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NewYorkPower Authority

Michael J. Colomb
Site Executive Officer

February 28, 2000
JAFP-00-0046

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

Subject: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
**Core Operating Limits Report**
**Revision 8 (Reload 13/Cycle 14)**

Dear Sir:

Attached is revision 8 to the James A. FitzPatrick Core Operating Limits Report (COLR). This report is submitted in accordance with Technical Specifications Section 6.9.A.4.d.

Revision 8 supersedes Revision 7. Revision 8 contains the core operating limits applicable for Cycle 14. This revision changes the exclusion region and buffer zone based on a vendor calculation.

No commitments are made by the Authority in this letter. If you have any questions, please contact Mr. Francisco Rodriguez-Vera at (315) 349-6310.

Very truly yours,

Michael J. Colomb

MJC:las

Attachment as stated

Cc: next page

A001

Cc: Regional Administrator
U.S. Nuclear Regulatory Commission
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NEW YORK POWER AUTHORITY
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
REPORT

# CORE OPERATING LIMITS REPORT
# REVISION 8

REVIEWED BY: PLANT OPERATIONS REVIEW COMMITTEE

MEETING NO. 00-011 DATE 2/8/00

APPROVED BY: Francisco Rodríguez DATE 2/9/2000
REACTOR ANALYST SUPERVISOR

APPROVED BY: DATE 2/9/2000
SITE EXECUTIVE OFFICER

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## 1.0 PURPOSE

This report provides the cycle-specific operating limits for Cycle 14 of the James A. FitzPatrick Nuclear Power Plant. The following limits are addressed:

Operating Limit Minimum Critical Power Ratio (MCPR)

Flow Dependent MCPR Limits

Maximum Average Planar Linear Heat Generation Rate (MAPLHGR)

Linear Heat Generation Rate (LHGR)

Flow-Biased Average Power Range Monitor (APRM) and Rod Block Monitor (RBM) Settings

Stability Option ID Exclusion Region

## 2.0 APPLICABILITY

The plant shall be operated within the limits specified in this report. If any of these limits are violated, the corrective actions specified in the Technical Specifications shall be taken.

## 3.0 REFERENCES

3.1 JAFNPP Administrative Procedure 12.05, Control of Core Operating Limits Report.

3.2 JAFNPP License Appendix A, Operating Technical Specifications.

3.3 FitzPatrick Cycle 14 Core Reload Safety Evaluation, JAF-SE-98-006.

3.4 GE Report, Supplemental Reload Licensing Report for James A. FitzPatrick Reload 13 Cycle14, J11-03359SRL, Rev.1, October 1998

3.5 GE Report, Supplemental Reload Licensing Report for James A. FitzPatrick Reload 12 Cycle13, J11-02914SRL Rev.0, August 1996.

3.6 GE Report, Supplemental Reload Licensing Report for James A. FitzPatrick Reload 11 Cycle12, 24A5167, Rev.1, June 1996.

3.7 GE Report, Supplemental Reload Licensing Report for James A. FitzPatrick Reload 10 Cycle11, 23A7114, Rev.1, July 1992.

3.8 Cycle 14 Core Reload, M1-97-030.

3.9 RAP-7.3.17, Core Monitoring Software and Database Changes.

3.10 Plant Operation Up To 100% Power With One Steam Line Isolated, JAF-SE-96-035.

3.11 James A. FitzPatrick Nuclear Power Plant $K_f$ Curve Update, GE-NE-J11-03426-00-01, September 1998.

3.12 FitzPatrick Cycle 12 Core Reload Safety Evaluation, JAF-SE-94-127.

3.13 General Electric Standard Application for Reload Fuel, NEDE-24011-P-A-13

3.14 James A. FitzPatrick ATRIUM-10A Lead Fuel Assembly Safety Analysis Report, EMF-94-141(P), November, 1994

3.15 GE Letter, J. Baumgartner to P. Lemberg, Exposure Dependent LHGR Limit Curves, JAB-N8076, November 5, 1998.

3.16 GE Supplement 1 to Supplemental Reload Licensing Report for James A. FitzPatrick Reload 10 Cycle11, 23A7114AA, Rev.0, June1992

3.17 GE Lattice Dependent MAPLHGR Report for James A. FitzPatrick Nuclear Power Plant, Reload 11 Cycle12, 24A5167AA, Rev.0, December 1994.

3.18 GE Lattice Dependent MAPLHGR Report for James A. FitzPatrick, Reload 12 Cycle13, J11-02914MAP, Rev. 0, August 1996.

3.19 GE Lattice Dependent MAPLHGR Report for James A. FitzPatrick, Reload 13, Cycle14, J11-03359MAPL, Rev. 0, October 1998.

3.20 GE Letter, A. Alzaben to P. Lemberg, Revised FitzPatrick Cycle 14 Exclusion Region, AFA-00-N005, February 7, 2000.

## 4.0 DEFINITIONS

4.1 Minimum critical power ratio (MCPR) - Minimum value of the ratio of that power in a fuel assembly which is calculated to cause some point in that fuel assembly to experience boiling transition to the actual assembly operating power as calculated by application of the GEXL correlation (Reference NEDE-10958).

4.2 Fraction of Limiting Power Density - The ratio of the linear heat generation rate (LHGR) existing at a given location to the design LHGR. The design LHGR is given in Table 8.2.

4.3 Maximum Fraction of Limiting Power Density - The Maximum Fraction of Limiting Power Density (MFLPD) is the highest value existing in the core of the Fraction of Limiting Power Density (FLPD).

4.4 Rated Recirculation Flow - that drive flow, which produces a core flow of $77.0 \times 10^6$ lb/hr.

5.0 RESPONSIBILITIES

5.1 See AP-12.05 (Reference 3.1).

5.2 It is the responsibility of the Shift Manager to assure that the reactor is operated within the limits described herein.

5.3 It is the responsibility of the Reactor Analyst Supervisor to assure that the limits described herein are properly installed in the 3D-Monicore databank used for thermal limit surveillance (Reference 3.9)

6.0 SPECIAL INSTRUCTIONS/REQUIREMENTS

Not applicable.

## 7.0 PROCEDURE

### 7.1 Operating Limit MCPR

During power operation, The Operating Limit MCPR shall be equal to or greater than the limits given below.

7.1.1 Technical Specification Reference: 3.1.B

7.1.2 The Operating Limit MCPR shall be determined based on the following requirement:

7.1.2.1 The average scram time to notch position 38 shall be:

$$\tau_{AVE} \leq \tau_B$$

7.1.2.2 The average scram time to notch position 38 is determined as follows:

$$\tau_{AVE} = \frac{\sum_{i=1}^{n} N_i \tau_i}{\sum_{i=1}^{n} N_i}$$

where:

n = number of surveillance tests performed to date in the cycle,

$N_i$ = number of active rods measured in the surveillance i

$\tau_i$ = average scram time to notch position 38 of all rods measured in surveillance test i.

7.1.2.3 The adjusted analysis mean scram time is calculated as follows:

$$\tau_B(\text{sec}) = \mu + 1.65\sigma \left[ \frac{N_1}{\sum_{i=1}^{n} N_i} \right]^{1/2}$$

where:

$\mu$ = mean of the distribution for the average scram insertion time to the pickup of notch position 38 = 0.706 sec.

$\sigma$ = standard deviation of the distribution for average scram insertion time to the pickup of notch position 38 = 0.016 sec.

$N_1$ = the total number of active rods measured in Technical Specification 4.3.C.1.

The number of rods to be scram tested and the test intervals are given in Technical Specification 4.3.C.

7.1.3 When requirement of 7.1.2.1 is met, the Operating Limit MCPR shall not be less than that specified in Table 8.1, or Table 8.1.A if operating above 75% of rated thermal power with three steam lines in service.

7.1.4 When the requirement 7.1.2.1 is not met (i.e. $\tau_B < \tau_{AVE}$) then the Operating Limit MCPR values (as a function of $\tau$) are given in Figure 8.1, or Figure 8.1.A if operating above 75% of rated thermal power with three steam lines in service.

Where: $\tau = (\tau_{AVE} - \tau_B)/(\tau_A - \tau_B)$

and

$\tau_{AVE}$ = the average scram time to notch position 38 as defined in 7.1.2.2.

$\tau_B$ = the adjusted analysis mean scram time as defined in 7.1.2.3

$\tau_A$ = the scram time to notch position 38 as defined in Technical Specification 3.3.C.1.

**NOTE:** Should the operating limit MCPR obtained from these figures be less than the operating limit MCPR found in 7.1.3 then 7.1.3 shall apply.

7.1.5 During single-loop operation, the Operating Limit MCPR shall be increased by 0.01.

7.1.6 During reactor power operation with core flow less than 100 percent of rated, the Operating Limit MCPR shall be multiplied by the appropriate $K_f$ specified in Figure 8.2.

