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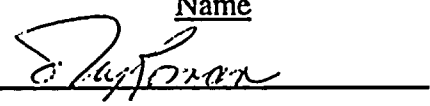

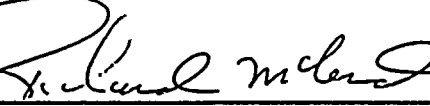
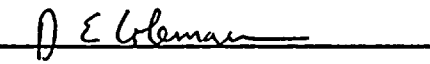
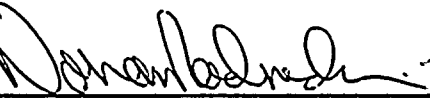
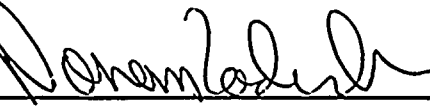
NINE MILE POINT UNIT 1

CORE OPERATING LIMITS REPORT

INFORMATION ONLY

Document No.: COLR1

Revision 0, Cycle 13

	<u>Name</u>	<u>Title</u>	<u>Date</u>
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This NMPC Controlled Document provides cycle specific core operating limits for use in conjunction with the 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.

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**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 a function of average planar exposure shall not exceed the limiting values shown in Figures a through o.

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 o.

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 o.

- (\*) 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 p, q and r, during five recirculation loop operation or 98 percent of the limits shown in Figures p, q and r during four or three loop operation.



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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 s.

2.2 Limits for Technical Specification 3.1.7.e

During 3 loop operation, the CPR limit shall be increased by 0.02.



Small, faint, illegible marks or characters in the top right corner.



**TABLE 1**

**NINE MILE POINT UNIT 1:  
CYCLE 13 LIMITING CONDITION FOR OPERATION MCPR**

Core Average Incremental Exposure, MWd/ST	Limiting MCPR <sup>(1)(2)</sup>
BOC to EOC	All Fuel Types
BOC to EOC	≥ 1.48

<sup>(1)</sup> Based on a 1.10 MCPR Safety Limit (SLCPR).

<sup>(2)</sup> 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 ≥ 1.62.

NOTE: The fuel type designations used appropriately represent the fuel design as shown below:

GE11:	GE11-P9HUB310-10GZ-100M-145-T
GE11:	GE11-P9HUB340-10GZ-100M-145-T
GE11:	GE11-P9DUB340-12GZ1-100T-145-T



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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 as shown below.

<u>Fuel Type</u>	<u>LHGR (KW/FT)</u>
GE11	$\leq 11.0$



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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 t.



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5.0 Source Documents

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

**CORE OPERATING LIMITS**

**REFERENCE**

APLHGR Limits (Section 1)

Figure a through r and corresponding four and three loop multipliers

GENE J11-02962MAP, Revision 0, January 1997, Lattice Dependent MAPLHGR Report for Nine Mile Point Nuclear Station Unit 1 Reload 14 Cycle 13

MCPR LIMIT (Section 2)

Table 1

GENE J11-02962SRLR, Revision 0, January 1997, Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 1 Reload 14 Cycle 13

Figure s

0.02 3 loop adder

NEDE-24011-P-A-9, September 1988

GENE -J11-02962SRLR, Revision 0, Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 1 Reload 14 Cycle 13

LHGR LIMITS (Section 3)

NMP1 Technical Specifications Amendment 47

GENE 770-31-1292, Revision 2, "Engineering Report for Application of GE11 to Nine Mile Point Nuclear Station Unit 1 Reload 12", April 1993

P/F RELATIONSHIP (Section 4)

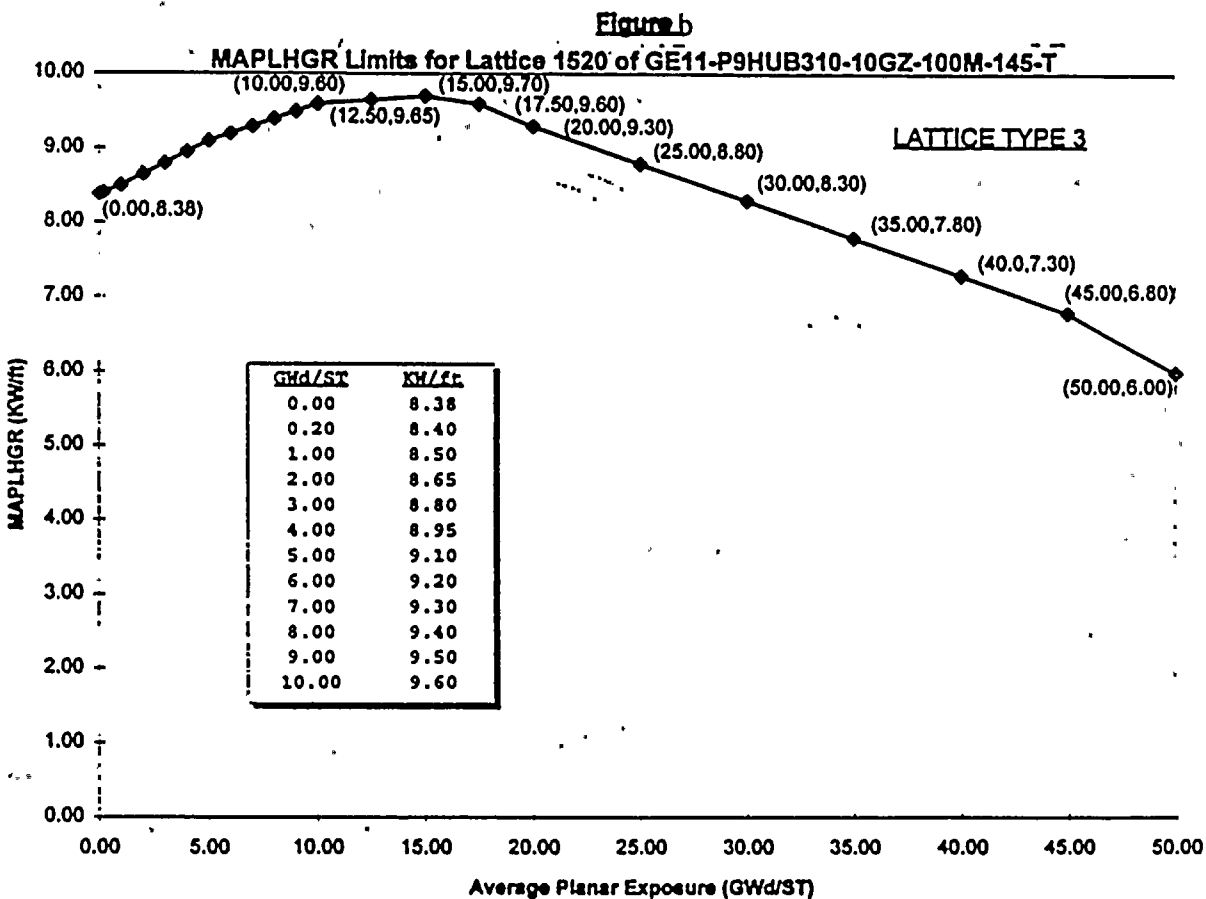
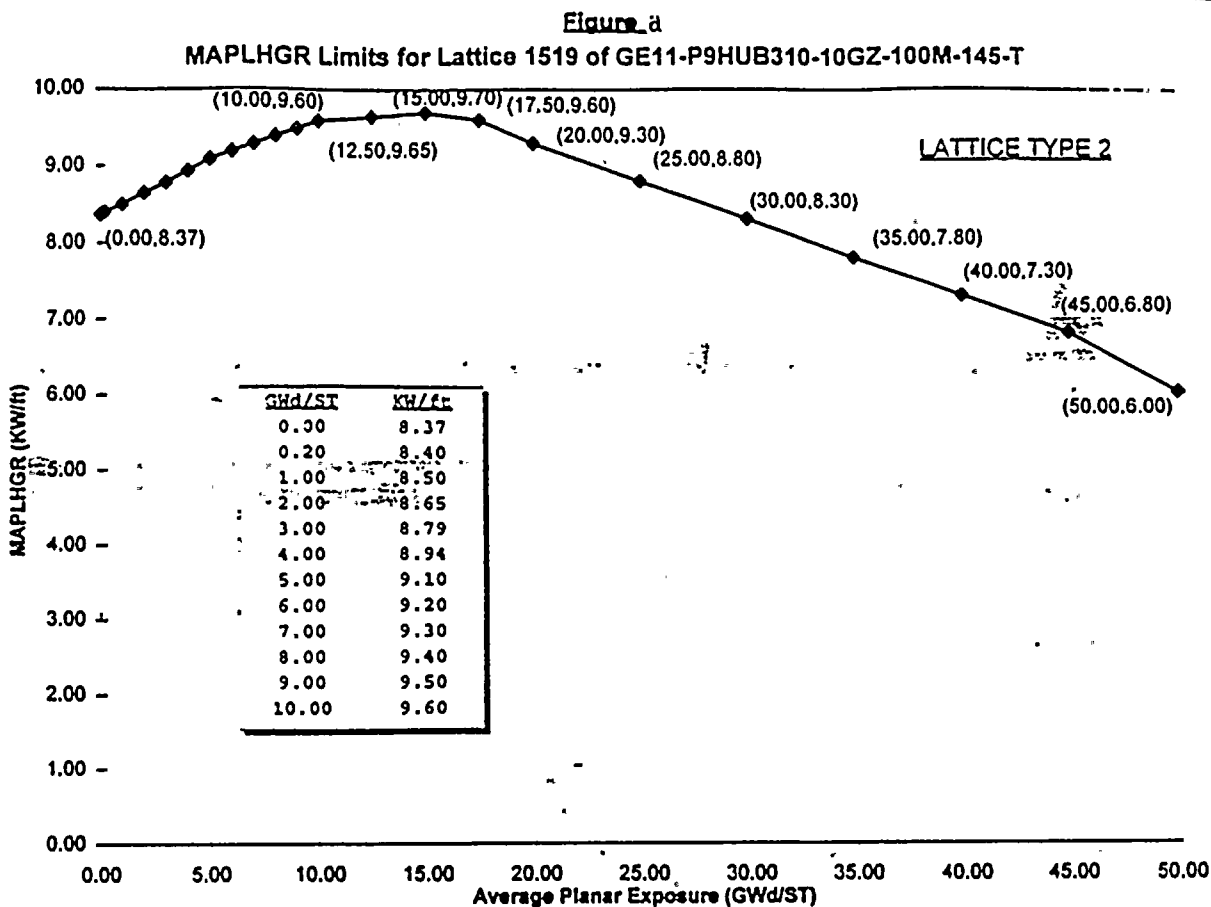
Figure v

