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Constellation Energy
Nine Mile Point Nuclear Station

April 28, 2004
NMP2L 2116

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

SUBJECT: Nine Mile Point Unit 2
Docket No. 50-410
License No. NPF-69

Cycle 10 Core Operating Limits Report, Rev. 0

Gentlemen:

Attached is a copy of the Cycle 10 Core Operating Limits Report (COLR), Rev. 0, for Nine Mile Point Unit 2 (NMP2). This report is being submitted pursuant to NMP2 Technical Specification 5.6.5.d.

Very truly yours,

William C. Holston
Manager Engineering Services

WCH/RF/bjh
Attachment

cc: Mr. H. J. Miller, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR (2 copies)

A001

NINE MILE POINT UNIT 2

CORE OPERATING LIMITS REPORT

Document No.: COLR2-10

Revision 0, Cycle 10

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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.

NINE MILE POINT UNIT 2

CORE OPERATING LIMITS REPORT

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NINE MILE POINT UNIT 2
CORE OPERATING LIMITS REPORT

1.0 AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)

1.1 Limits for Technical Specification 3.2.1

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

The limits of Tables 1a through 1n shall be reduced to a value of .78 times the two recirculation loop operation limit when in single recirculation loop operation.

NOTE: When hand calculations are required, the APLHGR as a function of average planar exposure shall not exceed the respective limits shown in Tables 1m and 1n during two recirculation loop operation.

Table 1a

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB413-12GZ-120T-146-T (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)			
	Lattice 2275	Lattice 2545	Lattice 2549	Lattice 2274
0.00	12.78	11.43	11.45	13.38
0.20	12.72	11.46	11.49	13.35
1.00	12.55	11.53	11.57	13.26
2.00	12.49	11.61	11.68	13.23
3.00	12.49	11.69	11.78	13.24
4.00	12.52	11.77	11.89	13.27
5.00	12.55	11.86	12.01	13.29
6.00	12.58	11.94	12.12	13.32
7.00	12.60	12.03	12.24	13.34
8.00	12.63	12.11	12.36	13.35
9.00	12.64	12.20	12.48	13.36
10.00	12.65	12.29	12.60	13.37
12.50	12.51	12.26	12.65	13.33
15.00	12.12	12.11	12.44	12.94
17.50	11.72	11.90	12.13	12.54
20.00	11.33	11.61	11.80	12.15
25.00	10.62	11.08	11.09	11.36
30.00	10.13	10.75	10.44	10.88
35.00	9.65	10.29	9.96	10.40
40.00	9.18	9.82	9.52	9.93
45.00	8.71	9.40	9.14	9.46
50.00	8.24	8.99	8.80	9.00
54.96	7.78	—	—	—
55.00		8.62	8.48	8.53
58.06		8.41	—	—
58.32			—	8.22
58.66			8.30	

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1b

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB414-13GZ-120T-146-T (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)				
	Lattice 2275	Lattice 2545	Lattice 2546	Lattice 2547	Lattice 2548
0.00	12.78	11.43	11.25	11.41	13.42
0.20	12.72	11.46	11.30	11.45	13.39
1.00	12.55	11.53	11.39	11.52	13.30
2.00	12.49	11.61	11.50	11.61	13.27
3.00	12.49	11.69	11.62	11.71	13.28
4.00	12.52	11.77	11.74	11.80	13.30
5.00	12.55	11.86	11.87	11.90	13.33
6.00	12.58	11.94	11.99	12.01	13.35
7.00	12.60	12.03	12.10	12.11	13.37
8.00	12.63	12.11	12.21	12.22	13.38
9.00	12.64	12.20	12.32	12.33	13.39
10.00	12.65	12.29	12.44	12.44	13.40
12.50	12.51	12.26	12.48	12.49	13.36
15.00	12.12	12.11	12.36	12.36	12.97
17.50	11.72	11.90	12.11	12.12	12.57
20.00	11.33	11.61	11.79	11.80	12.17
25.00	10.62	11.02	11.08	11.08	11.39
30.00	10.13	10.55	10.43	10.43	10.90
35.00	9.65	10.09	9.95	9.96	10.43
40.00	9.18	9.63	9.52	9.52	9.95
45.00	8.71	9.17	9.13	9.14	9.49
50.00	8.24	8.72	8.79	8.79	9.02
54.96	7.78	—	—	—	—
55.00		8.27	8.47	8.44	8.55
57.19		8.08	—	—	—
58.28			—	8.17	—
58.42			—		8.23
58.58			8.30		

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1c

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB407-14GZ-120T-146-T-2382 (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)				
	Lattice 2887	Lattice 2888	Lattice 2889	Lattice 2890	Lattice 2891
0.00	12.76	10.97	11.19	11.10	13.38
0.20	12.69	11.02	11.23	11.14	13.35
1.00	12.52	11.10	11.30	11.23	13.26
2.00	12.46	11.19	11.39	11.33	13.23
3.00	12.46	11.29	11.48	11.44	13.24
4.00	12.49	11.38	11.57	11.54	13.27
5.00	12.52	11.48	11.66	11.64	13.29
6.00	12.55	11.58	11.75	11.75	13.32
7.00	12.58	11.69	11.84	11.86	13.34
8.00	12.60	11.79	11.93	11.97	13.36
9.00	12.62	11.90	12.03	12.09	13.37
10.00	12.63	12.00	12.13	12.21	13.37
12.50	12.48	11.96	12.10	12.25	13.33
15.00	12.09	11.84	11.98	12.17	12.94
17.50	11.70	11.71	11.80	11.96	12.54
20.00	11.30	11.49	11.52	11.65	12.14
25.00	10.59	11.01	11.01	11.10	11.36
30.00	10.10	10.68	10.68	10.54	10.87
35.00	9.62	10.35	10.36	10.07	10.40
40.00	9.15	9.89	9.92	9.63	9.93
45.00	8.68	9.46	9.49	9.24	9.46
50.00	8.21	9.07	9.07	8.87	8.99
54.80	7.77	—	—	—	—
55.00		8.66	8.67	8.53	8.52
57.55		8.48	—	—	—
57.64			8.48	—	—
57.97				8.36	—
58.26					8.22

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1d

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB407-14GZ-120T-146-T-2383 (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)				
	Lattice 2887	Lattice 2888	Lattice 2892	Lattice 2893	Lattice 2891
0.00	12.76	10.97	11.03	10.93	13.38
0.20	12.69	11.02	11.08	10.98	13.35
1.00	12.52	11.10	11.17	11.08	13.26
2.00	12.46	11.19	11.28	11.21	13.23
3.00	12.46	11.29	11.40	11.35	13.24
4.00	12.49	11.38	11.51	11.49	13.27
5.00	12.52	11.48	11.63	11.62	13.29
6.00	12.55	11.58	11.74	11.74	13.32
7.00	12.58	11.69	11.84	11.86	13.34
8.00	12.60	11.79	11.94	11.98	13.36
9.00	12.62	11.90	12.03	12.10	13.37
10.00	12.63	12.00	12.13	12.22	13.37
12.50	12.48	11.96	12.10	12.26	13.33
15.00	12.09	11.84	11.98	12.17	12.94
17.50	11.70	11.71	11.79	11.95	12.54
20.00	11.30	11.49	11.51	11.65	12.14
25.00	10.59	11.01	11.01	11.10	11.36
30.00	10.10	10.68	10.68	10.54	10.87
35.00	9.62	10.35	10.36	10.07	10.40
40.00	9.15	9.89	9.92	9.63	9.93
45.00	8.68	9.46	9.49	9.24	9.46
50.00	8.21	9.07	9.07	8.87	8.99
54.80	7.77	---	---	---	---
55.00		8.66	8.67	8.52	8.52
57.55		8.48	---	---	---
57.62			8.48	---	---
57.96				8.36	---
58.26					8.22

