



Richard B. Abbott
Vice President
Nuclear Engineering

Phone: 315.349.1812
Fax: 315.349.4417

May 14, 2001
NMP1L 1592

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Subject: Cycle 14 Core Operating Limits Report, Rev. 3

Gentlemen:

Attached is a copy of the Cycle 14 Core Operating Limits Report (COLR), Rev. 3 for Nine Mile Point Unit 1 (NMP1). This report is being submitted pursuant to NMP1 Technical Specification 6.9.1.f.4.

Sincerely,

A handwritten signature in black ink that reads "Richard B. Abbott".

Richard B. Abbott
Vice President Nuclear Engineering

RBA/JJD/cld
Attachment

xc: Mr. H. J. Miller, NRC Regional Administrator, Region I
Mr. R. P. Correia, Acting Section Chief PD-I, Section 1, NRR
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR
Records Management

A001

ATTACHMENT




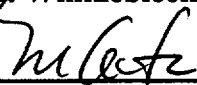




TO

NMP1L 1592

NINE MILE POINT UNIT 1

CORE OPERATING LIMITS REPORT

Document No.: COLR1
Revision 3, Cycle 14

<u>Name</u>	<u>Title</u>	<u>Date</u>
Prepared by: <u></u> T. W. Roman	<u>Fuel Engineer</u>	<u>3/14/01</u>
Reviewed by: <u></u> C. W. Lepine	<u>Fuel Engineer</u>	<u>3/14/01</u>
Independently Reviewed by: <u></u> J. L. Winklebleck	<u>Fuel Engineer</u>	<u>3/14/01</u>
Approved by: <u></u> M. A. Armenta	<u>Supervisor, Fuels</u>	<u>3/14/01</u>
Approved by: <u></u> W. R. Yaeger	<u>Manager, Engineering Services</u>	<u>3/14/01</u>
Approved by: <u></u> P. E. Netusil	<u>Supervisor, Reactor Engineering</u>	<u>3/14/01</u>
Approved by: <u></u> L. A. [Redacted]	<u>Plant Manager, Unit 1</u>	<u>3/15/01</u>
SORC Approval: <u></u>	<u>Chairman</u>	<u>3/16/01</u>

This Controlled Document provides cycle specific core operating limits for use in conjunction with Nine Mile Point Unit 1 Technical Specifications. Document pages may only be changed through a reissue of the entire document. This COLR must be signed by the Plant Manager to be valid.

NINE MILE POINT UNIT 1
CORE OPERATING LIMITS REPORT

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1.0 Average Planar Linear Heat Generation Rate (APLHGR)

1.1 Limits for Technical Specification 3.1.7.a(*)

During power operation, the APLHGR for each type of fuel as function of average planar exposure shall not exceed the limiting values shown on Figures a through q.

1.2 Limits for Technical Specification 3.1.7.e(*)

During partial loop operation with four recirculation loops in operation, the APLHGR as a function of average planar exposure shall not exceed 98 percent of the limiting values shown in Figures a through q.

During partial loop operation with three recirculation loops in operation, the APLHGR as a function of average planar exposure shall not exceed 98 percent of the limiting values shown in Figures a through q.

(*) **When hand calculations are required, the APLHGR for the respective fuel type as a function of average planar exposure, shall not exceed the limits shown in Figures r, s, and t, during five recirculation loop operation or 98 percent of the limits shown in Figures r, s, and t during four or three loop operation.**

2.0 Minimum Critical Power Ratio (MCPR)

2.1 Limits for Technical Specification 3.1.7.c

During power operation, the MCPR for all fuel at rated power and flow shall be as shown in Table 1.

For core flows other than rated, the MCPR limit shall be the limit identified in Table 1 times K_f where K_f is as shown in Figure u.

2.2 Limits for Technical Specification 3.1.7.e

During 3 loop operation, the CPR limit shall be increased by 0.01.

TABLE 1

NINE MILE POINT UNIT 1:
 CYCLE 14 LIMITING CONDITION FOR OPERATION MCPR

Core Average Incremental Exposure, MWD/STU	<u>Limiting MCPR⁽¹⁾⁽²⁾⁽³⁾</u>
<u>BOC to EOC</u>	<u>All Fuel Types</u>
	≥ 1.46
<p>(1) <i>Based on a 1.07 MCPR Safety Limit (SLCPR).</i></p> <p>(2) <i>If the feedwater pump configuration as defined by Nuclear Engineering Report No. NER-1M-022 is such that a feedwater controller failure could result in maximum feedwater flow greater than that for two feedwater pumps (i.e., the shaft-driven pump plus one motor-driven pump), then the limiting MCPR for all fuel types shall be ≥ 1.59.</i></p> <p>(3) <i>Conservative limits have been established for operations with one of two pressure regulators out-of-service. The MCPR based limit for operation with one of two pressure regulators out-of-service is as shown in Figure v.</i></p>	

3.0 Linear Heat Generation Rate (LHGR)

3.1 Limits for Technical Specification 3.1.7.b

During power operation, the Linear Heat Generation Rate (LHGR) of any rod in any fuel assembly at any axial location shall not exceed the limits shown below:

<u>Fuel Type</u>	<u>LHGR(KW/FT)⁽¹⁾</u>
GE11	≤ 11.0

- (1) *Conservative limits have been established for operations with one of two pressure regulators out-of-service. The LHGR based limit for operation with one of two pressure regulators out-of-service is as shown in Figure w.*

4.0 Power/Flow Relationship During Operation

4.1 Limits for Technical Specification 3.1.7.d and e

The power/flow relationship shall not exceed the limiting values shown in Figure x.

5.0 Source Documents

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

CORE OPERATING LIMITS

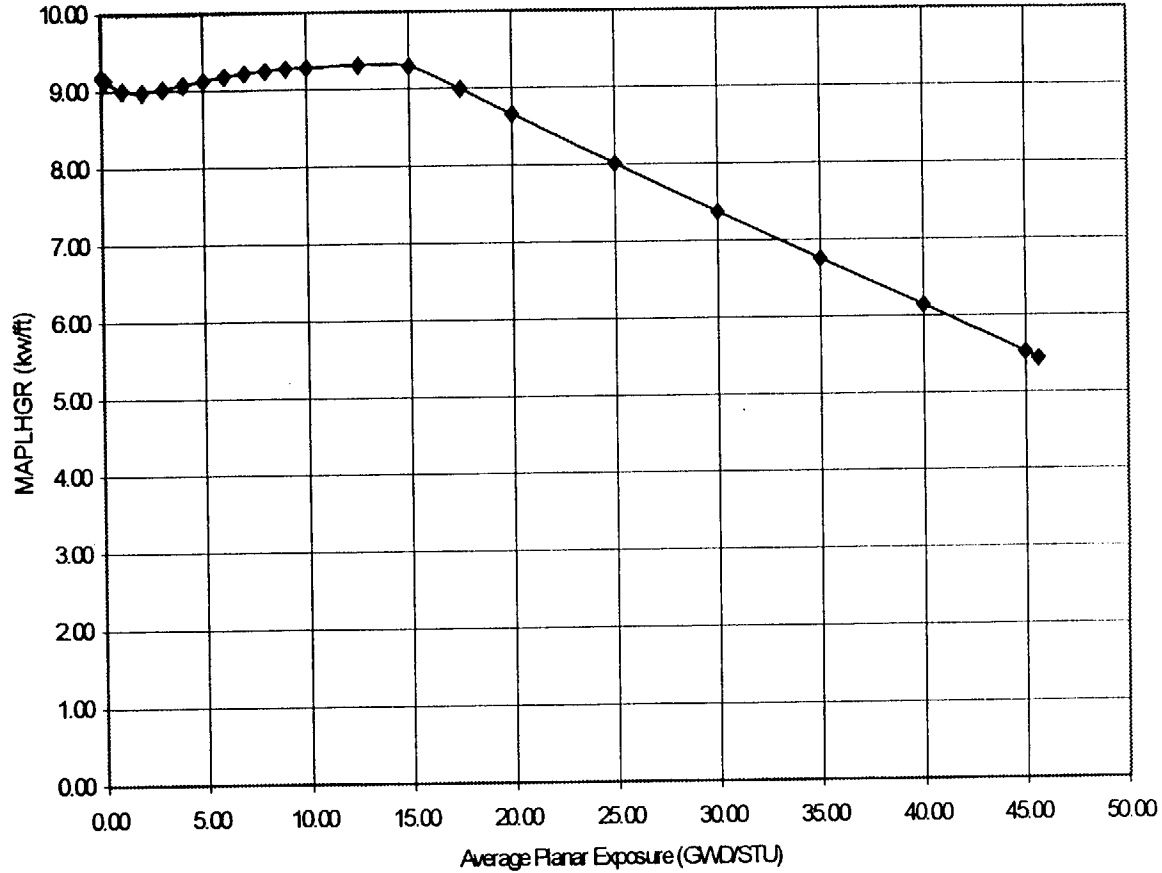
REFERENCE

<u>APLHGR Limits (Section 1.0)</u> Figure a through t and corresponding three and four loop multipliers	GENE J11-03433MAP, Revision 0, March 1999, Lattice Dependent MAPLHGR Report for Nine Mile Point Nuclear Station Unit 1 Reload 15 Cycle 14
	GENE J11-02962MAP, Revision 0, January 1997, Lattice Dependent MAPLHGR Report for Nine Mile Point Nuclear Station Unit 1 Reload 14 Cycle 13
	GENE 24A5157AA, Revision 1, February 1995, Lattice Dependent MAPLHGR Report for Nine Mile Point Nuclear Station Unit 1 Reload 13 Cycle 12
<u>MCPR Limits (Section 2)</u> Table 1	GENE J11-03433SRLR, Revision 0, March 1999, Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 1 Reload 15 Cycle 14
Figure u	NEDE-J11-03433ER, Revision 0, March 1999, Engineering Report for Nine Mile Point Nuclear Station Unit 1 Reload 15
0.01 Three Loop Adder	GENE J11-03433SRLR, Revision 0, March 1999, Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 1 Reload 15 Cycle 14
Pressure Regulator Out-of-Service restriction	GE-NE-J11-03433-16-01-00, "Pressure Regulator Out of Service Calculations for Nine Mile Point Unit 1 Cycle 14" March 2001
<u>LHGR Limits (Section 3)</u>	NEDE-J11-03433ER, Revision 0, March 1999, Engineering Report for Nine Mile Point Nuclear Station Unit 1 Reload 15
Pressure Regulator Out-of-Service Restriction	GE-NE-J11-03433-16-01-00, "Pressure Regulator Out of Service Calculations for Nine Mile Point Unit 1 Cycle 14" March 2001
<u>P/F Relationship (Section 4)</u> Figure x	NMP1 Technical Specification Amendment 92, Figure 3.1.7.aa

Exposure (GWD/STU)	MAPLHGR (kw/ft)
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Figure a: MAPLHGR Limits for Lattices 1522 & 1523 of
 GE11-P9HUB340-10GZ-100M-145-T

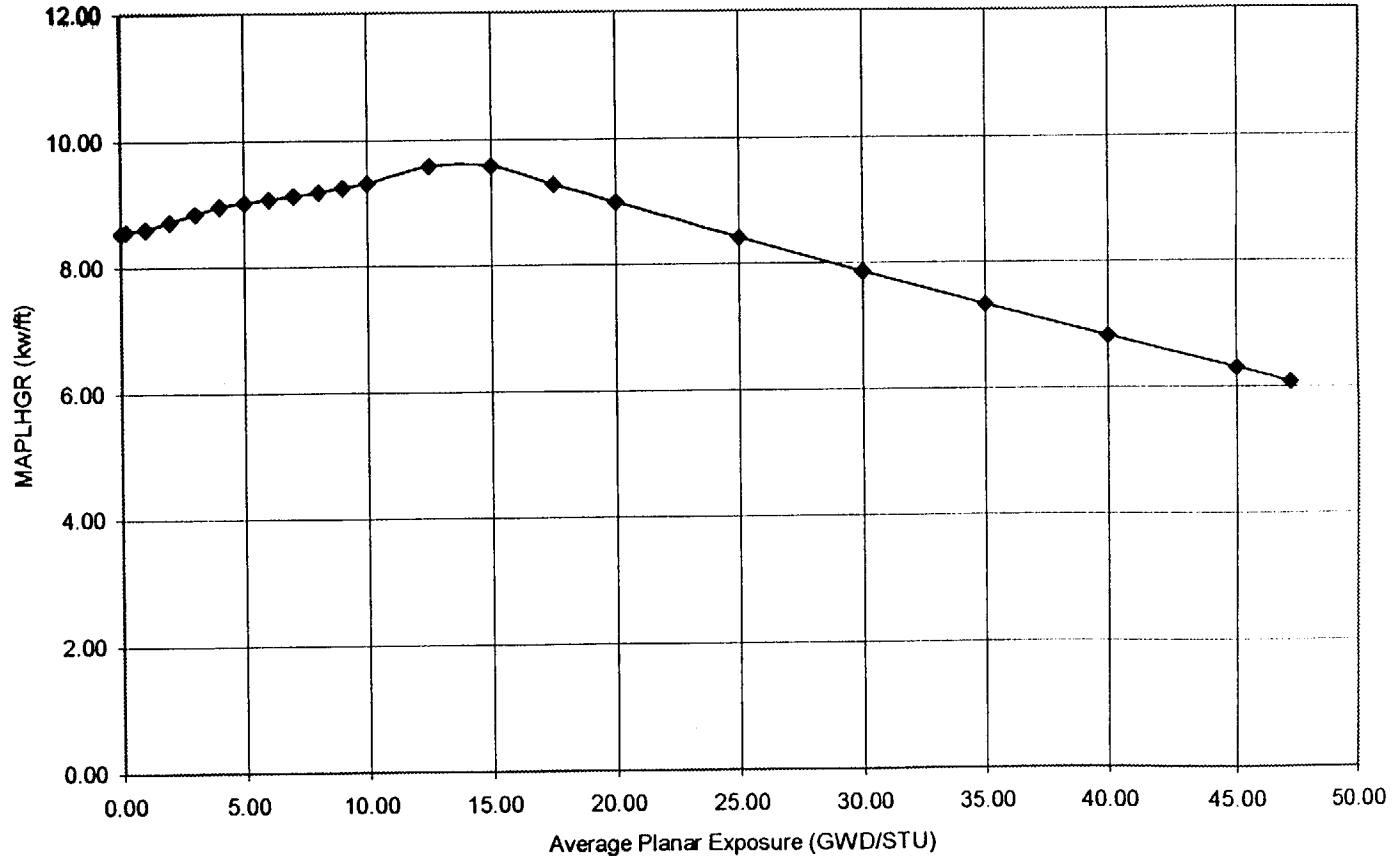
0.00	9.18
0.20	9.14
1.00	9.01
2.00	8.99
3.00	9.03
4.00	9.08
5.00	9.13
6.00	9.18
7.00	9.22
8.00	9.25
9.00	9.28
10.00	9.29
12.50	9.31
15.00	9.30
17.50	9.00
20.00	8.67
25.00	8.02
30.00	7.38
35.00	6.76
40.00	6.14
45.00	5.52
45.64	5.44



