Core Operating Limits Report

Dresden Station Unit 3 Cycle 14

MARCH 1994

ISSUANCE OF CHANGES SUMMARY

Affected Section	Affected Pages	Summary of Changes	Date
5.0	5-1, 5-2, 5-3, 5-4	OLMCPR, OLMCPR for Manual and Automatic Flow Control	09/91
5.2	5-1, 5-2	Operating Limit MCPR change	10/92
List of Figures, 2.2, 2.3, 3.2, 4.2	iv, 2-1, 2-2, 2-3, 3-2, 4-1, 4-2, 4-3	Change ANF to SPC	10/92
List of Figures, Sections 2, 3, 4, and 5. Add new Section 6.	ii, iv, All of Sections 2, 3, 4, 5, and 6.	Delete references to SPC 8x8 fuel. Change OLMCPR, and OLMCPR for Manual and Automatic Flow Control for D3C14 operation. Add TS Section 6 References.	3/94

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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.

LIST OF FIGURES

LIST OF TABLES

1.0 CONTROL ROD WITHDRAWAL BLOCK INSTRUMENTATION

1.1 Technical Specification Reference

Technical Specification 3.2.C - Control Rod Block Actuation

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 48)*
Single Loop Operation	Less than or equal to (0.65 W_d plus 44)*

*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 References

Section 2.2: Technical Specification 3.5.I - Average Planar LHGR
Section 2.3: See Table 2.3-1

2.2 Description

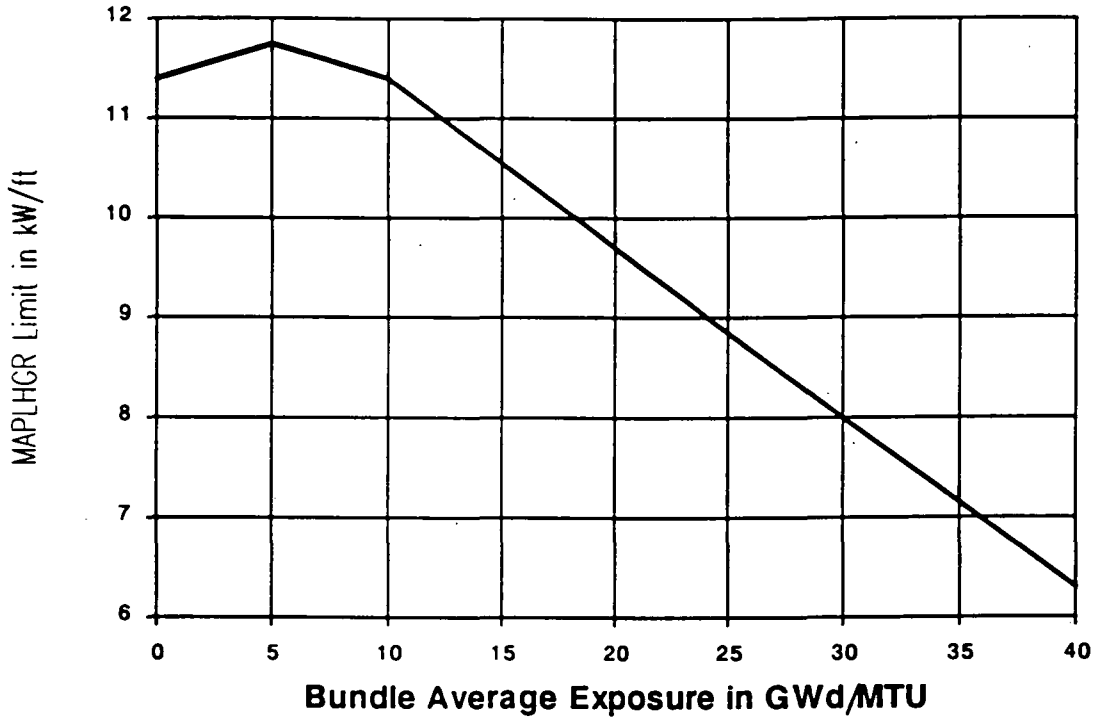
The Maximum Average Planar Linear Heat Generation Rates (MAPLHGR) versus Bundle Average Exposure for SPC 9x9-2 fuel is determined from Figure 2.2-1.

