DUKE POWER COMPANY

OCONEE 1 CYCLE 18

CORE OPERATING LIMITS REPORT

REVISION 9

QA CONDITION 1

REFERENCE OSC-6672

Prepared by: J L [illegible] Date: 06FEB98

Checked by: David W Harris Date: 06FEB98

Approved by: R. R. St. Clair Date: 06 FEB 98

Oconee Nuclear Station

Unit 1 Cycle 18

Core Operating Limits Report

Insertion Sheet for Revision 9

This revision is not valid until the end of operation for Unit 1 Cycle 17.

Remove these Revision 8 pages	**Insert these Revision 9 pages**
1,2,3,5,13,16,17,32,36	1,2,3,5,13,16,17,32,36

Oconee Nuclear Station

Unit 1 Cycle 18

Core Operating Limits Report

Revision Log

Revision	Effective Date	Pages Revised	Pages Added	Pages Deleted	Total Effective Pages
9	February	1,2,3,5, 13,16,17, 32,36			38
8	November 1997	1,2,3,5,10 32	37	-	38
7	August 1997	1-38	-	-	38
Oconee 1 Cycle 17 Revisions Below					
6	November 1995	1-33	34-38	-	38
Oconee 1 Cycle 16 Revisions Below					
5	September 21, 1995	1-3, 11	-	-	34
4	March 9, 1995	1-3, 12, 19, 22-25	-	-	34
3	January 30, 1995	1-3, 12, 19, 22-25	-	-	34
2	June 28, 1994	1-3, 10, 17	-	-	34
1	May 17, 1994	1-4, 15	4a	-	34
0	April 18, 1994	-	1-33	-	33

1.0 ERROR-ADJUSTED CORE OPERATING LIMITS

This Core Operating Limits Report for O1C18 has been prepared in accordance with the requirements of Technical Specification 6.9. The core operating limits within this report have been developed using NRC-approved methodology (References 1, 2, 3, and 4). The RPS protective limits and maximum allowable setpoints are documented in References 6 and 7, and validated in References 5 and 8 for O1C18. Operational limits and requirements are documented in Reference 5. The reactor coolant system design flow used in References 5 and 8 for O1C18 is 107.5 % (of 88,000 gpm per pump). The core operating limits have been developed with a radial local peaking factor ($F^N_{\Delta H}$) of 1.714 and an axial peaking factor (F^N_Z) of 1.5.

The error-adjusted core operating limits (i.e., setpoints) have been determined for O1C18, with all necessary uncertainties and margins applied. The calculations that support these setpoints are documented in Reference 5. The following cycle specific error-adjusted setpoints are included in this report:

1) RPS protective limits (Figures 1.1 and 2.1), and RPS maximum allowable setpoints (Figures 1.2 and 1.3),
2) Steady state operating band,
3) BWST, SFP, CBAST, and CFT boron requirements,
4) Quadrant power tilt operational setpoints,
5) RPS power-imbalance trip setpoints,
6) Power-imbalance operational setpoints and,
7) Rod index operational alarm and shutdown margin-restricted setpoints.

1.1 REFERENCES

1) DPCo, Nuclear Design Methodology Using CASMO-3 / SIMULATE-3P, DPC-NE-1004A, November 1992.
2) DPCo, Oconee Nuclear Station, Reload Design Methodology II, DPC-NE-1002A, October 1985.
3) DPCo, Oconee Nuclear Station, Reload Design Methodology, NFS-1001A, April 1984.
4) DPC-NE-2003A, Oconee Nuclear Station Core Thermal Hydraulic Methodology Using VIPRE-01, July 1989.
5) O1C18 Maneuvering Analysis, DPCo calculational file, OSC-6672, Rev. 4, February 1998.
6) Variable Low Pressure Safety Limit, DPCo calculational file, OSC-4048, Revision 0, July 1990.
7) Power-Imbalance Safety Limits and Tech. Spec. Setpoints Using Error-Adjusted Flux-Flow Ratio of 1.094, DPCo calculational file, OSC-5604, Revision 0, November 1993.
8) Oconee 1 Cycle 18 Specific DNB Analysis, DPCo calculational file, OSC-6729, Revision 2, November 1997.