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

Figure b: MAPLHGR Limits for Lattices 1937 of
 GE11-P9HUB340-10GZ-100M-145-T

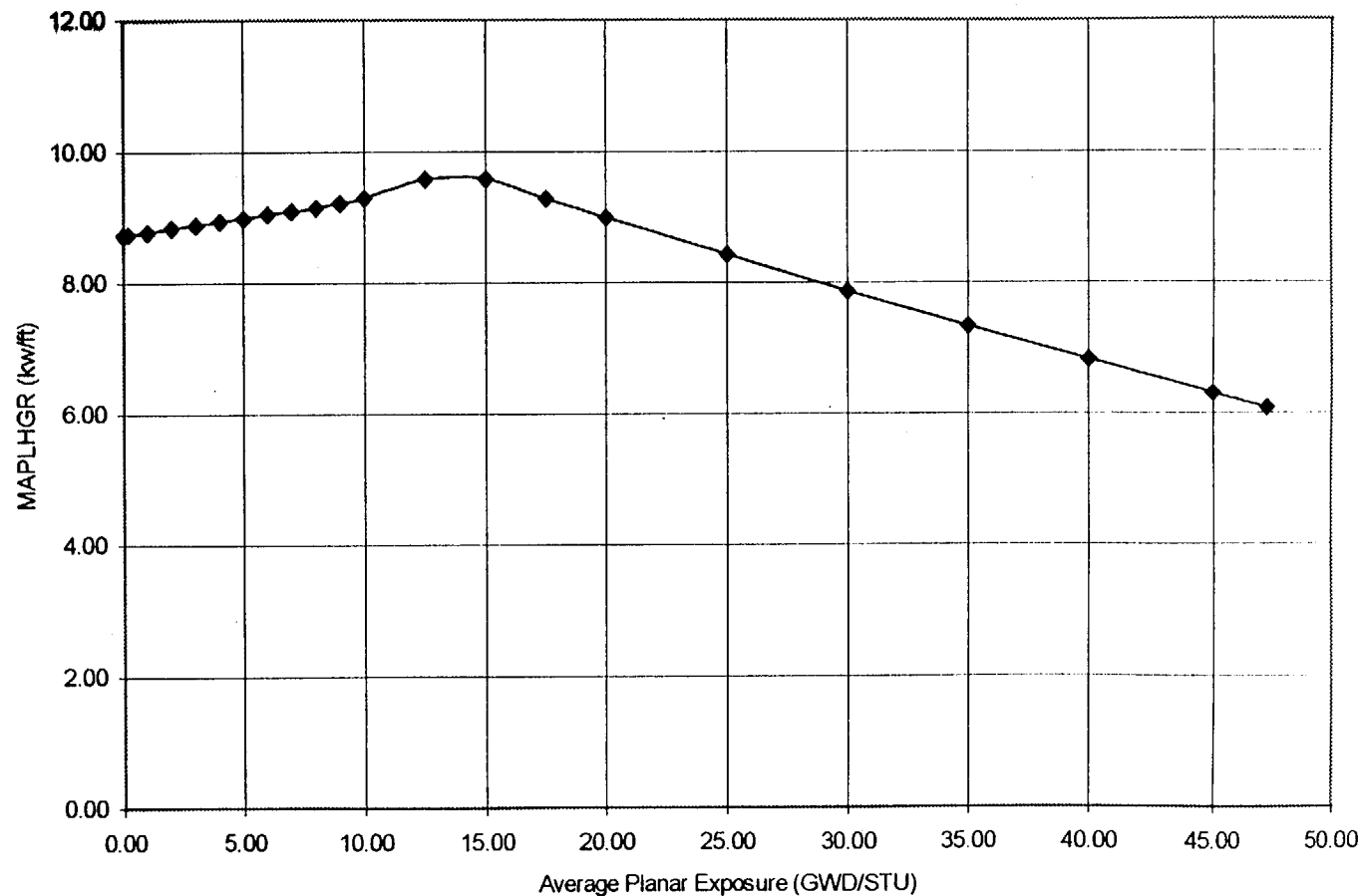
0.00	8.54
0.20	8.56
1.00	8.61
2.00	8.72
3.00	8.85
4.00	8.96
5.00	9.02
6.00	9.08
7.00	9.13
8.00	9.19
9.00	9.25
10.00	9.32
12.50	9.58
15.00	9.58
17.50	9.29
20.00	9.00
25.00	8.42
30.00	7.87
35.00	7.34
40.00	6.82
45.00	6.30
47.16	6.08



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.73
0.20	8.74
1.00	8.78
2.00	8.84
3.00	8.89
4.00	8.94
5.00	8.99
6.00	9.05
7.00	9.10
8.00	9.15
9.00	9.22
10.00	9.30
12.50	9.58
15.00	9.58
17.50	9.29
20.00	9.00
25.00	8.43
30.00	7.87
35.00	7.34
40.00	6.82
45.00	6.31
47.24	6.08

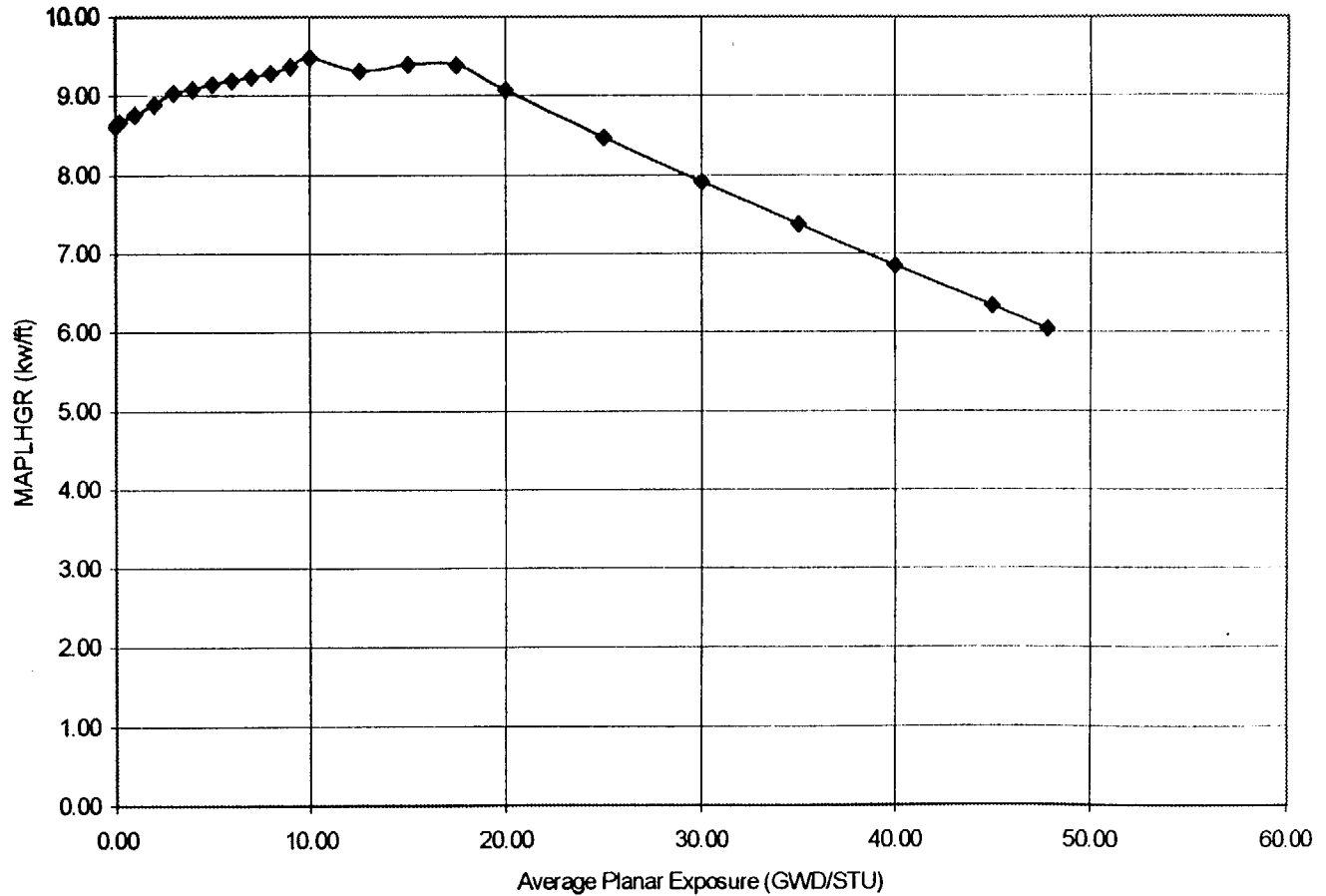
Figure c: MAPLHGR Limits for Lattices 1938 of
 GE11-P9HUB340-10GZ-100M-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.62
0.20	8.67
1.00	8.76
2.00	8.89
3.00	9.04
4.00	9.09
5.00	9.15
6.00	9.20
7.00	9.24
8.00	9.29
9.00	9.37
10.00	9.48
12.50	9.32
15.00	9.40
17.50	9.39
20.00	9.08
25.00	8.48
30.00	7.91
35.00	7.38
40.00	6.85
45.00	6.34
47.82	6.05

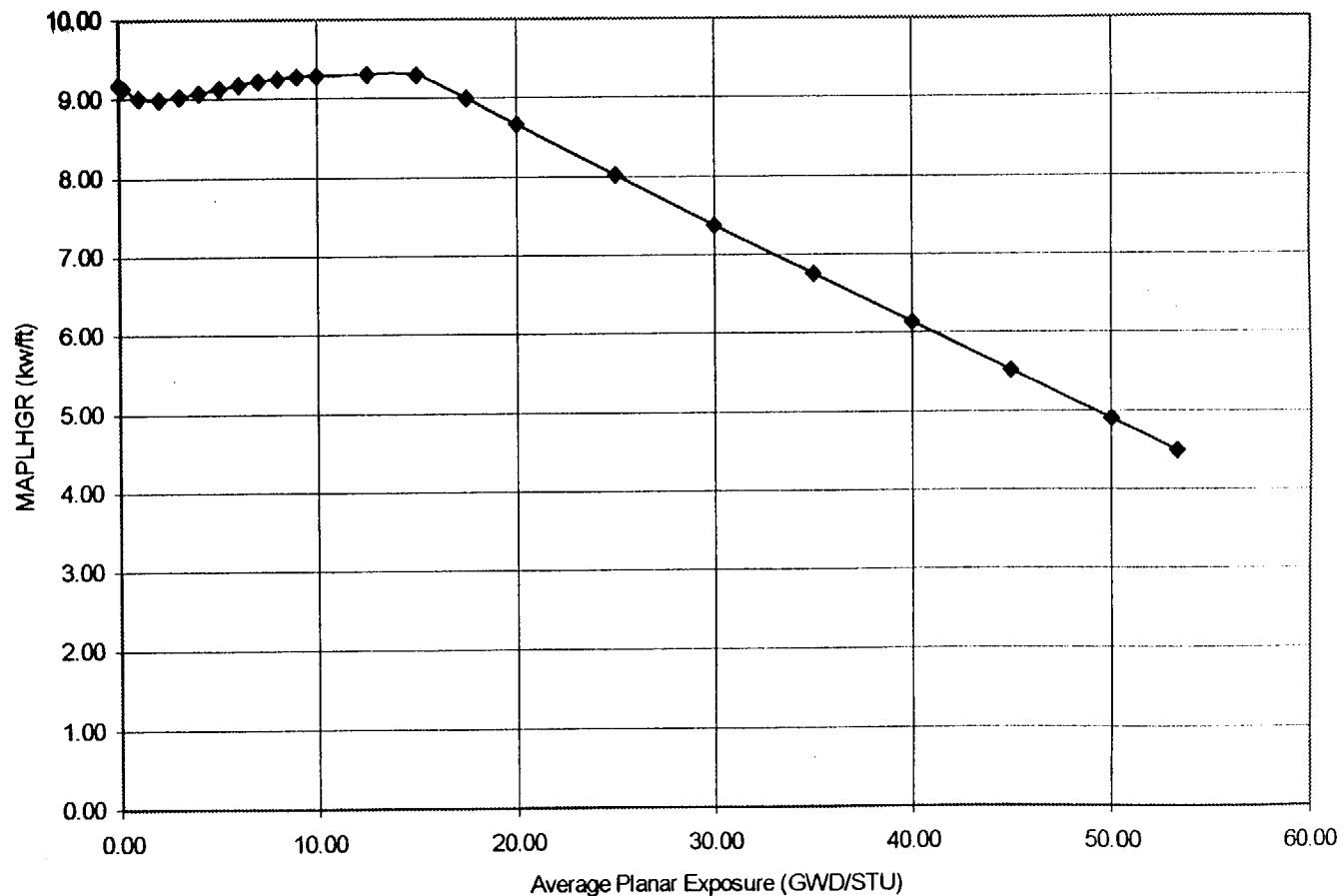
Figure d: MAPLHGR Limits for Lattices 1939 of
 GE11-P9HUB340-10GZ-100M-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	9.18
0.20	9.14
1.00	9.01
2.00	8.99
3.00	9.03
4.00	9.08
5.00	9.13
6.00	9.18
7.00	9.22
8.00	9.25
9.00	9.28
10.00	9.29
12.50	9.31
15.00	9.30
17.50	9.00
20.00	8.67
25.00	8.02
30.00	7.38
35.00	6.76
40.00	6.14
45.00	5.52
50.00	4.90
53.23	4.50