NMP1 Technical Specifications Amendment 92, Figure 3.1.7.aa



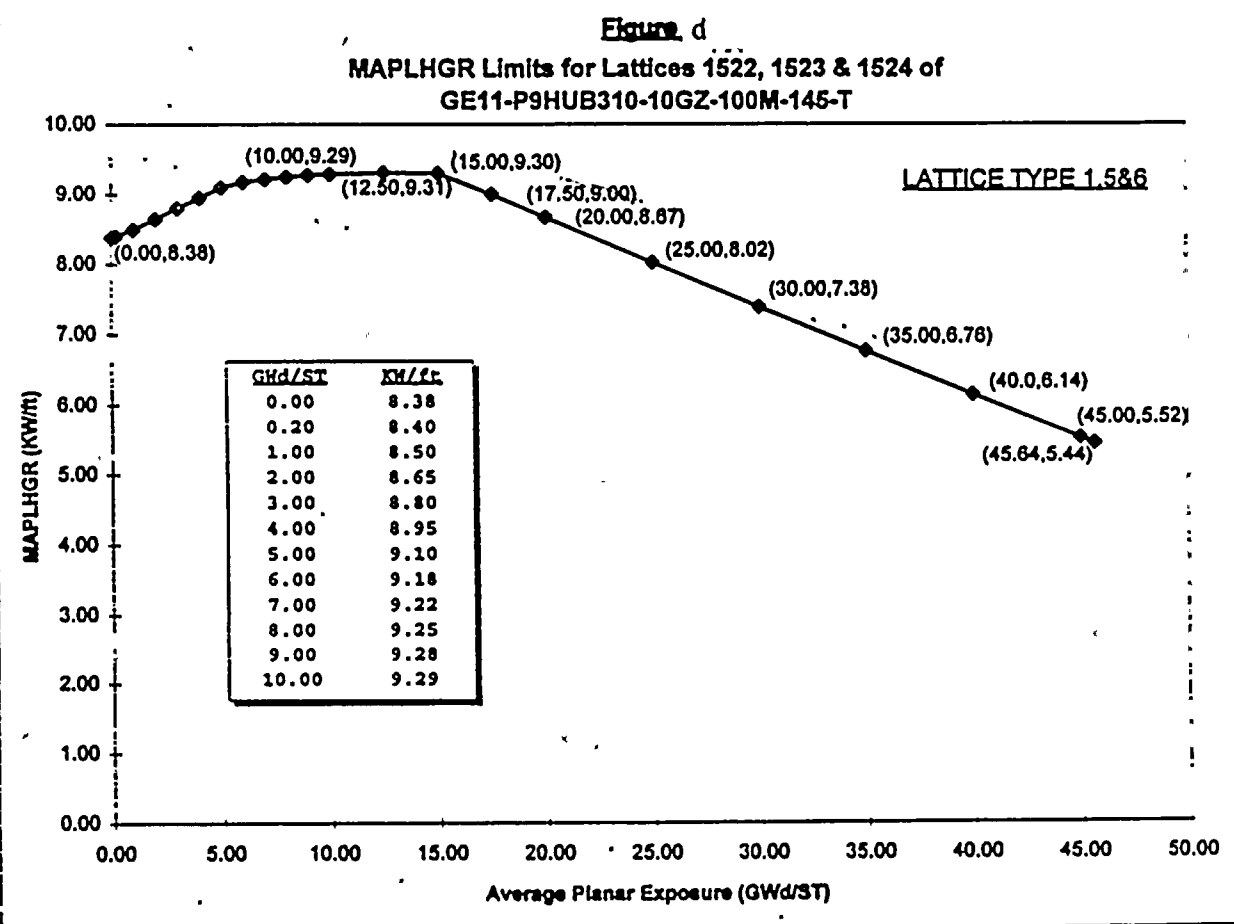
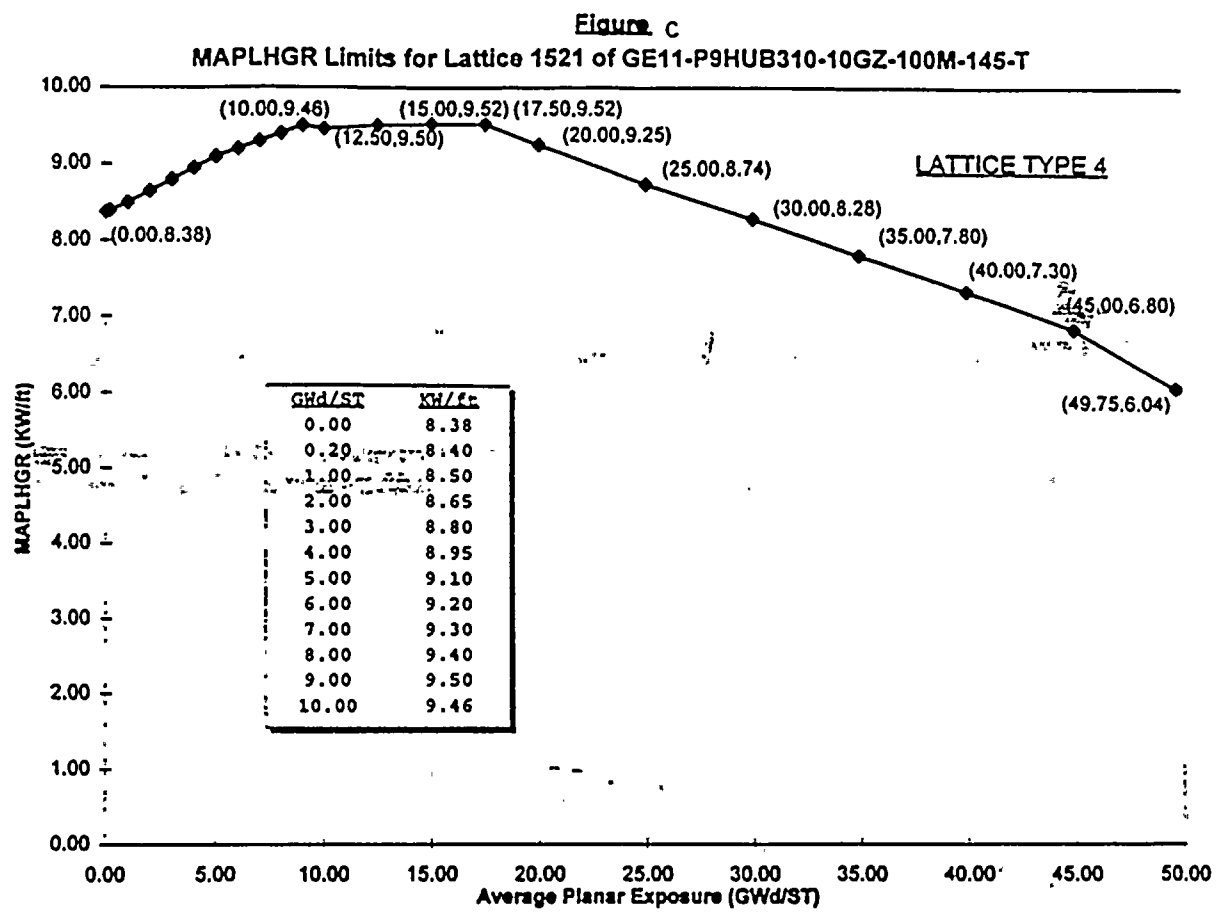
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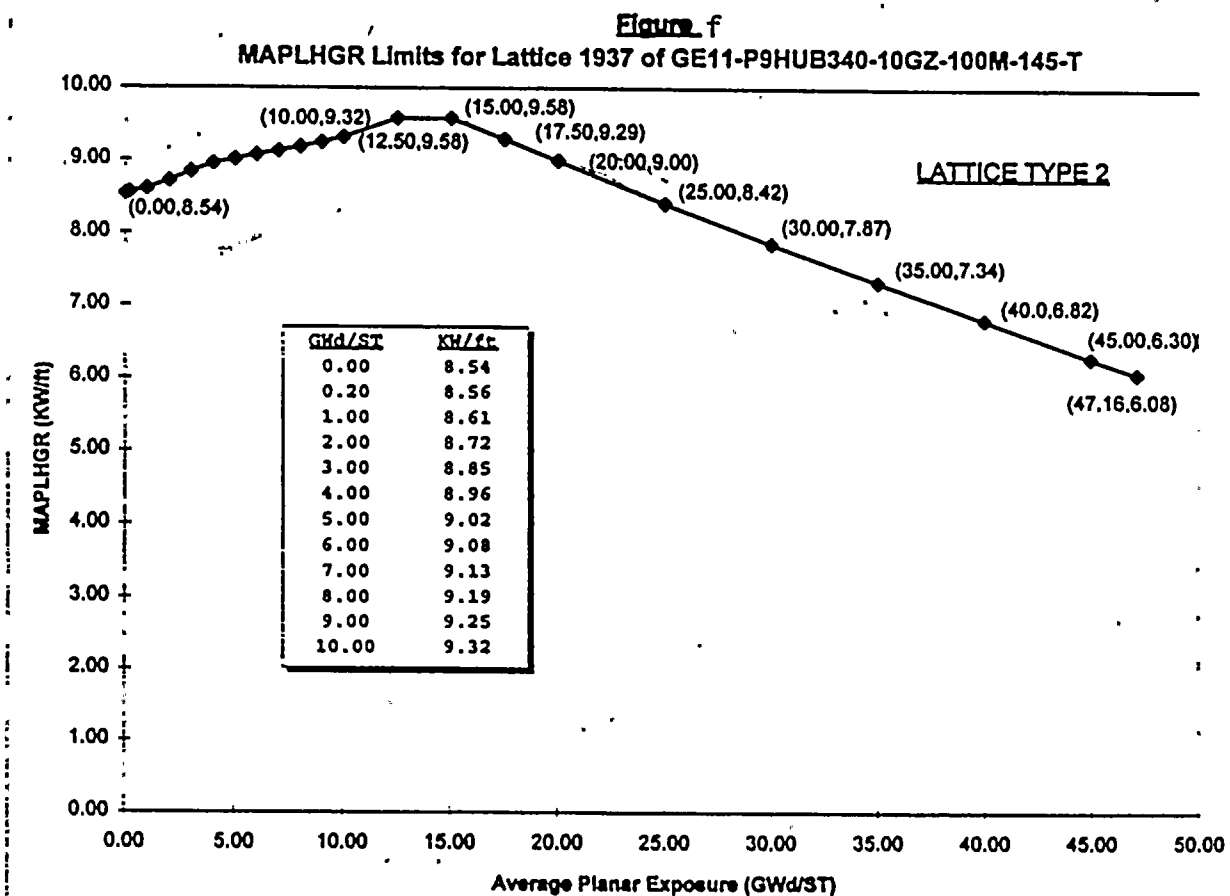
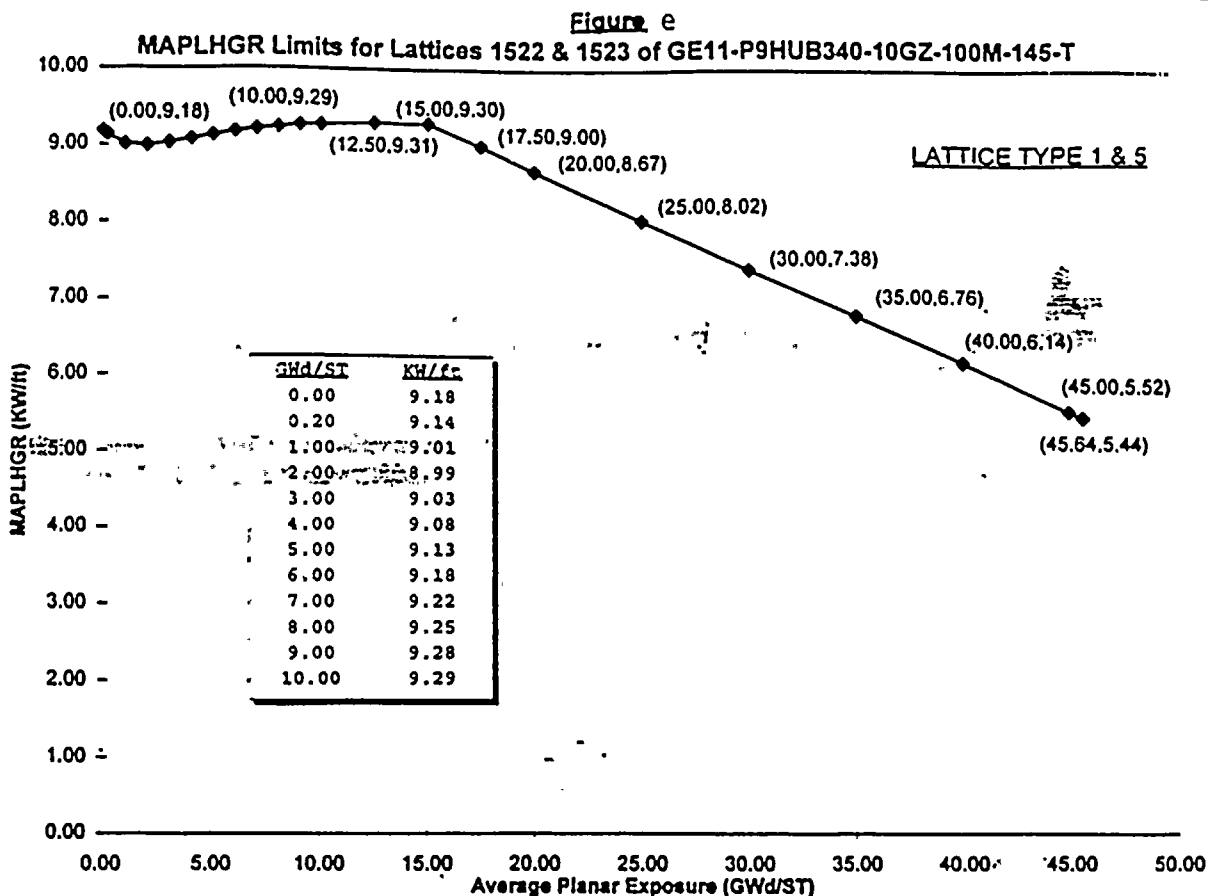