NOTE: A "---" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1e

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB404-12GZ-120T-146-T-2501 (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)				
	Lattice 5230	Lattice 5231	Lattice 5232	Lattice 5233	Lattice 5234
0.00	12.76	11.12	11.14	10.93	13.36
0.20	12.69	11.17	11.19	11.00	13.33
1.00	12.52	11.26	11.29	11.13	13.24
2.00	12.46	11.39	11.42	11.32	13.21
3.00	12.46	11.54	11.57	11.53	13.22
4.00	12.49	11.66	11.69	11.74	13.25
5.00	12.52	11.73	11.77	11.87	13.27
6.00	12.55	11.80	11.85	11.98	13.30
7.00	12.58	11.88	11.93	12.09	13.32
8.00	12.60	11.96	12.02	12.19	13.34
9.00	12.62	12.04	12.10	12.29	13.35
10.00	12.63	12.12	12.18	12.40	13.36
12.50	12.48	12.05	12.14	12.44	13.31
15.00	12.09	11.89	11.98	12.24	12.92
17.50	11.70	11.73	11.77	11.94	12.53
20.00	11.30	11.47	11.48	11.61	12.13
25.00	10.59	10.97	10.97	11.05	11.35
30.00	10.10	10.64	10.64	10.70	10.86
35.00	9.62	10.32	10.32	10.17	10.39
40.00	9.15	9.95	9.98	9.70	9.92
45.00	8.68	9.48	9.50	9.27	9.45
50.00	8.21	9.05	9.07	8.88	8.98
54.80	7.77	—	—	—	—
55.00		8.66	8.67	8.52	8.51
57.53		8.52	—	—	—
57.56			8.52	—	—
57.87				8.36	—
58.22					8.21

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1f

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB407-14GZ-120T-146-T-2502 (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)				
	Lattice 5230	Lattice 5235	Lattice 5236	Lattice 5237	Lattice 5238
0.00	12.76	10.98	11.19	11.10	13.38
0.20	12.69	11.03	11.23	11.15	13.35
1.00	12.52	11.10	11.30	11.23	13.26
2.00	12.46	11.19	11.39	11.33	13.23
3.00	12.46	11.29	11.48	11.44	13.24
4.00	12.49	11.38	11.57	11.54	13.27
5.00	12.52	11.48	11.66	11.64	13.29
6.00	12.55	11.58	11.75	11.75	13.32
7.00	12.58	11.68	11.84	11.86	13.34
8.00	12.60	11.79	11.93	11.97	13.36
9.00	12.62	11.89	12.03	12.09	13.37
10.00	12.63	12.00	12.12	12.21	13.37
12.50	12.48	11.96	12.10	12.25	13.33
15.00	12.09	11.83	11.97	12.16	12.94
17.50	11.70	11.71	11.79	11.95	12.54
20.00	11.30	11.49	11.51	11.65	12.14
25.00	10.59	11.01	11.00	11.10	11.36
30.00	10.10	10.68	10.68	10.54	10.87
35.00	9.62	10.36	10.35	10.07	10.40
40.00	9.15	9.89	9.93	9.63	9.93
45.00	8.68	9.46	9.49	9.24	9.46
50.00	8.21	9.07	9.07	8.87	8.99
54.80	7.77	—	—	—	—
55.00		8.66	8.67	8.53	8.52
57.53		8.48	—	—	—
57.63			8.48	—	—
57.96				8.36	—
58.26					8.22

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1g

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB407-14GZ-120T-146-T-2503 (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)				
	Lattice 5230	Lattice 5235	Lattice 5239	Lattice 5240	Lattice 5238
0.00	12.76	10.98	11.04	10.93	13.38
0.20	12.69	11.03	11.08	10.99	13.35
1.00	12.52	11.10	11.17	11.08	13.26
2.00	12.46	11.19	11.28	11.21	13.23
3.00	12.46	11.29	11.40	11.35	13.24
4.00	12.49	11.38	11.51	11.48	13.27
5.00	12.52	11.48	11.63	11.62	13.29
6.00	12.55	11.58	11.74	11.74	13.32
7.00	12.58	11.68	11.84	11.86	13.34
8.00	12.60	11.79	11.93	11.98	13.36
9.00	12.62	11.89	12.03	12.09	13.37
10.00	12.63	12.00	12.13	12.22	13.37
12.50	12.48	11.96	12.10	12.25	13.33
15.00	12.09	11.83	11.97	12.16	12.94
17.50	11.70	11.71	11.79	11.95	12.54
20.00	11.30	11.49	11.51	11.65	12.14
25.00	10.59	11.01	11.00	11.10	11.36
30.00	10.10	10.68	10.68	10.54	10.87
35.00	9.62	10.36	10.35	10.07	10.40
40.00	9.15	9.89	9.93	9.64	9.93
45.00	8.68	9.46	9.49	9.24	9.46
50.00	8.21	9.07	9.07	8.87	8.99
54.80	7.77	---	---	---	---
55.00		8.66	8.67	8.53	8.52
57.53		8.48	---	---	---
57.61			8.48	---	---
57.95				8.36	---
58.26					8.22

NOTE: A "---" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1h

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE14-P10CNAB406-15GZ-120T-150-T-2674 (GE14C)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)						
	Lattice 6101	Lattice 6102	Lattice 6103	Lattice 6104	Lattice 6105	Lattice 6106	Lattice 6107
0.00	11.42	9.75	10.05	10.07	9.97	11.82	12.11
0.20	11.33	9.82	10.11	10.12	10.03	11.77	12.08
1.00	11.10	9.92	10.19	10.22	10.12	11.61	11.97
2.00	11.01	10.04	10.29	10.35	10.26	11.56	11.95
3.00	11.00	10.16	10.39	10.46	10.41	11.57	11.96
4.00	11.02	10.28	10.50	10.58	10.56	11.60	11.99
5.00	11.04	10.40	10.60	10.70	10.73	11.63	12.02
6.00	11.07	10.53	10.70	10.83	10.86	11.67	12.05
7.00	11.09	10.66	10.81	10.96	10.99	11.69	12.08
8.00	11.11	10.79	10.91	11.09	11.13	11.72	12.10
9.00	11.13	10.93	11.02	11.22	11.25	11.73	12.11
10.00	11.14	11.07	11.13	11.36	11.35	11.75	12.12
11.00	11.15	11.20	11.25	11.49	11.45	11.76	12.12
12.00	11.14	11.25	11.30	11.57	11.53	11.76	12.12
13.00	11.02	11.26	11.27	11.54	11.51	11.70	12.11
14.00	10.89	11.23	11.23	11.50	11.48	11.58	11.98
14.51	10.83	11.20	11.20	11.47	11.46	11.51	11.92
15.00	10.76	11.18	11.18	11.44	11.43	11.45	11.85
17.00	10.50	11.06	11.07	11.30	11.30	11.19	11.58
19.13	10.22	10.89	10.91	11.11	11.12	10.90	11.30
20.00	10.11	10.82	10.84	11.04	11.04	10.79	11.18
25.00	9.46	10.36	10.38	10.55	10.56	10.13	10.52
30.00	8.81	9.88	9.90	10.06	10.07	9.48	9.87
35.00	8.17	9.40	9.42	9.58	9.60	8.84	9.23
40.00	7.53	8.91	8.93	9.09	9.11	8.20	8.60
45.00	6.90	8.40	8.42	8.58	8.60	7.57	7.97
50.00	5.13	7.86	7.87	8.04	8.06	6.84	7.34
51.90	4.15	--	--	--	--	--	--
54.81		--	--	--	--	4.36	--
55.00		5.98	5.94	6.41	6.44		5.27
56.52		--	--	--	--		4.49
57.19		--	4.85	--	--		
57.28		4.84		--	--		
57.61				5.11	5.13		
58.06				4.88	--		
58.07					4.90		