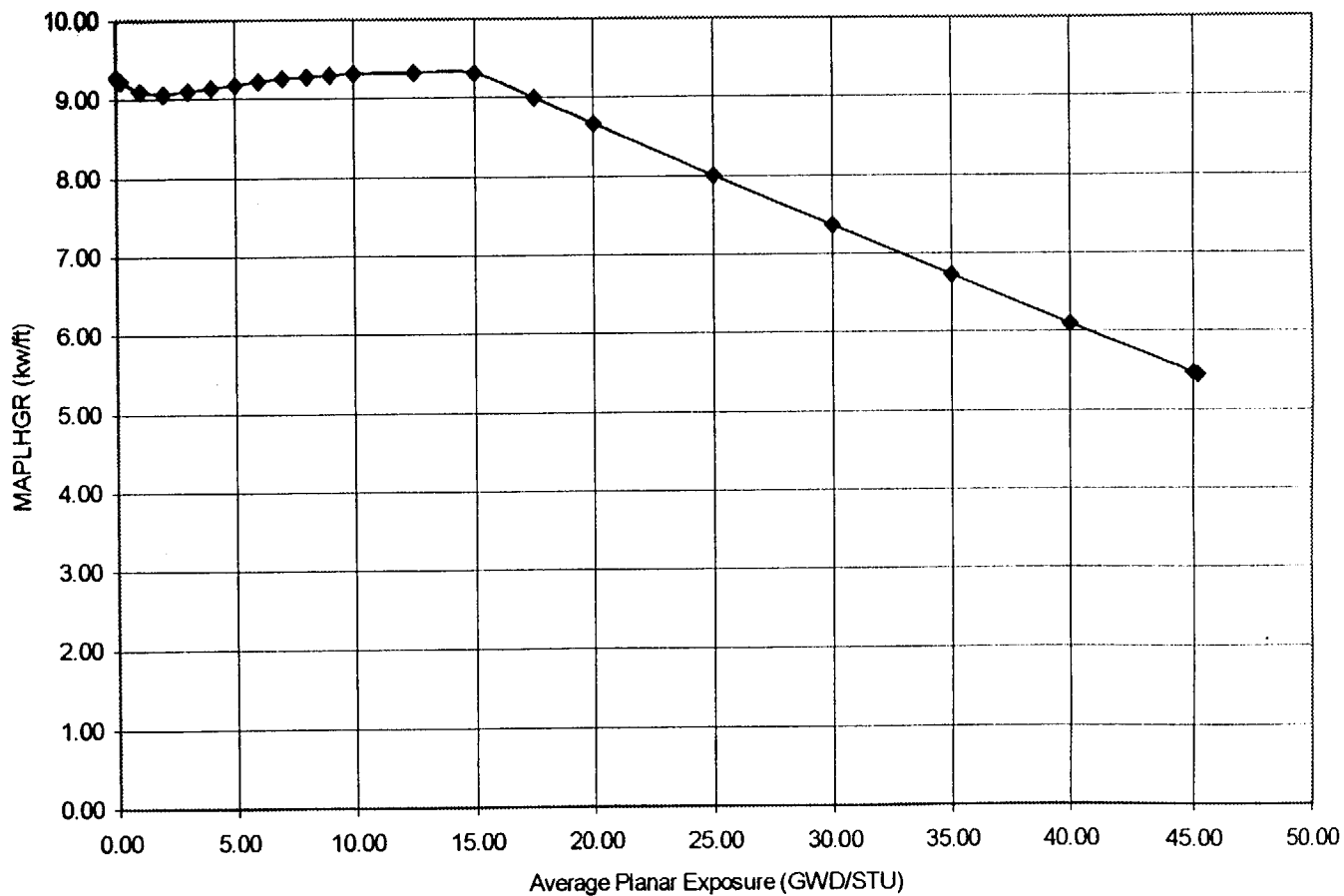
Figure e: MAPLHGR Limits for Lattices 1940 of
 GE11-P9HUB340-10GZ-100M-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
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Figure f: MAPLHGR Limits for Lattices 2361 of
 GE11-P9DUB340-12GZ1-100T-145-T

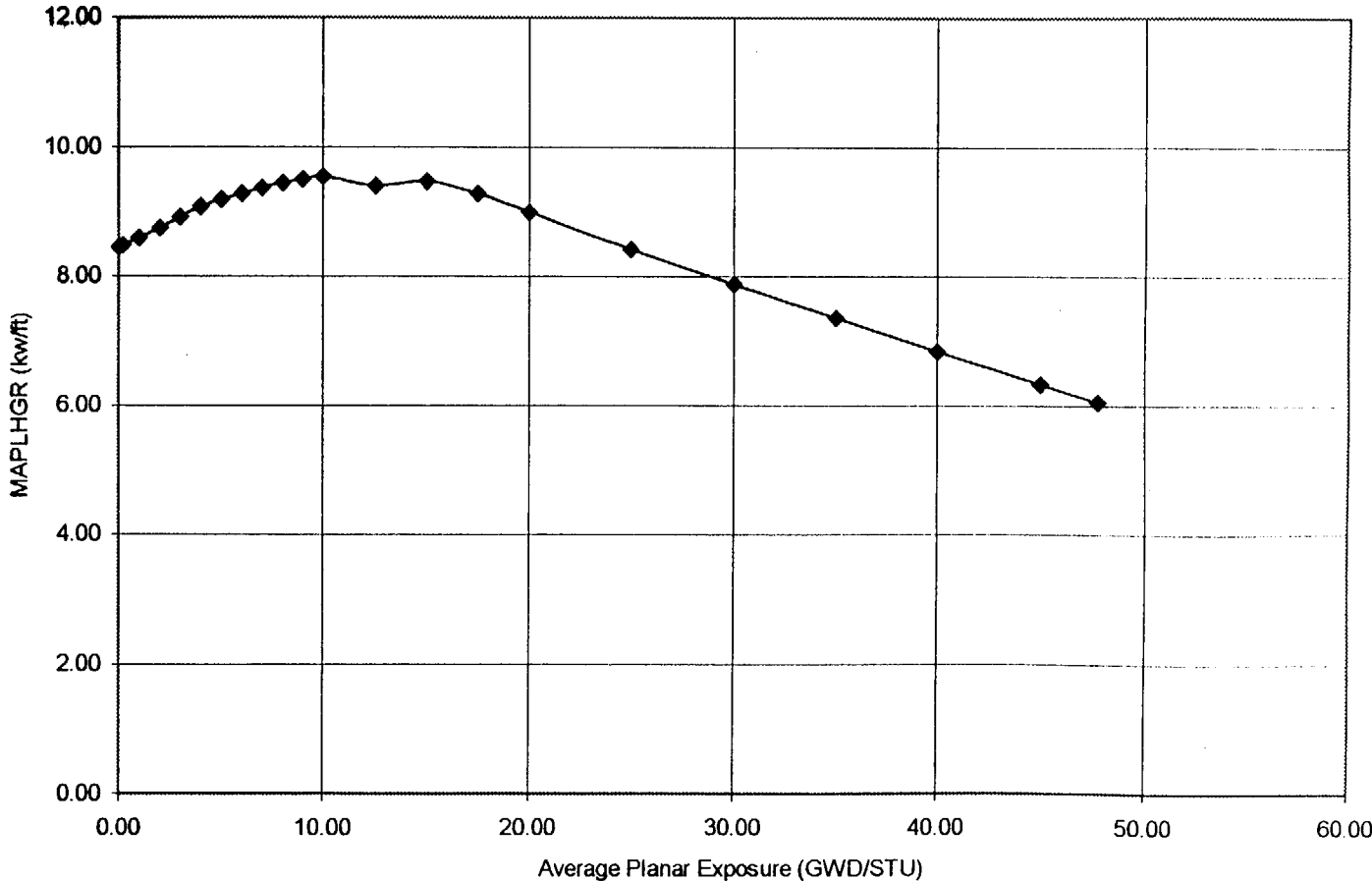
0.00	9.28
0.20	9.23
1.00	9.10
2.00	9.07
3.00	9.10
4.00	9.14
5.00	9.18
6.00	9.22
7.00	9.26
8.00	9.28
9.00	9.30
10.00	9.32
12.50	9.33
15.00	9.32
17.50	9.00
20.00	8.67
25.00	8.01
30.00	7.37
35.00	6.73
40.00	6.10
45.00	5.48
45.18	5.45



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.45
0.20	8.49
1.00	8.60
2.00	8.75
3.00	8.92
4.00	9.09
5.00	9.20
6.00	9.29
7.00	9.37
8.00	9.45
9.00	9.51
10.00	9.55
12.50	9.41
15.00	9.47
17.50	9.29
20.00	9.00
25.00	8.42
30.00	7.88
35.00	7.36
40.00	6.84
45.00	6.33
47.77	6.05

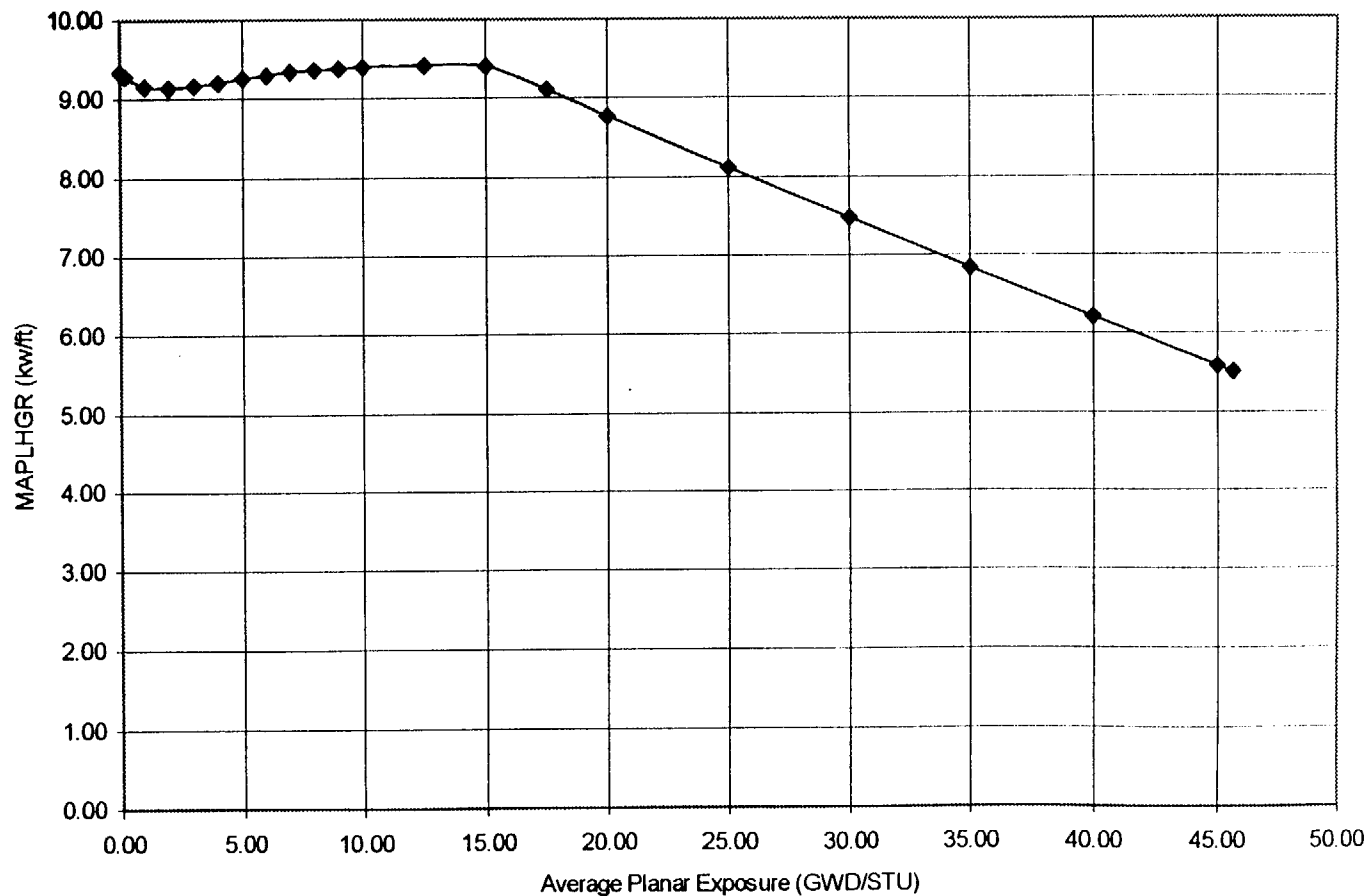
Figure g: MAPLHGR Limits for Lattices 2364 of
 GE11-P9DUB340-12GZ1-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	9.34
0.20	9.29
1.00	9.16
2.00	9.14
3.00	9.17
4.00	9.21
5.00	9.26
6.00	9.30
7.00	9.34
8.00	9.36
9.00	9.38
10.00	9.40
12.50	9.42
15.00	9.41
17.50	9.11
20.00	8.77
25.00	8.12
30.00	7.48
35.00	6.84
40.00	6.21
45.00	5.59
45.64	5.51