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Figure g  
MAPLHGR Limits for Lattice 1938 of GE11-P9HUB340-10GZ-100M-145-T

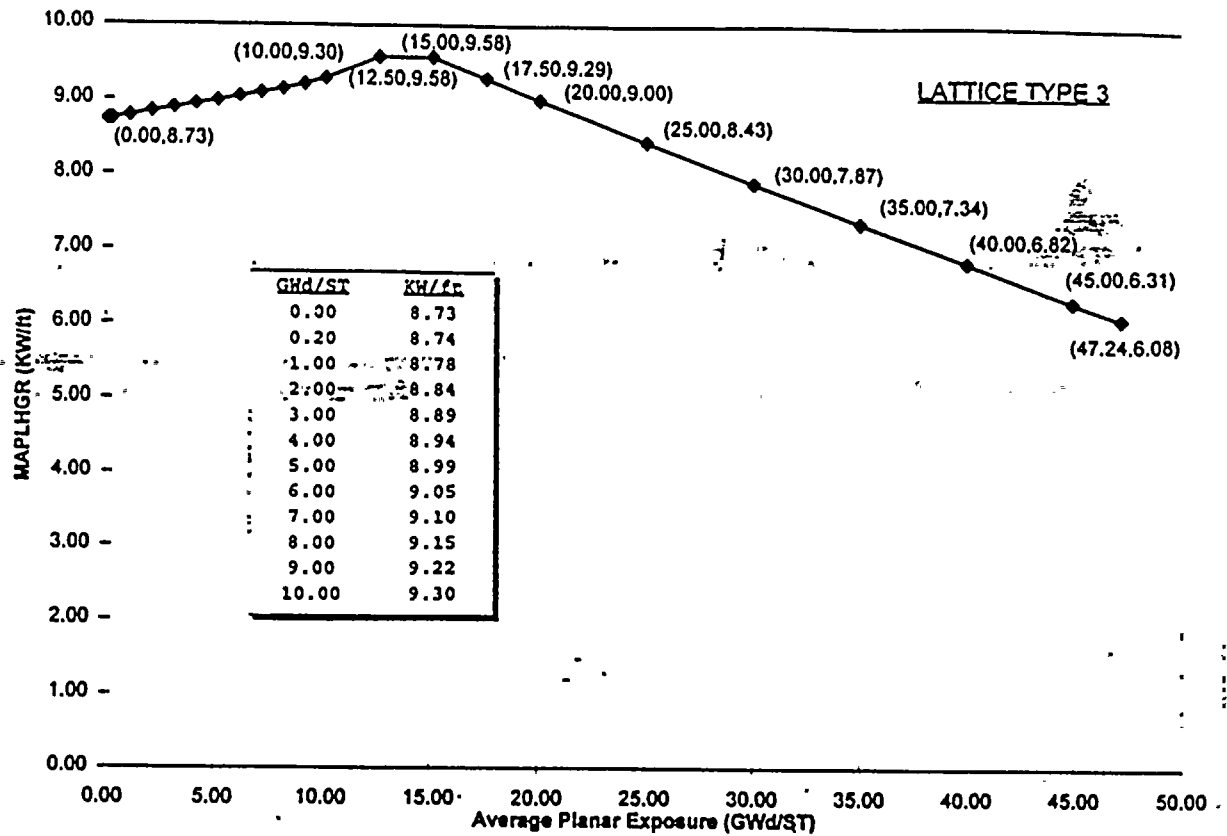
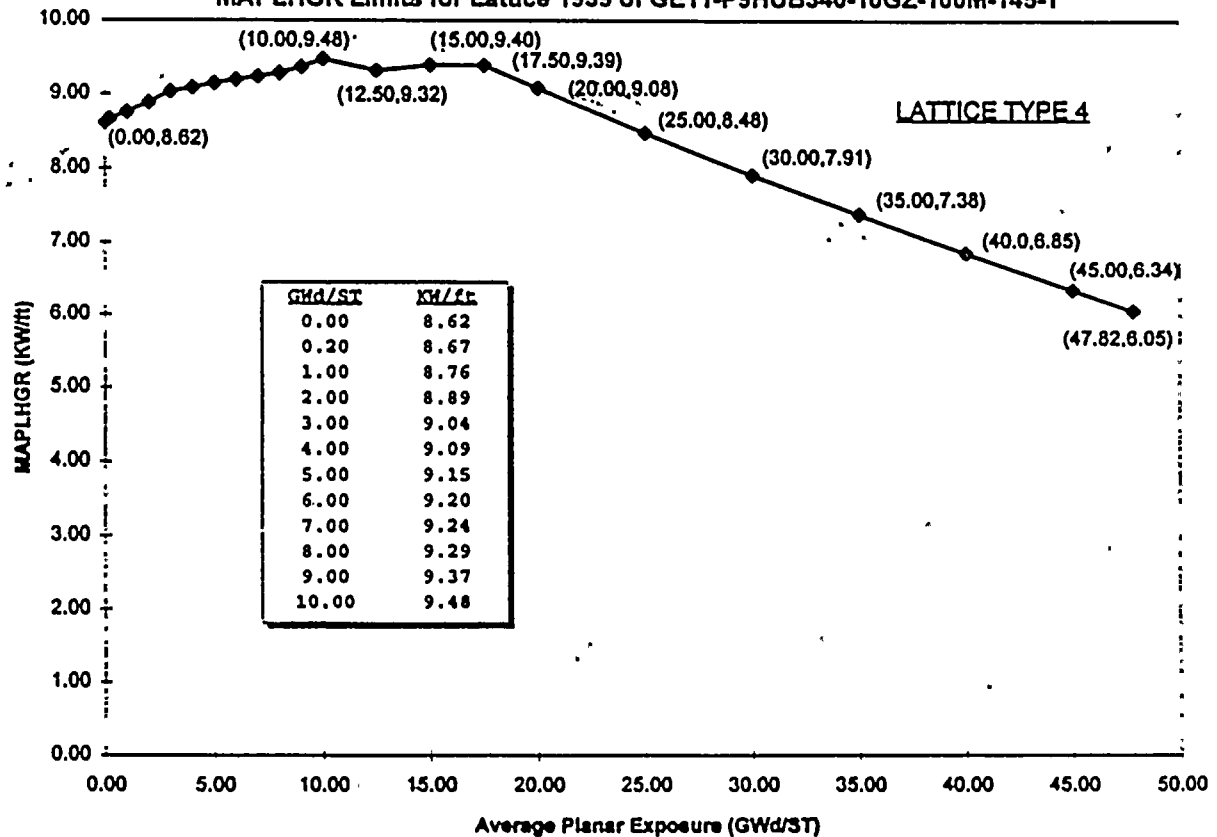


