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HASTINGS,P.S. Duke Power Co.
TUCKER,H.B. Duke Power Co.
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DUKE POWER COMPANY
P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

March 9, 1990

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Subject: Oconee Nuclear Station
Docket No. 50-287
Unit 3 Cycle 12 Startup Testing Report

Gentlemen:

Pursuant to Oconee Nuclear Station Technical Specification 6.6.1.1 please find attached the Startup Test Report for Oconee Unit 3, Cycle 12. Part I of the report contains Zero Power Physics Test information. Part II contains Power Escalation Test results.

Very truly yours,

H. B. Tucker

PJN/51/kc

Attachment

cc: Mr. S. D. Ebneter
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, GA 30323

Mr. L. A. Wiens
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. P. H. Skinner
NRC Resident Inspector
Oconee Nuclear Station

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DUKE POWER COMPANY

OCONEE NUCLEAR STATION

OCONEE 3 CYCLE 12

STARTUP TESTING REPORT

Part I: Zero Power Physics Test

Part II: Power Escalation Test

Prepared by: Peter S. Hastings

OCONEE 3 CYCLE 12
Startup Testing Report
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Part I: Zero Power Physics Test

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Enclosures

OCONEE 3 CYCLE 12
STARTUP TESTING REPORT

PART I

ZERO POWER PHYSICS TEST

1.0 Introduction and Summary

The Oconee 3 Cycle 12 Zero Power Physics Test (ZPPT) was conducted from 12/17/89 through 12/19/89 per Station Procedure TT/3/A/0711/12. The purpose of this testing was to verify the nuclear parameters upon which the Oconee 3 Cycle 12 safety analysis and Technical Specifications are based.

Zero Power Physics Testing measurements were made with reactor power controlled between 3.0×10^{-10} amps and 5.0×10^{-8} amps on the intermediate range instrumentation; reactivity insertions were maintained < 1200 μρ. RCS pressure and temperature were maintained at approximately 2150 psig and 532°F, respectively.

The following nuclear parameters were measured:

(a) All-Rods-Out Boron Concentration (See Enclosure 1.0);

(b) Temperature and Moderator Coefficients of Reactivity (See Enclosure 2.0);

(c) Integral Rod Worth for Control Rod (CR) Groups 5, 6, and 7 (See Enclosure 2.0);

(d) Differential Boron Worth (See Enclosure 1.0).

The plant computer was used to record RC pressure, RC temperature, intermediate range power levels, and control rod positions. Reactivity was calculated by the plant computer and output to a chart recorder.

On 12/19/89 at 1130, ZPPT was declared complete. All acceptance criteria were met.

2.0 Approach to Criticality

The initial RCS heatup following the refueling outage began on 12/14/89. Hot shutdown was reached on 12/18/89 at approximately 0500. Source range count rates were recorded and 1/M (inverse multiplication) vs RC temperature plots were generated while deborating during heatup, from approximately 330°F until close to hot shutdown.

Rod withdrawal for the Control Rod Drive Trip Time Test began at 1200 on 12/18/89. Because of an NRC concern over achieving criticality prior to establishing control rod operability, the Control Rod Trip Time Test was performed entirely at hot shutdown conditions (ie., $\geq$ 1%Δk/k shutdown). This restriction was maintained at the predicted ARO critical boron concentration by withdrawing CR groups 1-5 in sequence and tripping all five banks (per station procedure IP/0/A/301/3W), then withdrawing and tripping CR groups 6 and 7 individually. The Control Rod Trip Time Test was completed, with all acceptance criteria met, at 1500 on 12/18/89.

1/M vs. withdrawn rod worth plots were maintained throughout the withdrawal of CR groups 1-5 for the Trip Time Test, then again beginning with Group 5 during the subsequent approach to criticality. Criticality was achieved at 1755 on 12/18/89 with rod groups 1-7 at 100% wd, group 8 at 25% wd and RCS boron concentration at 1669 ppmB.

