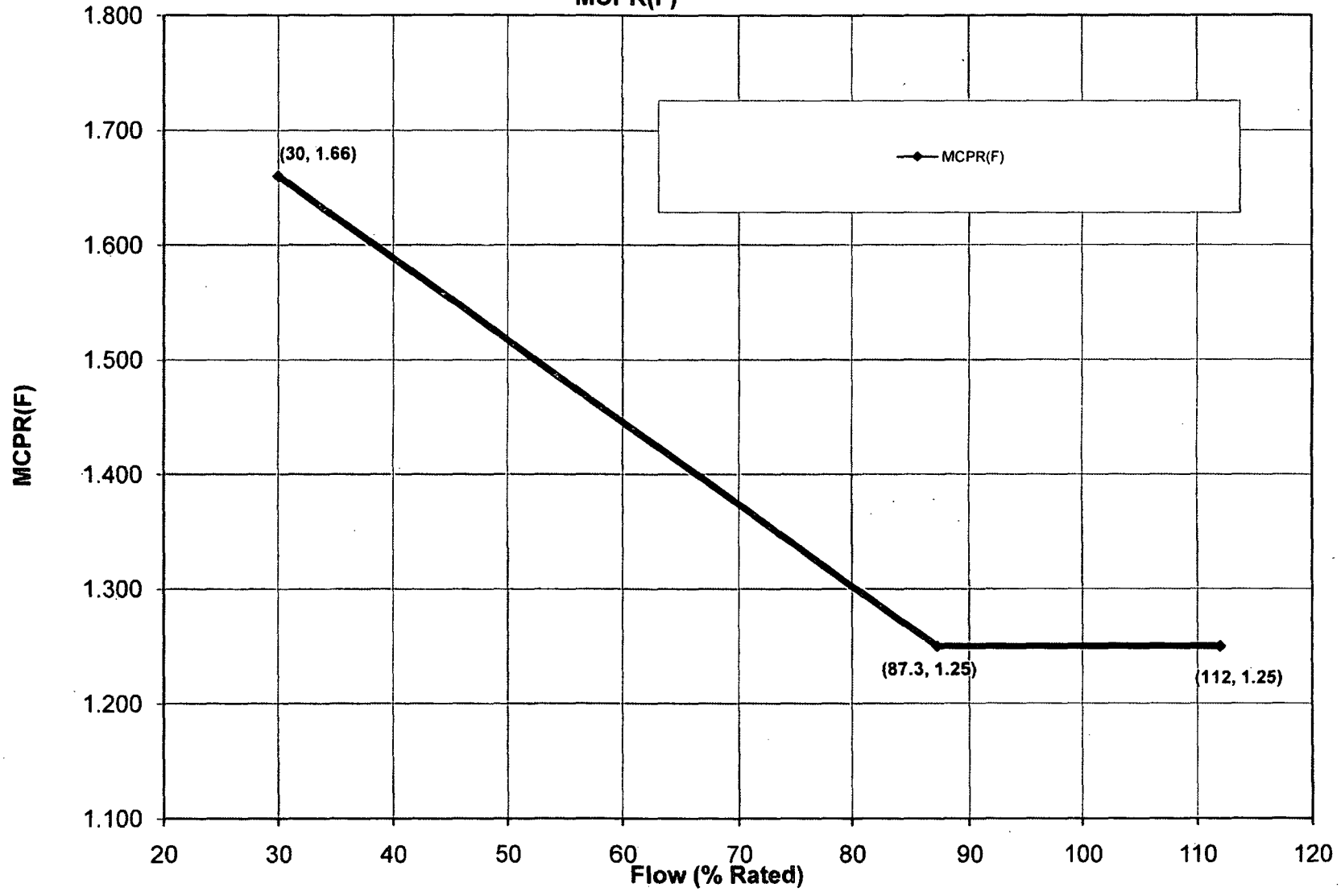
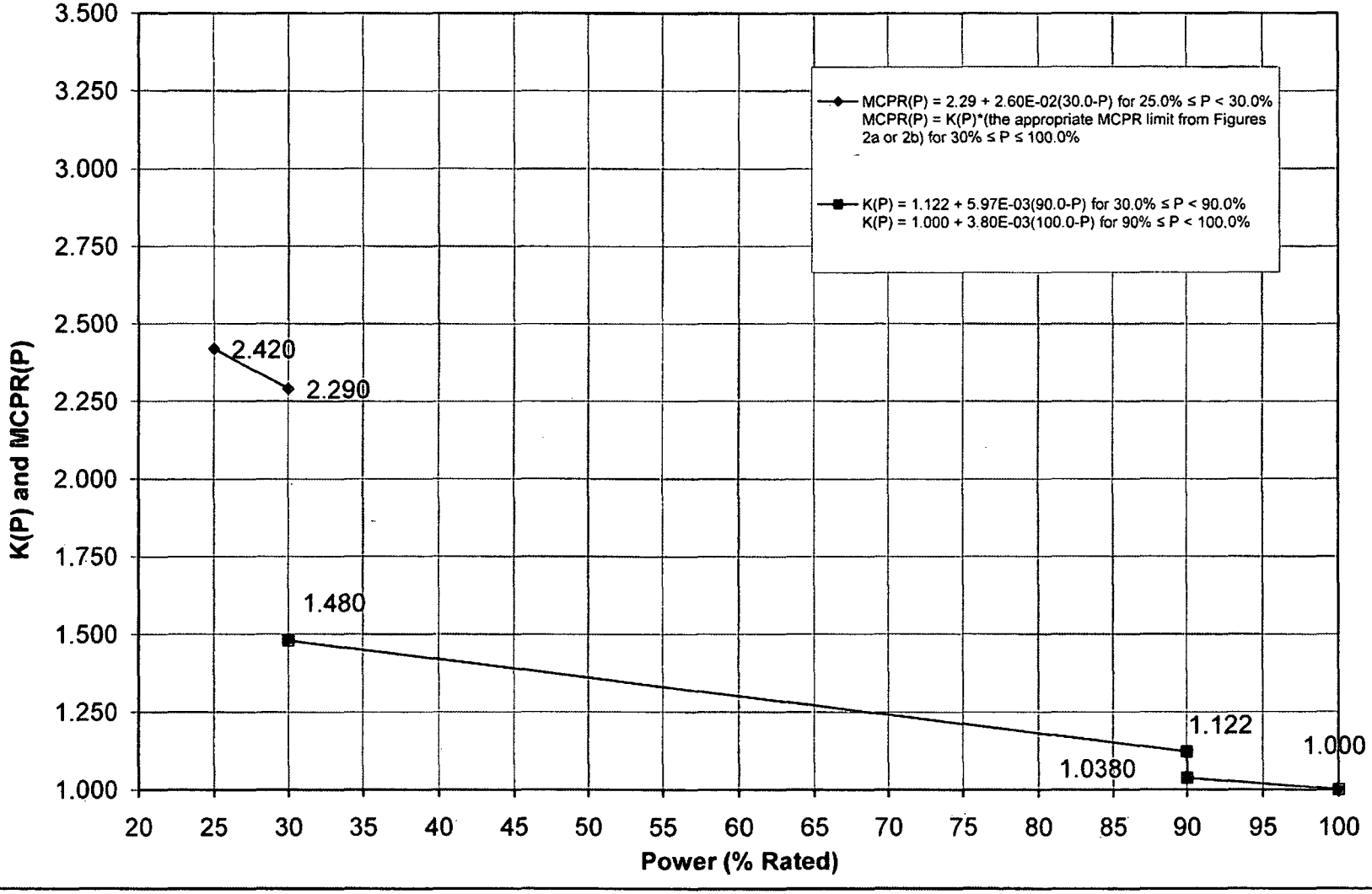


