ATTACHMENT B

(Beginning-of-Cycle) UNIT 3 CYCLE 15
CORE OPERATING LIMITS REPORT
JUNE 13, 1997

SECTION A

Core Operating Limits Report

DRESDEN STATION UNIT 3

CYCLE 15

June 1997

ISSUANCE OF CHANGES SUMMARY

Affected Section	Affected Pages	Summary of Changes	Date
All	1-1 through 5-6	Incorporated Reference to TSUP Section Number/Deleted References to Custom TS.	06/97
References	iii	Identified Analyses of Record for D3C15.	06/97
2.2 and Figure 2.2-1 and Table 2.2-1	2-1, 2-2 and 2-3	Included MAPLHGR limits for D3C15 9x9-2 and ATRIUM-9B reload fuel.	06/97
3.2 and Figure 3.2-1	3-1 and 3-2	Included SLHGR limits for D3C15 ATRIUM-9B reload fuel.	06/97
4.2 and Figure 4.2-1	4-1 and 4-2	Included TLHGR limits for D3C15 ATRIUM-9B reload fuel.	06/97
5.2 and Table 5.2-1	5-1 and 5-2	Simplified from Figure 5.2-1A, since OLMCPRs are not scram time dependent.	06/97
5.2 and Table 5.2-1, Figure 5.2-1 and 5.2-2	5-2, 5-4 and 5-5	Revised to reflect new Operating Limit MCPRs for 9x9-2 and ATRIUM-9B reload fuel, Deleted previous Figure 5.2-1, because Operating Limits MCPR's were performed using only the Technical Specification scram times and, thus, are not scram time dependent	06/97
Table 5.2-2	5-3	Added a table of the OLMCPR adders for turbine bypass valve opening time degradation	06/97
Figure 2.2-1, Figure 3.2-1, and Figure 4.2-1	2-2, 3-2, and 4-2	The table of information in Figure 2.2-1 was split into two tables, Figures 3.2-1 and 4.2-1 were changed to say N/A if an limit did not exist at that exposure.	06/97

SECTION A
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REFERENCES

1. Commonwealth Edison Company Docket No. 50-249, Dresden Nuclear Power Station, Unit 3, Facility Operating License DPR-25.

2. Letter, D.M. Crutchfield to All Power Reactor Licensees and Applicants, Generic Letter 88-16, Concerning the Removal of Cycle-Specific Parameter Limits from Technical Specifications.

3. EMF-97-031(P), Dresden LOCA-ECCS Analysis MAPLHGR Limits For ATRIUM-9B And 9x9-2 Fuel, Siemens Power Corporation, May 1997, NFS NDIT # 970081.

4. EMF-96-141, Dresden Unit 3 Cycle 15 Reload Analysis, Siemens Power Corporation, May 1997, NFS NDIT# 970085.

5. EMF-96-139, Dresden Unit 3 Cycle 15 Plant Transient Analysis, Siemens Power Corporation, May 1997, NFS NDIT # 970084.

6. Dresden Unit 3 Cycle 15 Neutronic Licensing Report, NFS NDIT # 970028.

7. EMF-92-149(P) And EMF-92-149(P) Supplement 1, Revision 1, Dresden Units 2 And 3 Generic Coastdown Analysis With ATRIUM-9B, Siemens Power Corporation, September 1996, NFS NDIT # 960137.

8. SPC letter, Dresden Unit 3 Cycle 15 MAPLHGR Limits Versus Assembly Average Exposure, DEG:97:048, D.E. Garber to R.J. Chin, June 5, 1997, NFS NDIT # 970111.

LIST OF FIGURES

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1.0 ROD BLOCK MONITOR (RBM)

1.1 Technical Specification Reference

Technical Specification 3.3.M. - Rod Block Monitor (RBM)

1.2 Description

The Rod Block Monitor Upscale Instrumentation Setpoints are determined from the relationships shown in Table 1.2-1.

TABLE 1.2-1

CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION SETPOINTS

TRIP FUNCTION:	TRIP LEVEL SETTING:
Rod Block Monitor Upscale (Flow Bias)	
Dual Loop Operation	Less than or equal to (0.65 W_d plus 55)*
Single Loop Operation	Less than or equal to (0.65 W_d plus 51)*

*W_d - percent of drive flow required to produce a rated core flow of 98 Mlb/hr.