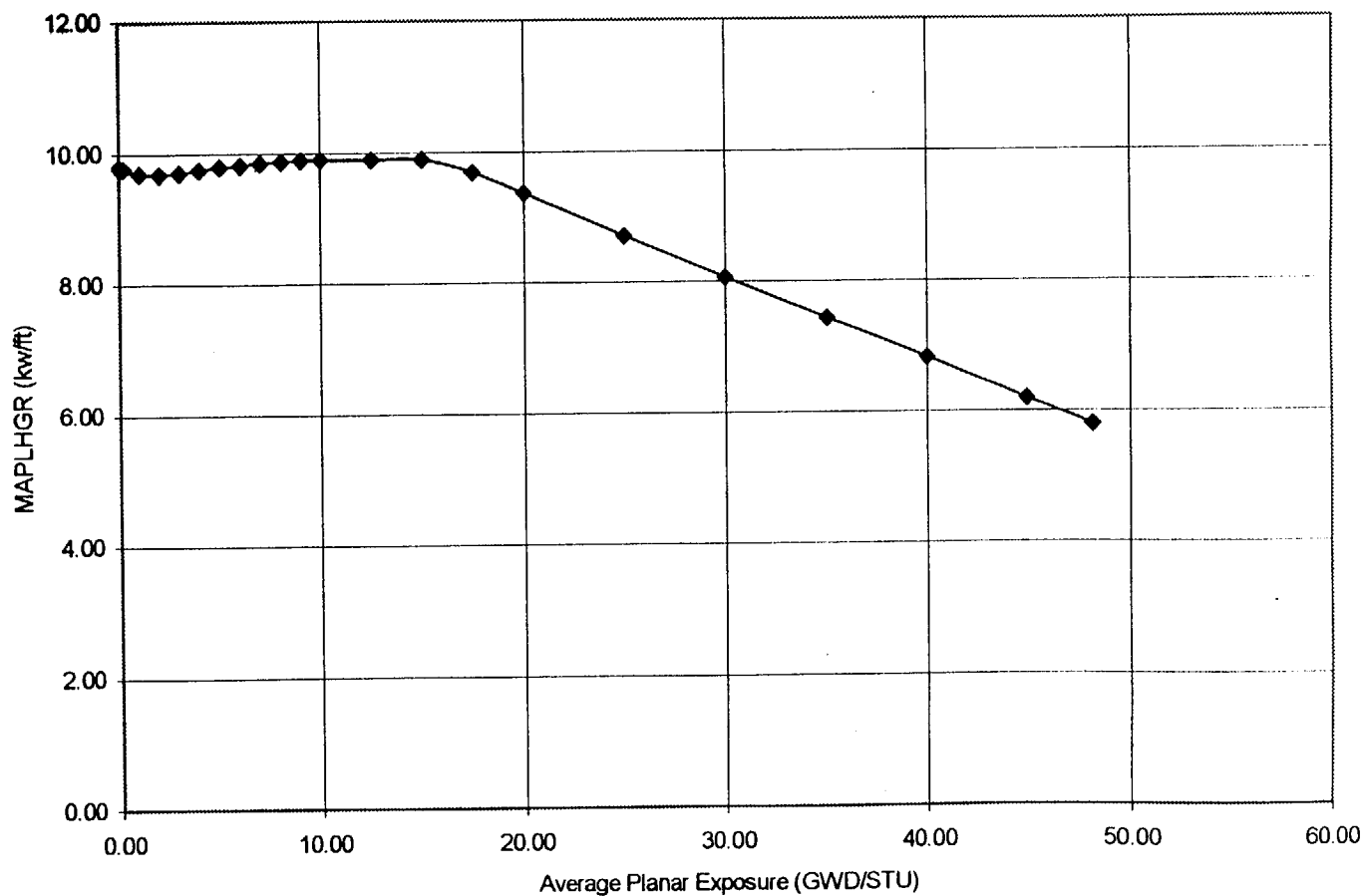
Figure h: MAPLHGR Limits for Lattices 2366 of
 GE11-P9DUB340-12GZ1-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	9.79
0.20	9.77
1.00	9.69
2.00	9.68
3.00	9.71
4.00	9.75
5.00	9.79
6.00	9.82
7.00	9.85
8.00	9.87
9.00	9.89
10.00	9.90
12.50	9.90
15.00	9.89
17.50	9.70
20.00	9.37
25.00	8.71
30.00	8.07
35.00	7.44
40.00	6.82
45.00	6.19
48.19	5.79

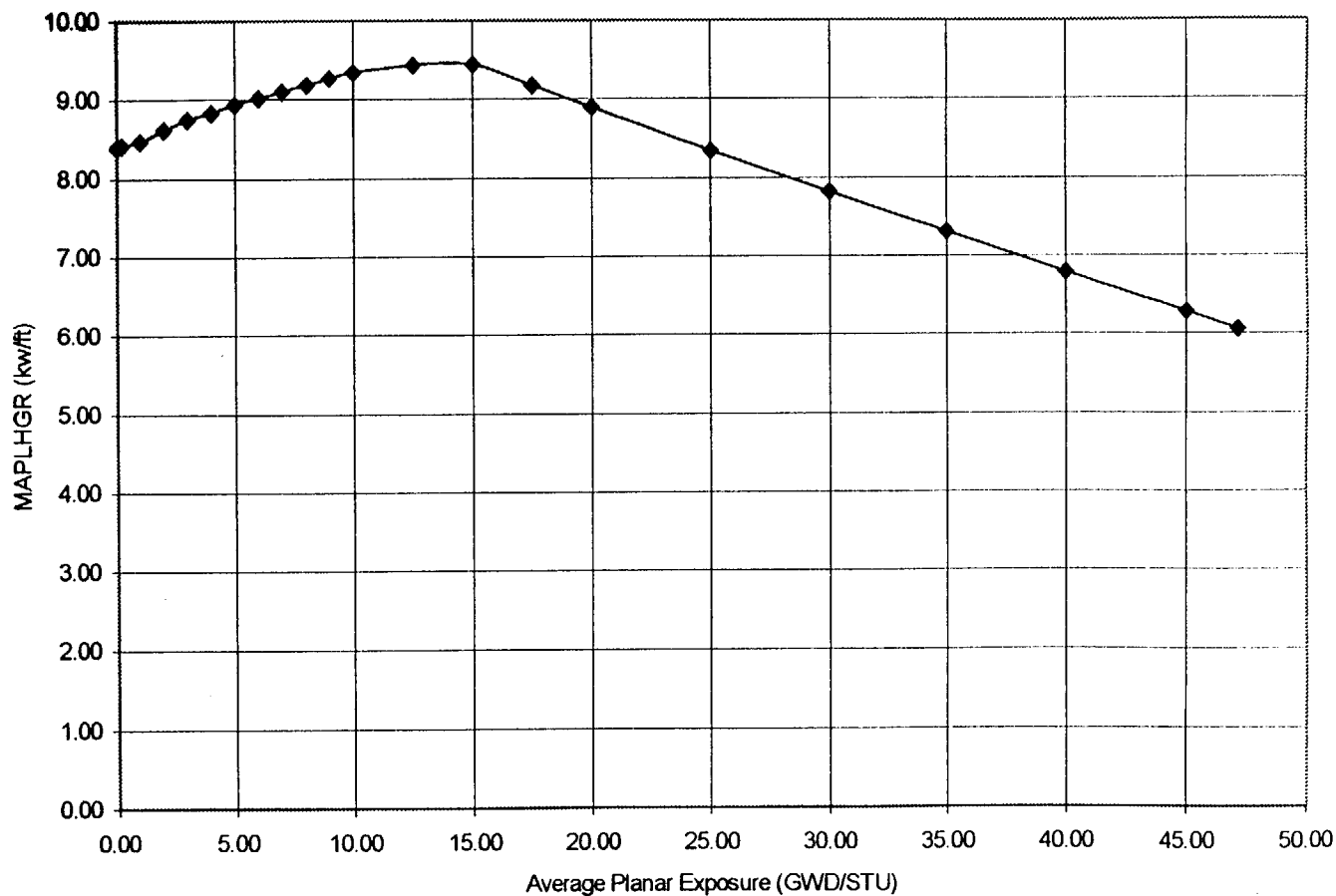
Figure i: MAPLHGR Limits for Lattices 2367 of
 GE11-P9DUB340-12GZ1-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.39
0.20	8.42
1.00	8.48
2.00	8.62
3.00	8.75
4.00	8.84
5.00	8.94
6.00	9.02
7.00	9.10
8.00	9.19
9.00	9.27
10.00	9.34
12.50	9.44
15.00	9.45
17.50	9.18
20.00	8.90
25.00	8.35
30.00	7.82
35.00	7.31
40.00	6.80
45.00	6.29
47.13	6.07

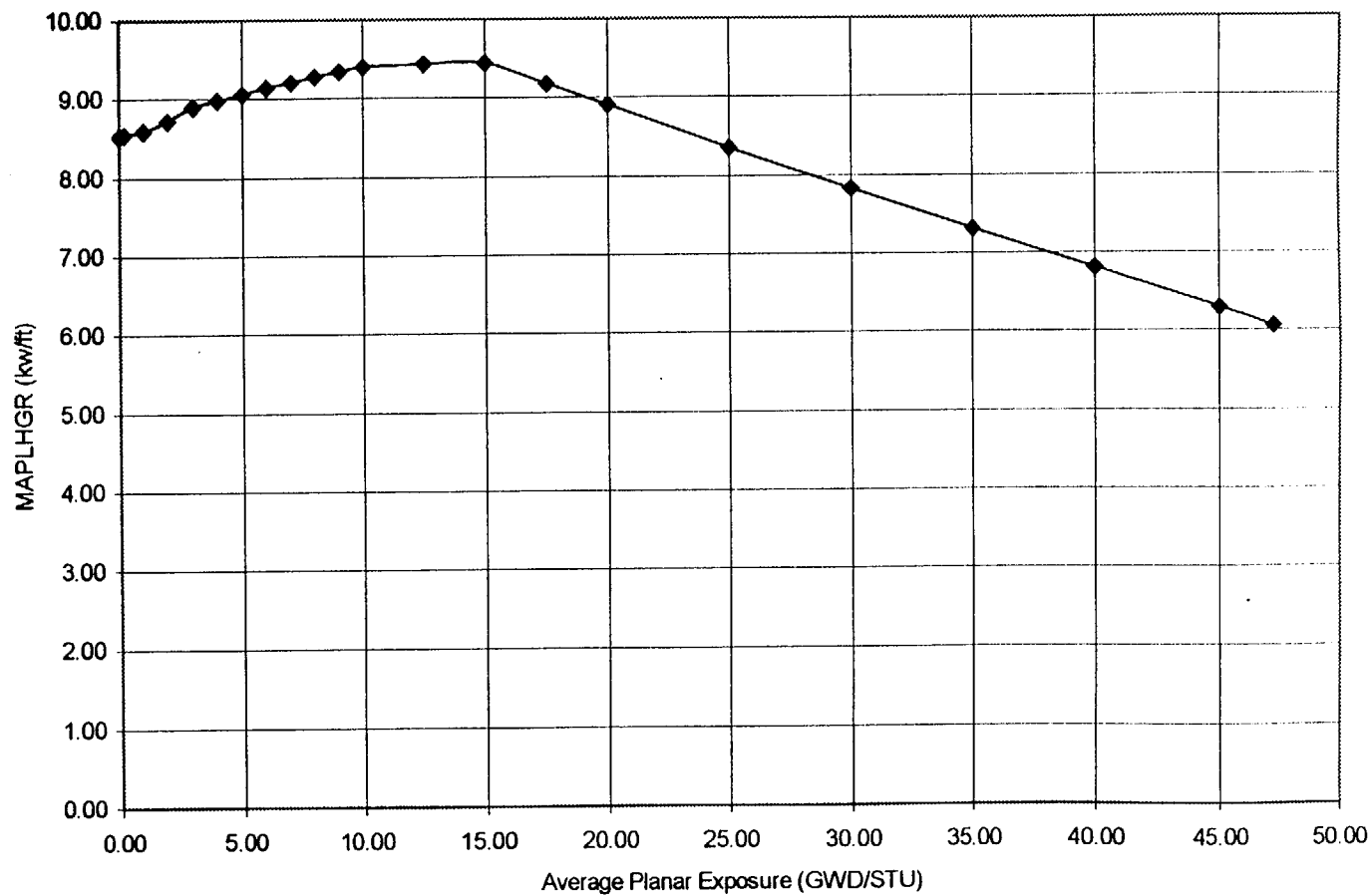
Figure j: MAPLHGR Limits for Lattices 2419 of
 GE11-P9DUB340-12GZ1-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.53
0.20	8.55
1.00	8.60
2.00	8.73
3.00	8.90
4.00	8.98
5.00	9.06
6.00	9.14
7.00	9.21
8.00	9.28
9.00	9.34
10.00	9.40
12.50	9.44
15.00	9.45
17.50	9.18
20.00	8.91
25.00	8.36
30.00	7.83
35.00	7.31
40.00	6.81
45.00	6.30
47.21	6.07