7.2 Maximum Average Planar Linear Heat Generation Rate (MAPLHGR)

7.2.1 Technical Specification Reference: 3.5.H

7.2.2 During power operation, the APLHGR for each fuel type as a function of axial location and average planar exposure shall be within limits based on applicable APLHGR limit values which have been approved for the respective fuel and lattice types.

7.2.3 When hand calculations are required, the APLHGR for each type of fuel as a function of average planar exposure shall not exceed the limiting value for the most limiting lattice shown in Figures 8.3.A through G.

7.2.4 During single loop operation, the APLHGR for each fuel type shall not exceed the values given in 7.2.2 or 7.2.3 above multiplied by the appropriate values (0.76 and 0.78 for GE11 and GE12, respectively).

7.3 Linear Heat Generation Rate (LHGR)

7.3.1 Technical Specification Reference: 3.5.I.

7.3.2 During power operation, the LHGR for each fuel type as a function of axial location and average planar exposure shall be within limits based on applicable LHGR limit values which have been approved for the respective fuel and lattice types.

7.3.3 When hand calculations are required, the LHGR for each type of fuel as a function of average planar exposure shall not exceed the limiting value for the most limiting lattice as specified in Table 8.2 and shown in Figure 8.5.

7.4 APRM Trip Settings

7.4.1 APRM Flow Referenced Flux Scram Trip Setting (Run Mode)

7.4.1.1 Technical Specification References: 2.1.A.1.c, Table 3.1-1, 3.1.A

7.4.1.2 When the Mode Switch is in the RUN position, the APRM flow referenced flux scram trip setting shall be:

$S \leq 0.66W + 54\%$ for two loop operation;

$S \leq 0.66W + 54\% - 0.66 \Delta W$ for single loop operation;

where:

S = setting in percent of rated thermal power;

W = recirculation flow in percent of rated;

$\Delta W$ = difference between two loop and single-loop effective drive flow at the same core flow.

7.4.1.3 In the event of operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$S \leq (0.66W + 54\%)(FRP/MFLPD)$ for two loop operation;

$S \leq (0.66W + 54\% - 0.66 \Delta W)(FRP/MFLPD)$ for single-loop operation;

where:

FRP = fraction of rated thermal power;

MFLPD = Maximum fraction of limiting power density, see Definition 4.3.

The ratio of FRP to MFLPD shall be set equal to 1.0 unless the actual operating value is less than the design value of 1.0, in which case the actual operating value will be used.

7.4.2 APRM Flow Biased Rod Block Setting

7.4.2.1 Technical Specification References: 2.1.A.1.d, Table 3.2-3, 3.2.C

7.4.2.2 The APRM rod block trip setting shall be:

$S \leq 0.66W + 42\%$ for two loop operation;

$S \leq 0.66W + 42\% - 0.66\,\Delta W$ for single loop operation;

where:

S = rod block setting in percent of rated thermal power;

W = recirculation flow in percent of rated;

$\Delta W$ = difference between two loop and single loop effective drive flow at the same core flow.

7.4.2.3 In the event of operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$S \leq (0.66W + 42\%)(FRP/MFLPD)$ for two loop operation;

$S \leq (0.66W + 42\% - 0.66\Delta W)(FRP/MFLPD)$ for single loop operation;

where:

FRP = fraction of rated thermal power;

MFLPD = maximum fraction of limiting power density, Definition 4.3

7.5 RBM Flow Biased Rod Block Setting

7.5.1 Technical Specification Reference: 3.2.C

7.5.2 The RBM flow biased rod block trip setting shall be:

$S \leq 0.66W + K$ for two loop operation;

$S \leq 0.66W + K - 0.66\Delta W$ for single loop operation;

where:

S = rod block setting in percent of initial;

W = loop flow in percent of rated

K = intercept values of 39%, 40%, 41%, 42%, 43%, and 44% can be used with the appropriate MCPR Operating Limit from Table 8.1(note that for Cycle 14 the RBM intercept value does not effect the MCPR Operating Limit for K values $\leq$ 44%);

$\Delta W$ = difference between two loop and single loop effective drive flow at the same core flow.

7.6 Stability Option 1-D Exclusion Region and Buffer Zone.

7.6.1 Technical Specification Reference 3.5.J

7.6.2 The reactor shall not be intentionally operated within the Exclusion Region given in Figure 8.4 when the SOLOMON Code is operable.

7.6.3 The reactor shall not be intentionally operated within the Buffer Zone given in Figure 8.4 when the SOLOMON Code is inoperable

## 7.7 $K_f$ - Flow Dependent MCPR Limit

Figure 8.2 is the $K_f$ limit. Values of $K_f$ are obtained using the following equation (see Reference 3.11):

$$K_F = MAX\ [1.0,\ A - SLOPE*WT]$$

where:

WT = Core Flow as % of Rated, $30\% \leq WT \leq 100\%$

$$SLOPE = \left( A_F/100/OLMCPR \right) * \left( SLMCPR/SLMCPR_{generic} \right)$$

$$A = \left( B_F/OLMCPR \right) * \left( SLMCPR/SLMCPR_{generic} \right)$$

$$SLMCPR_{generic} = 1.07$$

SLMCPR = Technical Specification Reference 1.1.A

OLMCPR = the highest value obtained from Figures 8.1, and 8.1.A as per 7.1.4, or, if the note in 7.1.4 applies, then 7.1.3 requirement must be met.

$A_F$ , $B_F$ = Coefficients for the $K_f$ curve listed below:

| Scoop Tube Setpoint % | $A_F$ | $B_F$ |
|---|---|---|
| 102.5 | 0.571 | 1.655 |
| 107.0 | 0.586 | 1.697 |
| 112.0 | 0.602 | 1.747 |
| 117.0 | 0.632 | 1.809 |

All coefficients apply to Manual Flow Control Mode

## 8.0 FIGURES AND TABLES

FIGURE 8.6.A Cycle 14 Loading Pattern,
Upper Left Quadrant, Bundle Design

FIGURE 8.6.B Cycle 14 Loading Pattern,
Upper Right Quadrant, Bundle Design

FIGURE 8.6.C Cycle 14 Loading Pattern,
Lower Right Quadrant, Bundle Design

FIGURE 8.6.D Cycle 14 Loading Pattern,
Lower Left Quadrant, Bundle Design

FIGURE 8.7 Users Guide

## 9.0 EXHIBITS

Not Applicable.

**TABLE 8.1**
MCPR Operating Limit for Incremental Cycle
Core Average Exposure

| **Cycle 14 Exposure Range** | **ALL** |
|---|---|
| BOC to 10 GWD/ST | 1.34 |
| > 10 GWD/ST to EOC | 1.39 |

Technical Specification Reference: 3.1.B

For single loop operation, these limits shall be increased by 0.01.

See Reference 3.3 and 3.14 for MCPR requirement for ATRIUM-10A assemblies, required margin is provided by non-limiting core locations.

NOTE: When entering a new Exposure Range, check the current value of $\tau$ to assure adjustment per Section 7.1.4

NOTE: Applicable for values of K $\leq$ 44%, see section 7.5.2

**TABLE 8.1.A**
MCPR Operating Limit for Incremental Cycle Core Average Exposure for Operation above 75% of Rated Thermal Power with Three Steam Lines in Service

| Cycle 14 Exposure Range | ALL |
|---|---|
| BOC to 10 GWD/ST | 1.36 |
| > 10 GWD/ST to EOC | 1.41 |

Technical Specification Reference: 3.1.B

For single loop operation, these limits shall be increased by 0.01.

See Reference 3.3 and 3.14 for MCPR requirement for ATRIUM-10A assemblies, required margin is provided by non-limiting core locations.