Figure h  
MAPLHGR Limits for Lattice 1939 of GE11-P9HUB340-10GZ-100M-145-T





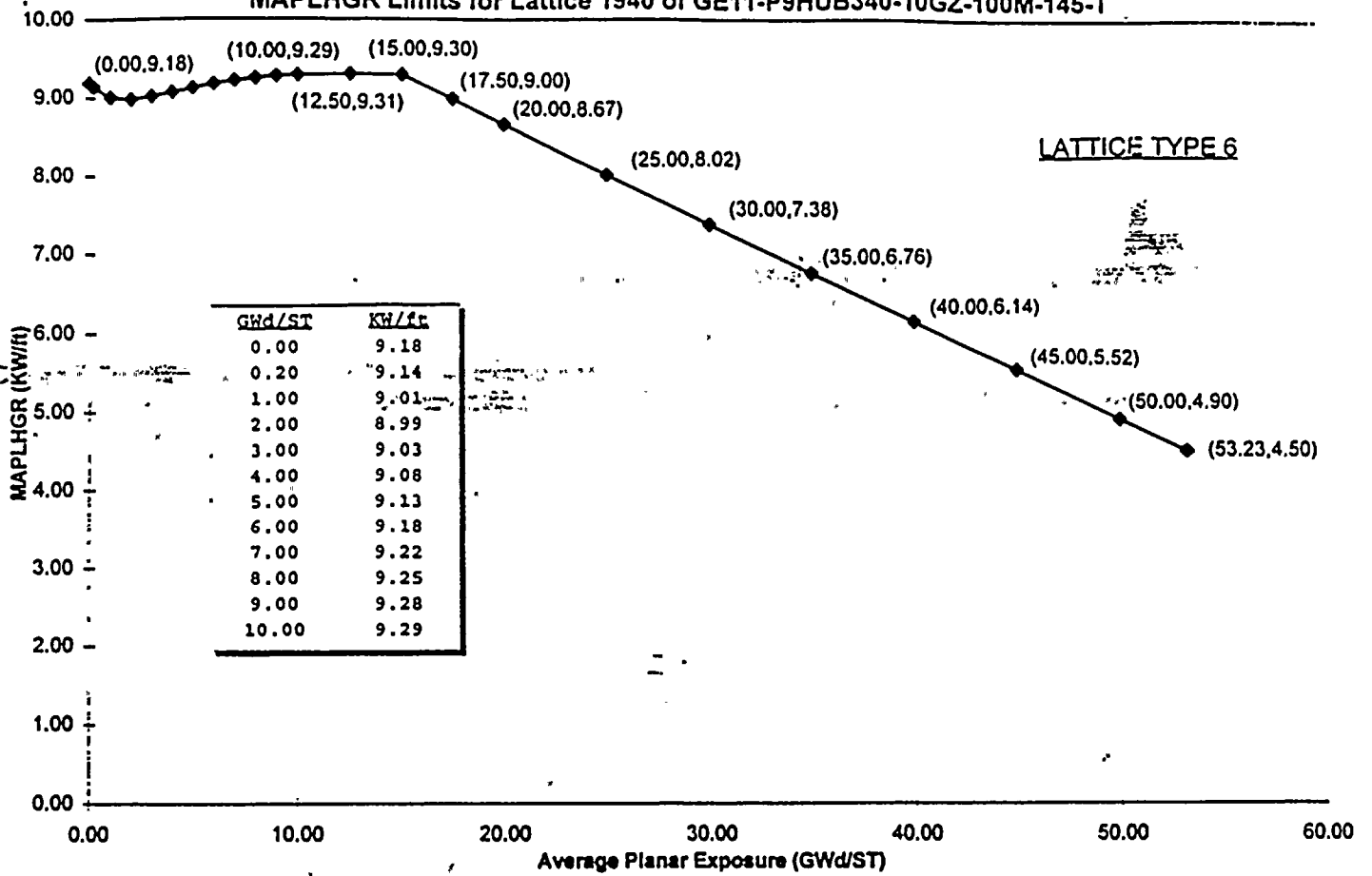
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Figure i

MAPLHGR Limits for Lattice 1940 of GE11-P9HUB340-10GZ-100M-145-T

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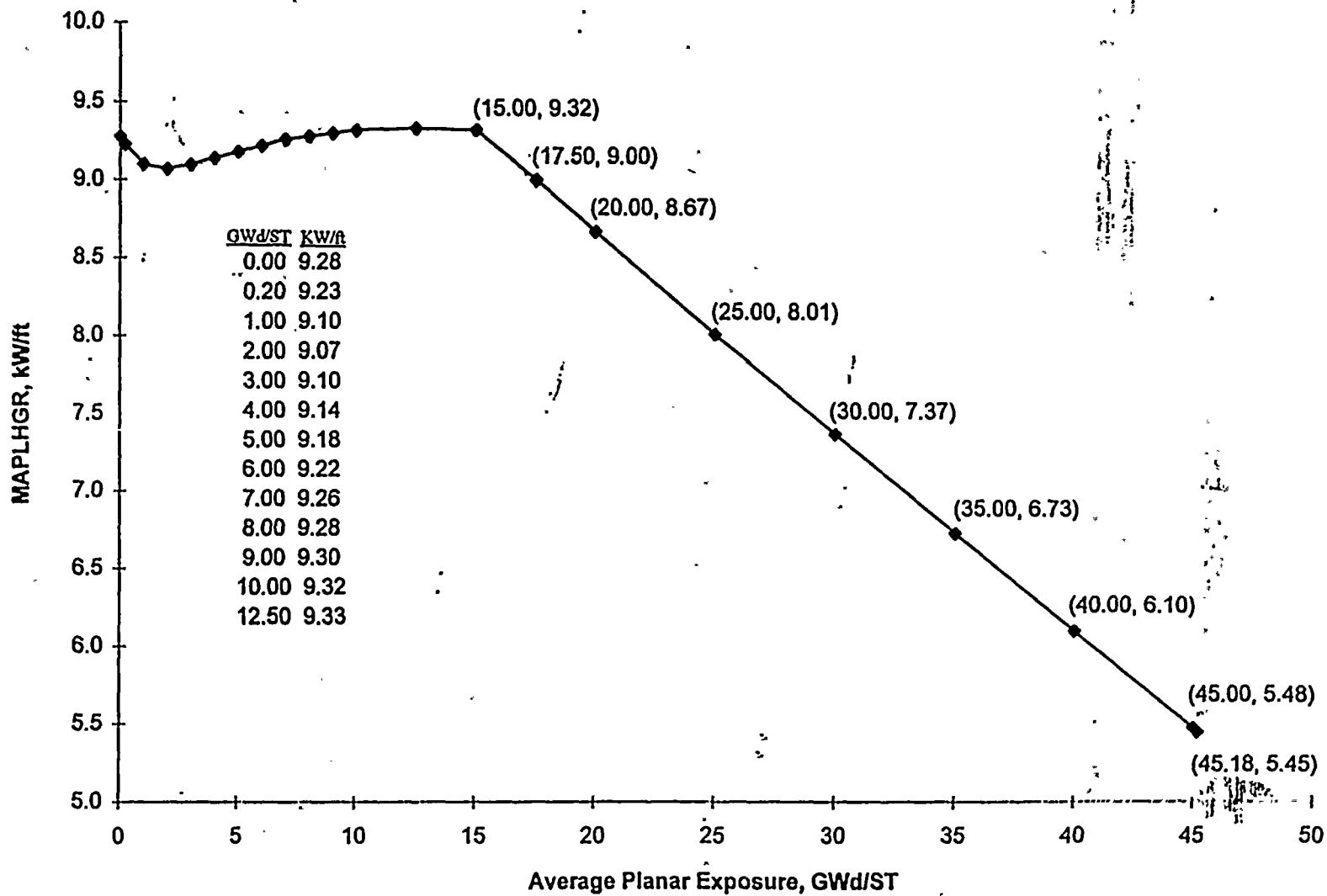