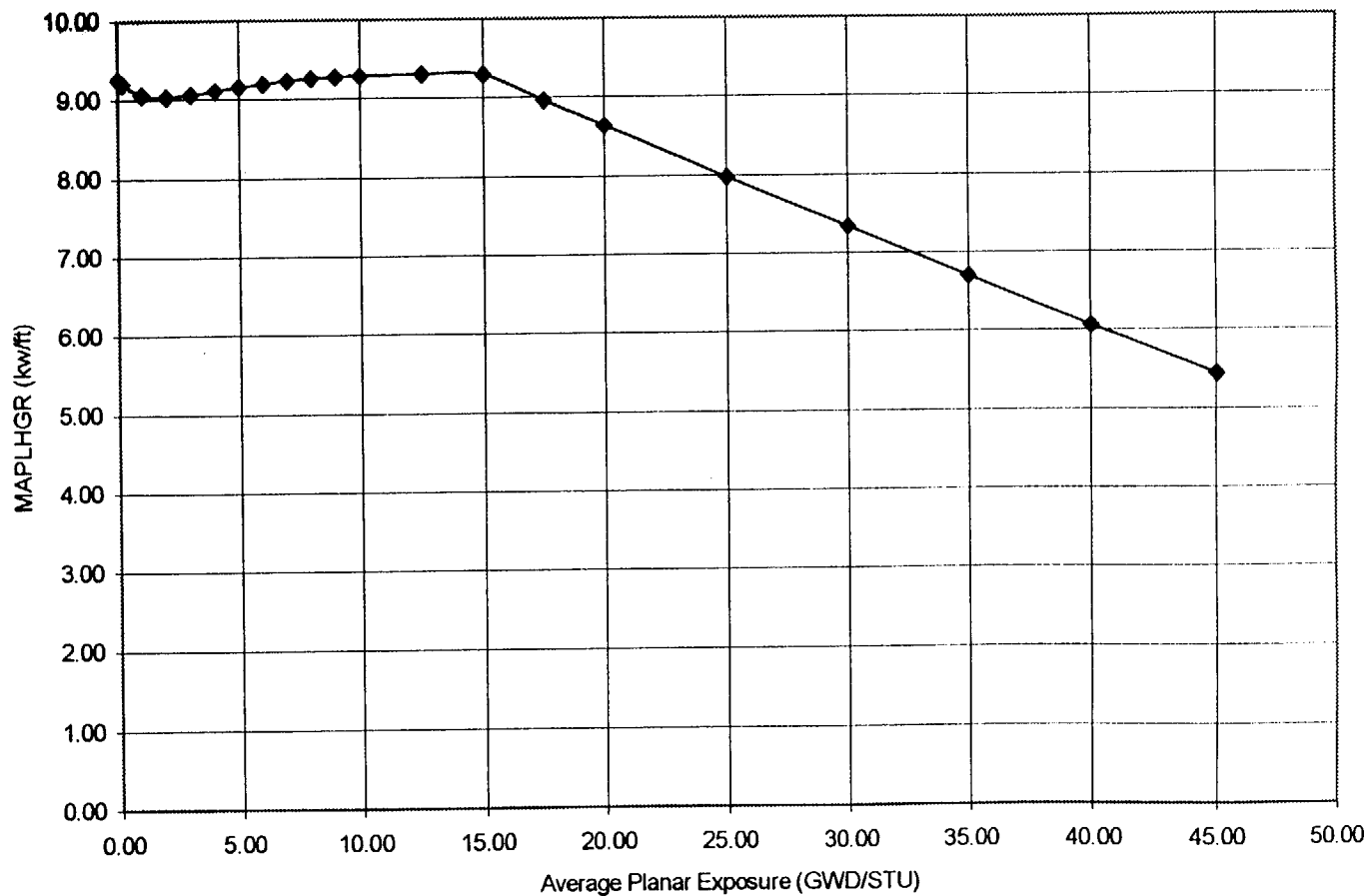
Figure k: MAPLHGR Limits for Lattices 2420 of
 GE11-P9DUB340-12GZ1-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	9.26
0.20	9.21
1.00	9.07
2.00	9.04
3.00	9.07
4.00	9.11
5.00	9.16
6.00	9.20
7.00	9.23
8.00	9.26
9.00	9.28
10.00	9.29
12.50	9.31
15.00	9.30
17.50	8.97
20.00	8.64
25.00	7.98
30.00	7.34
35.00	6.70
40.00	6.07
45.00	5.45
45.02	5.44

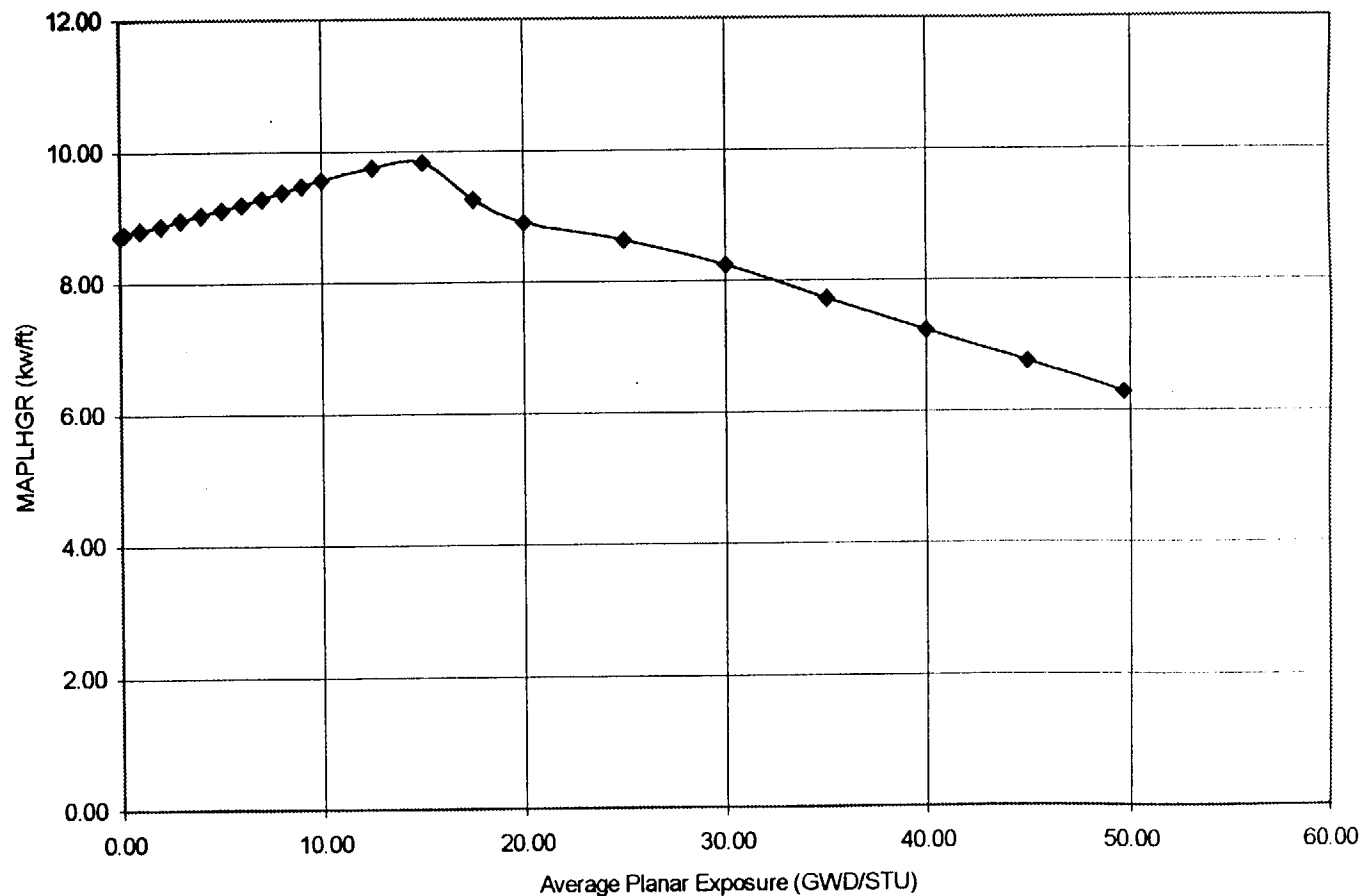
Figure I: MAPLHGR Limits for Lattices 2718 of
 GE11-P9DUB339-12GZ-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.72
0.20	8.75
1.00	8.81
2.00	8.88
3.00	8.96
4.00	9.04
5.00	9.12
6.00	9.20
7.00	9.29
8.00	9.38
9.00	9.47
10.00	9.56
12.50	9.75
15.00	9.83
17.50	9.26
20.00	8.91
25.00	8.63
30.00	8.24
35.00	7.72
40.00	7.23
45.00	6.76
49.70	6.28

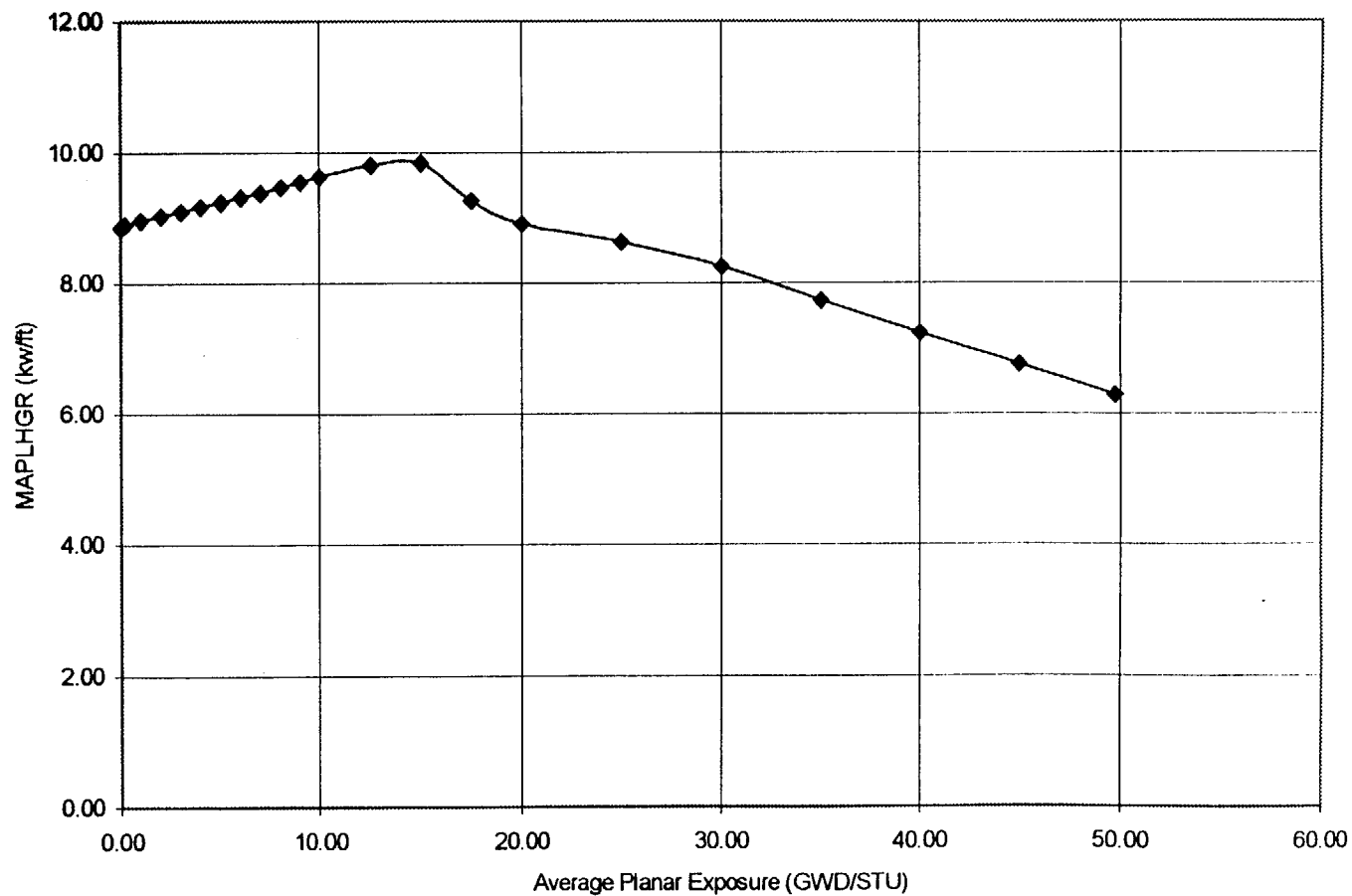
Figure m: MAPLHGR Limits for Lattices 2719 of
 GE11-P9DUB339-12GZ-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.85
0.20	8.90
1.00	8.96
2.00	9.03
3.00	9.10
4.00	9.17
5.00	9.24
6.00	9.32
7.00	9.39
8.00	9.47
9.00	9.55
10.00	9.63
12.50	9.81
15.00	9.84
17.50	9.26
20.00	8.91
25.00	8.63
30.00	8.25
35.00	7.73
40.00	7.24
45.00	6.76
49.75	6.28