3.0 Pre-Physics Measurements

After establishing steady conditions with the reactor critical, NI overlap was verified and recorded. After resolving a problem with NI-4 inoperability (both intermediate range signals are required to generate a source range cutoff signal), the point of adding sensible heat was determined. From the sensible heat determination, the upper testing limit on the intermediate range NIs (as indicated on the Control Room Chart) was established for ZPPT.

An on-line OAC reactimeter checkout* was then performed by making reactivity insertions of about $\pm$ 500 and $\pm$ 1200 $\mu\rho$, and measuring the associated doubling times. These doubling times were input to an off-line reactivity calculation and the results were then compared to the on-line reactivity values.

*NOTE: An off-line OAC reactimeter checkout was performed during RCS heatup. This checkout verified correct calculational and chart recorder response to three test cases in which simulated power ramps were input via floppy disks.

4.0 Physics Testing

A. All Rods Out Boron Concentration Measurement

The RCS equilibrium boron concentration was measured with Groups 1-6 at 100% wd, Group 7 at 90% wd, and CR Group 8 at 35% wd. The control rods were moved to their all-rods-out position (Groups 1-7 at 100% wd, Gp. 8 at 35% wd) and the associated reactivity change was converted to ppmB. The All Rods Out Boron concentration was then calculated and verified to be within 50 ppmB of its predicted value.

B. Reactivity Coefficient Measurements

The temperature coefficient measurement was made while maintaining equilibrium boron concentration in the RCS, with CR Group 7 withdrawn to 81% wd and with CR Group 8 at 35% wd. This measurement was made by varying RCS temperature by about 8°F and observing the associated reactivity change. The change in reactivity was divided by the change in RCS temperature to calculate the temperature coefficient. The measured temperature coefficient was corrected for the difference in RCS average test temperature and reference temperature (532°F). The moderator temperature coefficient was calculated by subtracting the predicted isothermal Doppler coefficient from the measured temperature coefficient.

C. Control Rod Integral Worths and Differential Boron Worth Measurement

The worths of CR Groups 5, 6, and 7 were measured by steadily deborating the RCS and compensating for the resulting positive reactivity ramp by inserting (in discrete steps of ~1000 μρ) the control rods from 100% wd on Group 7 to 50% wd on Group 4 (with no rod overlap). The reactivity changes resulting from the discrete control rod insertions were summed for each group to obtain the group integral worth.

The differential boron worth was calculated by dividing the total rod worth inserted during the rod worth measurements by the corresponding change in RCS boron concentration. The initial value for the boron concentration was recorded at critical equilibrium conditions. The final values of boron concentration and reactivity were recorded as they approached steady-state at a rate of less than 80 μρ/minute.

PART II

POWER ESCALATION TEST

1.0 Introduction and Summary

The Oconee 3 Cycle 12 Power Escalation Test was performed between 12/19/89 and 12/29/89 per Station Procedure TT/3/A/0811/12. Testing was performed at 15% Full Power (FP), 58% FP, 73% FP, 92% FP, and 99% FP to verify nuclear parameters upon which the Oconee 3 Cycle 12 safety analysis and Technical Specifications are based. The following tests and verifications were performed:

(a) Initial Core Symmetry Check @ 15% FP;

(b) NSS Heat Balance @ 15% FP, 58% FP, and 92% FP (See Enclosure 3.0);

(c) Incore Detector Checkout @ 15% FP, 58% FP and 92% FP;

(d) Power Imbalance Detector Correlation Slope Measurement @ 58% FP;

(e) Core Power Distribution @ 73% FP and 99% FP (See Enclosures 4.0-4.3 and 5.0);

(f) All-Rods-Out Critical Boron Concentration @ 99% FP (See Enclosure 1.0).

