

DUKE POWER COMPANY
OCONEE 1 CYCLE 14
CORE OPERATING LIMITS REPORT
REVISION 1
May 1991

REFERENCE OSC-4137

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1.0 CORE OPERATING LIMITS

This Core Operating Limits Report for O1C14 has been prepared in accordance with the requirements of Technical Specification 6.9. The core operating limits have been developed using NRC-approved methodology (References 1, 2, and 3) and are documented in Reference 4. The RPS safety limits and setpoints for O1C14 are documented in References 5 and 6. The Reactor Coolant System design flow used in Reference 4 for O1C14 is 109.5% (of 88,000 gpm per RCP). The core operating limits have been developed with a radial local peaking factor ($F_{\Delta H}^N$) of 1.714 and an axial peaking factor (F_Z) of 1.5.

The following cycle-specific core operating limits are included in this report:

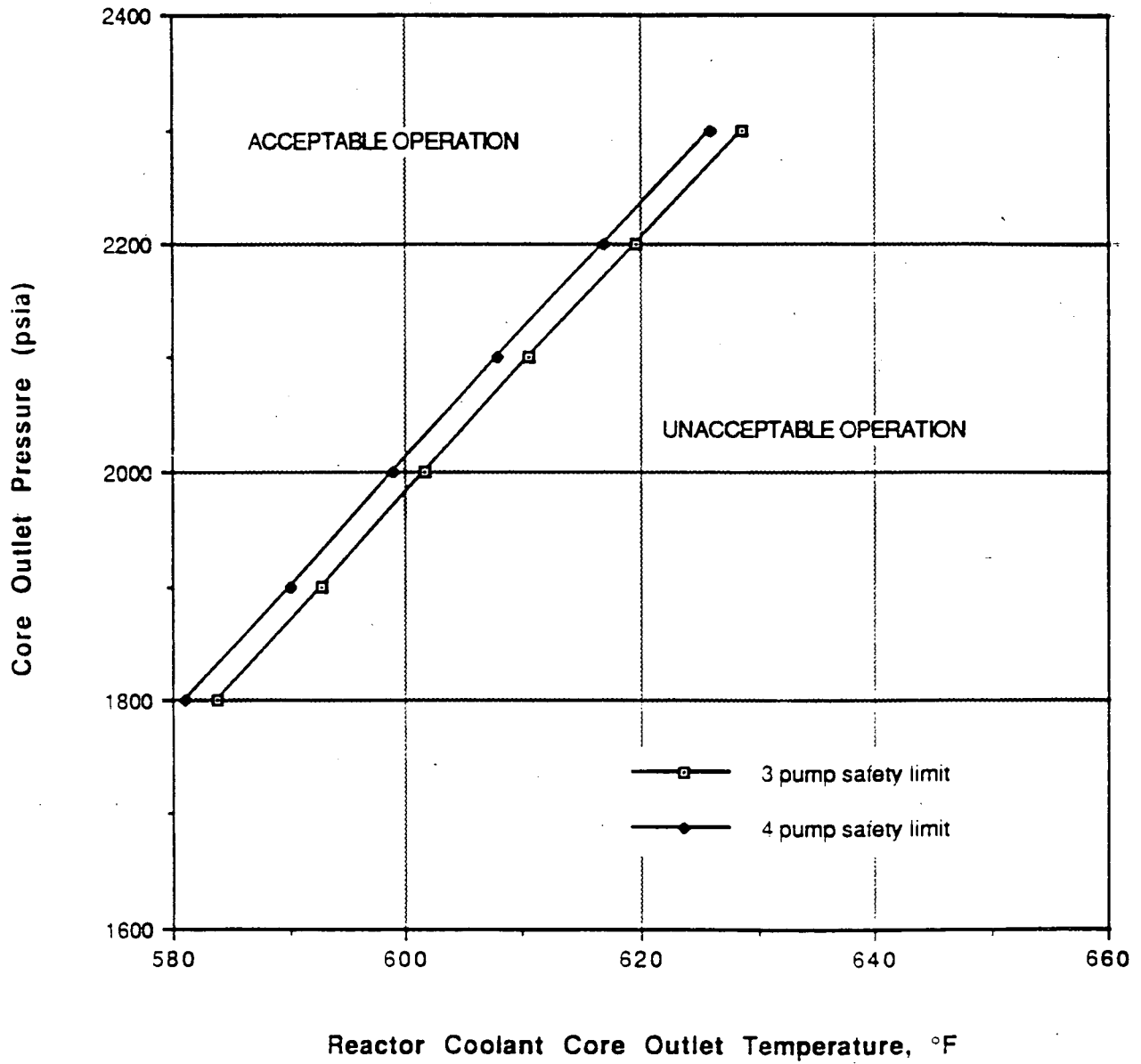
- 1) RPS safety limits,
- 2) RPS limiting safety system settings,
- 3) Steady state operating band,
- 4) Operational power-imbalance limits,
- 5) Operational and shutdown margin-limited control rod position limits, and
- 6) Quadrant power tilt limits.