NOTE: When entering a new Exposure Range, check the current value of $\tau$ to assure adjustment per Section 7.1.4

NOTE: Applicable for values of K $\leq$ 44%, see section 7.5.2

**TABLE 8.2**
Maximum LHGR

| Fuel Type | Fuel Bundle Design | Maximum LHGR (kW/ft) |
|---|---|---|
| GE11-P9HUB356-15GZ-100M-146-T<br>GE11-P9HUB359-16GZ1-100M-146-T<br>GE11-P9HUB380-12GZ5-100M-146-T | GE11 | See Figure 8.5 |
| GE12-P10DSB417-15GZ-100T-150-T<br>GE12-P10DSB412-17GZ-100T-150-T<br>GE12-P10DSB407-17GZ-100T-150-T<br>GE12-P10DSB407-14G6.0-100T-150-T | GE12 | See Figure 8.5 |

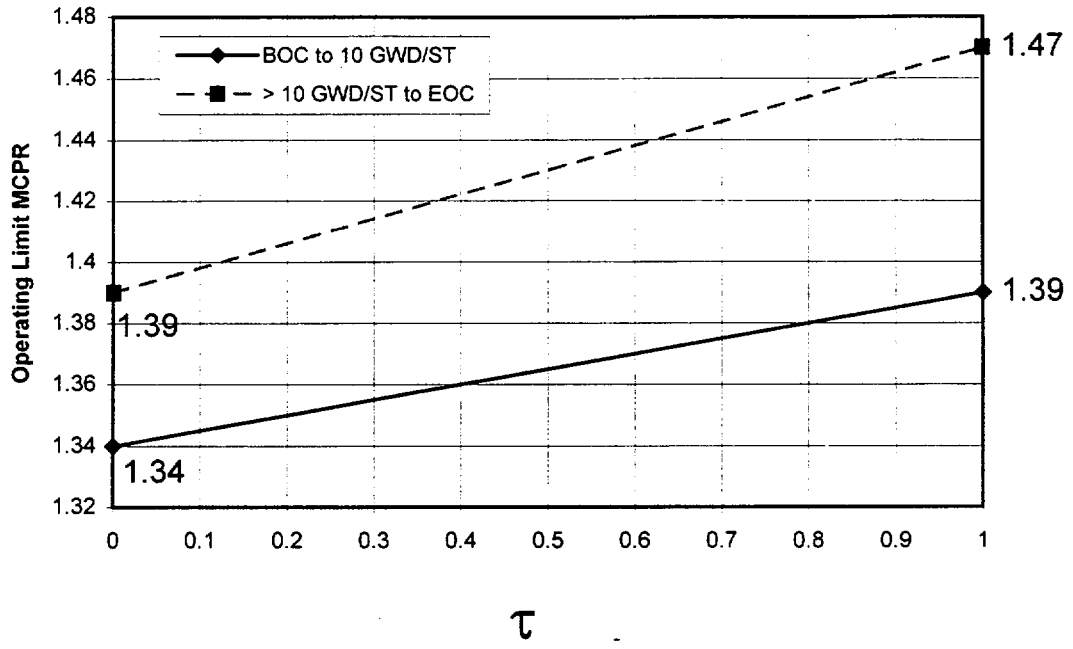
Technical Specification Reference: 3.5.I

Design features of the fuel assemblies in the Cycle 14 core are provided in Reference 3.8

LHGR for ATRIUM-10A assemblies is controlled by the MAPLHGR limit given in Figure 8.3.B see Reference 3.12

**NOTE:** Exposure Dependent Limits will be used in the 3D-MONICORE software.

**FIGURE 8.1**
MCPR Operating Limit Versus τ for
All Fuel Types

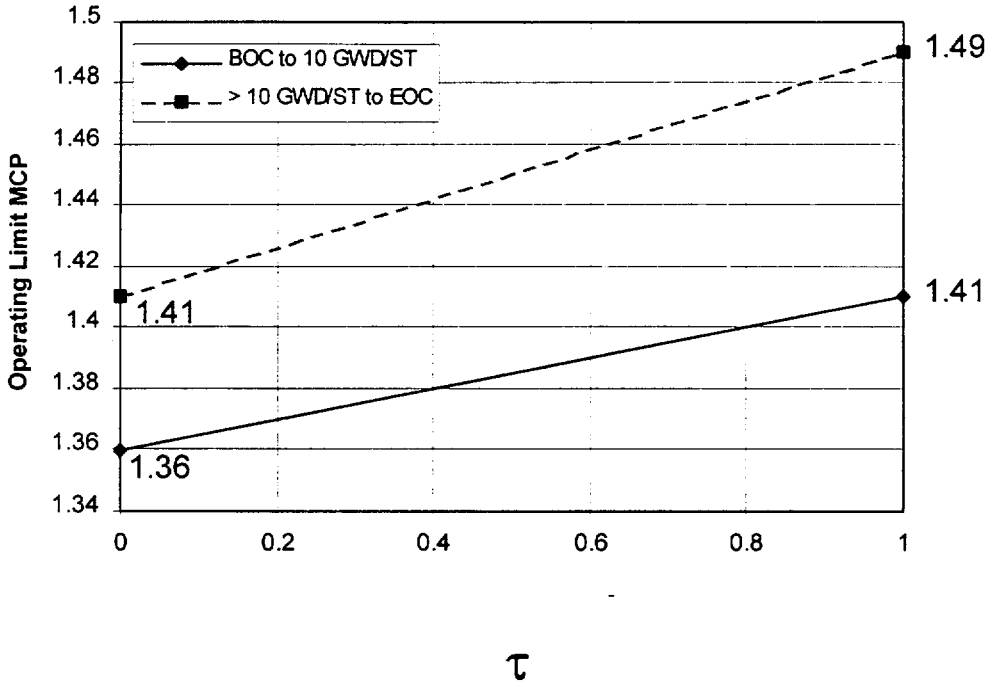



Technical Specification Reference: 3.1.B

For single loop operation, these limits shall be increased by 0.01.

NOTE: Should the operating limit MCPR obtained from this figure be less than the operating limit MCPR found in 7.1.3 for the applicable RBM trip level setting then 7.1.3 shall apply.

**FIGURE 8.1.A**
MCPR Operating Limit Versus τ
For Operation above 75% of Rated Thermal
Power with Three Steam Lines in Service
For All Fuel Types

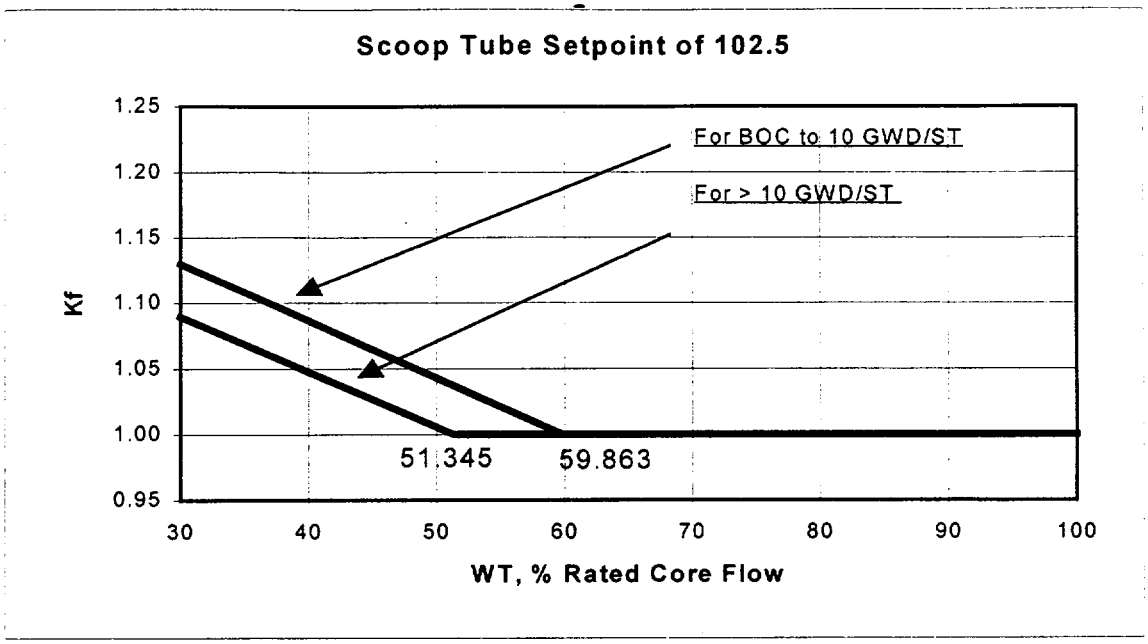



Technical Specification Reference: 3.1.B

For single loop operation, these limits shall be increased by 0.01.

**NOTE:** Should the operating limit MCPR obtained from this figure be less than the operating limit MCPR found in 7.1.3 for the applicable RBM trip level setting then 7.1.3 shall apply.