Figure 2f
MCPR(P) for <30%Power, ≤75%Flow
K(P) for ≥30% Power
for Operation without a Backup Pressure Regulator



3.0 LINEAR HEAT GENERATION RATE (LHGR)

3.1 Limits for Technical Specification 3.2.3

During power operation, the Linear Heat Generation Rate (LHGR) of any rod in any fuel assembly at any axial location shall not exceed the minimum of: 1) the limiting values shown in RSLD-12, Revision 0, "Nine Mile Point Unit 2 Reload 12, Reload Specific Lattice Data" times the LHGRFAC(F) from Figure 3a; and 2) the limiting values shown in RSLD-12, Revision 0, "Nine Mile Point Unit 2 Reload 12, Reload Specific Lattice Data" times the appropriate LHGRFAC(P) from Figures 3b or 3c or 3d. RSLD-12, Revision 0 contains the LHGR limits for both UO2 rods (which contain no gadolinium) and the most limiting gadolinium-bearing rods. Other gadolinium-bearing rods have LHGR limits which lie between these two curves. Compliance with these limits will be monitored by the plant's process computer.

NOTE: ARTS provides for power- and flow-dependent thermal limit multipliers, which allow for a more reliable administration of the LHGR thermal limits. The LHGRFAC(P) curves are independent of recirculation pump trip operability, but are determined for other EOOS. The LHGRFAC (P) limits for PROOS are also presented in a manner more consistent with the ARTS offrated limits. LHGRFAC(F) is identical for all EOOS.

Figure 3a
Flow-Dependent LHGR Multiplier
LHGRFAC(F)