2.3 MAPLHGR Multipliers

The appropriate multiplicative factors 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
FOR SPC 9X9-2 FUEL



Bundle Average Exposure, GWD/MTU	MAPLHGR Limit, kW/ft
0	11.40
5	11.75
10	11.40
15	10.55
20	9.70
25	8.85
30	8.00
35	7.15
40	6.30

TABLE 2.3-1

MAPLHGR MULTIPLIERS

Specification	Title of TS	Scenario	Multiplicative Factors, SPC 9x9-2
3.5.D.2	Automatic Pressure Relief Subsystems	One Relief Valve Out Of Service (OOS)	0.76
3.5.I & 3.6.H.3.f	Average Planar LHGR Recirculation Pump Flow Limitations	Single Loop Operation (SLO)	0.91
3.5.I & 3.6.H.3.f	Average Planar LHGR Recirculation Pump Flow Limitations	One Relief Valve OOS & SLO	0.76

3.0 LOCAL STEADY STATE LHGR

3.1 Technical Specification Reference

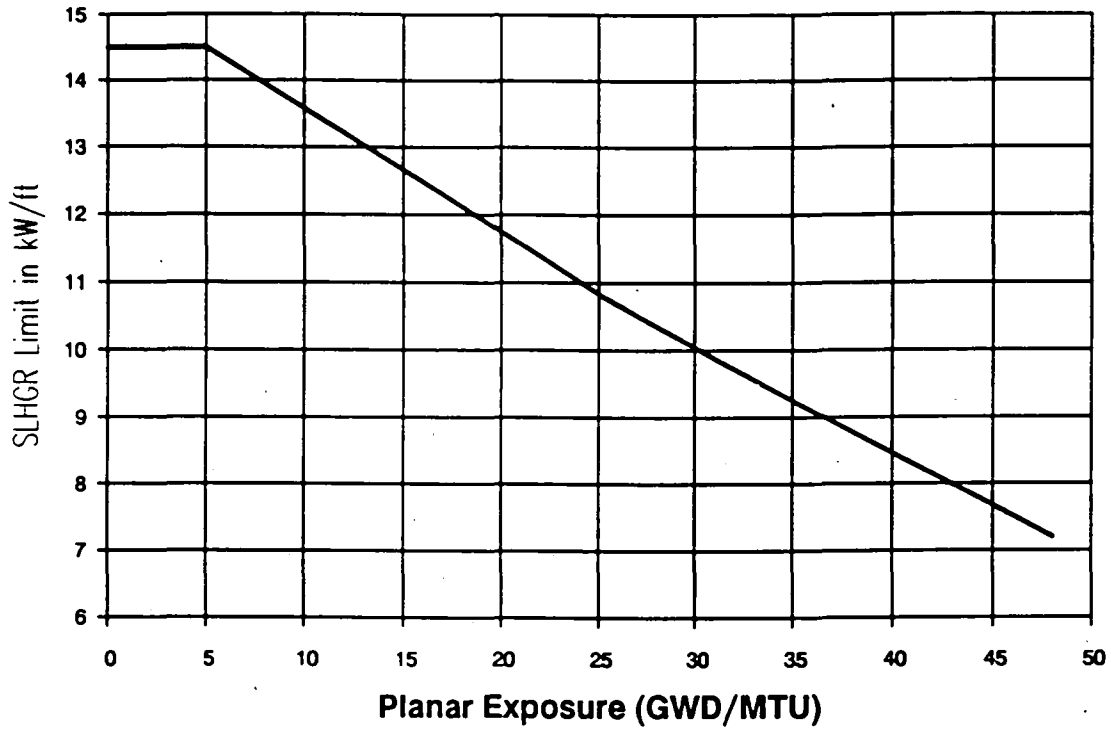
Technical Specification 3.5.J - Local Steady State LHGR

3.2 Description

The Local Steady State LHGR (SLHGR) limit versus Average Planar Exposure for SPC 9x9-2 fuel is determined from Figure 3.2-1.