FIGURE 8.2
$K_f$ Factor



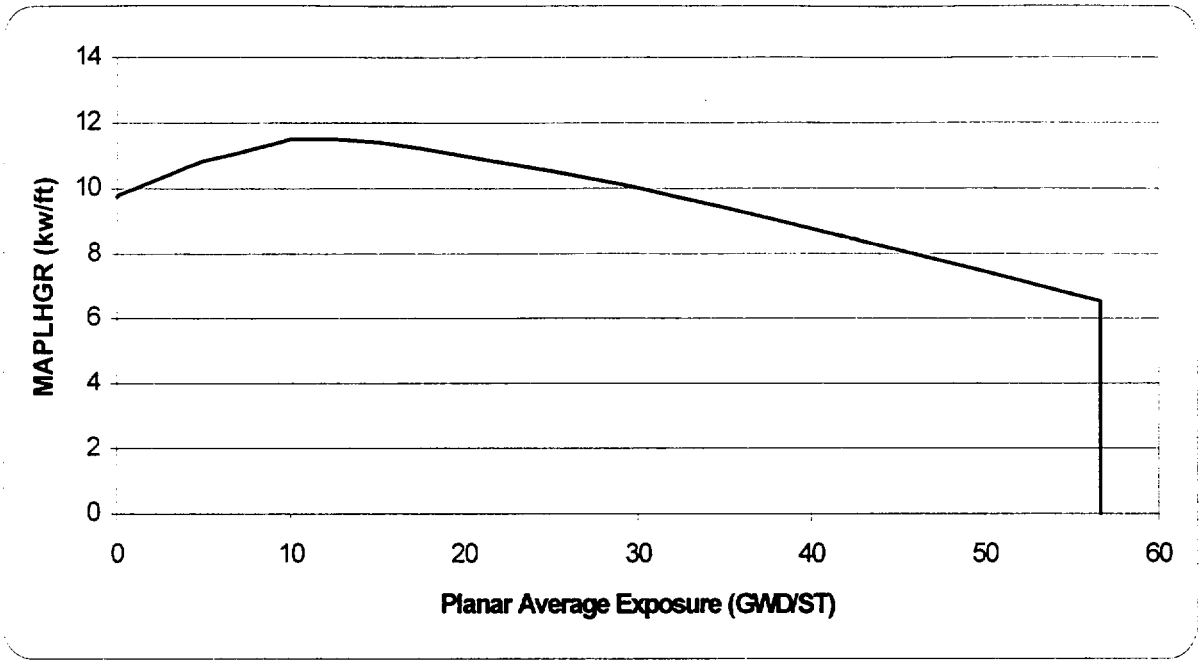

Technical Specification Reference: 3.1.B

See Section 7.7

NOTE: $K_f$ for Single Loop Operation is slightly greater than for Dual Loop Operation limits. Therefore, $K_f$ calculated for Single Loop Operation is more conservative and will be applied to Dual Loop Operation as well.

SLMCPR = 1.10 (SLO)
OLMCPR = 1.35 for BOC to 10 GWD/ST (SLO)
1.40 for > 10 GWD/ST (SLO)

**FIGURE 8.3.A**
MAPLHGR versus Planar Average Exposure:
GE11-P9HUB359-16GZ1-100M-146-T

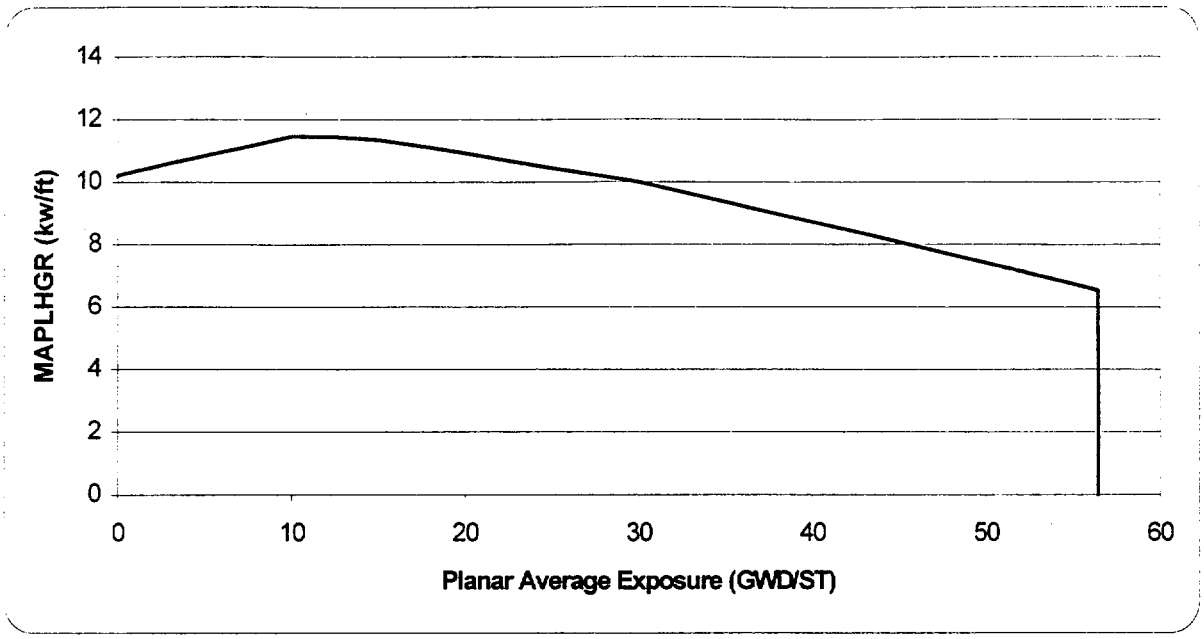



This curve represents the limiting exposure dependent MAPLHGR values per Reference 3.7and 3.16.

Technical Specification Reference: 3.5.H

For single loop operation these MAPLHGR values shall be multiplied by 0.76.

**FIGURE 8.3.B**
MAPLHGR versus Planar Average Exposure:
GE11-P9HUB356-15GZ-100M-146-T and ATRIUM-10A



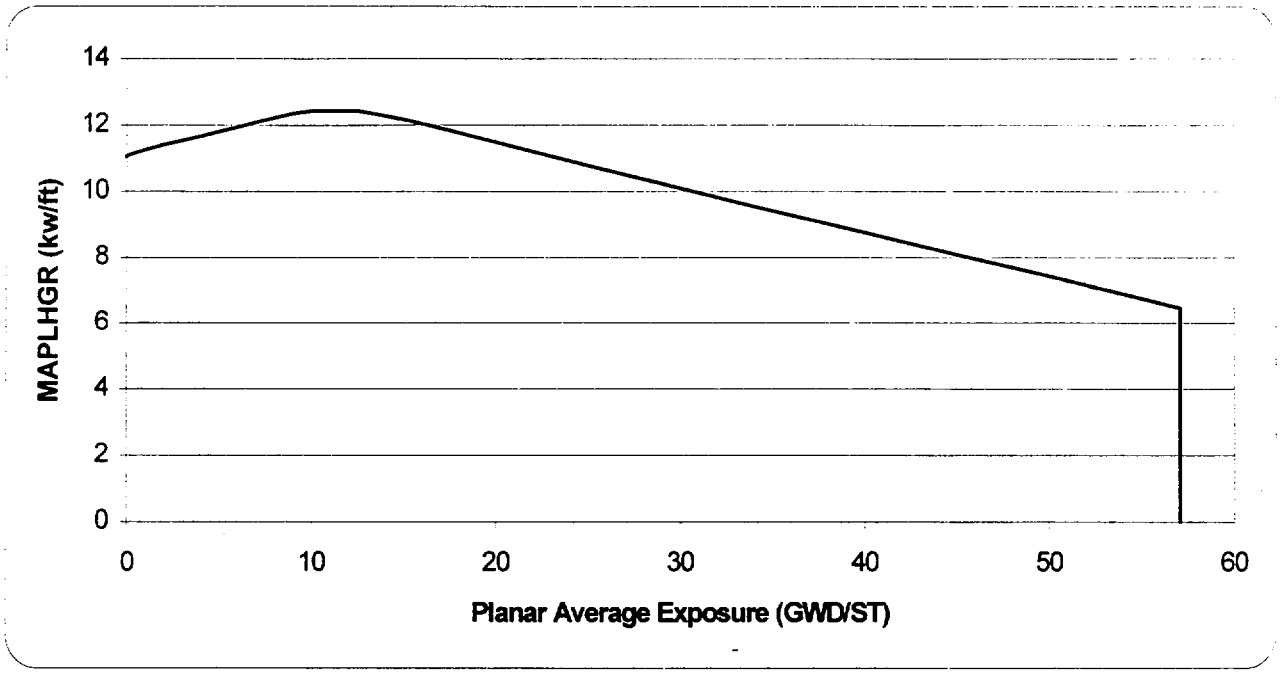

The ATRIUM-10A bundles will be monitored as a GE11-P9HUB356-15GZ-100M-146-T bundle. Operation to the limiting MAPLHGR for the GE11 bundle assures this bundle will remain within LHGR limits, see Reference 3.12.

This curve represents the limiting exposure dependent MAPLHGR values per Reference 3.7and 3.16.

Technical Specification Reference: 3.5.H

For single loop operation these MAPLHGR values shall be multiplied by 0.76.