2.0 AVERAGE PLANAR LINEAR HEAT GENERATION RATE

2.1 Technical Specification Reference

Technical Specificiation 3.11.A - AVERAGE PLANAR LINEAR HEAT GENERATION RATE

2.2 Description

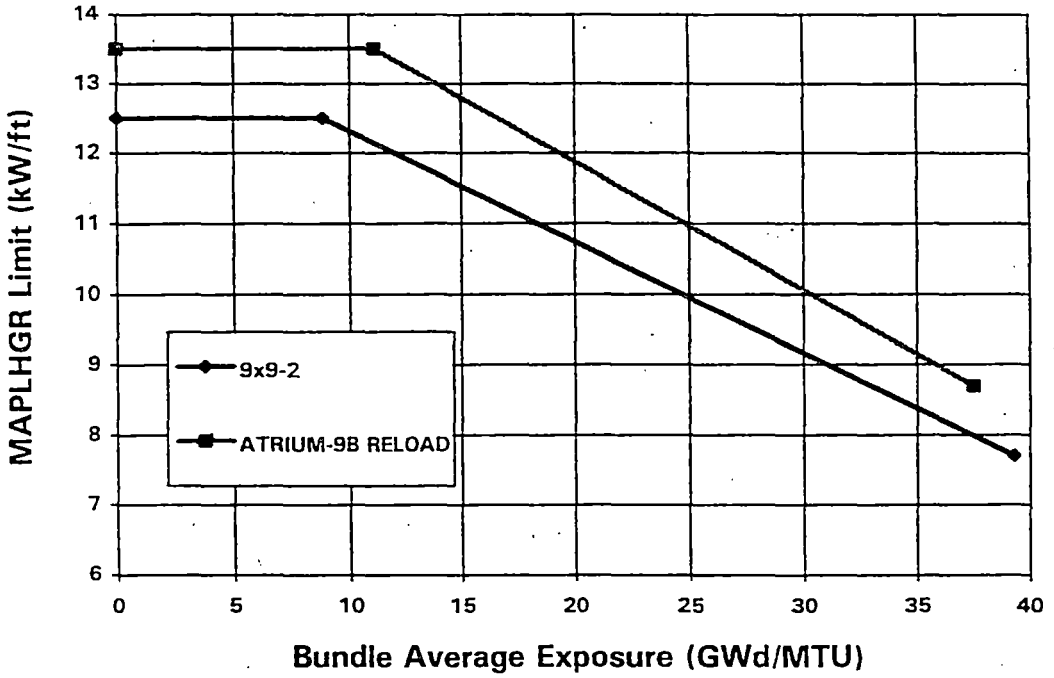
The Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) Limit versus Bundle Average Exposure for each fuel type is determined from Figure 2.2-1.

2.3 MAPLHGR Limit Equipment Out of Service Multipliers

The appropriate multiplicative factors, during power operation with equipment out of service, to apply to the base MAPLHGR limits specified in Section 2.2 are shown in Table 2.3-1.

FIGURE 2.2-1

MAPLHGR LIMIT VS. BUNDLE AVERAGE EXPOSURE



Bundle Average Exposure (GWD/MTU)	MAPLHGR Limit 9x9-2 (kW/ft)
0	12.5
8.8	12.5
39.3	7.7

Bundle Average Exposure (GWD/MTU)	MAPLHGR Limit ATRIUM-9B Reload Fuel (kW/ft)
0	13.5
11.1	13.5
37.5	8.7

TABLE 2.3-1

EQUIPMENT OUT OF SERVICE MAPLHGR LIMIT MULTIPLIERS

Technical Specification	Title of Technical Specification	Scenario	Multiplicative Factor, 9x9-2 and ATRIUM-9B
3.11.A & 3.6.A Action d	Average Planar Linear Heat Generation Rate and Recirculation Loops	Single Loop Operation (SLO)	0.90