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Figure j

MAPLHGR Limits for Lattice 2361 of GE11-P9DUB340-12GZ1-100T-145-T



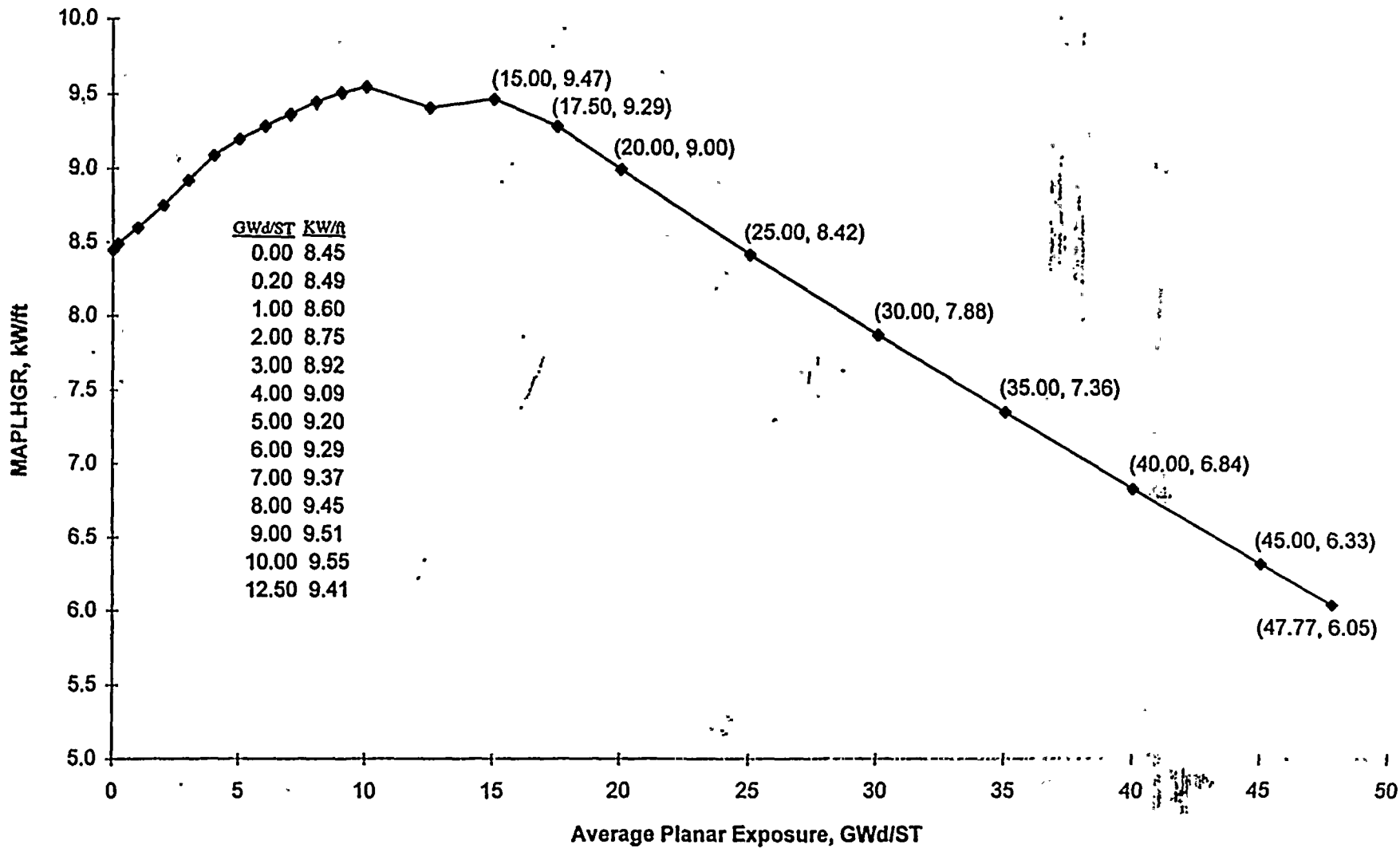


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Figure k

MAPLHGR Limits for Lattice 2364 of GE11-P9DUB340-12GZ1-100T-145-T





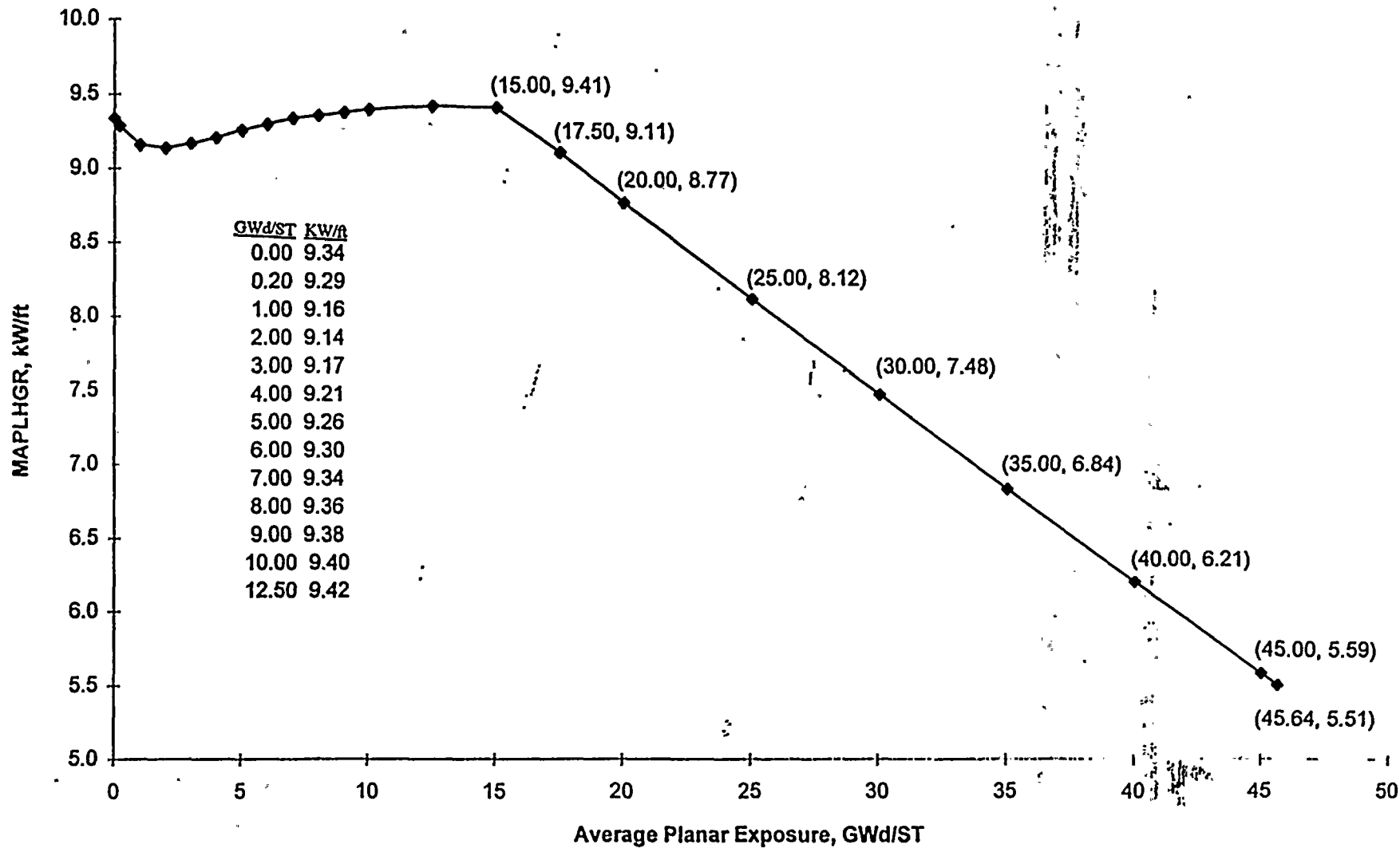
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Figure 1