**FIGURE 8.3.C**
MAPLHGR versus Planar Average Exposure:
GE11-P9HUB380-12GZ5-100M-146-T

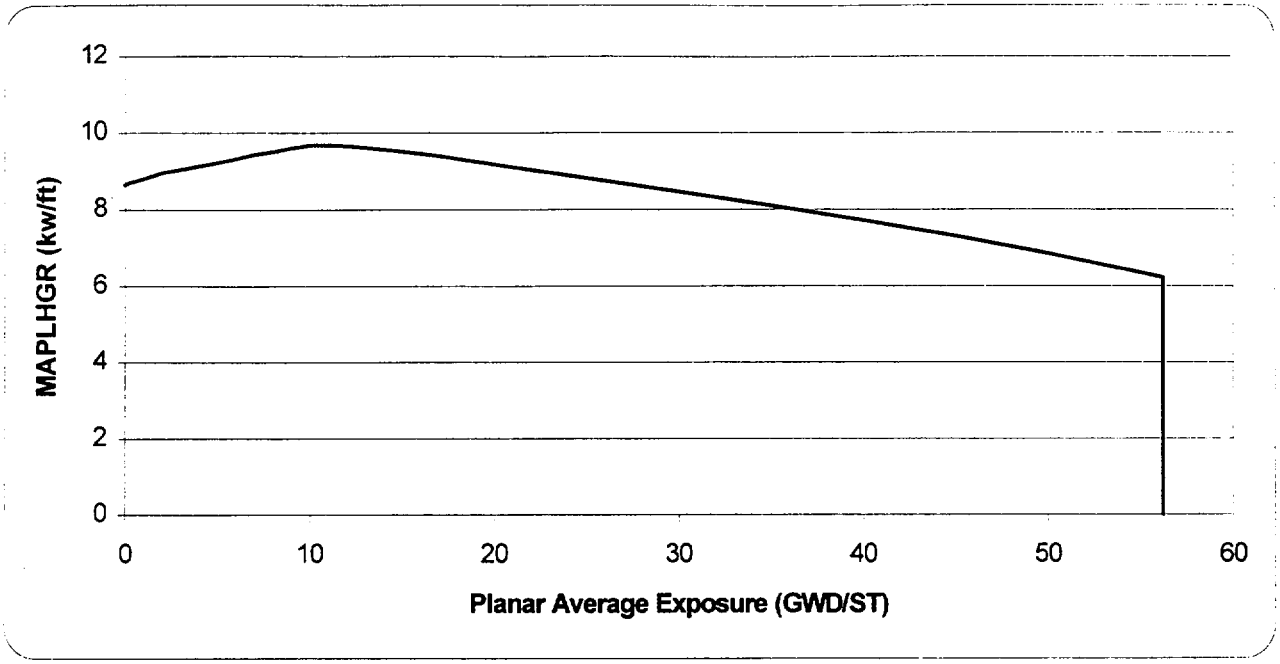



This curve represents the limiting exposure dependent MAPLHGR values per Reference 3.6 and 3.17.

For single loop operation these MAPLHGR values shall be multiplied by 0.76.

Technical Specification Reference: 3.5.H

FIGURE 8.3.D
MAPLHGR versus Planar Average Exposure:
GE12-P10DSB417-15GZ-100T-150-T



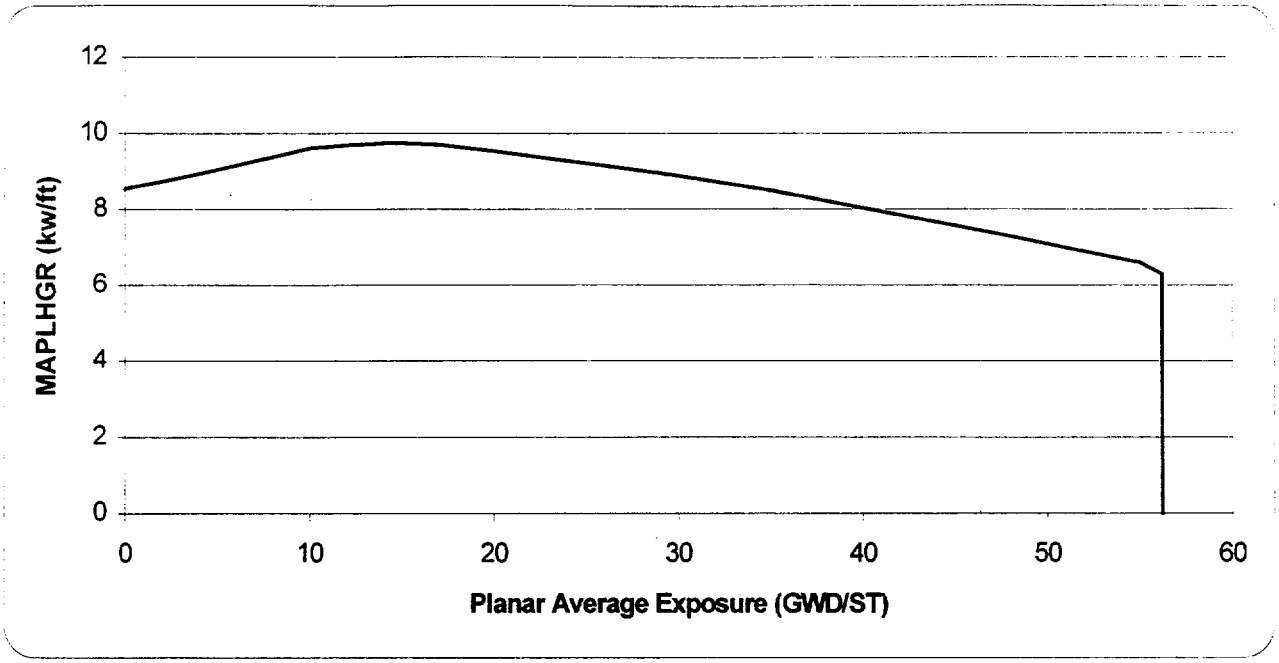

This curve represents the limiting exposure dependent MAPLHGR values per Reference 3.5 and 3.18.

Technical Specification Reference: 3.5.H

Reference: 23A7114 Rev 1

For single loop operation these MAPLHGR values shall be multiplied by 0.78.

**FIGURE 8.3.E**
MAPLHGR versus Planar Average Exposure:
GE12-P10DSB412-17GZ-100T-150-T



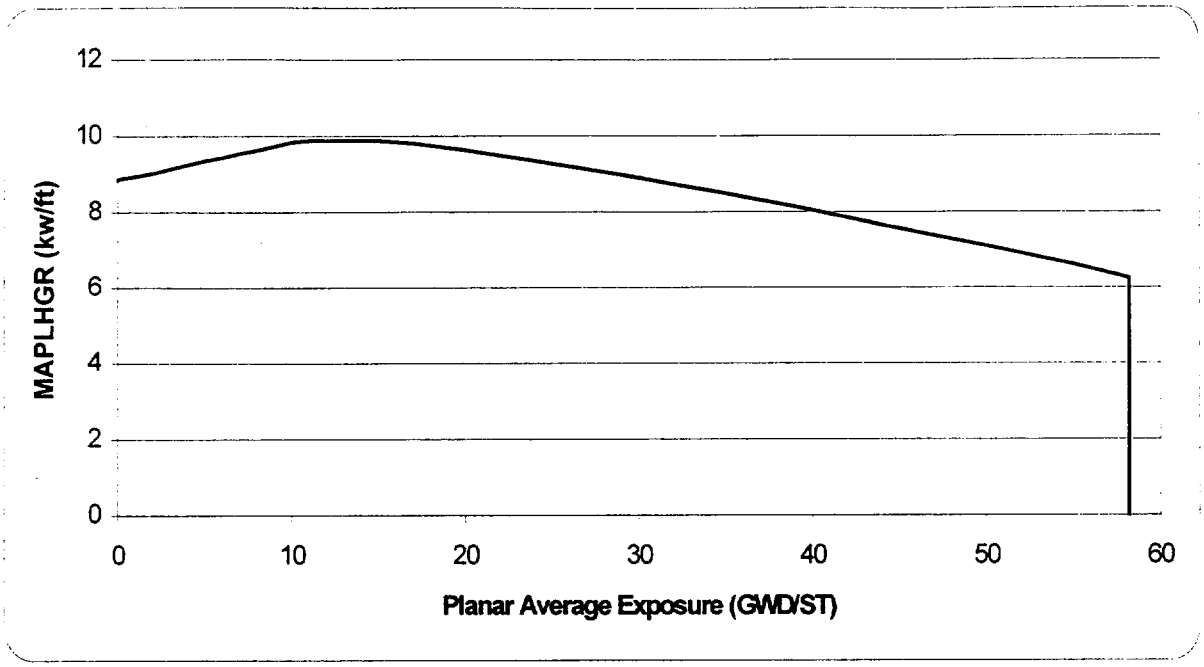

This curve represents the limiting exposure dependent MAPLHGR values per Reference 3.5 and 3.18.

Technical Specification Reference: 3.5.H

Reference: 24A5167 Rev. 0

For single loop operation these MAPLHGR values shall be multiplied by 0.78.