3.0 STEADY STATE LINEAR HEAT GENERATION RATE

3.1 Technical Specification Reference

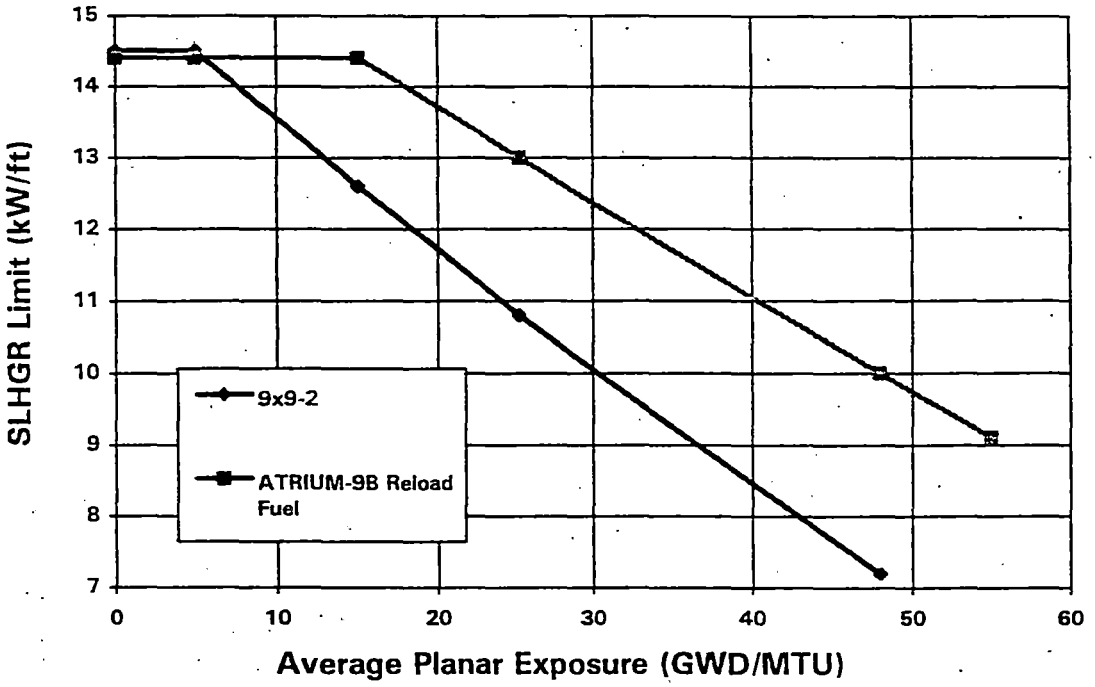
Technical Specification 3.11.D - STEADY STATE LINEAR HEAT GENERATION RATE

3.2 Description

The Steady State LHGR (SLHGR) limit versus Average Planar Exposure for each fuel type is determined from Figure 3.2-1.

FIGURE 3.2-1

STEADY STATE LHGR (SLHGR) LIMIT VS. AVERAGE PLANAR EXPOSURE



Average Planar Exposure (GWD/MTU)	SLHGR Limit 9x9-2 (kW/ft)	SLHGR Limit ATRIUM-9B Reload Fuel (kW/ft)
0	14.5	14.4
5.0	14.5	14.4
15.0	12.6	14.4
25.2	10.8	13.0
48.0	7.2	10.0
55.0	N/A	9.1