1.1 REFERENCES

1. Duke Power Company, Oconee Nuclear Station, Reload Design Methodology II, DPC-NE-1002A, October 1985.
2. NFS-1001A, Reload Design Methodology, April 1984.
3. DPC-DE-2003A, Oconee Nuclear Station Core Thermal Hydraulic Methodology Using VIPRE-01, July 1989.
4. O1C14 Maneuvering Analysis, Duke Power Company calculational file, OSC-4137, Revision 0, 13MAR91.
5. Variable Low Pressure Safety Limit, Duke Power Company calculational file, OSC-4048, Revision 0, 24JUL90.
6. O1C14 RPS Setpoints and Safety Review, Duke Power Company calculational file, OSC-4275, Revision 0, 25MAR91.

Figure 1.1

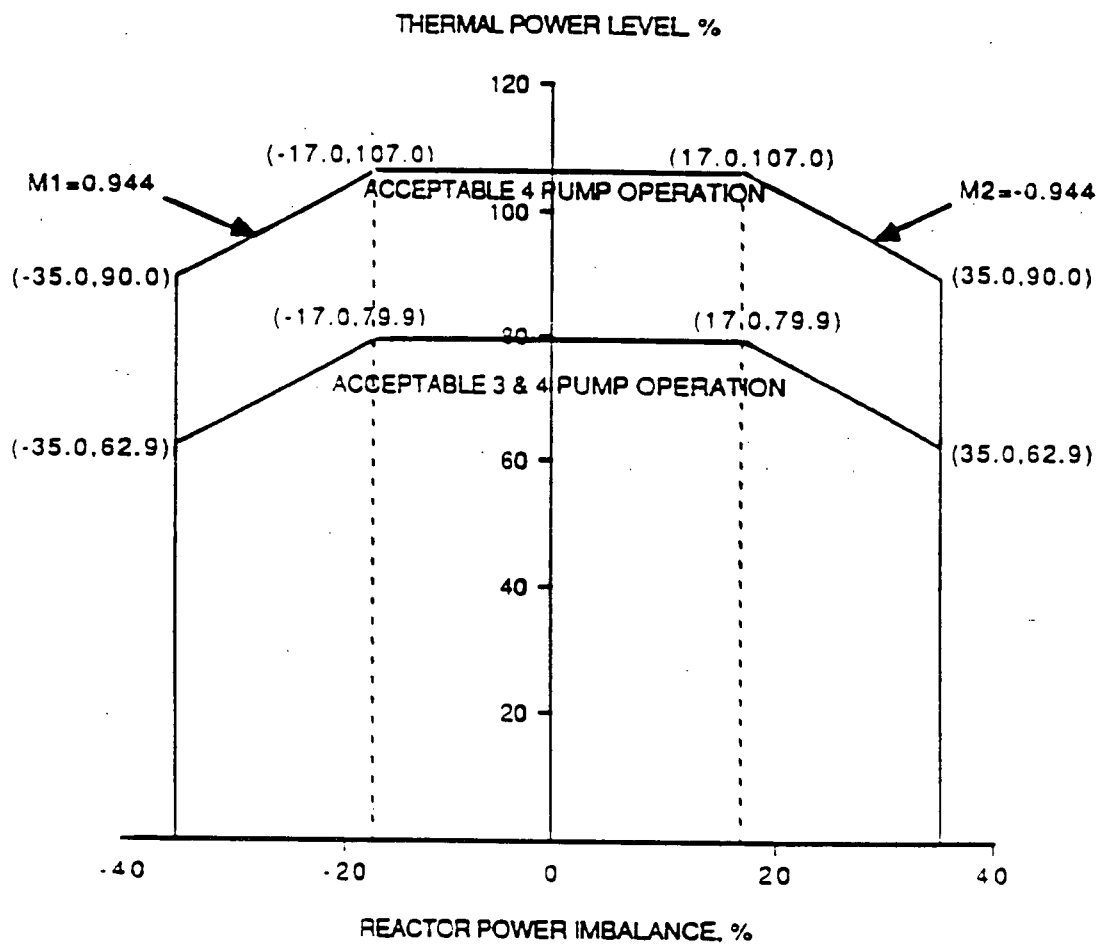
CORE PROTECTION SAFETY LIMITS UNIT 1



Referred to by Tech. Spec. 2.1

Figure 1.3