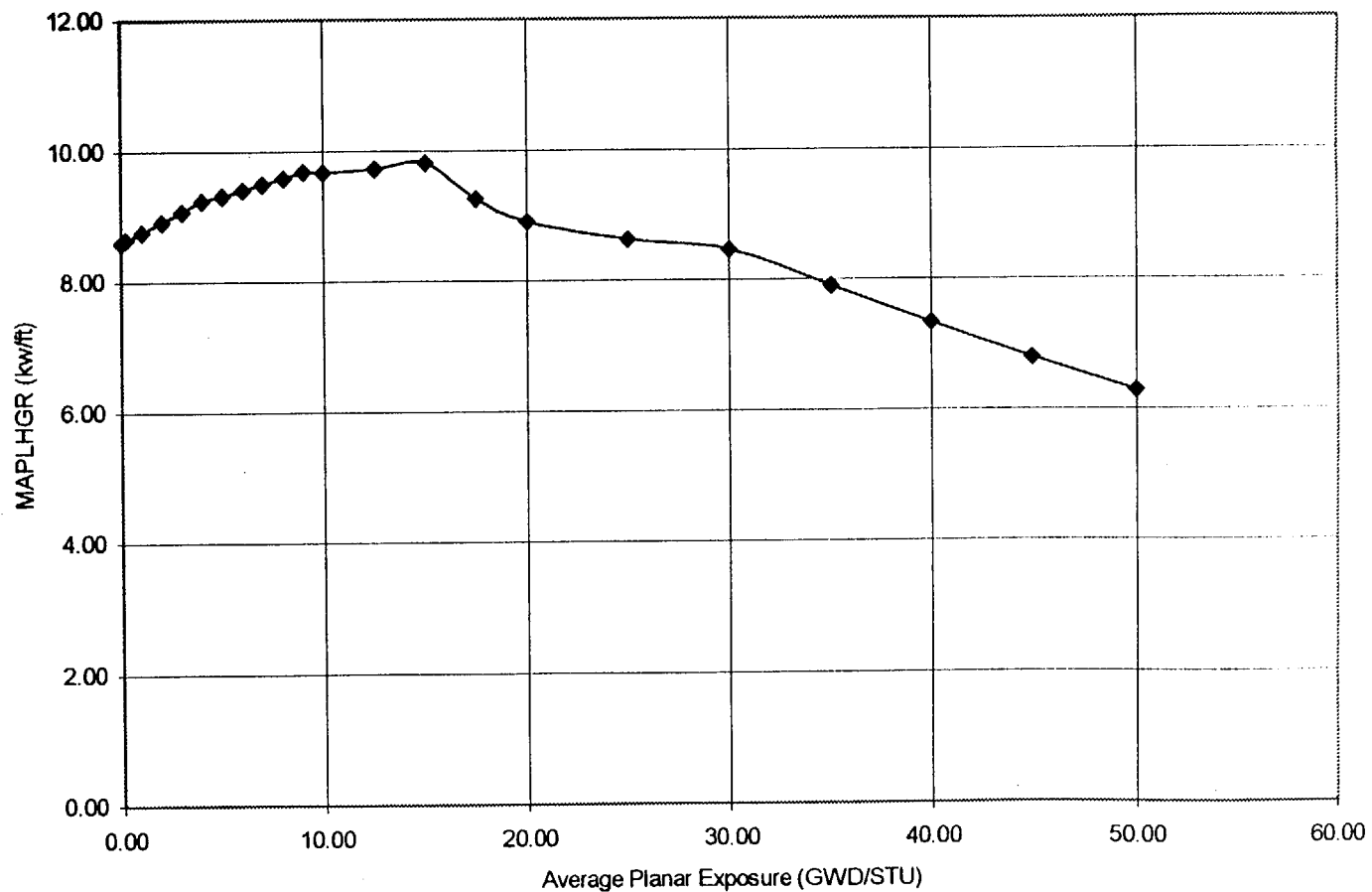
Figure n: MAPLHGR Limits for Lattices 2720 of
 GE11-P9DUB339-12GZ-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.60
0.20	8.65
1.00	8.76
2.00	8.92
3.00	9.08
4.00	9.24
5.00	9.32
6.00	9.41
7.00	9.50
8.00	9.59
9.00	9.68
10.00	9.67
12.50	9.73
15.00	9.82
17.50	9.26
20.00	8.91
25.00	8.63
30.00	8.46
35.00	7.90
40.00	7.33
45.00	6.79
50.00	6.28

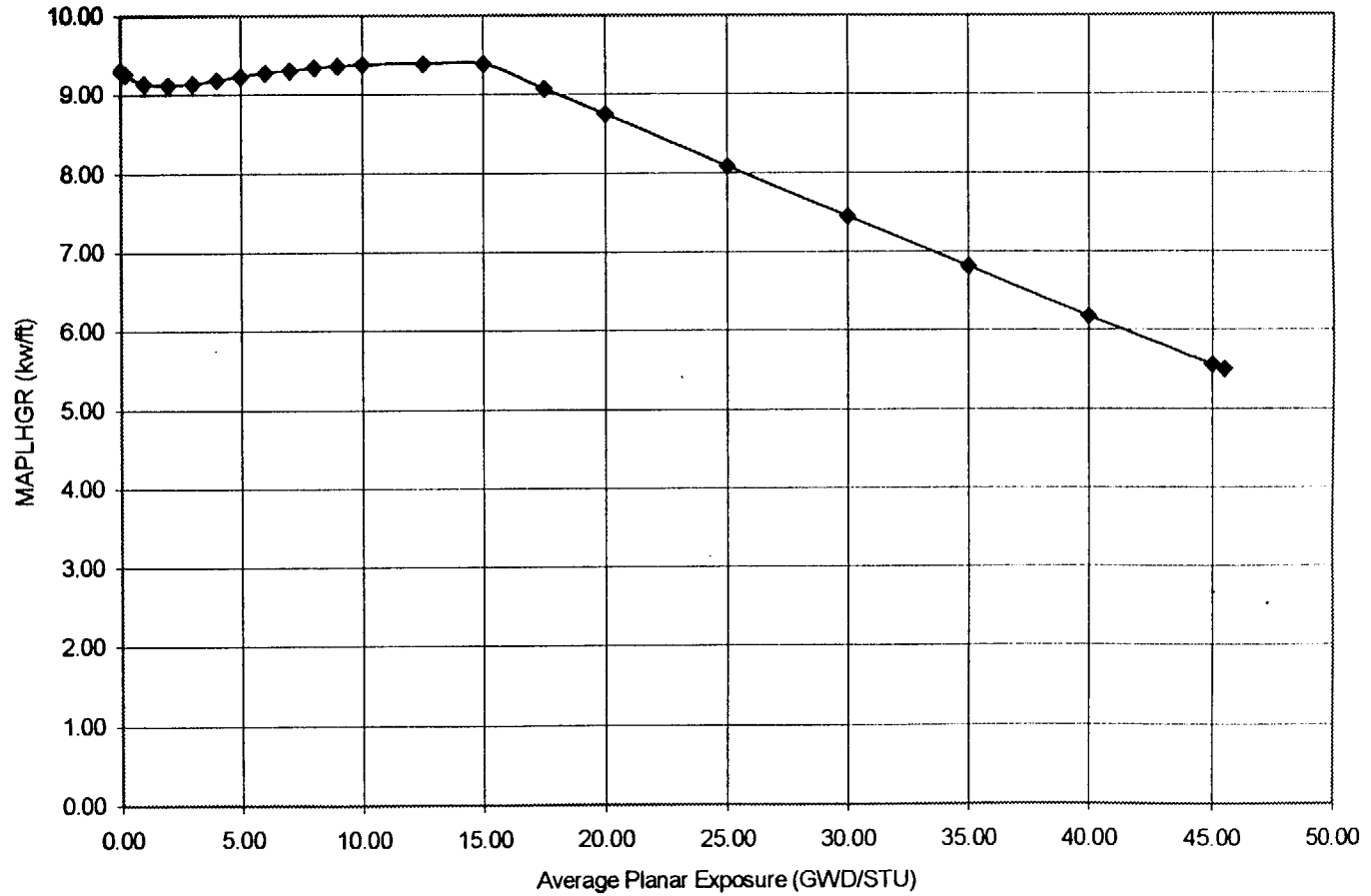
Figure o: MAPLHGR Limits for Lattices 2721 of
 GE11-P9DUB339-12GZ-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	9.31
0.20	9.26
1.00	9.14
2.00	9.12
3.00	9.14
4.00	9.19
5.00	9.23
6.00	9.28
7.00	9.31
8.00	9.34
9.00	9.36
10.00	9.38
12.50	9.39
15.00	9.39
17.50	9.08
20.00	8.75
25.00	8.09
30.00	7.45
35.00	6.81
40.00	6.18
45.00	5.56
45.48	5.50

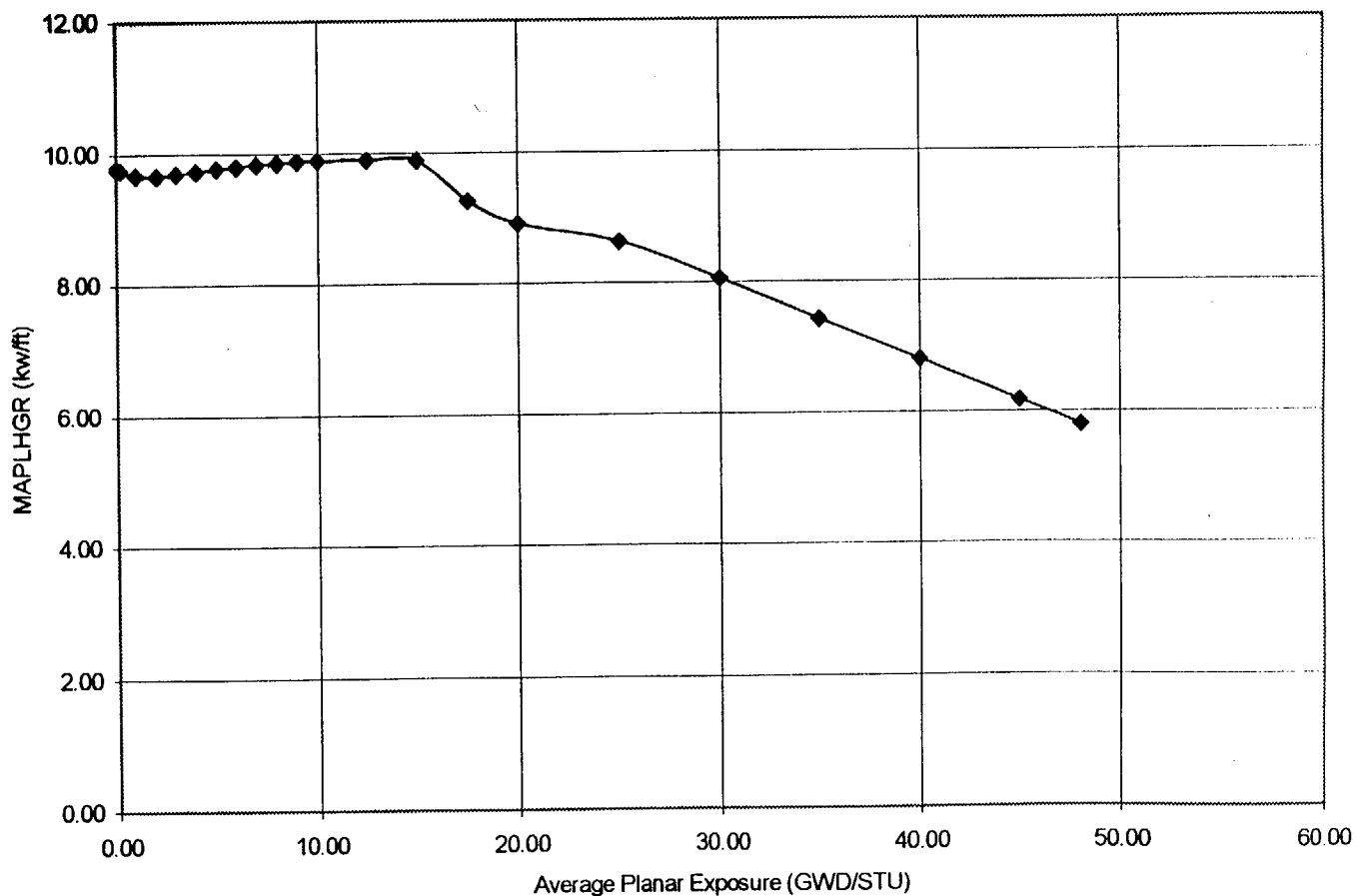
Figure p: MAPLHGR Limits for Lattices 2722 of
 GE11-P9DUB339-12GZ-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/t)
-----------------------	-------------------