4.0 TRANSIENT LINEAR HEAT GENERATION RATE

4.1 Technical Specification Reference

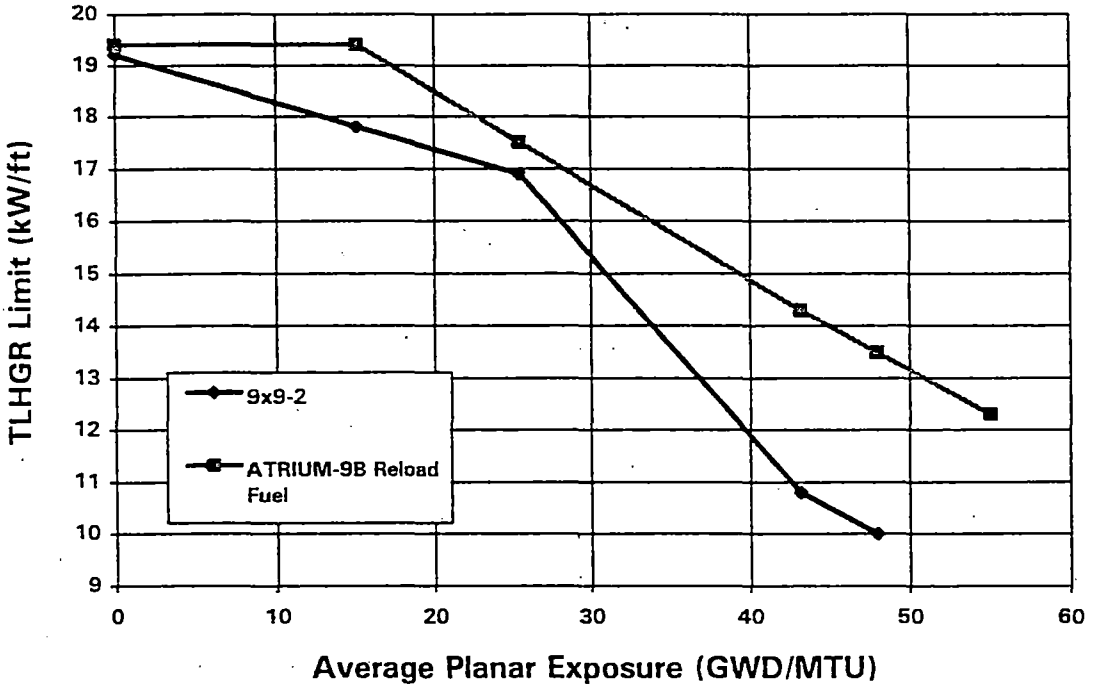
Technical Specification 3.11.B - TRANSIENT LINEAR HEAT GENERATION RATE

4.2 Description

The Transient LHGR (TLHGR) limit versus Average Planar Exposure for each fuel type is determined from Figure 4.2-1.

FIGURE 4.2-1

TRANSIENT LHGR (TLHGR) LIMIT VS. AVERAGE PLANAR EXPOSURE



Average Planar Exposure (GWD/MTU)	TLHGR Limit 9x9-2 (kW/ft)	TLHGR Limit ATRIUM-9B Reload Fuel (kW/ft)
0.0	19.2	19.4
15.0	17.8	19.4
25.4	16.9	17.5
43.2	10.8	14.3
48.0	10.0	13.5
55.0	N/A	12.3

5.0 MINIMUM CRITICAL POWER RATIO

5.1 Technical Specification Reference

Technical Specification 3.11.C - MINIMUM CRITICAL POWER RATIO

5.2 Description

a. The Operating Limit MCPRs for D3C15 are listed in Table 5.2-1. The OLMCPRs calculated for D3C15 are based on Technical Specification Scram Insertion Speeds (3.3.E).

b. For operation with a degraded turbine bypass valve opening time, the OLMCPR adder in Table 5.2-2 must be added to the Operating Limit MCPR determined from Table 5.2-1. Linear interpolation between the data points is permissible.

c. During Manual Flow Control, the Operating Limit MCPR for each fuel type at reduced core flow conditions can be determined from whichever is greater:

   i. Figure 5.2-1 using the curve and the appropriate flow rate.

   ii. The Operating Limit MCPR determined from Table 5.2-1, and supplemented by Table 5.2-2 when appropriate.

d. During Automatic Flow Control, the Operating Limit MCPR for each fuel type at reduced flow rates can be determined from Figure 5.2-2 using the appropriate flow rate and the Operating Limit MCPR, which is obtained from Table 5.2-1, and supplemented by Table 5.2-2 when appropriate. Linear interpolation between the curves on Figure 5.2-2 is permissible.

TABLE 5.2-1

OPERATING LIMIT MCPR
FOR 9x9-2 AND ATRIUM-9B RELOAD FUEL

Operating Scenario	Operating Limit MCPR*
Normal Operation	1.46
Normal Operation with Feedwater Heaters Out of Service	1.46
Single Loop Operation	1.47
Coastdown**	1.50
Coastdown and SLO Operation***	1.51

*Note that the Operating Limit MCPR is not a function of the average CRD scram insertion time for the current operating cycle other than assuming the Technical Specification average CRD scram insertion time limits (3.3.E) are met.