Oconee 1 Cycle 18

ERROR ADJUSTED POWER-IMBALANCE OPERATIONAL SETPOINTS

0 EFPD to EOC

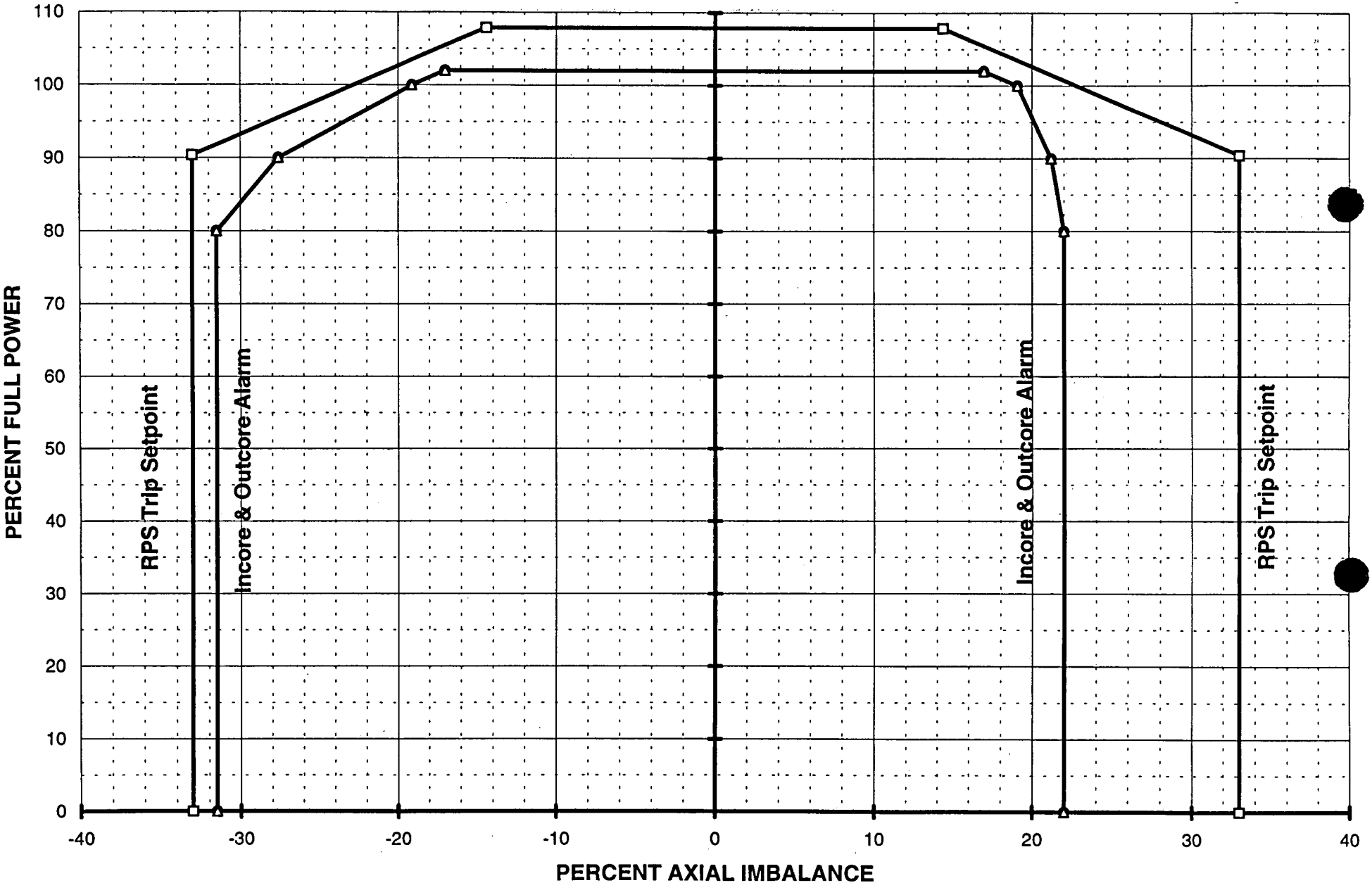
	POWER % OF 2568 MW	FULL INCORE ALARM SETPOINT	BACKUP INCORE SETPOINT	OUTCORE ALARM SETPOINT
4 PUMP	0	-31.5	-31.0	-31.5
	80	-31.5	-31.0	-31.5
	90	-27.6	-27.1	-27.6
	100	-19.1	-18.7	-19.1
	102	-17.0	-17.0	-17.0
	102	+17.0	+17.0	+17.0
	100	+19.1	+18.7	+19.1
	90	+21.2	+20.6	+21.2
	80	+22.0	+21.2	+22.0
	0	+22.0	+21.2	+22.0
3 PUMP	0.0	-31.5	-31.0	-31.5
	63.3	-31.5	-	-31.5
	63.8	-	-31.0	-
	77.0	-17.0	-17.0	-17.0
	77.0	+17.0	+17.0	+17.0
	73.0	-	+21.2	-
	72.3	+22.0	-	+22.0
	0.0	+22.0	+21.2	+22.0