0.00	9.77
0.20	9.75
1.00	9.67
2.00	9.66
3.00	9.69
4.00	9.73
5.00	9.77
6.00	9.80
7.00	9.83
8.00	9.85
9.00	9.87
10.00	9.88
12.50	9.89
15.00	9.88
17.50	9.26
20.00	8.91
25.00	8.63
30.00	8.05
35.00	7.42
40.00	6.80
45.00	6.17
48.07	5.79

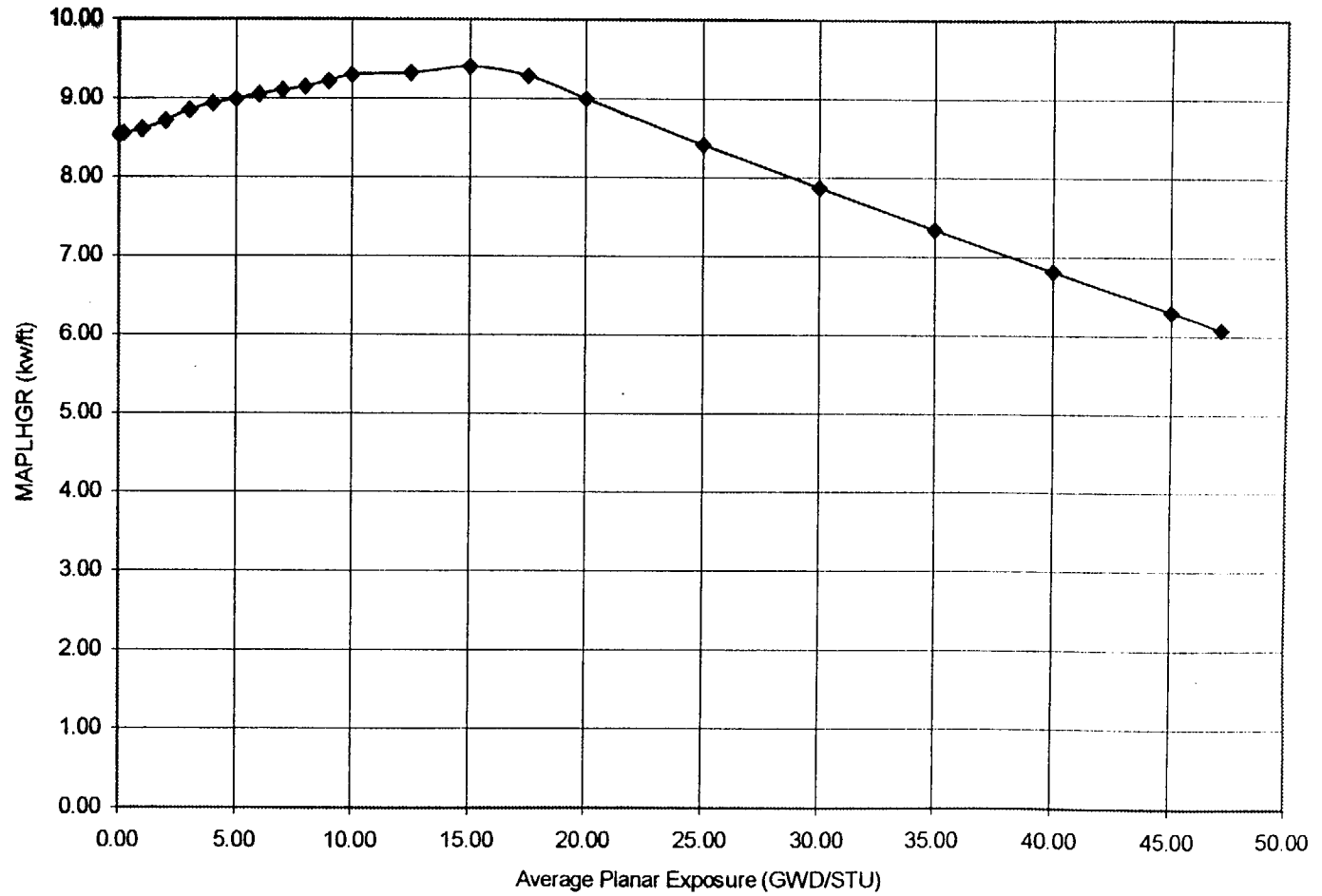
Figure q: MAPLHGR Limits for Lattices 2723 of
 GE11-P9DUB339-12GZ-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
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0.00	8.54
0.20	8.56
1.00	8.61
2.00	8.72
3.00	8.85
4.00	8.94
5.00	8.99
6.00	9.05
7.00	9.10
8.00	9.15
9.00	9.22
10.00	9.30
12.50	9.32
15.00	9.40
17.50	9.29
20.00	9.00
25.00	8.42
30.00	7.87
35.00	7.34
40.00	6.82
45.00	6.30
47.16	6.08

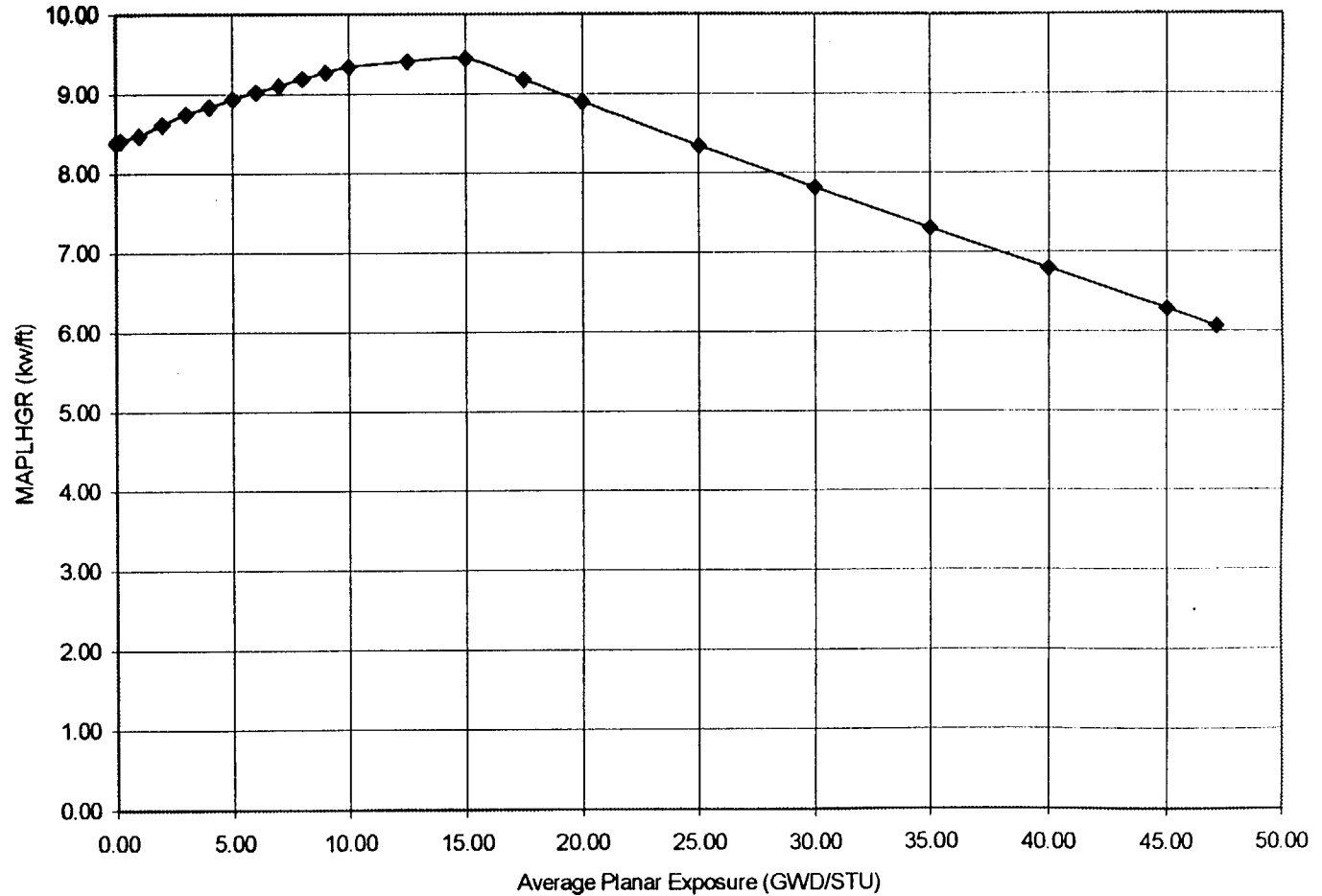
Figure r: Most Limiting MAPLHGR Limits for GE11-P9HUB340-10GZ-100M-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
-----------------------	--------------------

0.00	8.39
0.20	8.42
1.00	8.48
2.00	8.62
3.00	8.75
4.00	8.84
5.00	8.94
6.00	9.02
7.00	9.10
8.00	9.19
9.00	9.27
10.00	9.34
12.50	9.41
15.00	9.45
17.50	9.18
20.00	8.90
25.00	8.35
30.00	7.82
35.00	7.31
40.00	6.80
45.00	6.29
47.13	6.07

Figure s: Most Limiting MAPLHGR Limits for GE11-P9DUB340-12GZ1-100T-145-T



Exposure (GWD/STU)	MAPLHGR (kw/ft)
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0.00	8.60
0.20	8.65
1.00	8.76
2.00	8.88
3.00	8.96
4.00	9.04
5.00	9.12
6.00	9.20
7.00	9.29
8.00	9.38
9.00	9.47
10.00	9.56
12.50	9.73
15.00	9.82
17.50	9.26
20.00	8.91
25.00	8.63
30.00	8.24
35.00	7.72
40.00	7.23
45.00	6.76
49.70	6.28