**The 0.04 MCPR penalty during Coastdown includes the effects of Feedwater Heater(s) Out of Service and Single Loop Operation.

***For coastdown and SLO, the 0.01 adder to the MCPR Safety Limit is still necessary.

TABLE 5.2-2

TURBINE BYPASS VALVE DEGRADATION OLMCPR ADDERS

Equivalent Bypass Valve Delay Time (msec)*	OLMCPR Adder for ATRIUM-9B and 9x9-2 Fuel
50	0.00
150	0.02
250	0.03
350	0.04
450	0.04
550	0.05
700	0.05
900	0.05
No Bypass	0.05

*Delay is relative to the time of TSV full closure.

Linear interpolation can be used for purposes of selecting a conservative OLMCPR adders for equivalent delay times not specifically listed in the table.

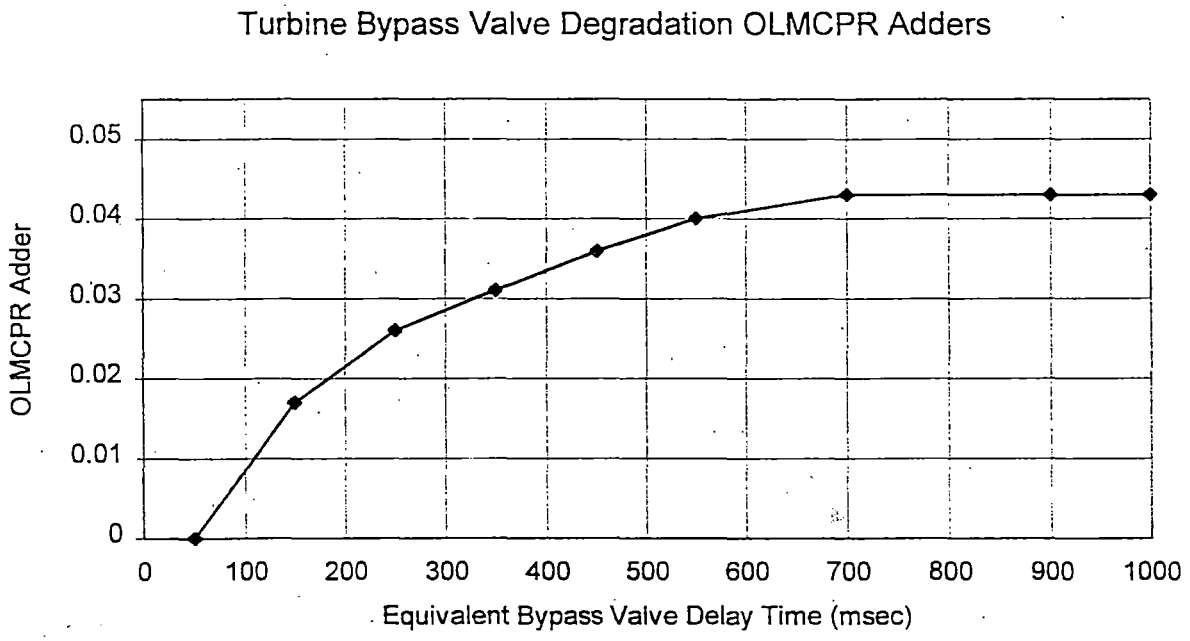
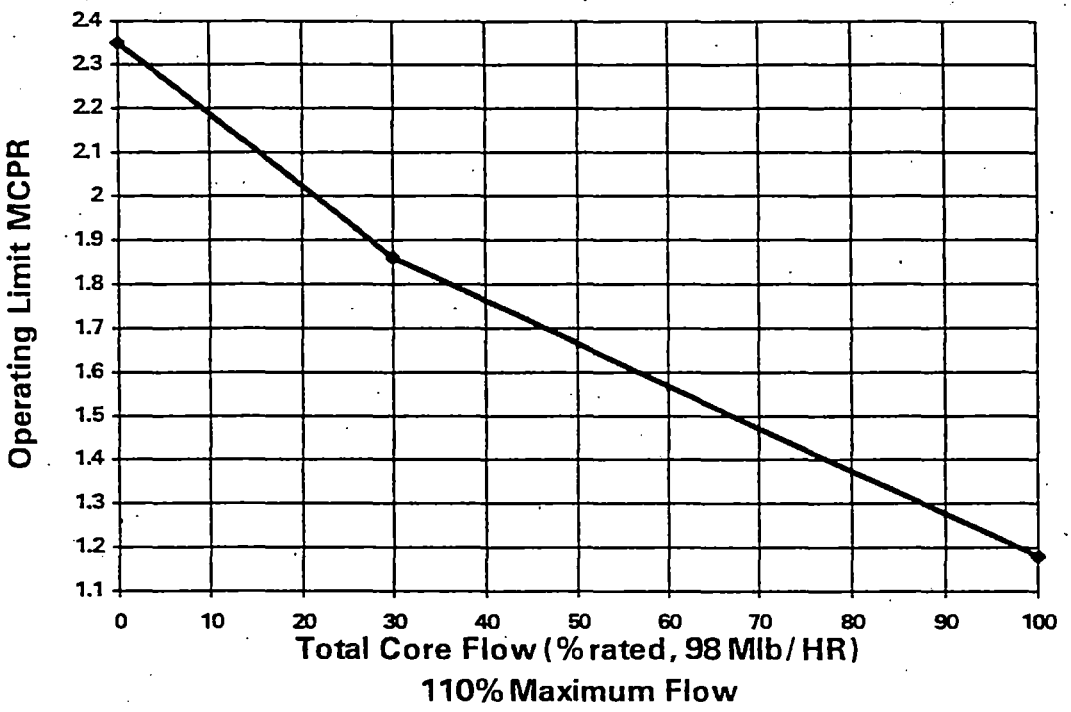