**FIGURE 8.3.F**
MAPLHGR versus Planar Average Exposure:
GE12-P10DSB407-14G6.0-100T-150-T

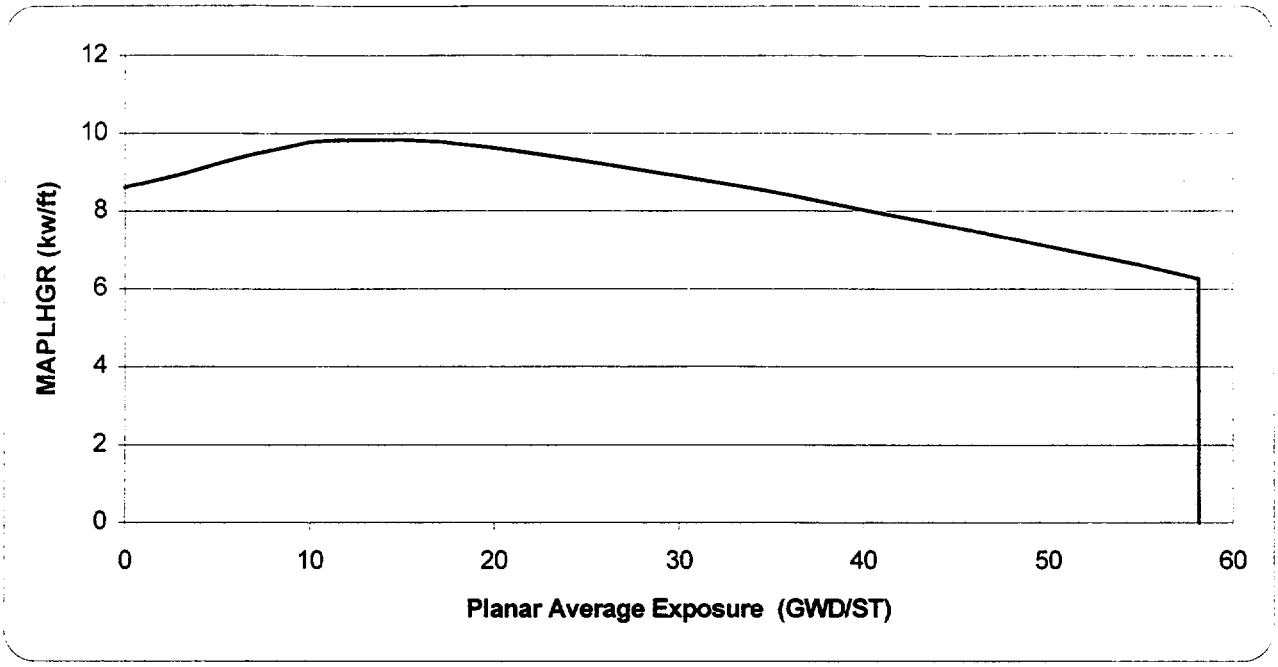



This curve represents the limiting exposure dependent MAPLHGR values per Reference 3.4 and 3.19.

Technical Specification Reference: 3.5.H

For single loop operation these MAPLHGR values shall be multiplied by 0.78.

FIGURE 8.3G
MAPLHGR versus Planar Average Exposure:
GE12-P10DSB407-17GZ-100T-150-T

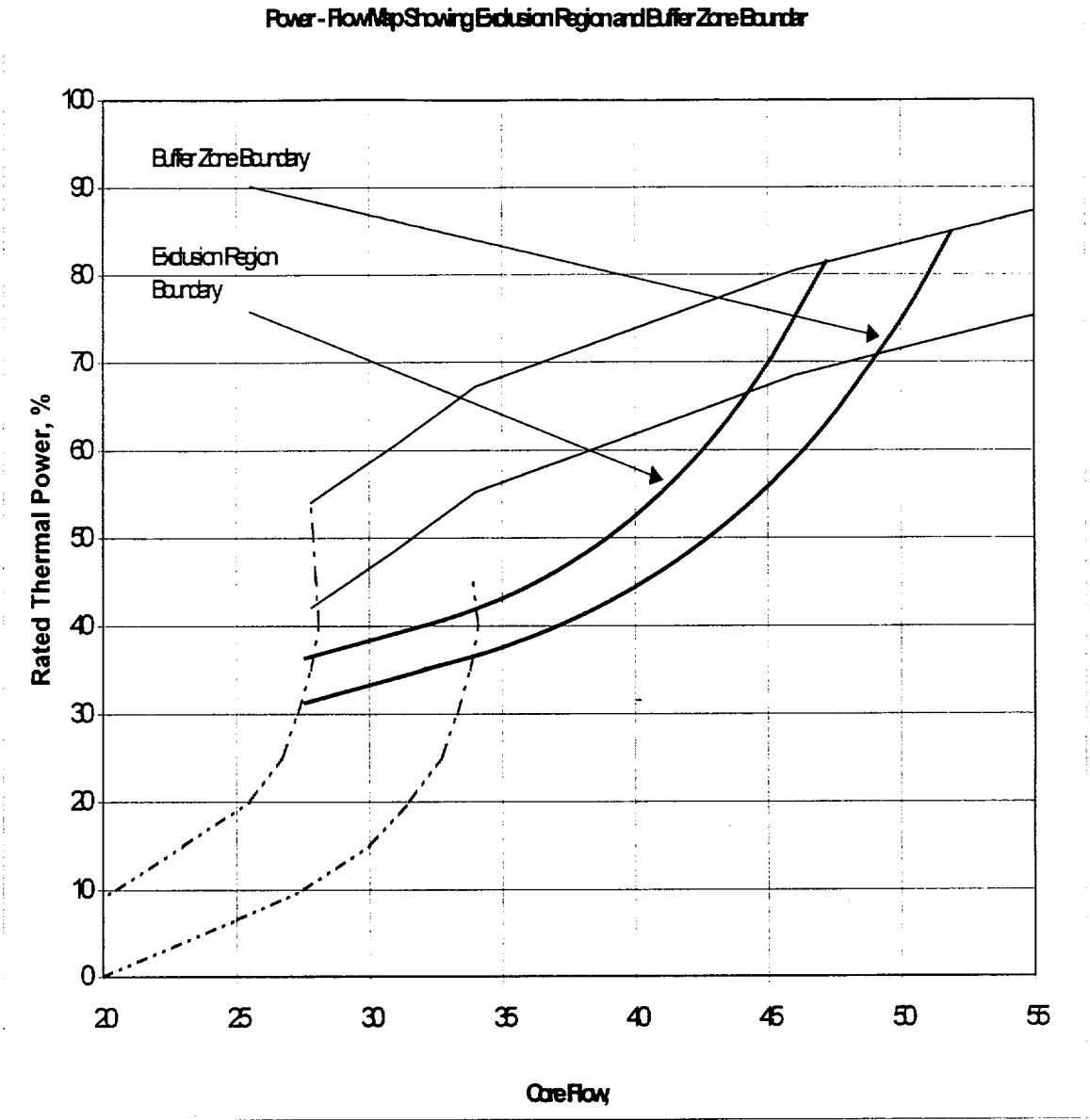



This curve represents the limiting exposure dependent MAPLHGR values per Reference 3.4 and 3.19.

Technical Specification Reference: 3.5.H

For single loop operation these MAPLHGR values shall be multiplied by 0.78.

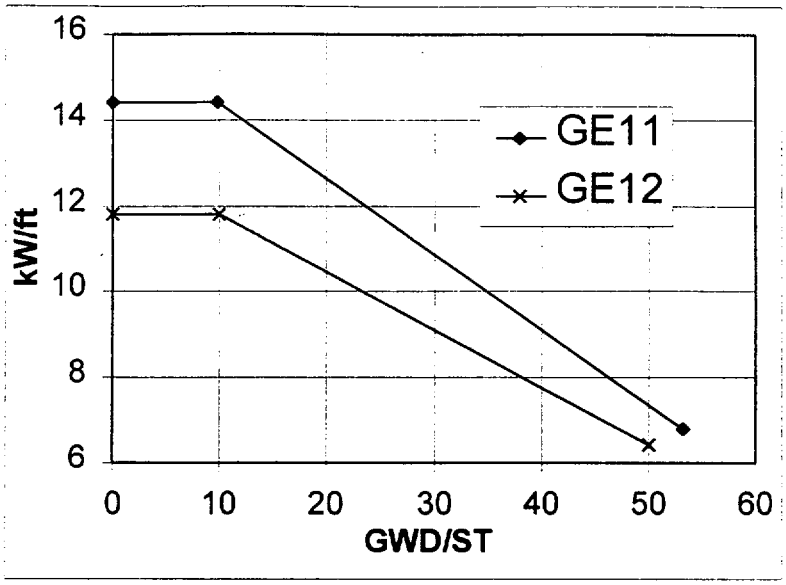
Figure 8.4
Stability Option 1-D Exclusion Region