MAPLHGR Limits for Lattice 2366 of GE11-P9DUB340-12GZ1-100T-145-T



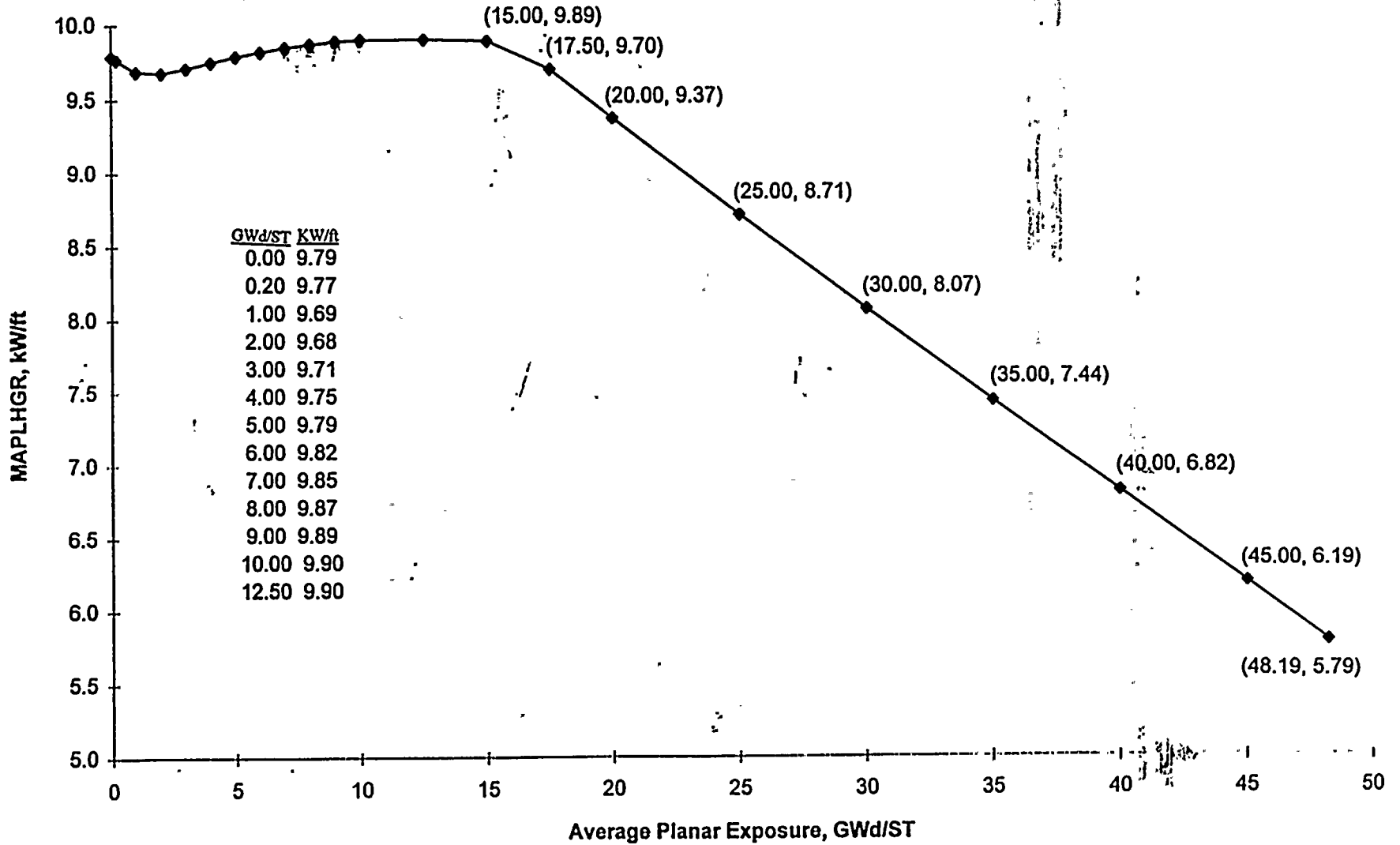


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Figure m

MAPLHGR Limits for Lattice 2367 of GE11-P9DUB340-12GZ1-100T-145-T

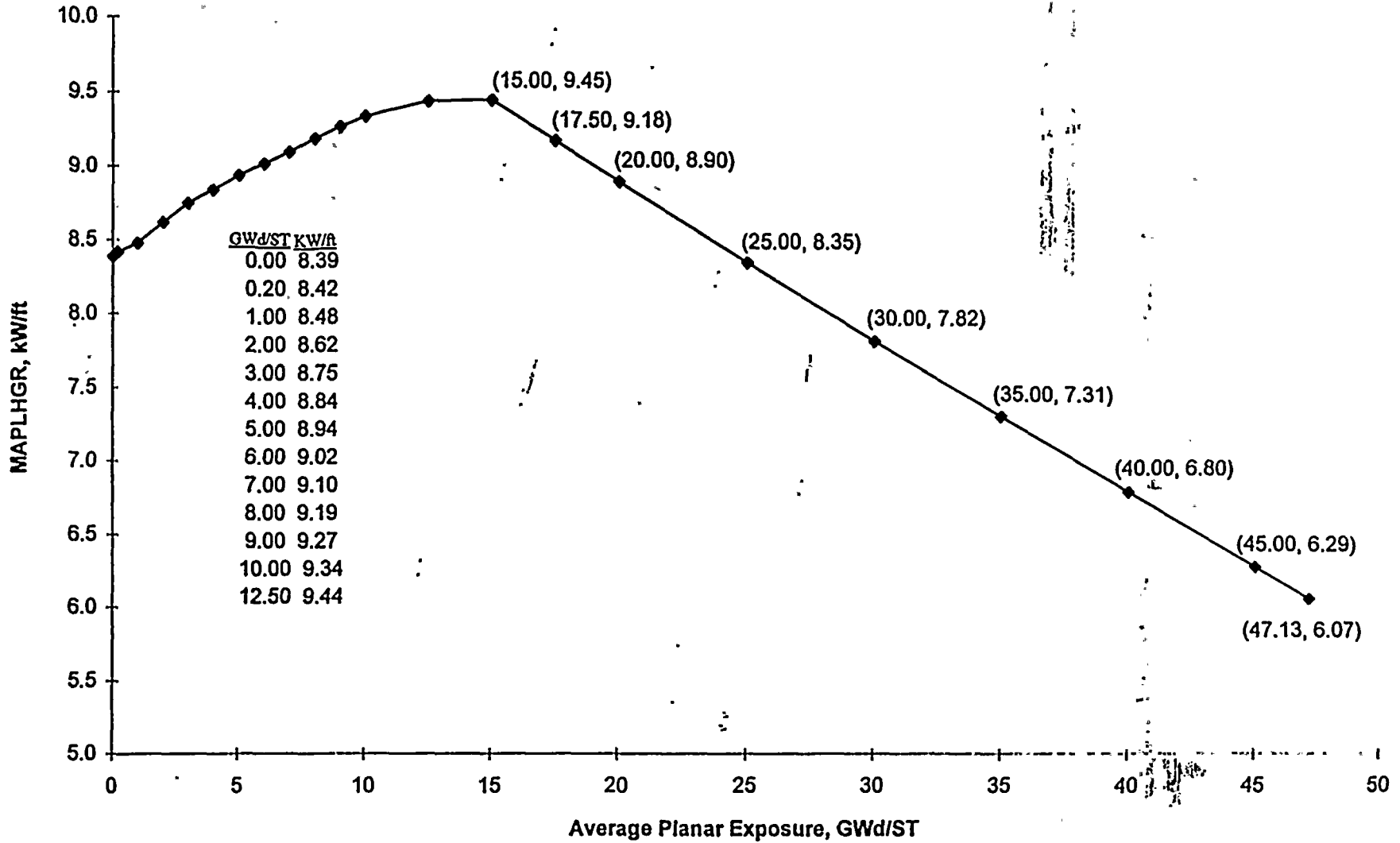




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Figure n

MAPLHGR Limits for Lattice 2419 of GE11-P9DUB340-12GZ1-100T-145-T





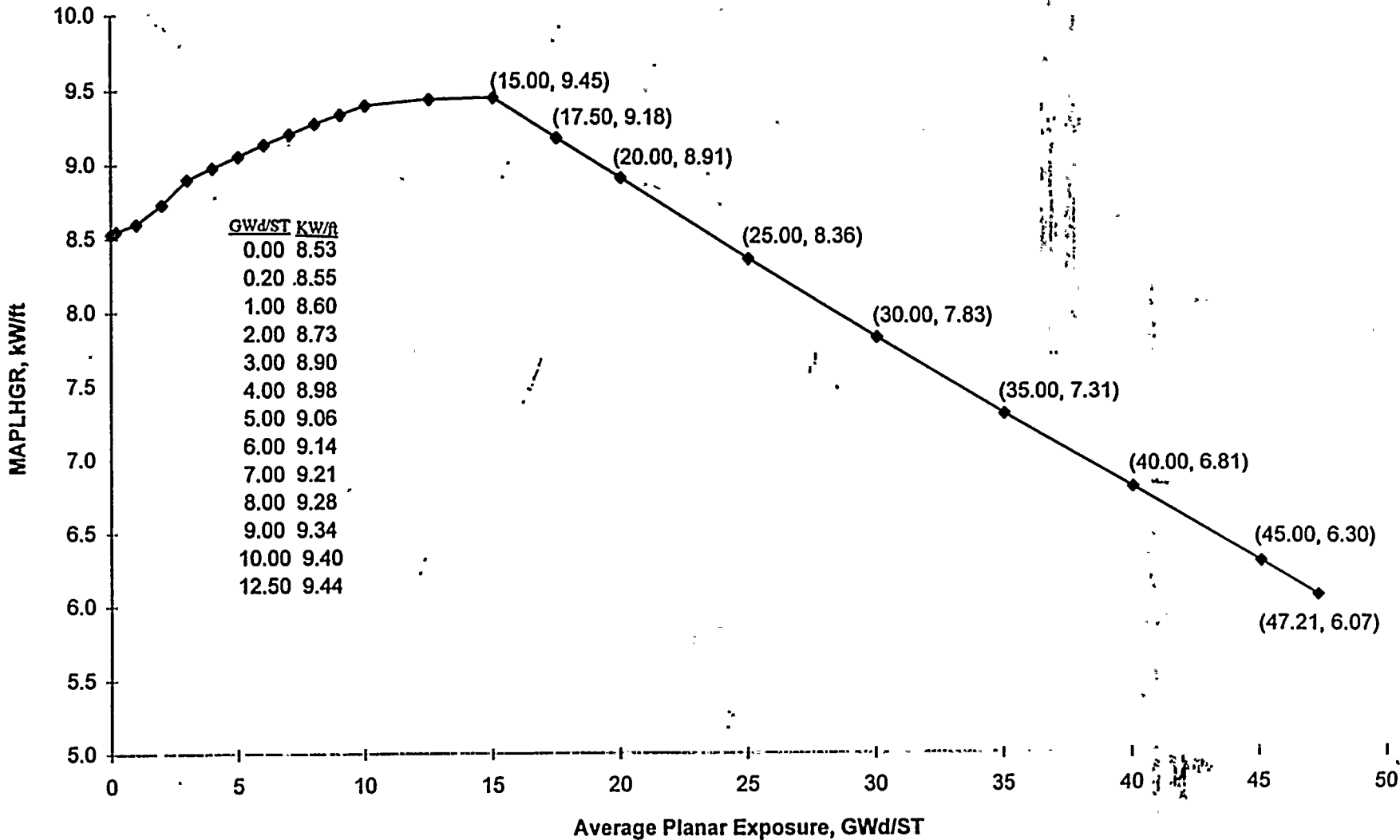