FIGURE 5.2-1

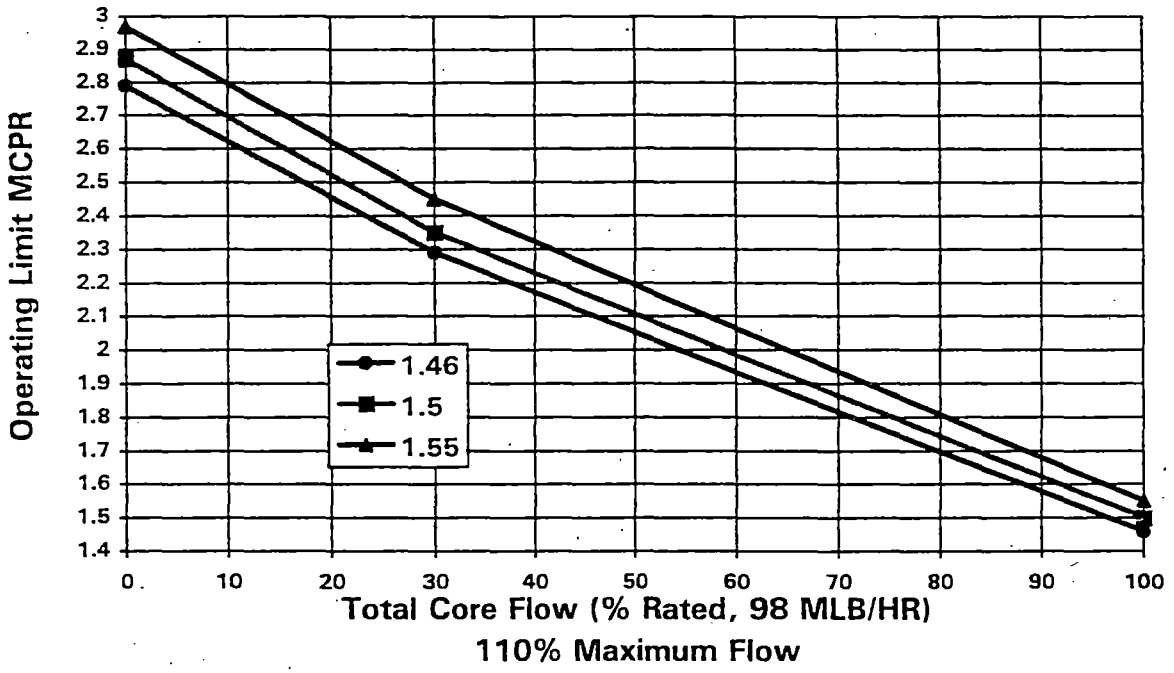
OPERATING LIMIT MCPR FOR MANUAL FLOW CONTROL