OCONEE 1 CYCLE 18 IMBALANCE SETPOINTS

4 PUMP OPERATION BOC TO EOC

PERCENT OF FULL POWER	RPS TRIP		FULL INCORE ALARM		OUTCORE ALARM	
107.9	-14.40	14.40				
107	-15.36	15.36				
106	-16.42	16.42				
105	-17.48	17.48				
104	-18.55	18.55				
103	-19.61	19.61				
102	-20.67	20.67	-17.00	17.00	-17.00	17.00
101	-21.73	21.73	-18.05	18.05	-18.05	18.05
100	-22.80	22.80	-19.10	19.10	-19.10	19.10
99	-23.86	23.86	-19.95	19.31	-19.95	19.31
98	-24.92	24.92	-20.80	19.52	-20.80	19.52
97	-25.99	25.99	-21.65	19.73	-21.65	19.73
96	-27.05	27.05	-22.50	19.94	-22.50	19.94
95	-28.11	28.11	-23.35	20.15	-23.35	20.15
94	-29.17	29.17	-24.20	20.36	-24.20	20.36
93	-30.24	30.24	-25.05	20.57	-25.05	20.57
92	-31.30	31.30	-25.90	20.78	-25.90	20.78
91	-32.36	32.36	-26.75	20.99	-26.75	20.99
90.4	-33.00	33.00	-27.26	21.12	-27.26	21.12
90	-33.00	33.00	-27.60	21.20	-27.60	21.20
89	-33.00	33.00	-27.99	21.28	-27.99	21.28
88	-33.00	33.00	-28.38	21.36	-28.38	21.36
87	-33.00	33.00	-28.77	21.44	-28.77	21.44
86	-33.00	33.00	-29.16	21.52	-29.16	21.52
85	-33.00	33.00	-29.55	21.60	-29.55	21.60
84	-33.00	33.00	-29.94	21.68	-29.94	21.68
83	-33.00	33.00	-30.33	21.76	-30.33	21.76
82	-33.00	33.00	-30.72	21.84	-30.72	21.84
81	-33.00	33.00	-31.11	21.92	-31.11	21.92
80	-33.00	33.00	-31.50	22.00	-31.50	22.00
0	-33.00	33.00	-31.50	22.00	-31.50	22.00
PERCENT OF FULL POWER	RPS TRIP		FULL INCORE ALARM		OUTCORE ALARM	

OCONEE 1 CYCLE 18 IMBALANCE SETPOINTS
4 PUMP OPERATION -- BOC TO EOC



2.0 CORE OPERATING LIMITS (NOT ERROR-ADJUSTED)

The following cycle-specific core operating limits are included in this report. All computations performed in setting these limits used the approved SIMULATE methodology.

1) RPS protective limits (Figure 2.1 and table),

2) Quadrant power tilt operational limits,

3) Power-imbalance operational limits and,

4) Rod index operational alarm and shutdown margin-restricted limits.

2.1 REFERENCES

1) DPCo, Nuclear Design Methodology Using CASMO-3 / SIMULATE-3P, DPC-NE-1004A, November 1992.

2) DPCo, Oconee Nuclear Station, Reload Design Methodology II, DPC-NE-1002A, October 1985.

3) DPCo, Oconee Nuclear Station, Reload Design Methodology, NFS-1001A, April 1984.

4) DPC-NE-2003A, Oconee Nuclear Station Core Thermal Hydraulic Methodology Using VIPRE-01, July 1989.

5) O1C18 Maneuvering Analysis, DPCo calculational file, OSC-6672, Revision 4, February 1998.

6) Variable Low Pressure Safety Limit, DPCo calculational file, OSC-4048, Revision 0, July 1990.

7) Power-Imbalance Safety Limits and Tech. Spec. Setpoints Using Error-Adjusted Flux-Flow Ratio of 1.094, DPCo calculational file, OSC-5604, Revision 0, November 1993.

8) Oconee 1 Cycle 18 Specific DNB Analysis, DPCo calculational file, OSC-6729, Revision 2, November 1997.

Oconee 1 Cycle 18

POWER-IMBALANCE OPERATIONAL LIMITS*

***NOT FOR PLANT USE -- SEE PAGE 13**

	POWER % OF 2568 MW	IMBALANCE LIMITS
4 PUMP	0.0	-43.8
	80.0	-43.8
	90.0	-39.7
	100.0	-30.0
	100.0	+30.0
	90.0	+32.0
	80.0	+32.2
	0.0	+32.2
3 PUMP	0.0	-43.8
	77.0	-43.8
	77.0	+32.2
	0.0	+32.2

* -- These limits have not been error-adjusted and **are not for plant use**. Refer to Section 1 of this Report for the error-adjusted setpoints.

Referred to by Tech. Spec. 3.5.2.6