Handwritten marks and characters in the top right corner, including a small cluster of dots and a few faint, illegible characters.

A few small, faint handwritten marks or characters in the lower-left quadrant.

A few small, faint handwritten marks or characters in the lower-right quadrant.

Figure 0

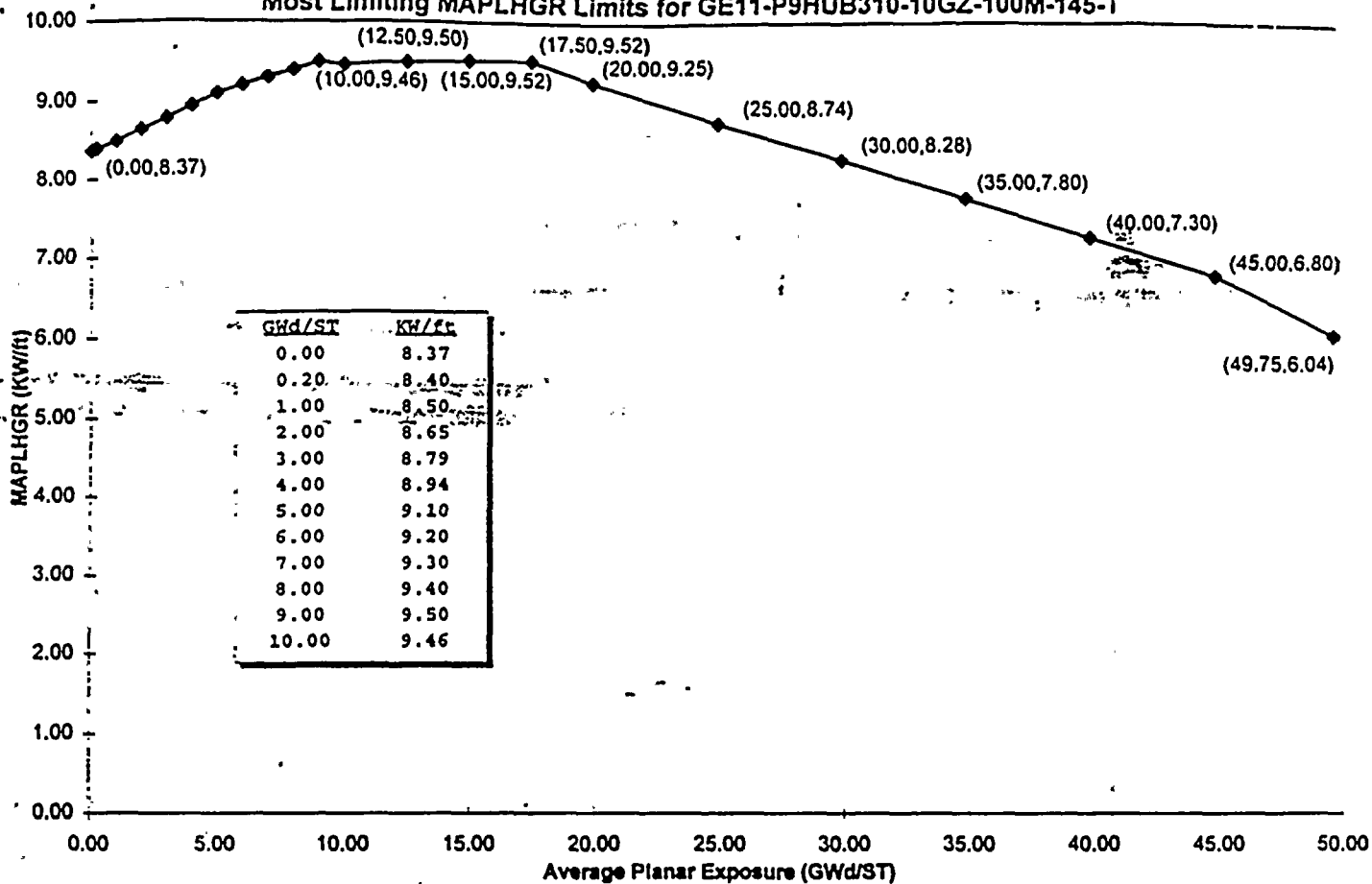
MAPLHGR Limits for Lattice 2420 of GE11-P9DUB340-12GZ1-100T-145-T





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Figure p  
Most Limiting MAPLHGR Limits for GE11-P9HUB310-10GZ-100M-145-T