NOTE: A "---" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1i

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE14-P10CNAB404-15GZ-120T-150-T-2675 (GE14C)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)						
	Lattice 6101	Lattice 6108	Lattice 6109	Lattice 6110	Lattice 6111	Lattice 6106	Lattice 6112
0.00	11.42	9.72	9.91	9.95	9.84	11.82	12.37
0.20	11.33	9.78	9.97	10.01	9.91	11.77	12.34
1.00	11.10	9.87	10.05	10.11	10.01	11.61	12.24
2.00	11.01	9.98	10.18	10.26	10.17	11.56	12.20
3.00	11.00	10.12	10.31	10.42	10.33	11.57	12.21
4.00	11.02	10.29	10.45	10.59	10.51	11.60	12.24
5.00	11.04	10.44	10.60	10.77	10.70	11.63	12.26
6.00	11.07	10.61	10.75	10.95	10.89	11.67	12.28
7.00	11.09	10.76	10.91	11.14	11.10	11.69	12.30
8.00	11.11	10.89	11.04	11.28	11.31	11.72	12.32
9.00	11.13	11.02	11.16	11.42	11.52	11.73	12.33
10.00	11.14	11.16	11.27	11.56	11.67	11.75	12.33
11.00	11.15	11.29	11.39	11.71	11.76	11.76	12.34
12.00	11.14	11.35	11.46	11.85	11.85	11.76	12.34
13.00	11.02	11.35	11.46	11.87	11.84	11.70	12.34
14.00	10.89	11.34	11.45	11.81	11.78	11.58	12.23
14.51	10.83	11.33	11.44	11.78	11.75	11.51	12.17
15.00	10.76	11.33	11.42	11.74	11.72	11.45	12.10
17.00	10.50	11.23	11.31	11.57	11.55	11.19	11.84
19.13	10.22	11.08	11.12	11.35	11.34	10.90	11.56
20.00	10.11	11.01	11.04	11.26	11.25	10.79	11.44
25.00	9.46	10.52	10.53	10.73	10.72	10.13	10.78
30.00	8.81	10.02	10.03	10.21	10.20	9.48	10.14
35.00	8.17	9.51	9.53	9.69	9.70	8.84	9.50
40.00	7.53	8.99	9.02	9.18	9.19	8.20	8.87
45.00	6.90	8.47	8.49	8.65	8.67	7.57	8.24
50.00	5.13	7.92	7.93	8.10	8.12	6.84	7.61
51.90	4.15	--	--	--	--	--	--
54.81		--	--	--	--	4.36	--
55.00		6.14	6.12	6.68	6.75		5.95
57.52		--	4.85	--	--		--
57.60		4.84		--	--		--
57.61				5.37	5.44		4.61
57.68				--	--		4.57
58.58				4.89	--		
58.71					4.89		

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1j

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE14-P10CNAB403-17GZ-120T-150-T-2676 (GE14C)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)						
	Lattice 6101	Lattice 6113	Lattice 6114	Lattice 6115	Lattice 6116	Lattice 6106	Lattice 6117
0.00	11.42	9.60	9.76	9.67	9.52	11.82	12.29
0.20	11.33	9.67	9.81	9.76	9.62	11.77	12.26
1.00	11.10	9.76	9.90	9.88	9.75	11.61	12.16
2.00	11.01	9.89	10.02	10.05	9.92	11.56	12.14
3.00	11.00	10.02	10.13	10.19	10.09	11.57	12.15
4.00	11.02	10.16	10.26	10.34	10.28	11.60	12.18
5.00	11.04	10.30	10.38	10.48	10.47	11.63	12.20
6.00	11.07	10.44	10.51	10.64	10.65	11.67	12.23
7.00	11.09	10.58	10.64	10.80	10.82	11.69	12.25
8.00	11.11	10.73	10.78	10.96	10.99	11.72	12.27
9.00	11.13	10.88	10.91	11.13	11.16	11.73	12.28
10.00	11.14	11.03	11.05	11.29	11.34	11.75	12.28
11.00	11.15	11.18	11.19	11.46	11.50	11.76	12.29
12.00	11.14	11.22	11.23	11.56	11.58	11.76	12.29
13.00	11.02	11.24	11.25	11.57	11.55	11.70	12.28
14.00	10.89	11.25	11.25	11.51	11.50	11.58	12.17
14.51	10.83	11.22	11.22	11.48	11.47	11.51	12.11
15.00	10.76	11.19	11.20	11.44	11.44	11.45	12.04
17.00	10.50	11.06	11.07	11.27	11.28	11.19	11.78
19.13	10.22	10.88	10.88	11.07	11.07	10.90	11.49
20.00	10.11	10.81	10.81	10.99	10.99	10.79	11.38
25.00	9.46	10.33	10.33	10.49	10.50	10.13	10.72
30.00	8.81	9.85	9.85	10.00	10.01	9.48	10.07
35.00	8.17	9.37	9.37	9.52	9.54	8.84	9.43
40.00	7.53	8.88	8.88	9.03	9.05	8.20	8.80
45.00	6.90	8.37	8.37	8.53	8.55	7.57	8.17
50.00	5.13	7.83	7.84	7.99	8.02	6.84	7.54
51.90	4.15	--	--	--	--	--	--
54.81		--	--	--	--	4.36	--
55.00		5.88	5.91	6.38	6.40		5.78
57.11		4.83	--	--	--		--
57.15			4.83	--	--		--
57.39				--	--		4.55
57.61				5.07	5.10		
58.04				4.86	--		
58.05					4.88		

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1k

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB349-10GZ1-120M-146-T (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)				
	Lattice 1941	Lattice 1942	Lattice 1943	Lattice 1944	Lattice 1723 and 1945
0.00	11.41	11.62	11.11	11.35	12.83
0.20	11.46	11.67	11.17	11.40	12.77
1.00	11.58	11.78	11.31	11.53	12.61
2.00	11.75	11.93	11.52	11.72	12.56
3.00	11.93	12.10	11.74	11.93	12.57
4.00	12.09	12.24	11.98	12.15	12.60
5.00	12.25	12.39	12.23	12.38	12.63
6.00	12.42	12.53	12.49	12.63	12.67
7.00	12.59	12.61	12.73	12.84	12.70
8.00	12.73	12.69	12.78	12.90	12.72
9.00	12.83	12.78	12.82	12.92	12.74
10.00	12.89	12.87	12.85	12.93	12.75
12.50	12.84	12.86	12.77	12.80	12.62
15.00	12.48	12.49	12.39	12.40	12.24
17.50	12.12	12.13	12.00	12.00	11.84
20.00	11.76	11.76	11.61	11.61	11.45
25.00	11.03	11.03	10.84	10.84	10.66
30.00	10.31	10.31	10.10	10.10	9.88
35.00	9.59	9.60	9.40	9.41	9.11
40.00	8.89	8.90	8.75	8.75	8.34
45.00	8.20	8.21	8.12	8.13	7.58
50.00	7.51	7.51	7.51	7.52	6.82
55.00	6.81	6.81	6.89	6.90	6.06
55.45	—	—	—	—	5.99
57.39	—	—	6.58	—	
57.45	—	—		6.59	
57.66	—	6.43			
57.71	6.43				