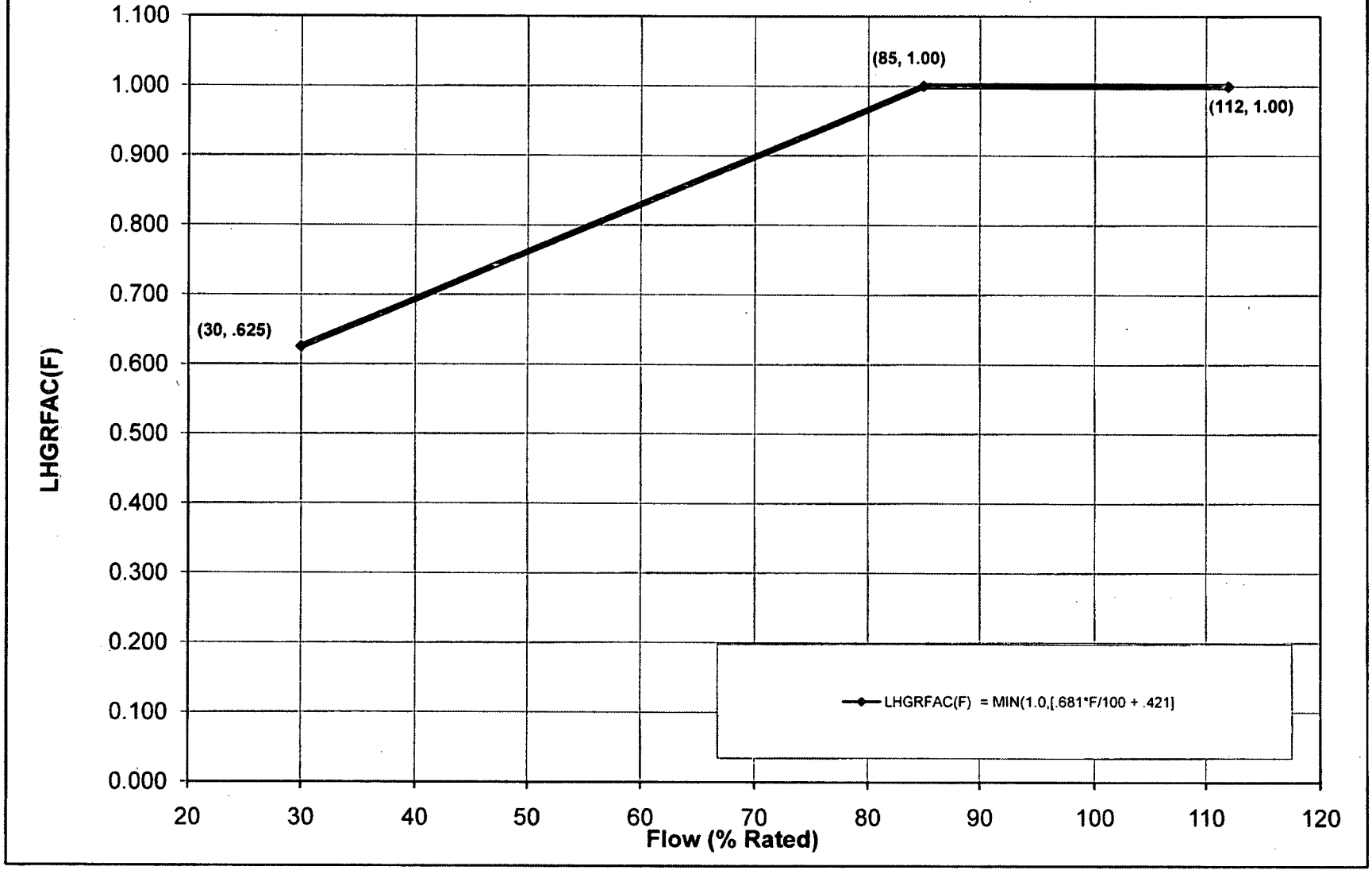


Figure 3b
Power-Dependent LHGR Multiplier
LHGRFAC(P)
for Equipment in Service and Recirculation Pump Trip Out of Service