FIGURE 3.2-1

STEADY STATE LHGR (SLHGR) VS. PLANAR EXPOSURE
FOR SPC 9x9-2 FUEL



Exposure (GWD/MTU)	LHGR (kW/ft)
0	14.5
5.0	14.5
25.2	10.8
48.0	7.2

4.0 LOCAL TRANSIENT LHGR

4.1 Technical Specification Reference

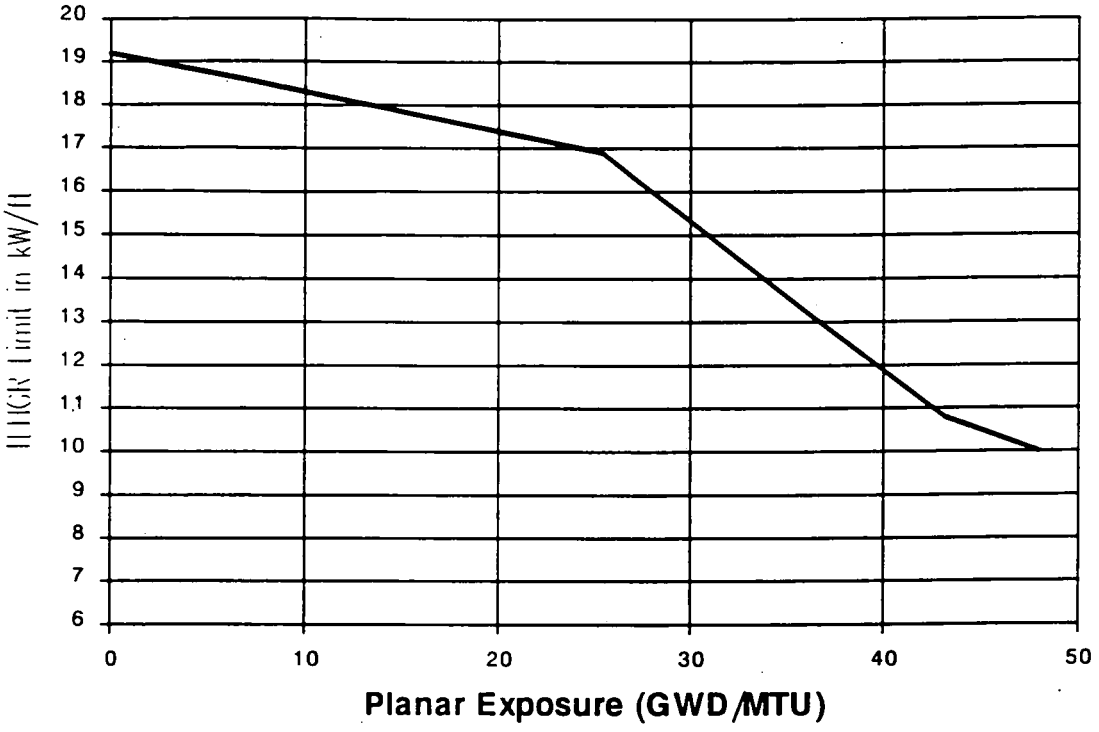
Technical Specification 3.5.K - Local Transient LHGR

4.2 Description

The Local Transient LHGR (TLHGR) limit versus Average Planar Exposure for SPC 9x9 fuel is determined from Figure 4.2-1.

FIGURE 4.2-1

TRANSIENT LHGR (TLHGR) VS. PLANAR EXPOSURE
FOR SPC 9X9-2 FUEL



Exposure (GWD/MTU)	LHGR (kW/ft)
0.0	19.2
25.4	16.9
43.2	10.8
48.0	10.0

5.0 OPERATING LIMIT MINIMUM CRITICAL POWER RATIO

5.1 Technical Specification References

Technical Specification 3.5.L - Minimum Critical Power Ratio (MCPR)

5.2 Description

a. The Operating Limit MCPR at rated output versus measured scram time is shown in Figure 5.2-1. The Operating Limit MCPR is 1.45 or greater whenever the measured 90% insertion time is 3.50 seconds or less.

b. During Manual Flow Control, the Operating Limit MCPR at reduced core flow conditions can be determined from:

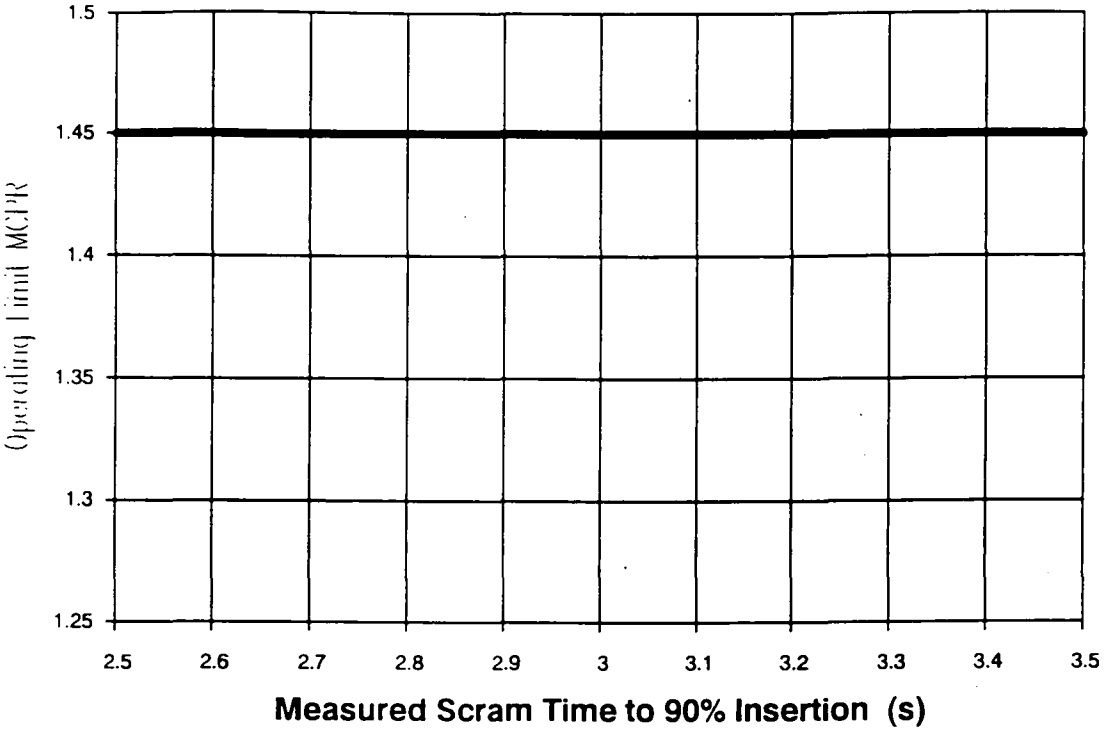
   i. Figure 5.2-2 using the appropriate flow rate, or

   ii. The Operating Limit MCPR determined from Figure 5.2-1, whichever is greater.

c. During Automatic Flow Control, the Operating Limit MCPR at reduced flow rates can be determined from Figure 5.2-3 using the appropriate flow rate and the Operating Limit MCPR, which is obtained from Figure 5.2-1. Linear interpolation between the curves on Figure 5.2-3 is permissible.

FIGURE 5.2-1

MCPR LIMIT VS. MEASURED SCRAM TIME TO 90% INSERTION



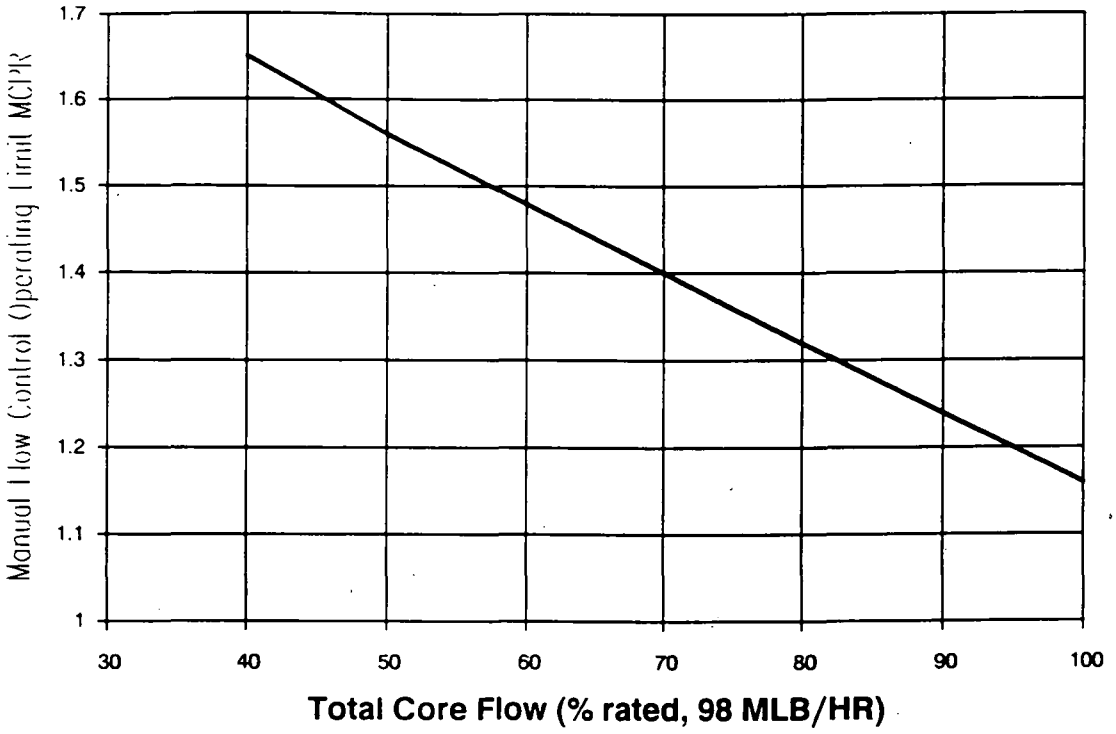
The above graph demonstrates the following dependence of the Operating Limit MCPR versus measured scram time to 90% insertion for all resident fuel types:

MCPR LCO = 1.45

Note that the Operating Limit MCPR is not a function of scram time assuming the Technical Specification scram time limit of 3.50 seconds to 90% insertion (3.3.C) is met.