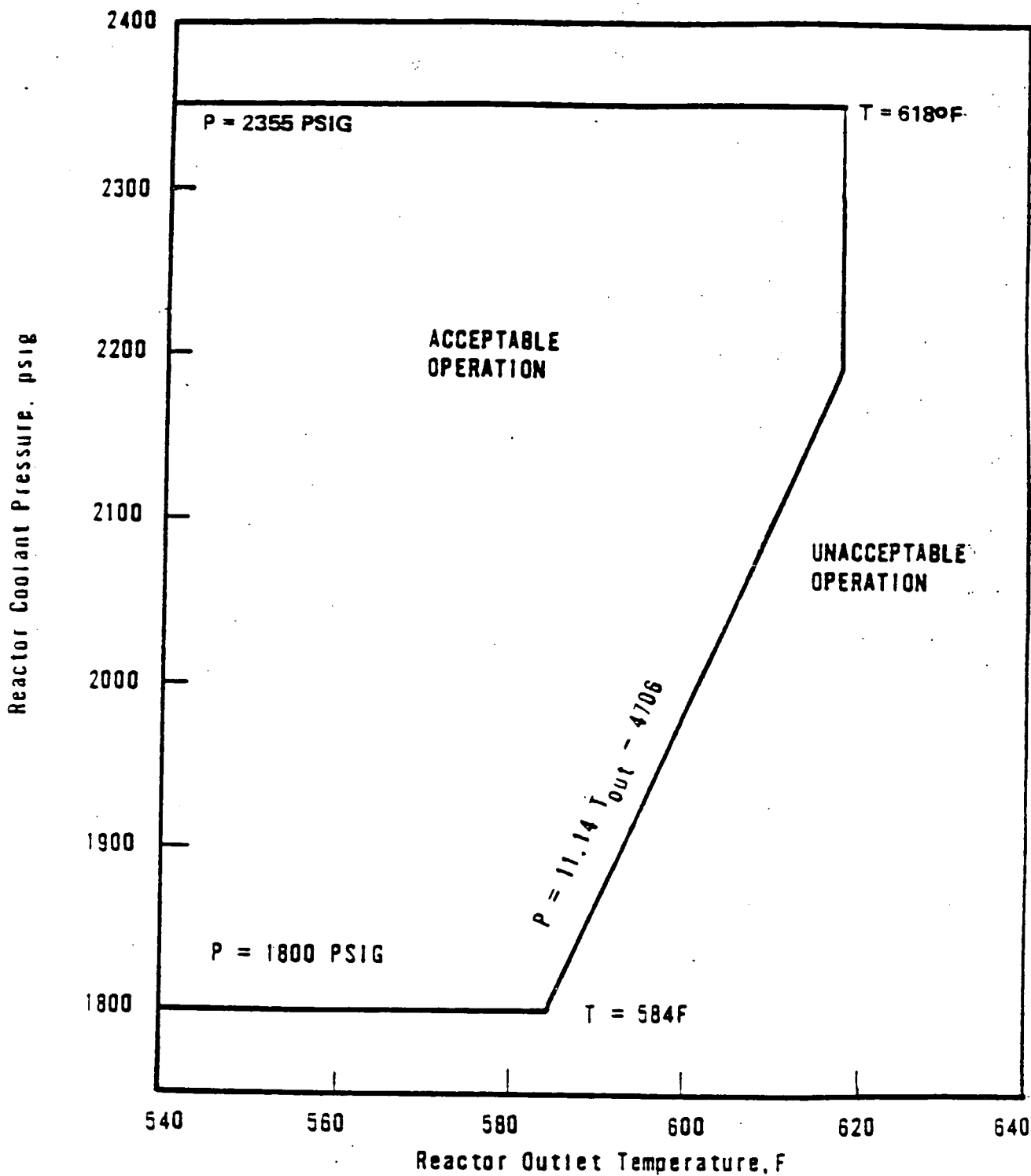
PROTECTIVE SYSTEM MAXIMUM ALLOWABLE SETPOINTS UNIT 1



Referred to by Tech. Spec. 2.3

Figure 1.4

PROTECTIVE SYSTEM MAXIMUM ALLOWABLE SETPOINTS UNIT 1



Referred to by Tech. Spec. 2.3

Oconee 1 Cycle 14
QUADRANT POWER TILT LIMITS

Steady State Limit

5.00

Transient Limit

9.44

Maximum Limit

20.0

Referred to by Tech. Spec:

- 3.5.2.4.a
- 3.5.2.4.b
- 3.5.2.4.d
- 3.5.2.4.e
- 3.5.2.4.f

Oconee 1 Cycle 14

STEADY STATE OPERATING BAND

RI, %WD		APSR, %WD	
<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>
292	300	30	40

Oconee 1 Cycle 14

OPERATIONAL POWER IMBALANCE BREAKPOINTS

	POWER % OF 2568MW	IMBALANCE LIMITS
4 PUMP	0.0	-40.67
	80.0	-40.67
	90.0	-38.09
	102.0	-25.57
	102.0	20.46