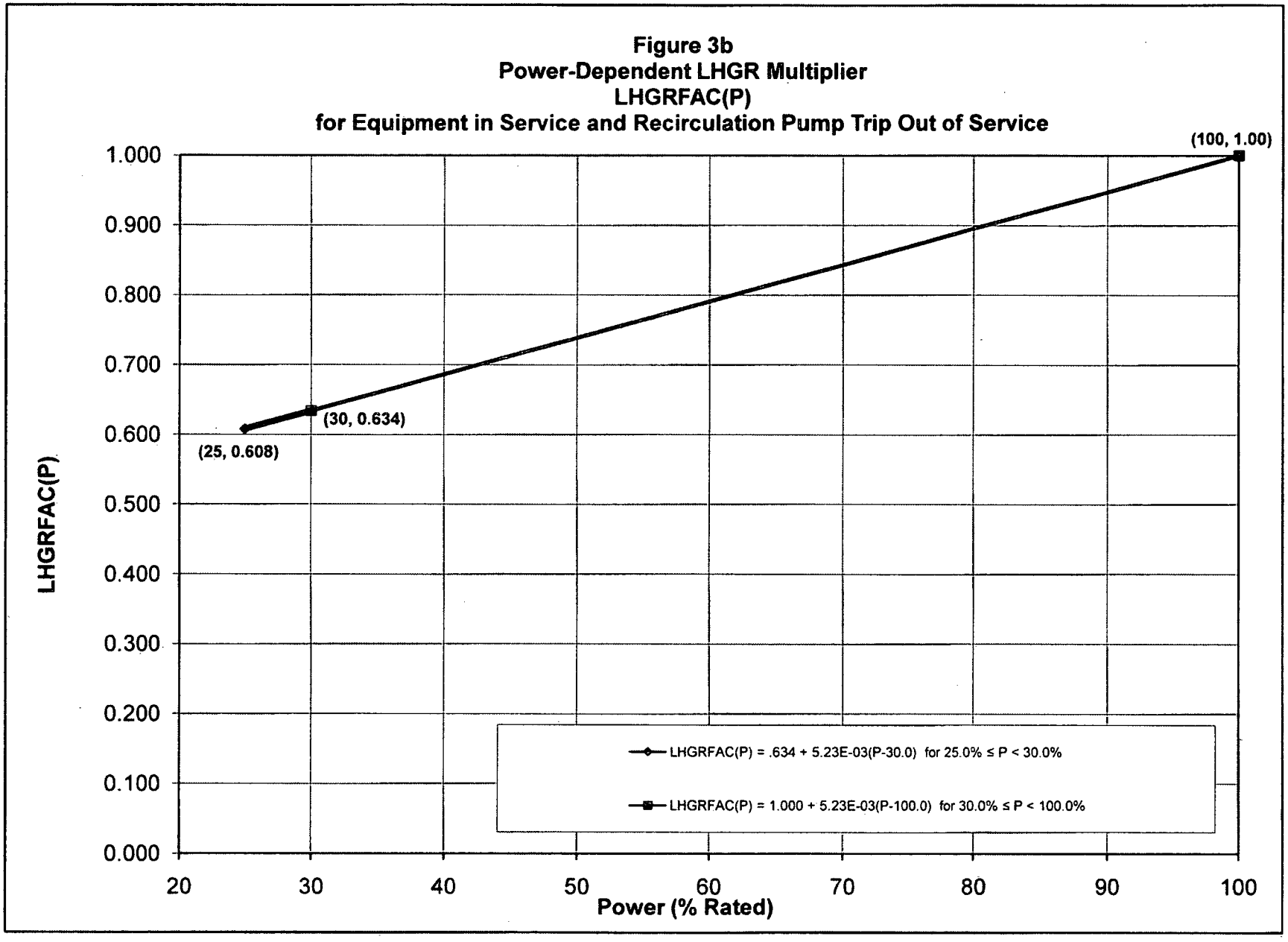


Figure 3c
Power-Dependent LHGR Multiplier
LHGRFAC(P)
for Turbine Bypass Out of Service