Total Core Flow (% Rated)	Operating Limit MCPR for 9x9-2 and ATRIUM-9B Reload Fuel
100	1.18
30	1.86
0	2.35

FIGURE 5.2-2

OPERATING LIMIT MCPR FOR AUTOMATIC FLOW CONTROL
FOR ATRIUM-9B and 9x9-2 FUEL[1]



Total Core Flow (% Rated)	Operating Limit MCPR 9x9-2 and ATRIUM-9B Reload Fuel		
	1.46	1.50	1.55
100	1.46	1.50	1.55
30	2.29	2.35	2.45
00	2.79	2.87	2.97

[1] Although analyzed for core flows from 0% to 100%, Technical Specification 3.3.N prohibits AFC operation below 65% core flow.

6.0 METHODOLOGIES

The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in the latest approved revision or supplement of the topical reports describing the methodology. For Dresden Unit 3, the NRC approved topical reports are:

1) ANF-1125(P)(A) and Supplements 1 and 2, "Critical Power Correlation - ANFB", April 1990.

2) ANF-524(P)(A), "Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors: Methodology for Analysis of Assembly Channel Bowing Effects/NRC Correspondence", XN-NF-524(P)(A) Revision 2, Supplement 1 Revision 2, Supplement 2, November 1990.

3) XN-NF-79-71(P)(A), "Exxon Nuclear Plant Transient Methodology for Boiling Water Reactors," Revision 2 Supplements 1, 2, and 3, March 1986.

4) XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors - Neutronic Methods for Design and Analysis", Volume 1 and Supplements 1 and 2, March 1983.

5) XN-NF-80-19(P)(A), "Advanced Nuclear Fuels Methodology for Boiling Water Reactors," Volume 1 Supplement 3, Supplement 3 Appendix F, and Supplement 4, November 1990.

6) XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors: EXEM BWR ECCS Evaluation Model," Volumes 2, 2A, 2B, 2C, September 1982.

7) XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors THERMEX: Thermal Limits Methodology Summary Description", Volume 3 Revision 2, January 1987.

8) XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors: Application of the ENC Methodology to BWR Reloads", Volume 4, Revision 1, June 1986.

9) XN-NF-85-67(P)(A), "Generic Mechanical Design for Exxon Nuclear Jet Pump Boiling Water Reactors Reload Fuel," Revision 1, September 1986.

10) ANF-913(P)(A), "COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analyses," Volume 1 Revision 1 and Volume 1 Supplements 2, 3, and 4, August 1990.

11) XN-NF-82-06(P)(A), "Qualification of Exxon Nuclear Fuel for Extended Burnup Supplement 1 Extended Burnup Qualification of ENC 9x9 BWR Fuel," May 1988.

12) ANF-89-014(P)(A), "Advanced Nuclear Fuels Corporation Generic Mechanical Design for Advanced Nuclear Fuels Corporation 9x9-IX and 9x9-9X BWR Reload Fuel", October 1991.

13) ANF-89-98(P)(A), "Generic Mechanical Design Criteria for BWR Fuel Designs," Revision 1 and Revision 1 Supplement 1, May 1995.

14) ANF-91-048(P)(A), "Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model," January 1993.

15) Commonwealth Edison Company Topical Report NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods," and associated Supplements on Neutronic Licensing Analyses (Supplement 1) and LaSalle County Unit 2 Benchmarking (Supplement 2).

Section B

Dresden Unit 3 Cycle 15

Reload Transient Analysis Results

May 1997

Section B
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