NOTE: A "-" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 11

MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE
Bundle Type: GE11-P9CUB375-12GZ-120T-146-T (GE11)

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)					
	Lattice 2275	Lattice 2270	Lattice 2271	Lattice 2272	Lattice 2273	Lattice 2274
0.00	12.78	11.34	11.57	11.12	11.37	13.38
0.20	12.72	11.39	11.61	11.18	11.42	13.35
1.00	12.55	11.49	11.68	11.29	11.52	13.26
2.00	12.49	11.63	11.76	11.46	11.67	13.23
3.00	12.49	11.78	11.85	11.64	11.84	13.24
4.00	12.52	11.94	11.94	11.83	11.97	13.27
5.00	12.55	12.02	12.03	12.02	12.07	13.29
6.00	12.58	12.11	12.12	12.13	12.17	13.32
7.00	12.60	12.20	12.21	12.24	12.27	13.34
8.00	12.63	12.30	12.31	12.36	12.38	13.35
9.00	12.64	12.39	12.41	12.48	12.49	13.36
10.00	12.65	12.49	12.52	12.61	12.61	13.37
12.50	12.51	12.52	12.55	12.71	12.70	13.33
15.00	12.12	12.37	12.38	12.55	12.55	12.94
17.50	11.72	12.09	12.10	12.26	12.26	12.54
20.00	11.33	11.73	11.74	11.93	11.93	12.15
25.00	10.62	11.05	11.07	11.23	11.25	11.36
30.00	10.13	10.62	10.63	10.75	10.76	10.88
35.00	9.65	10.19	10.20	10.29	10.30	10.40
40.00	9.18	9.77	9.78	9.86	9.87	9.93
45.00	8.71	9.36	9.37	9.47	9.47	9.46
50.00	8.24	8.96	8.97	9.09	9.10	9.00
54.96	7.78	—	—	—	—	—
55.00		8.56	8.57	8.73	8.74	8.53
57.43		—	8.38	—	—	—
57.56		8.36		—	—	—
58.27				—	8.50	—
58.32				—		8.22
58.41				8.48		

NOTE: A "-" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1m

MOST LIMITING MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)							
	P9CUB413 (GE11)	P9CUB414 (GE11)	P9CUB407-2382 (GE11)	P9CUB407-2383 (GE11)	P9CUB404-2501 (GE11)	P9CUB407-2502 (GE11)	P9CUB407-2503 (GE11)	P9CUB375 (GE11)
0.00	11.43	11.25	10.97	10.93	10.93	10.98	10.93	11.12
0.20	11.46	11.30	11.02	10.98	11.00	11.03	10.99	11.18
1.00	11.53	11.39	11.10	11.08	11.13	11.10	11.08	11.29
2.00	11.61	11.50	11.19	11.19	11.32	11.19	11.19	11.46
3.00	11.69	11.62	11.29	11.29	11.53	11.29	11.29	11.64
4.00	11.77	11.74	11.38	11.38	11.66	11.38	11.38	11.83
5.00	11.86	11.86	11.48	11.48	11.73	11.48	11.48	12.02
6.00	11.94	11.94	11.58	11.58	11.80	11.58	11.58	12.11
7.00	12.03	12.03	11.69	11.69	11.88	11.68	11.68	12.20
8.00	12.11	12.11	11.79	11.79	11.96	11.79	11.79	12.30
9.00	12.20	12.20	11.90	11.90	12.04	11.89	11.89	12.39
10.00	12.29	12.29	12.00	12.00	12.12	12.00	12.00	12.49
12.50	12.26	12.26	11.96	11.96	12.05	11.96	11.96	12.52
15.00	12.11	12.11	11.84	11.84	11.89	11.83	11.83	12.37
17.50	11.90	11.90	11.71	11.71	11.73	11.71	11.71	12.09
20.00	11.61	11.61	11.49	11.49	11.47	11.49	11.49	11.73
25.00	11.08	11.02	11.01	11.01	10.97	11.00	11.00	11.05
30.00	10.44	10.43	10.54	10.54	10.64	10.54	10.54	10.62
35.00	9.96	9.95	10.07	10.07	10.17	10.07	10.07	10.19
40.00	9.52	9.52	9.63	9.63	9.70	9.63	9.64	9.77
45.00	9.14	9.13	9.24	9.24	9.27	9.24	9.24	9.36
50.00	8.80	8.72	8.87	8.87	8.88	8.87	8.87	8.96
55.00	8.48	8.27	8.53	8.52	8.52	8.53	8.53	8.56
57.19	—	8.08	—	—	—	—	—	—
57.43	—		—	—	—	—	—	8.37
57.53	—		—	—	8.38	8.38	8.38	
57.55	—		8.38	8.38				
58.06	8.33							

NOTE: A "—" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

Table 1n

MOST LIMITING MAPLHGR VERSUS AVERAGE PLANAR EXPOSURE

Average Planar Exposure, GWd/ST	MAPLHGR Limits (kw/ft)			
	P10CNAB406-2674 (GE14C)	P10CNAB404-2675 (GE14C)	P10CNAB403-2676 (GE14C)	P9CUB349 (GE11)
0.00	9.75	9.72	9.52	11.11
0.20	9.82	9.78	9.62	11.17
1.00	9.92	9.87	9.75	11.31
2.00	10.04	9.98	9.89	11.52
3.00	10.16	10.12	10.02	11.74
4.00	10.28	10.29	10.16	11.98
5.00	10.40	10.44	10.30	12.23
6.00	10.53	10.61	10.44	12.42
7.00	10.66	10.76	10.58	12.59
8.00	10.79	10.89	10.73	12.69
9.00	10.93	11.02	10.88	12.78
10.00	11.07	11.16	11.03	12.85
11.00	11.20	11.29	11.18	---
12.00	11.25	11.35	11.22	---
12.50	---	---	---	12.77
13.00	11.26	11.35	11.24	---
14.00	11.23	11.34	11.25	---
14.51	11.20	11.33	11.22	---
15.00	11.18	11.33	11.19	12.39
17.00	11.06	11.23	11.06	---
17.50	---	---	---	12.00
19.13	10.89	11.08	10.88	---
20.00	10.82	11.01	10.81	11.61
25.00	10.36	10.52	10.33	10.84
30.00	9.88	10.02	9.85	10.10
35.00	9.40	9.51	9.37	9.40
40.00	8.91	8.99	8.88	8.75
45.00	8.40	8.47	8.37	8.12
50.00	7.86	7.92	7.83	7.51
55.00	5.94	6.12	5.88	6.81
57.11	---	---	4.83	---
57.19	4.85	---		---
57.39		---		6.47
57.52		4.85		

NOTE: A "---" indicates that there is no entry for this box and the limit can be determined by linearly interpolating between the previous and next point in each column. MAPLHGRs are interpolated between exposure points for which explicit values are given. The exposure for the last MAPLHGR listed for a lattice is the maximum allowed nodal exposure for that lattice.

NINE MILE POINT UNIT 2
CORE OPERATING LIMITS REPORT

2.0 MINIMUM CRITICAL POWER RATIO (ODYN OPTION B)

2.1 Limits for Technical Specification 3.2.2

The Minimum Critical Power Ratio (MCPR) shall be equal to or greater than the appropriate MCPR limit from Figures 2a and 2b times the K(f) shown in Figure 2c with tau (or "τ") 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.

$$\tau_B = .672 + 1.65 * [\ N_1 / \sum_{i=1}^{n} N_i\ ]^{1/2} * .016$$

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

n = number of surveillance tests performed in cycle
N_i = number of active control rods measured in the ith surveillance test
τ_i = average scram time to notch 39 of all rods measured in the ith surveillance test
N_1 = total number of active rods measured in Specification 3.1.4.1.