Figure t: Most Limiting MAPLHGR Limits for GE11-P9DUB339-12GZ-100T-145-T

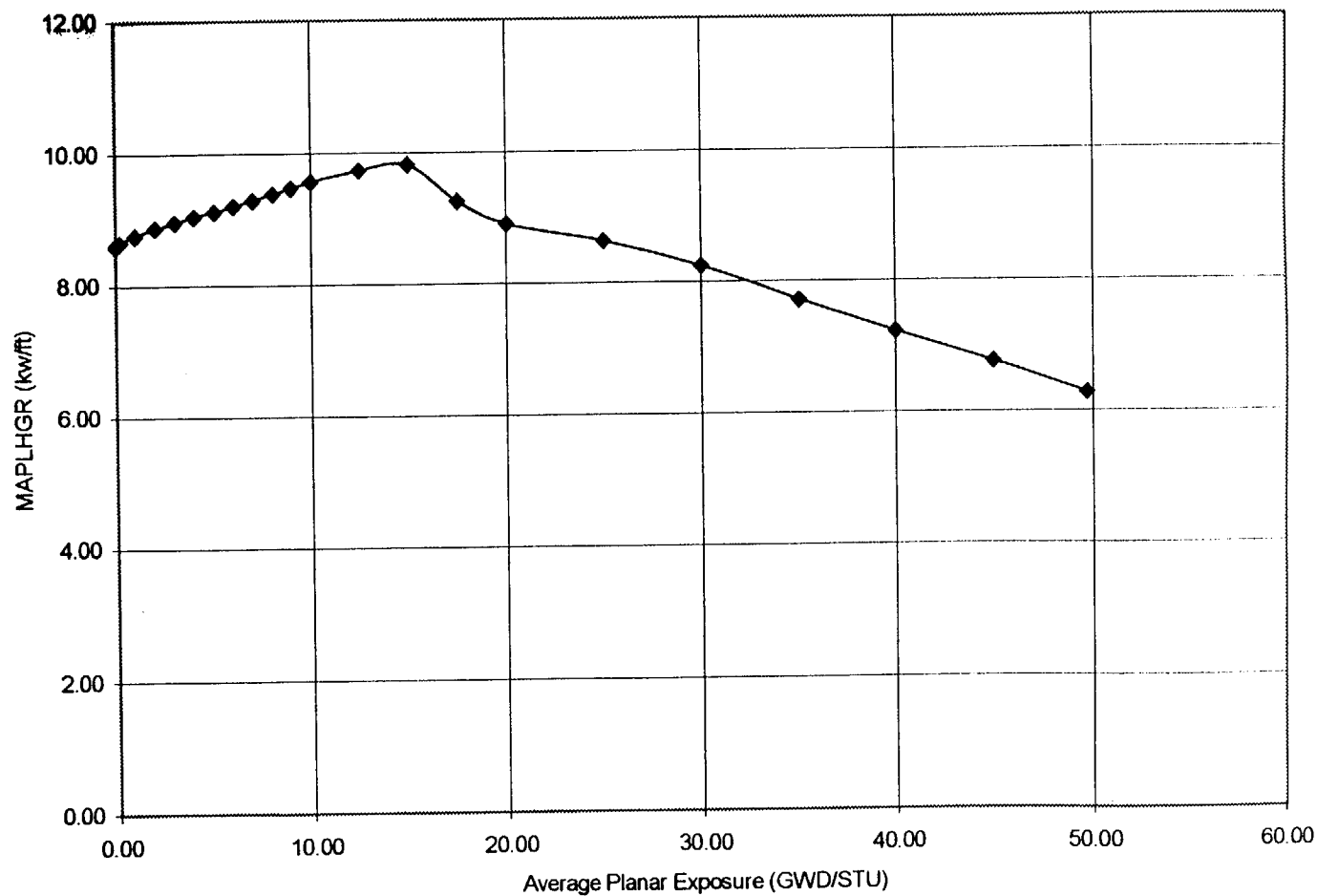
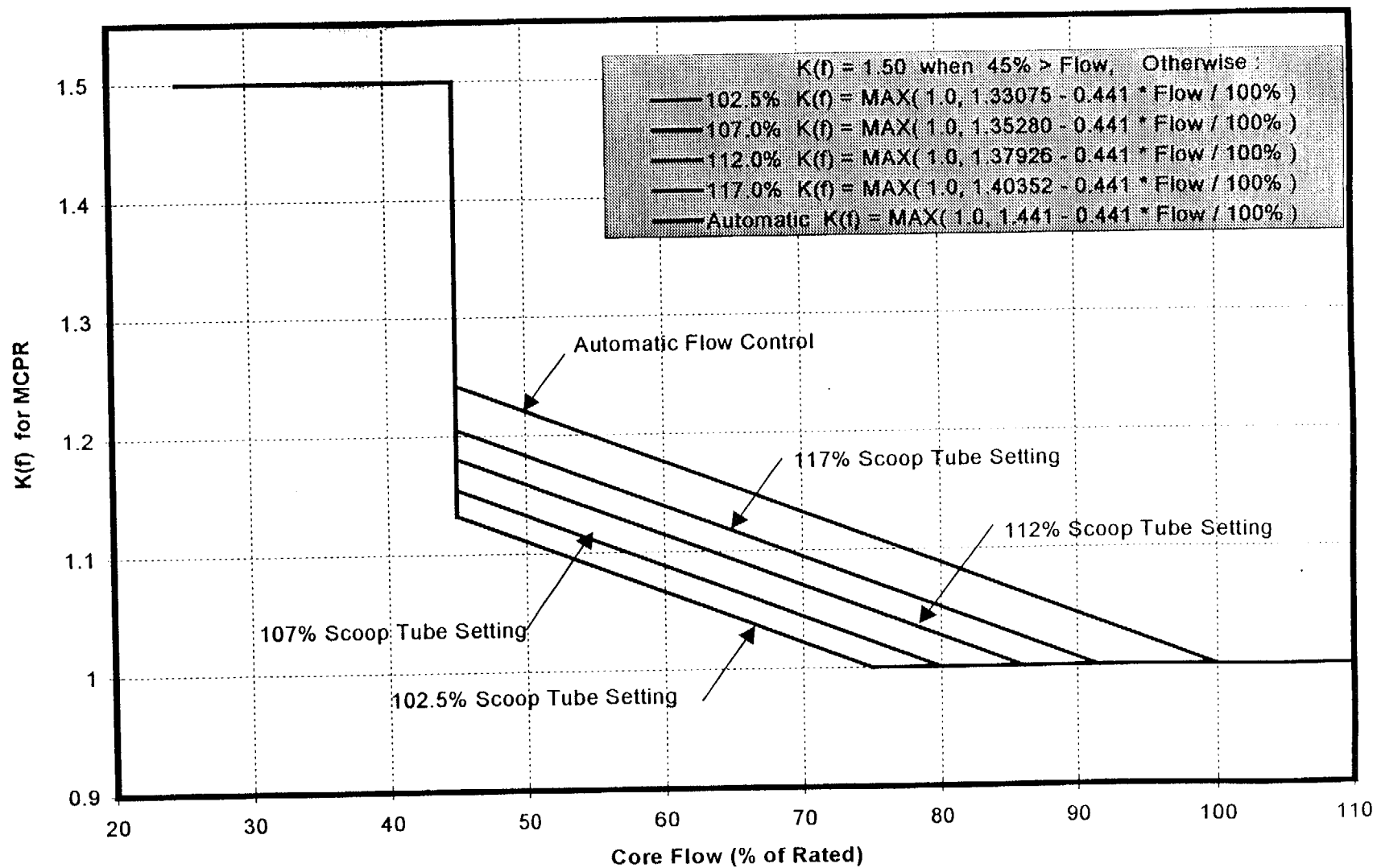


Figure u NMP-1 K(f) Curve for MCPR



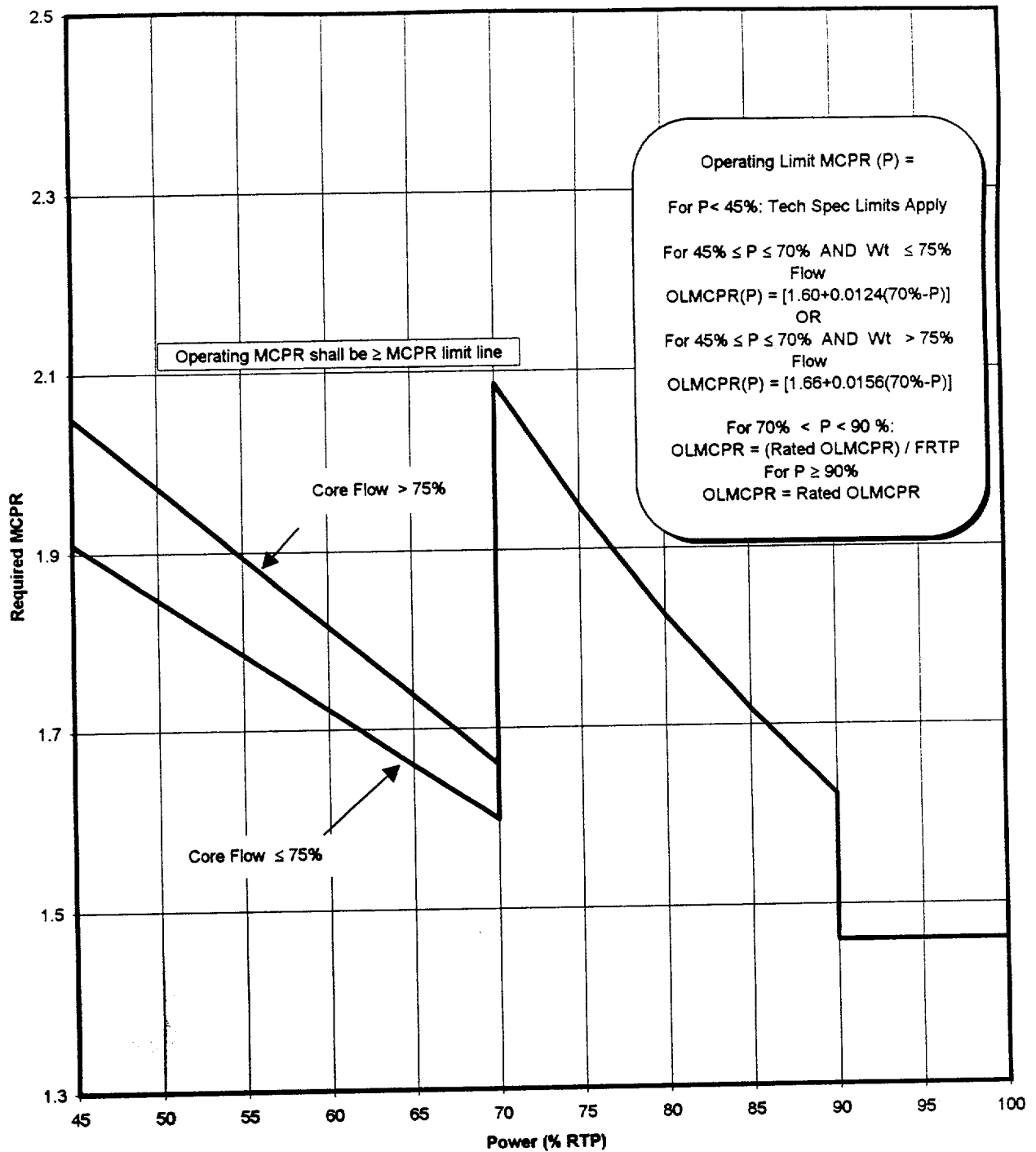


Figure v: MCPR Limits with One Pressure Regulator OOS

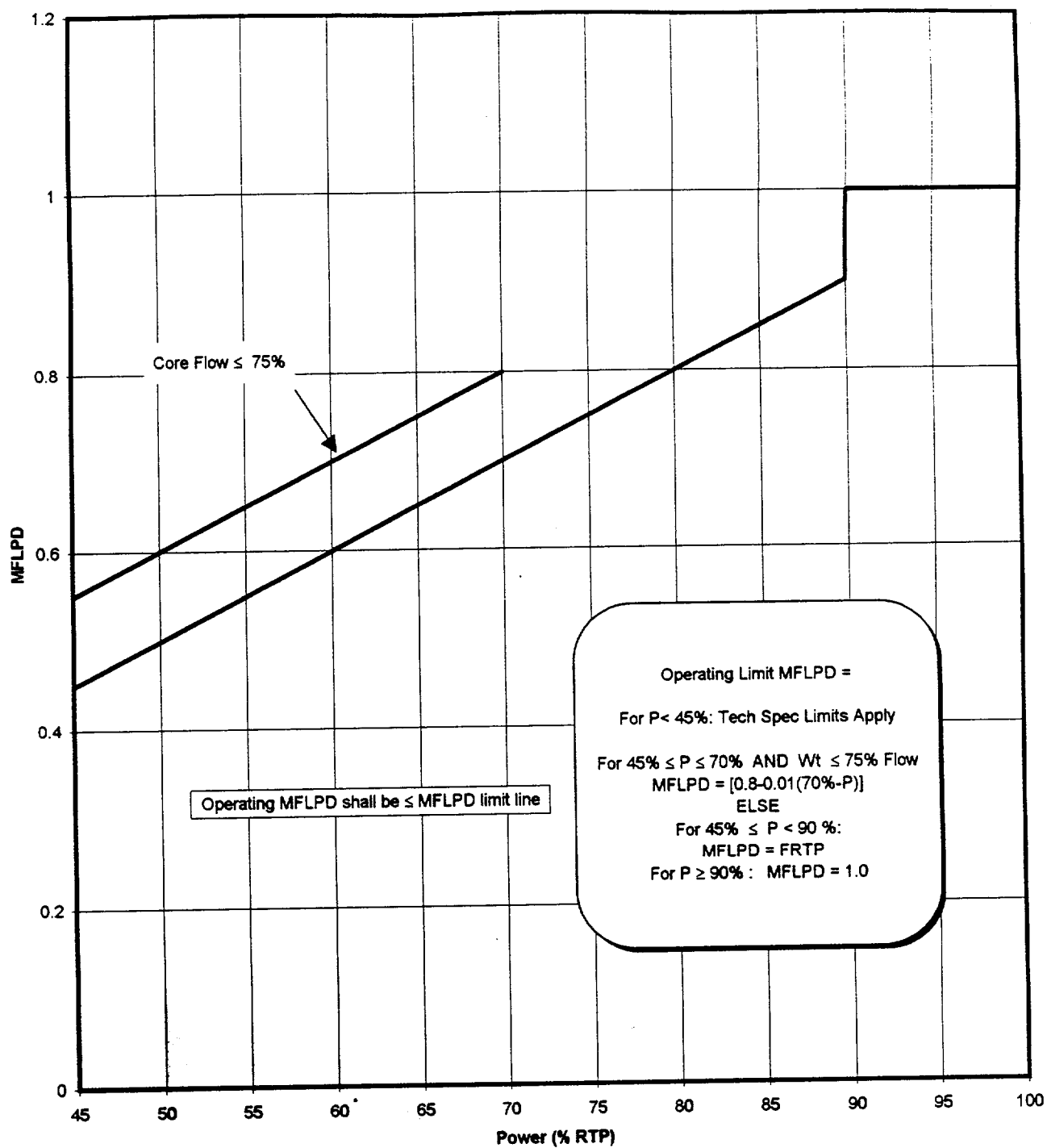


Figure w: MFLPD Limits with One Pressure Regulator OOS

Figure x Limiting Power/Flow Line