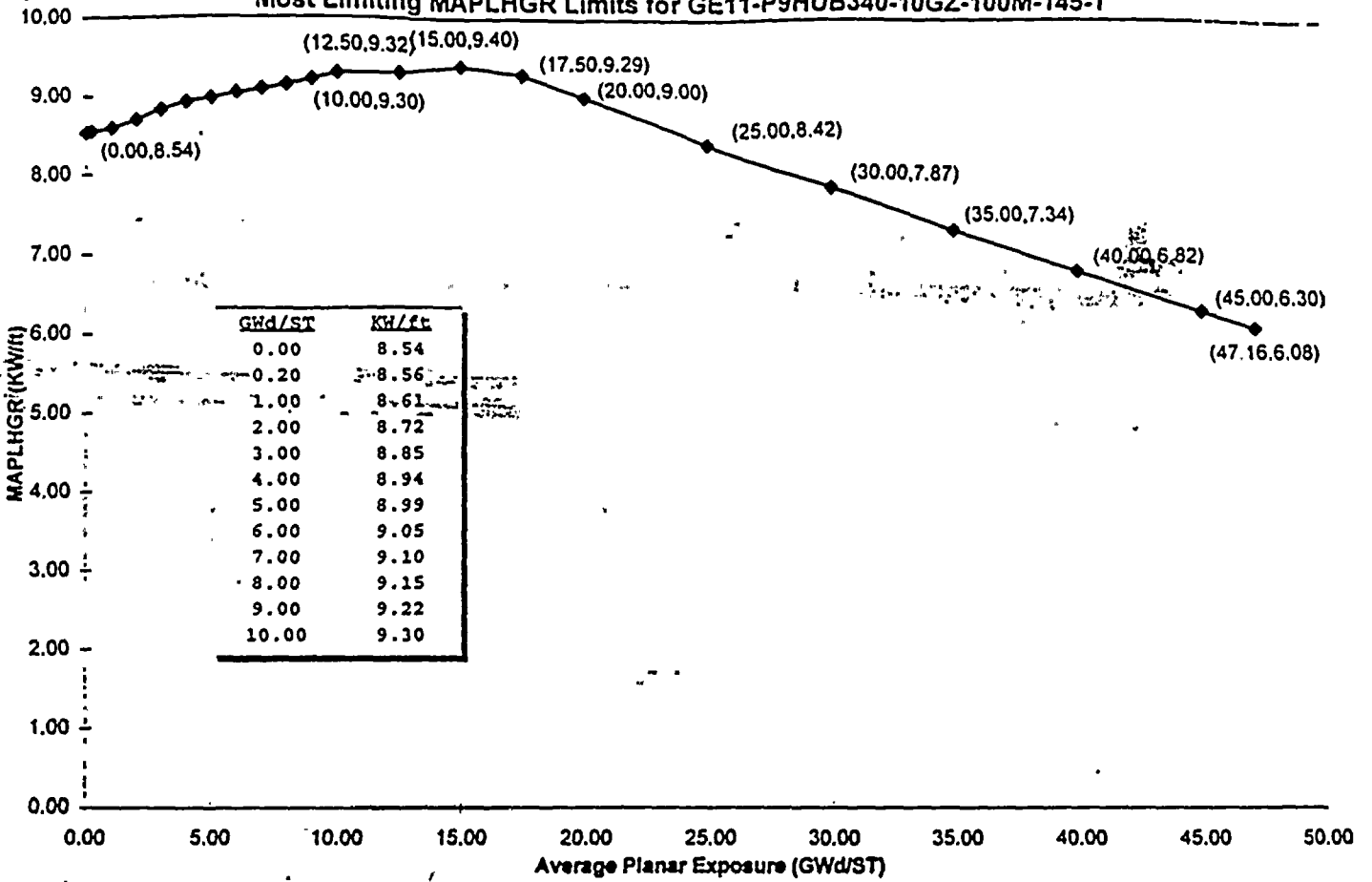


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Figure q

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

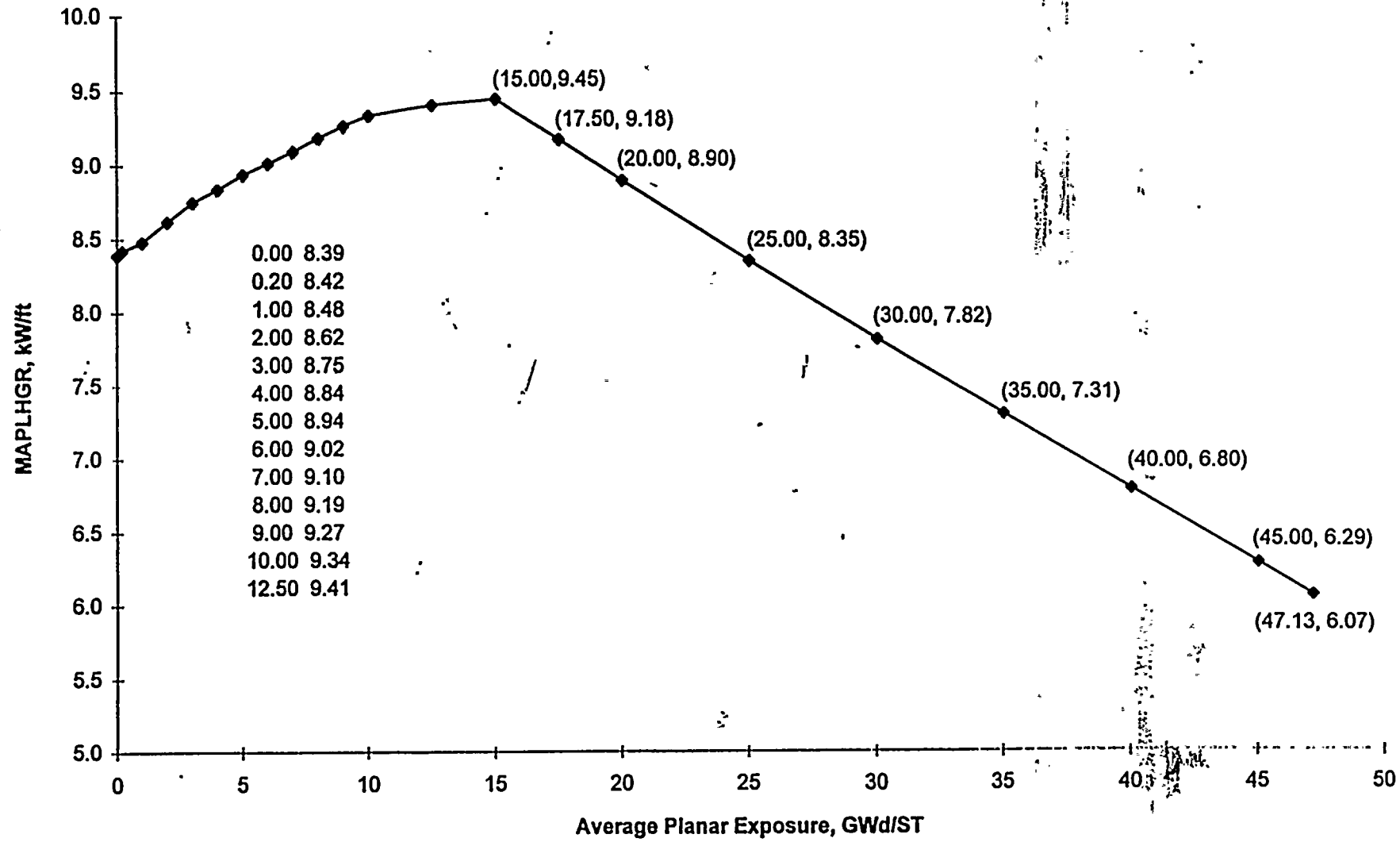


GWd/ST	KW/ft
0.00	8.54
0.20	8.56
1.00	8.61
2.00	8.72
3.00	8.85
4.00	8.94
5.00	8.99
6.00	9.05
7.00	9.10
8.00	9.15
9.00	9.22
10.00	9.30



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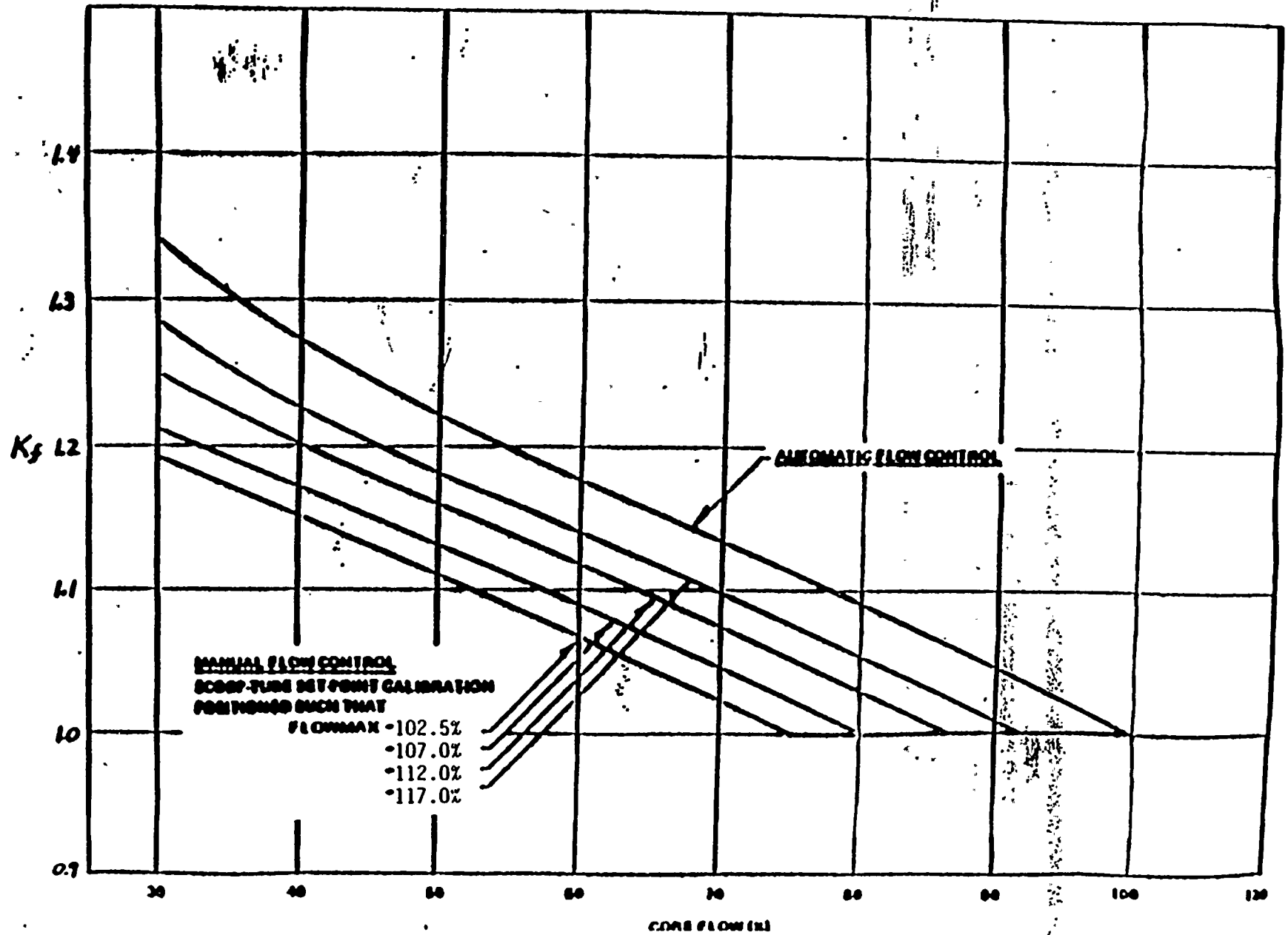
Figure r  
Most Limiting MAPLHGRs for GE11-P9DUB340-12GZ1-100T-145-T





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Figure 5  
 $K_f$  Factor





Handwritten marks and symbols in the top right corner, including a small 'v' and some illegible characters.

Figure t  
Limiting Power/Flow Line