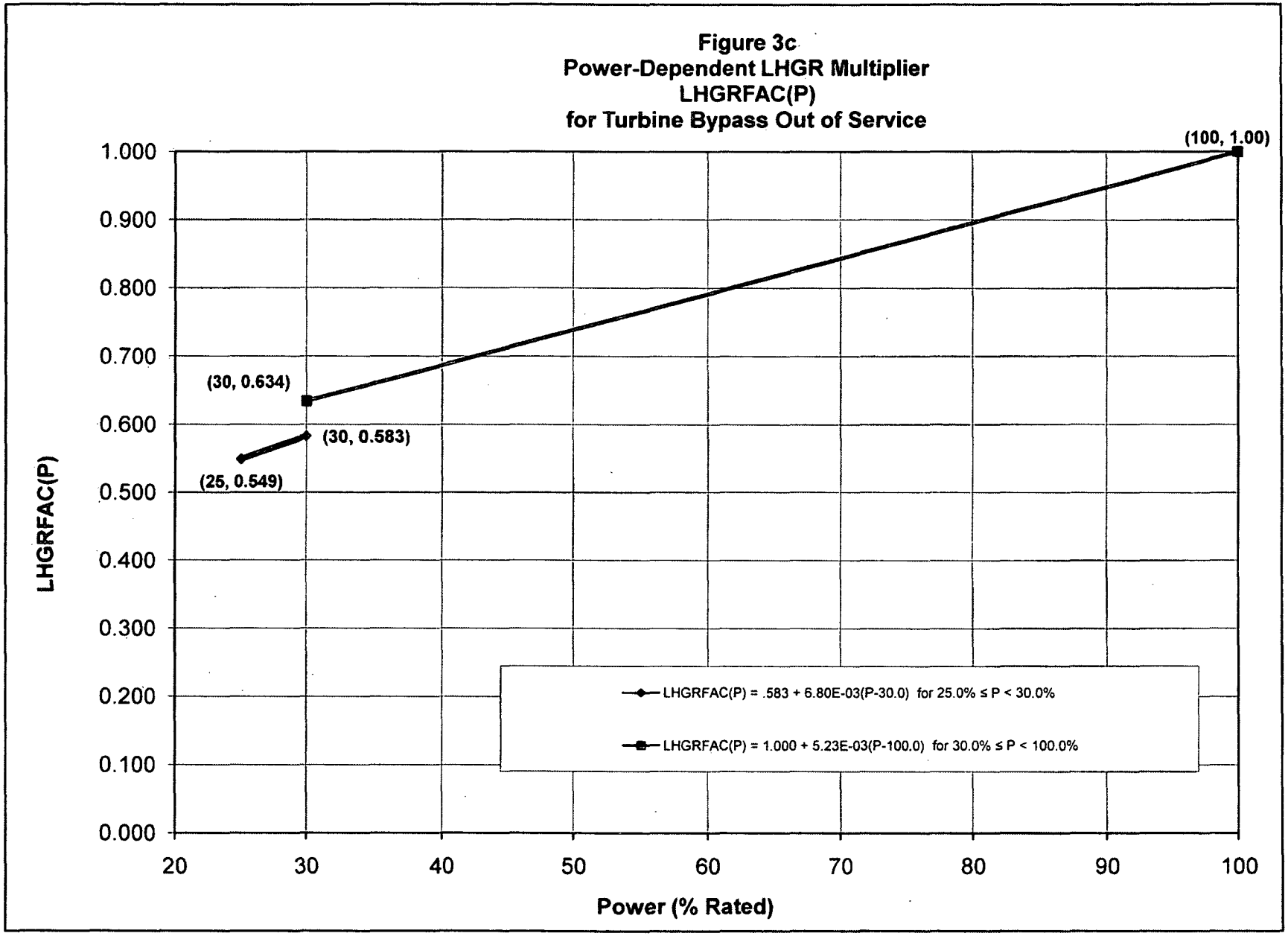