NOTES:

1. The MCPR Operating Limits in Figures 2a and 2b are based on a 1.07 Safety Limit MCPR (SLMCPR) for two recirculation loop operation and a 1.09 Safety Limit MCPR for single loop operation.
2. τ = 1.0 prior to performance of the initial scram time measurements for the cycle.
3. The GE11 Operating Limit MCPR values for EOC-RPT Out of Service are greater than or equal to the standard normal operation case, and are therefore specifically identified in Figure 2a. The GE14C 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 in Figure 2b.The OLMCPR values for all other analyzed EOOS transient events are bounded by the Normal Operation limits.
4. For operation between 30% and 90% RTP with a backup pressure regulator out of service, additional MCPR limit requirements have been established. For operation >70% but <90% RTP maintain MCPR ≥ normal operation MCPR limit from Figures 2a and 2b divided by the fraction of rated thermal power. For operation ≥30% and ≤70% RTP the additional requirements are established in Figures 2d and 2e. There are no additional MCPR limits required for operation <30% and ≥90% RTP with a backup pressure regulator out of service.

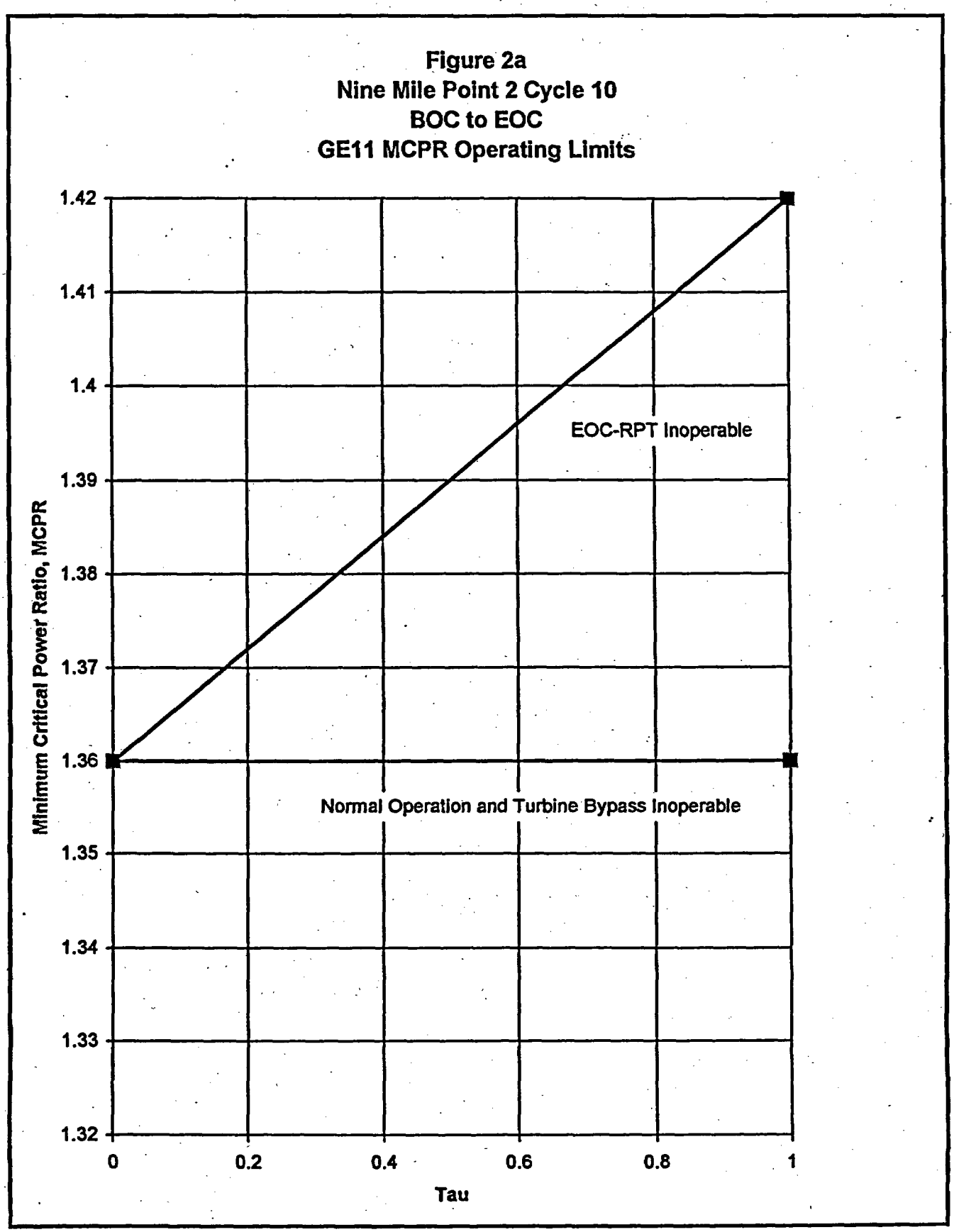
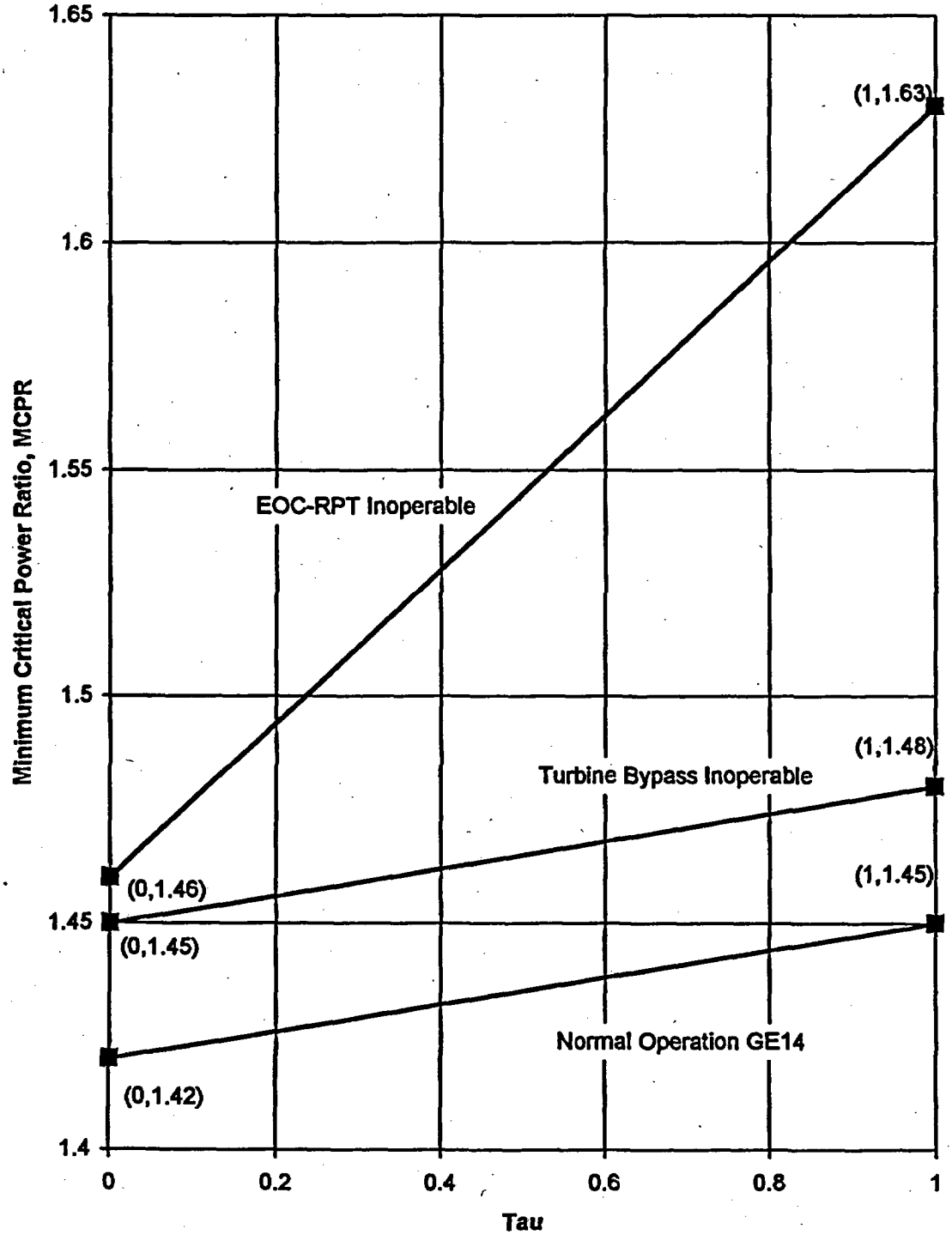