FIGURE 5.2-2

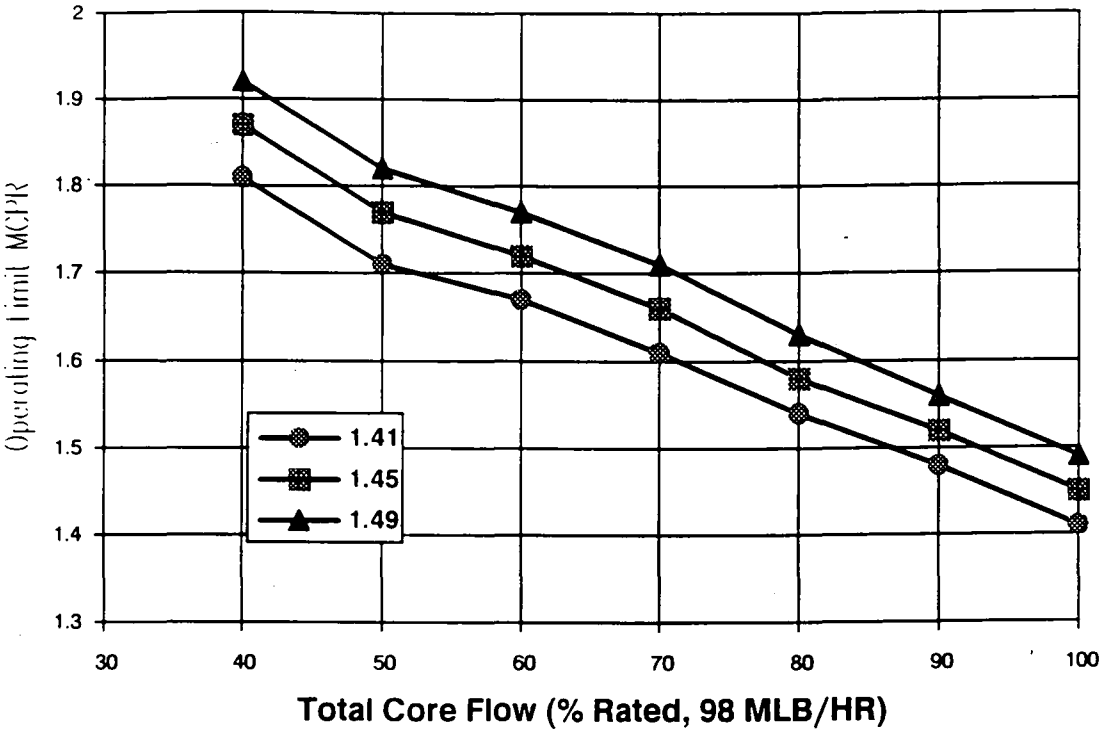
OPERATING LIMIT MCPR FOR MANUAL FLOW CONTROL



Total Core Flow (% Rated)	Operating Limit MCPR
100	1.16
90	1.24
80	1.32
70	1.40
60	1.48
50	1.56
40	1.65

FIGURE 5.2-3

OPERATING LIMIT MCPR FOR AUTOMATIC FLOW CONTROL



Recirculating Flow (% Rated)	MCPR Limit 1.41	1.45	1.49
100	1.41	1.45	1.49
90	1.48	1.52	1.56
80	1.54	1.58	1.63
70	1.61	1.66	1.71
60	1.67	1.72	1.77
50	1.71	1.77	1.82
40	1.81	1.87	1.92

6.0 METHODOLOGY

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 topical reports are:

1) ANF-1125(P)(A), "Critical Power Correlation - ANFB."

2) ANF-524(P)(A), "ANF Critical Power Methodology for Boiling Water Reactors."

3) XN-NF-79-71(P)(A), "Exxon Nuclear Plant Transient Methodology for Boiling Water Reactors."

4) XN-NF-80-19(P)(A), "Exxon Nuclear Methodology for Boiling Water Reactors."

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

6) XN-NF-81-22(P)(A), "Generic Statistical Uncertainty Analysis Methodology."

7) ANF-913(P)(A), "COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analyses."

8) 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).