Technical Specification Reference 3.5.J

Reference 3.20

**FIGURE 8.5**
Exposure Dependent LHGR Limit for GE11 and GE12 Fuel




Technical Specification Reference: 3.5.I

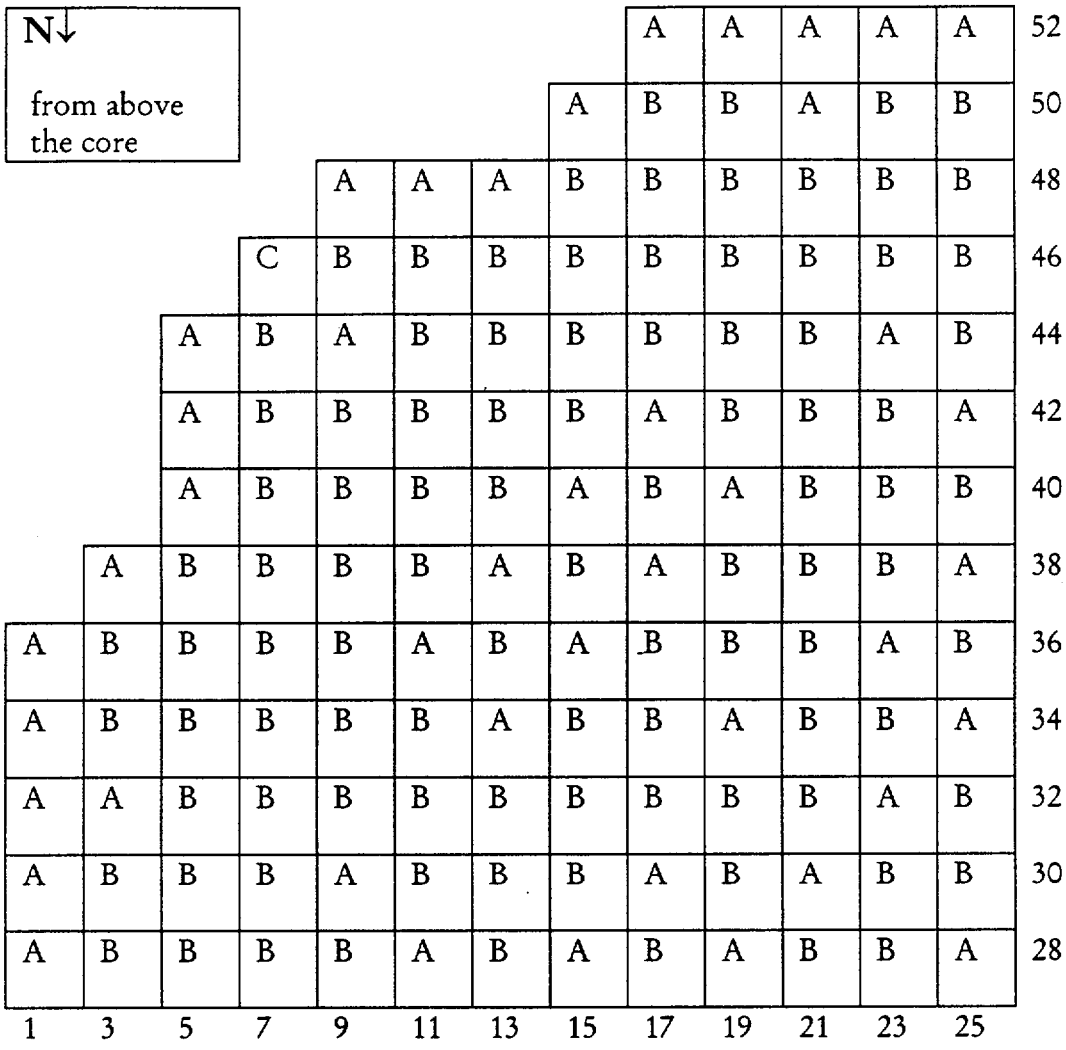
This curve represents the limiting exposure dependent LHGR values per Reference 3.15

Design features of the fuel assemblies in the Cycle 14 core are provided in Reference 3.8

LHGR for ATRIUM-10A assemblies is controlled by the MAPLHGR limit given in Figure 8.3.B see Reference 3.12

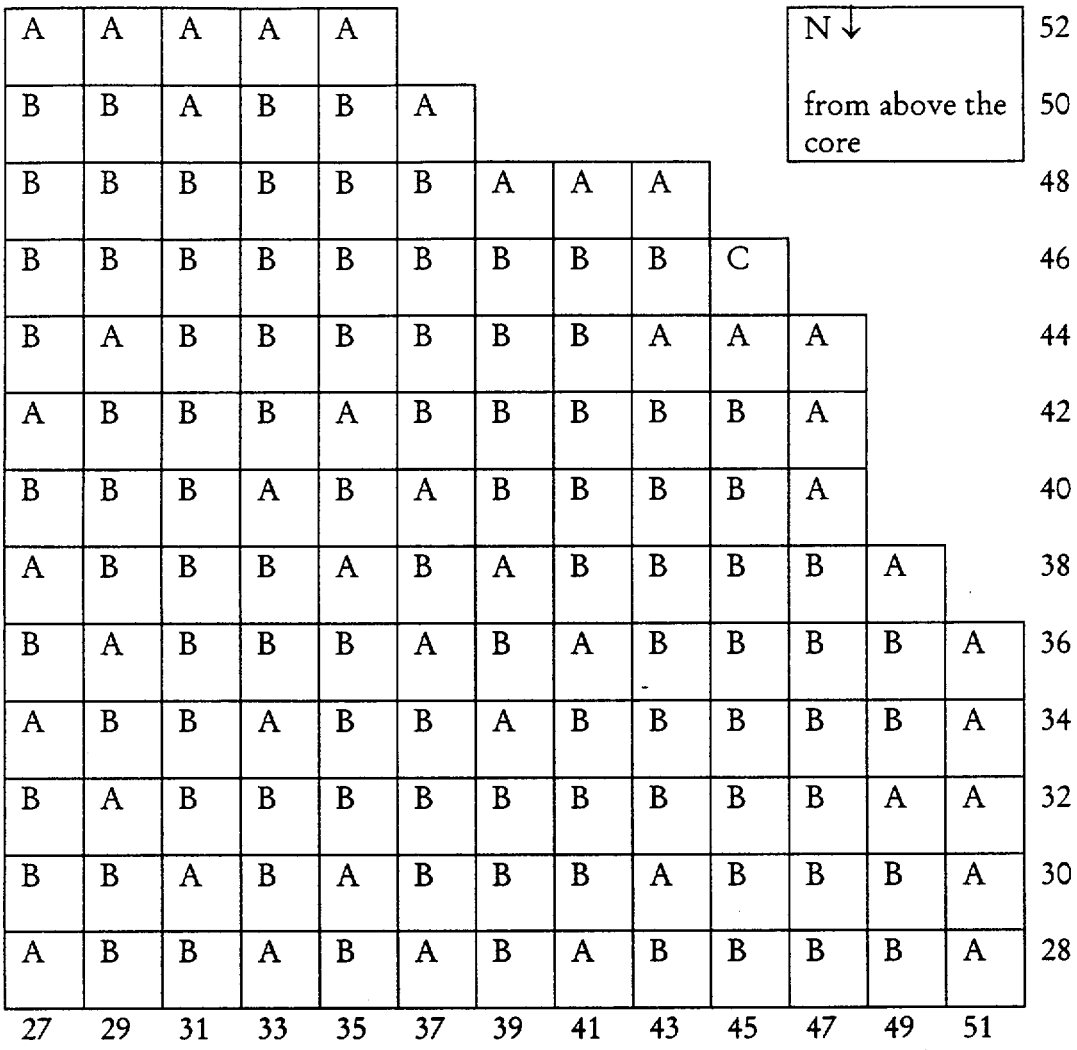
NOTE: Exposure Dependent Limits will be used in the 3D-MONICORE software.