Figure 2a
Nine Mile Point 2 Cycle 10
BOC to EOC
GE11 MCPR Operating Limits
1.42
1.41
1.4
1.39
1.38
1.37
1.36
1.35
1.34
1.33
1.32
Minimum Critical Power Ratio, MCPR
EOC-RPT Inoperable
Normal Operation and Turbine Bypass Inoperable
0
0.2
0.4
0.6
0.8
1
Tau

Figure 2b
Nine Mile Point 2 Cycle 10
BOC to EOC
GE14C MCPR Operating Limits



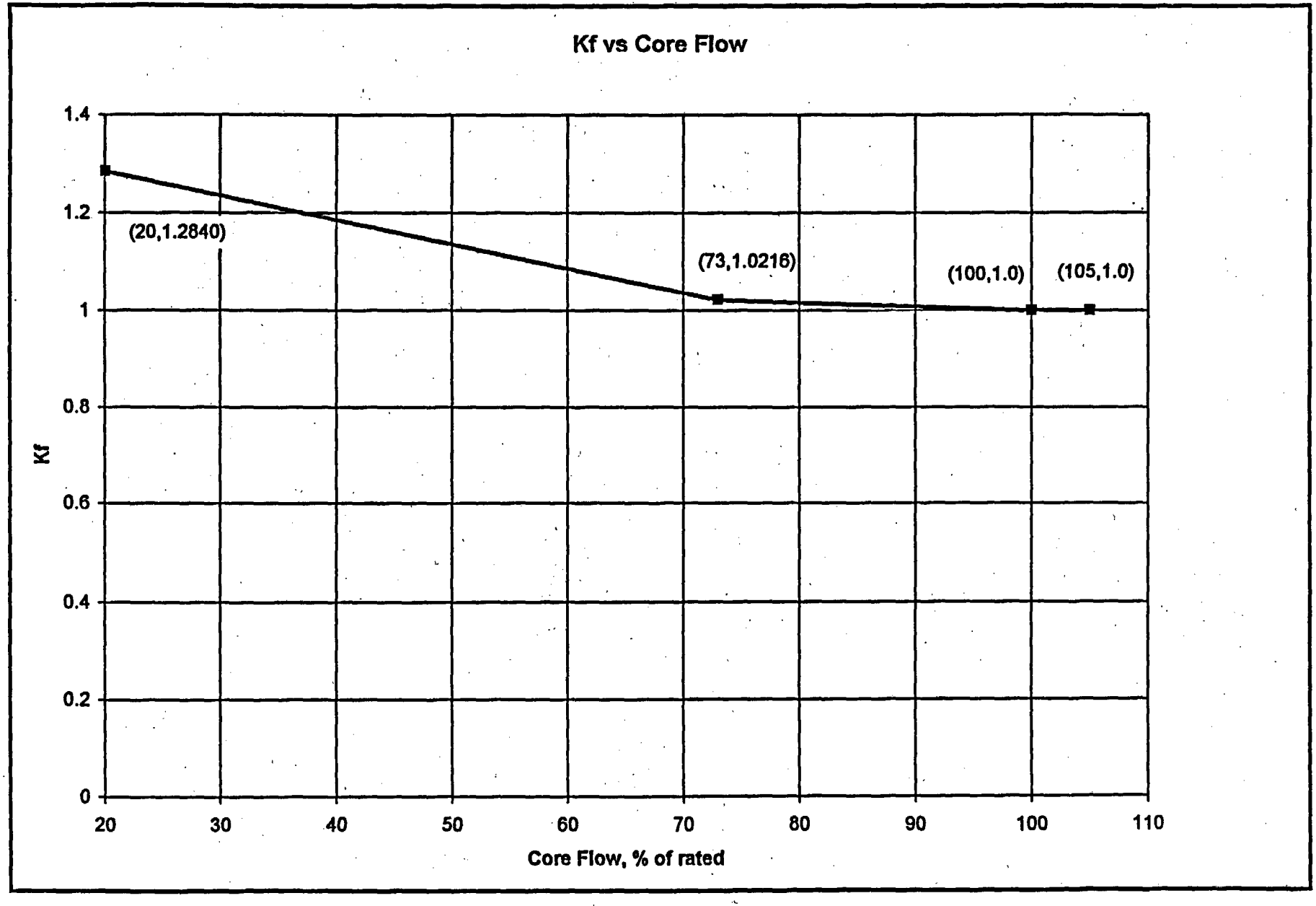

Kf vs Core Flow
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Kf
(20,1.2840)
(73,1.0216)
(100,1.0)
(105,1.0)
20
30
40
50
60
70
80
90
100
110
Core Flow, % of rated

Figure 2d

GE11 MCPR Limits for Operation Between 30% and 70% RTP Without a Backup Pressure Regulator