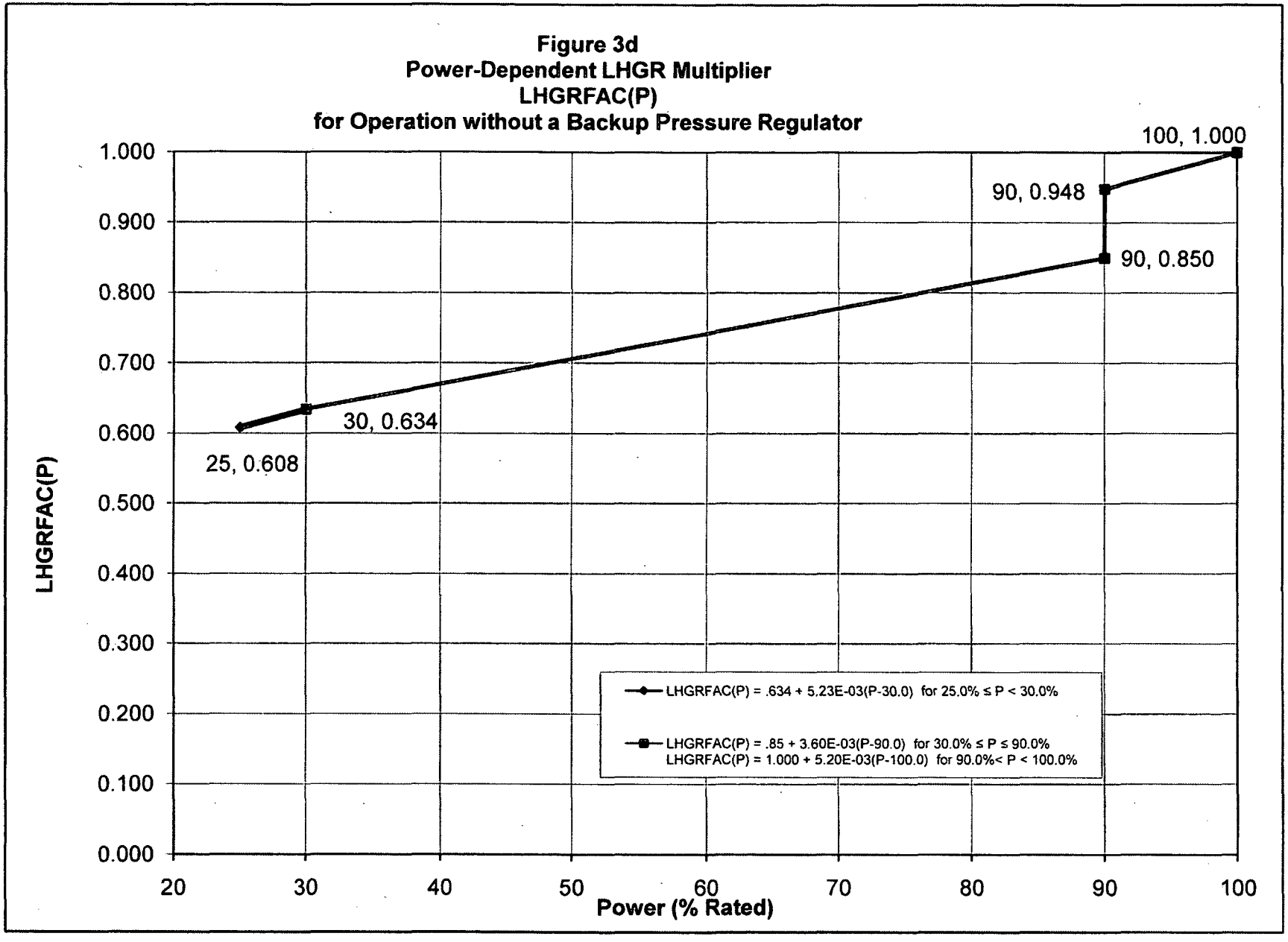