**FIGURE 8.5A**
Cycle 14 Loading Pattern, Upper Left Quadrant, Bundle Design



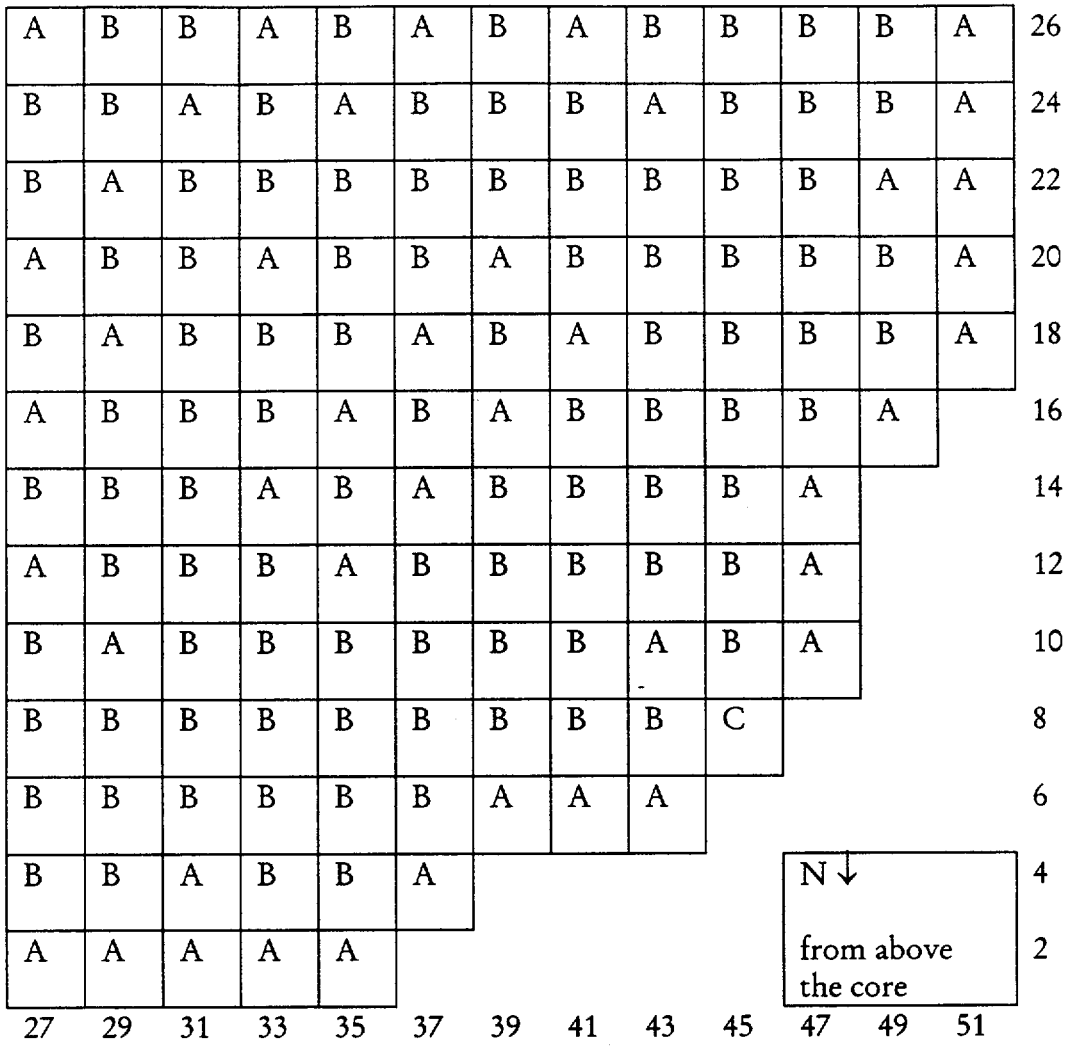

A = GE11
B = GE12
C = ATRIUM - 10A

**FIGURE 8.6.B**
Cycle 14 Loading Pattern, Upper Right Quadrant, Bundle Design



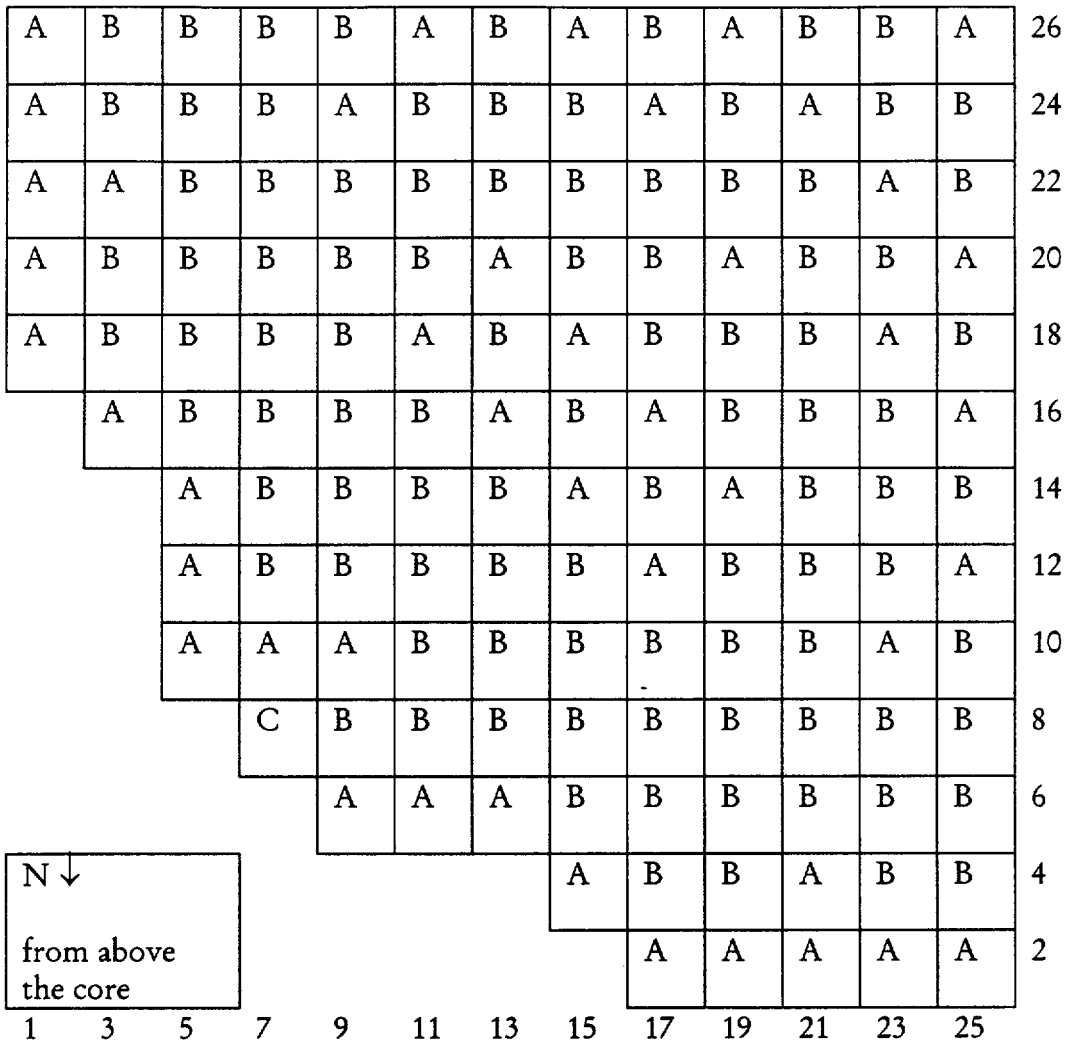

A = GE11
B = GE12
C = ATRIUM - 10A

**FIGURE 8.6.C**
Cycle 14 Loading Pattern, Lower Right Quadrant, Bundle Design




A = GE11
B = GE12
C = ATRIUM - 10A

**FIGURE 8.6.D**
Cycle 14 Loading Pattern, Lower Left Quadrant, Bundle Design




A = GE11
B = GE12
C = ATRIUM - 10A

## FIGURE 8.7
## USERS GUIDE

The COLR defines thermal limits for the various operating conditions expected during the cycle. At the start of the cycle the 3D-Monicore databank contains limits for;

- Cycle exposure range of BOC to ≤10 GWD/ST
- $\tau = 0$
- Dual recirculation pump operation, and
- Four steam line operation

The following is a table that offers a check to assure the correct limits are applied when operating states or conditions change.

| Change in Operating State | Change in Limits | Procedure Reference |
|---|---|---|
| Cycle Exposure = 10 GWD/ST<br><br>OLMCPR changes to EOC values at cycle exposure of 10 GWD/ST | See Table 8.1(8.1.A for 3SL) or Figure 8.1 for $\tau \neq 0$(8.1.A for 3SL) for change in MCPR.<br>$K_f$ limit <u>may</u> be changed in recognition of higher OLMCPR. | None |
| Scram Time Test Results such that $\tau \neq 0$<br><br>Option B limits for OLMCPR must be interpolated with Option A limits | Use new $\tau$ and see Figure 8.1 or 8.1.A for 3SL. $K_f$ limit <u>may</u> be changed in recognition of higher OLMCPR. | RAP-7.4.1 |
| Single Loop Operation<br><br>The SLMCPR increases by 0.01 and therefore OLMCPR limits increase by 0.01. MAPLHGR is reduced by a multiplier in SLO. | Increase MCPR Limits by 0.01, or change acceptance criterion in ST-5E to 0.99. $K_f$ does not change.<br>Verify that 3D-Monicore has recognized the idle recirculation loop and is applying the SLO MAPLHGR multipliers, 0.76 for GE11, and 0.78 for GE12. | RAP-7.4.2, ST-5E, RAP-7.3.25 |
| Three Steam Line Operation (3SL)<br><br>OLMCPR values increase by 0.02 when operating on 3SL | Increase OLMCPR according to Table 8.1.A or Figure 8.1.A($\tau \neq 0$).<br>$K_f$ limit <u>may</u> be changed in recognition of higher OLMCPR. | None |