	90.0	24.50
	80.0	26.10
	0.0	26.10
3 PUMP	0.0	-40.67
	77.0	-40.67
	77.0	26.10
	0.0	26.10

Referred to by Tech. Spec. 3.5.2.6

Oconee 1 Cycle 14

QUADRANT POWER TILT LIMITS

STEADY STATE LIMITS		TRANSIENT LIMITS		MAXIMUM LIMITS
<u>>30 - 100%FP</u>	<u>0 - 30%FP</u>	<u>>30 - 100%FP</u>	<u>0 - 30%FP</u>	<u>0 - 100%FP</u>
5.00	10.00	9.44	12.00	20.00

Referred to by Tech. Spec:

- 3.5.2.4.a
- 3.5.2.4.b
- 3.5.2.4.d
- 3.5.2.4.e
- 3.5.2.4.f

Oconee 1 Cycle 14

QUADRANT TILT SETPOINTS

	STEADY STATE		TRANSIENT		MAXIMUM
	<u>>30-100%FP</u>	<u>0-30%FP</u>	<u>>30-100%FP</u>	<u>0-30%FP</u>	<u>0-100%FP</u>
FULL INCORE (*):	3.02	7.49	6.99	9.27	16.43
EXCORE:	2.03	6.09	5.63	7.72	14.22
BACKUP INCORE:	1.92	3.94	3.64	5.03	9.58

(*) BASED UPON $q = 0.61$