Figure 3d
Power-Dependent LHGR Multiplier
LHGRFAC(P)
for Operation without a Backup Pressure Regulator



4.0 AVERAGE POWER RANGE MONITOR SETPOINTS

4.1 Limits for Technical Specification Table 3.3.1.1-1 (OPRM Upscale)

ALLOWABLE VALUE < 1.13

5.0 Control Rod Block Instrumentation

5.1 Footnote Values for Technical Specification Table 3.3.2.1-1

(a) MCPR <	1.70
(b) MCPR <	1.70
(c) MCPR <	1.70
(d) MCPR <	1.40
(e) MCPR <	1.70
(h) Allowable Value:	
Low Power Range - Upscale	124.6
Intermediate Power Range - Upscale	119.6
High Power Range - Upscale	114.6
(i) NTSP:	
Low Power Range - Upscale	124.2
Intermediate Power Range - Upscale	119.2
High Power Range - Upscale	114.2

6.0 REFERENCES FOR TECHNICAL SPECIFICATION

Technical Specification 5.6.5.b.1:

General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-16 and NEDE 24011-P-A-16-US (October 2007).

7.0 REFERENCES FOR TECHNICAL SPECIFICATION BASES

2.1.1 BASES REFERENCE 3:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-16 and NEDE 24011-P-A-16-US (October 2007).

2.1.1 BASES REFERENCE 4:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

3.1.1 BASES REFERENCE 7:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-16 and NEDE 24011-P-A-16-US (October 2007).

3.1.6 BASES REFERENCE 1:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

3.2.1 BASES REFERENCE 1:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-16 and NEDE 24011-P-A-16-US (October 2007).

3.2.2 BASES REFERENCE 2:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-16 and NEDE 24011-P-A-16-US (October 2007).

3.2.2 BASES REFERENCE 3:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

3.2.3 BASES REFERENCE 1:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-16 and NEDE 24011-P-A-16-US (October 2007).

3.2.3 BASES REFERENCE 2:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

3.2.4 BASES REFERENCE 3:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-16 and NEDE 24011-P-A-16-US (October 2007).

8.0 SOURCE DOCUMENTS

The Core Operating Limits contained in this report were obtained from the following documents:

Section 1.0 - APLHGR LIMITS

Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

Section 2.0 - MCPR LIMITS

Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

Nine Mile Point Station Unit 2 - APRM/RBM/Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA), NEDC-33286P, Rev. 0, March 2007

Nine Mile Point Nuclear Station Unit 2 ARTS/MELLLA, Task T0900, GE-NE-0000-0055-2373-R0, Rev. 0, February 2007

Engineering Report for Nine Mile Point Nuclear Station Unit 2, Reload 11, Cycle 12, 0000-0067-1271-ER, Rev 0, March 2008

Section 3.0 - LHGR LIMITS

Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

Nine Mile Point Station Unit 2 - APRM/RBM/Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA), NEDC-33286P, Rev. 0, March 2007

Nine Mile Point Nuclear Station Unit 2 ARTS/MELLLA, Task T0900, GE-NE-0000-0055-2373-R0, Rev. 0, February 2007

Section 4.0 - APRM SETPOINTS

Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

Design Specification Data Sheet 22A2843AM (NMPCNO NSSS161405000), Neutron Monitoring System.

Section 5.0 - Control Rod Block Instrumentation

Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 12, Cycle 13, 0000-0080-4339-SRLR, Rev. 0, January 2010.

Nine Mile Point Station Unit 2 - APRM/RBM/Technical Specifications/Maximum Extended Load Line Limit Analysis (ARTS/MELLLA), NEDC-33286P, Rev. 0, March 2007

Nine Mile Point Nuclear Station Setpoint Data Sheet (SPDS) 2NMP-RBM, Rod Block Monitor Setpoints