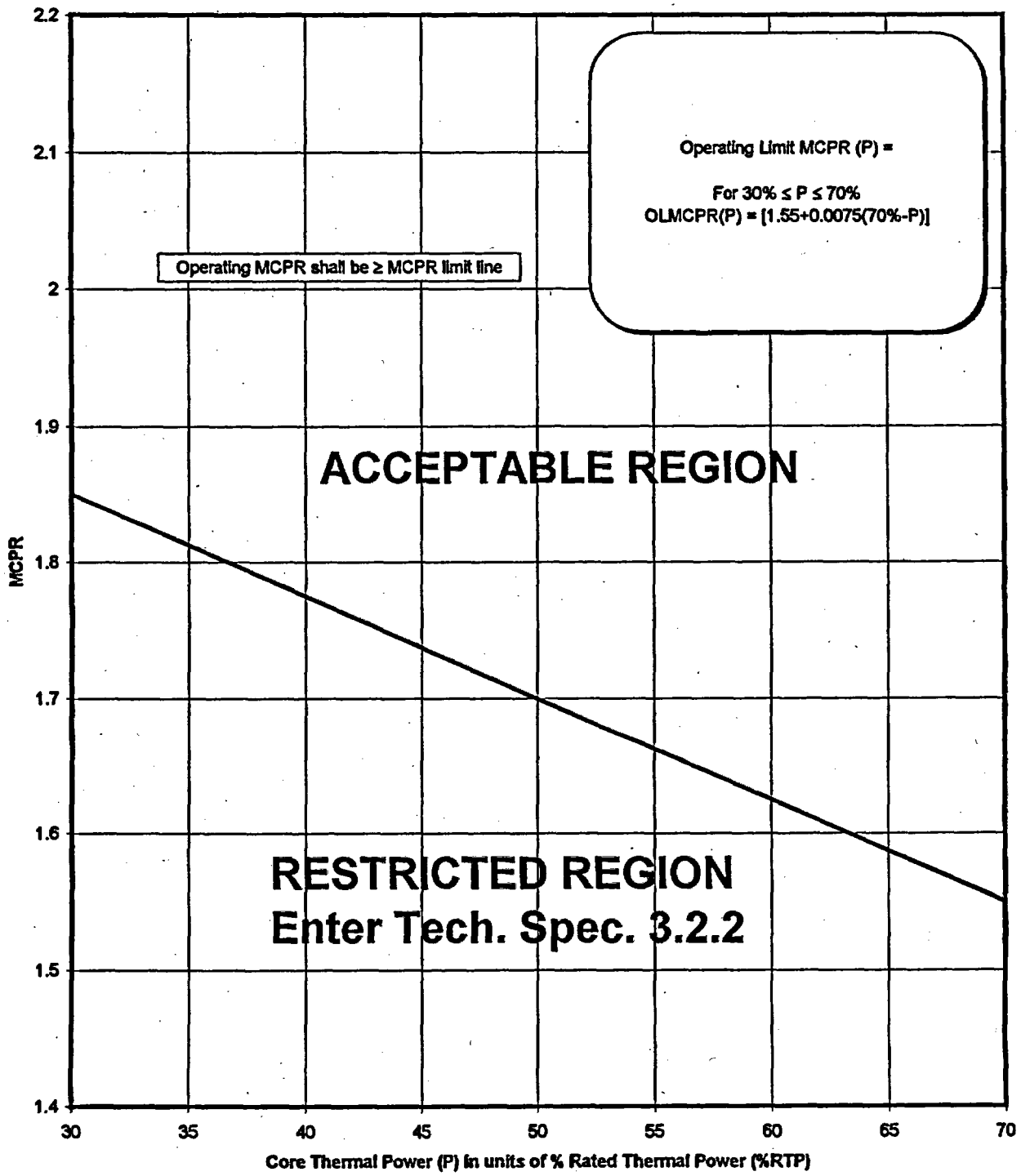
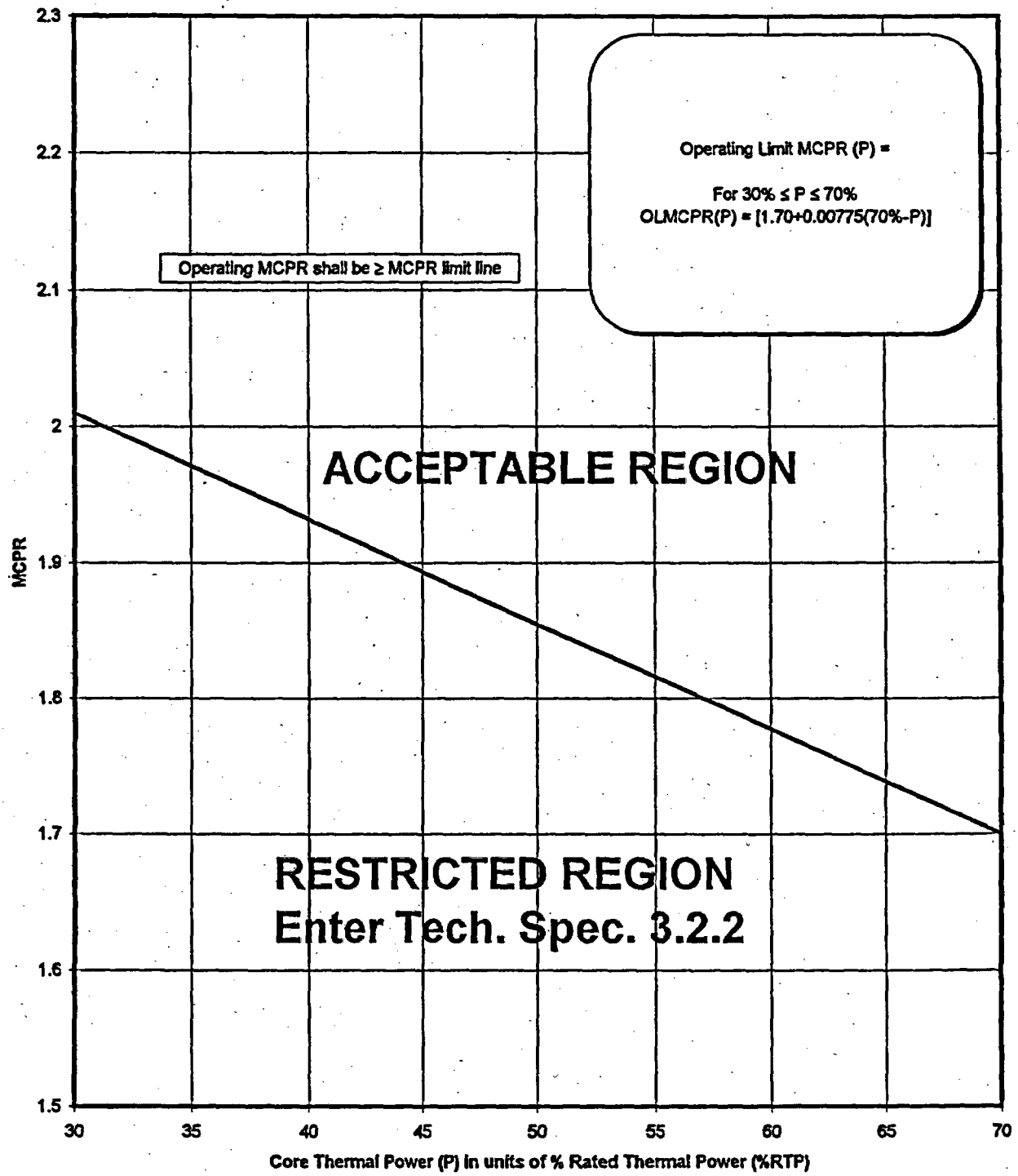


Figure 2e

GE14C MCPR Limits for Operation Between 30% and 70% RTP
Without a Backup Pressure Regulator



NINE MILE POINT UNIT 2
CORE OPERATING LIMITS REPORT

3.0 LINEAR HEAT GENERATION RATE (LHGR)

3.1 Limits for Technical Specification 3.2.3

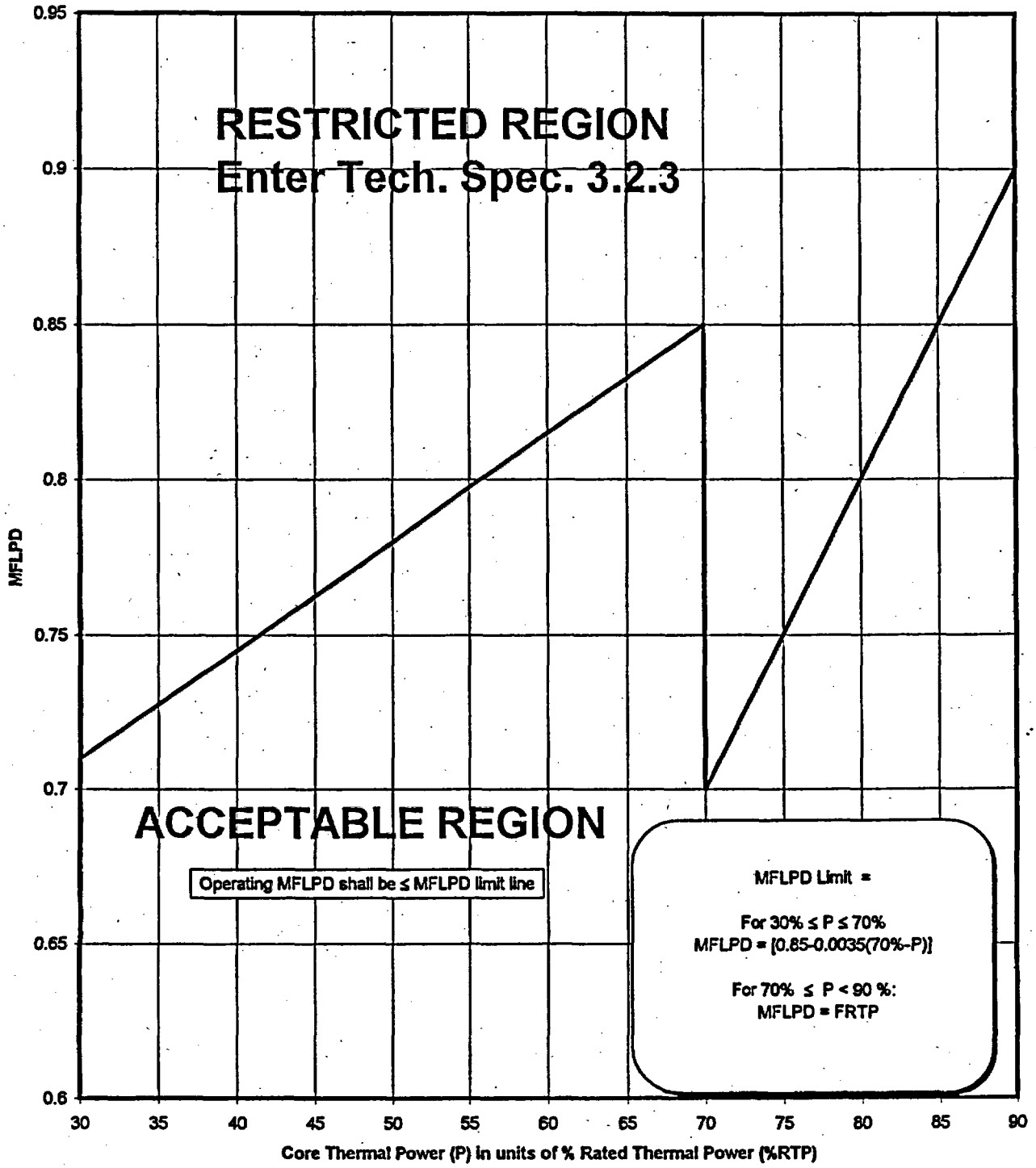
The LHGR shall not exceed the limits in the table below.

Fuel Type	LHGR Limits
GE11	14.4 KW/FT
GE14	13.4 KW/FT

NOTE: For operation ≥30% and <90% RTP with a backup pressure regulator out of service, additional LHGR limit requirements have been established as shown in Figure 3. There are no additional LHGR limits required for operation <30% and ≥90% RTP for operation with a backup pressure regulator out of service.

Figure 3

LHGR Limit for Operation Between 30% and 90% RTP
Without a Backup Pressure Regulator
for GE14C and GE11



NINE MILE POINT UNIT 2
CORE OPERATING LIMITS REPORT

4.0 AVERAGE POWER RANGE MONITOR SETPOINTS

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

ALLOWABLE VALUE $\leq$ 1.13

NINE MILE POINT UNIT 2
CORE OPERATING LIMITS REPORT

5.0 ROD BLOCK MONITOR (RBM)

5.1 Allowable Value for Technical Specification Table 3.3.2.1-1

Function	Allowable Value
RBM Upscale	$\leq 0.66\ (W - \Delta W) + 47\%$ with a maximum of 113%

NOTE: W = Loop Recirculation Flow as a percentage of the loop recirculation flow which produces a rated core flow of 108.5 MLB/HR. ΔW is defined as the difference in indicated drive flow (in percent of drive flow which produces rated core flow) between two loop and single loop operation at the same core flow. $\Delta W = 0$ for two loop operation. $\Delta W = 5\%$ for single loop operation.

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6.0 REFERENCES FOR TECHNICAL SPECIFICATION

Technical Specification 5.6.5.b.1:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-14 and NEDE 24011-P-A-14-US (June 2000).

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7.0 REFERENCES FOR TECHNICAL SPECIFICATION BASES

2.1.1 BASES REFERENCE 3:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-14 and NEDE 24011-P-A-14-US (June 2000).

2.1.1 BASES REFERENCE 4:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10, 0000-0017-0888-SRLR, Rev. 0, March 2004.

3.1.1 BASES REFERENCE 7:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-14 and NEDE 24011-P-A-14-US (June 2000).

3.1.6 BASES REFERENCE 1:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10, 0000-0017-0888-SRLR, Rev. 0, March 2004.

3.2.1 BASES REFERENCE 1:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-14 and NEDE 24011-P-A-14-US (June 2000).

3.2.2 BASES REFERENCE 2:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-14 and NEDE 24011-P-A-14-US (June 2000).

3.2.2 BASES REFERENCE 3:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10, 0000-0017-0888-SRLR, Rev. 0, March 2004.

3.2.3 BASES REFERENCE 1:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-14 and NEDE 24011-P-A-14US (June 2000).

3.2.3 BASES REFERENCE 2:
Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10, 0000-0017-0888-SRLR, Rev. 0, March 2004.

3.2.4 BASES REFERENCE 3:
General Electric Standard Application for Reactor Fuel, NEDE 24011-P-A-14 and NEDE 24011-P-A-14-US (June 2000).

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8.0 SOURCE DOCUMENTS

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

CORE OPERATING LIMIT	REFERENCE
Section 1.0 - APLHGR LIMITS	
Tables 1a through 1n and corresponding single loop multiplier	Lattice Dependent MAPLHGR Report for NMP2 Reload 9, Cycle 10, 0000-0017-0888-MAPL, Revision 0, March 2004, "Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10", 0000-0017-0888-SRLR, Rev 0, March 2004, and "Engineering Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10", 0000-0024-9933-ER, Rev 0, March 2004
Section 2.0 - MCPR LIMITS	"Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10", 0000-0017-0888-SRLR, Rev 0, March 2004, and "Engineering Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10", 0000-0024-9933-ER, Rev 0, March 2004
Section 3.0 - LHGR LIMITS	"Supplemental Reload Licensing Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10", 0000-0017-0888-SRLR, Rev 0, March 2004
Pressure Regulator Out of Service	"Engineering Report for Nine Mile Point Nuclear Station Unit 2, Reload 9, Cycle 10", 0000-0024-9933-ER, Rev 0, March 2004

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8.0 SOURCE DOCUMENTS (Cont)

CORE OPERATING LIMIT	REFERENCE
Section 4.0 - APRM SETPOINTS	
Limits for Technical Specification Table 3.3.1.1-1 (OPRM Upscale)	"Supplemental Reload Licensing Report for Nine Mile Point Station Unit 2, Reload 9, Cycle 10", 0000-0017-0888-SRLR, Rev 0, March 2004
Section 5.0 - RBM SETPOINTS	GE Engineering Report for Nine Mile Point Nuclear Station Unit 2 Reload 2 Cycle 3, NFD92-016 January 1992