The unit reached 15% FP at 1825 on 12/19/89. All low power testing (LPT) was completed that day. The unit reached 58% FP at 1300 on 12/24/89; testing at this plateau was completed that day. After resolving problems with placing the 3B Feedwater Pump into service, power escalation to 73% FP continued and the remainder of intermediate power testing (IMPT) was completed at 0930 on 12/26/89. The unit reached 92% FP on 12/26/89 at about 1700. Preliminary full power testing (FPT), consisting of Incore Detector Checkout, Thermal Hydraulic calculation extrapolations, and NSS Heat Balance, was performed at this power level. Escalation to a steam generator level-limited power level of 99% FP resumed the next day, and testing at this power level was concluded on 12/29/89. Power Escalation Testing was declared complete the same day.

2.0 NSS Heat Balance/RC Flow Verification

Off-line secondary and primary heat balances were performed at 15% FP (primary only), 58% FP, and 93 and 100% FP. These tests verified the accuracy of CTPA, the on-line plant computer program which performs primary and secondary heat balances. The plant computer was used to average heat balance data (flows, temperatures, pressures, etc.) for 15 minutes. This data was input into the off-line heat balance program, the results were compared to CTPA averages for the same period, and agreement within 2% FP was verified.

RC flow was determined from plant computer indications at LPT. An off-line program was used to calculate RC flow based on a secondary heat balance and measured primary loop enthalpy changes for IMPT and FPT. These results demonstrated that the RC flow rate was above that assumed in the core design (108.5% design flow) and, for FPT, below that which could cause core lift at 350°F (113.5% design flow).

Normalization of the plant computer flow constants (used to calculate flow from the primary delta-P instrumentation) was performed at FPT and on-line and off-line power calculations were then verified to agree within 2% FP.

3.0 Core Power Distribution

Core Power Distribution tests were conducted at 58% FP and 73% FP, and at 93% FP and 99% FP. These tests verified that reactor power imbalance, quadrant power tilt, minimum DNBR, maximum linear heat rate (LHR) and radial/total power peaks did not exceed their respective specified limits. An initial Core Symmetry Check was performed at 19% FP. All acceptance criteria were met.

Specific checks were made as follows:

Incore imbalance was compared to the error adjusted imbalance LOCA limit curve and was verified to be within specified limits (based on Tech Spec 3.5.2.6).

The maximum positive quadrant power tilt was verified to be less than the error adjusted LOCA limit (based on Tech Spec 3.5.2.4).

The LHR was verified to be within the LOCA limit at each core level (per Reload Report DPC-RD-2014).

The worst case minimum DNBR and maximum LHR, when extrapolated to the overpower trip setpoint, were verified to be within the clad failure and fuel melt limits, respectively (per Tech Spec 2.1 and Reload Report).

Prior to performing the radial and total peaking factor comparisons, PT/0/B/0302/06 (Review and Control of Incore Neutron Detector Signals) was performed to identify erroneous SPND signals. This test was performed at 15% FP as part of Core Symmetry Verification, and at 58% FP and 92% FP as directed in the Incore Detector Checkout.

The radial and total peaking factors were measured and compared to the predicted values at 73% and 99% FP. The following acceptance criteria were applied:

(a) $$\% \text{ Deviation} = \frac{(\text{Predicted} - \text{Measured})}{\text{Measured}} \times 100$$

$$\leq \begin{cases} \pm 15\% \text{ for radial peaking factors} \\ \pm 20\% \text{ for total peaking factors (recommended maximum deviation - not an acceptance criterion)} \end{cases}$$

(b) $$\text{Largest Peak \% deviation} = \frac{LMP-LPP}{LMP} \times 100$$

$$\leq \begin{cases} + 5.0\% \text{ for radial peaking factors} \\ + 7.5\% \text{ for total peaking factors} \end{cases}$$

Where: LMP is the largest measured peaking factor
LPP is the largest predicted peaking factor

(c) The <u>full core</u> root mean square radial peaking factor deviation (RMS) for all core locations with <u>operable</u> incore detector strings was limited as follows:

$$\% \text{ RMS deviation} = \left[\sum_{i=1}^{n} \frac{(PP_i - MP_i)^2}{n - 1} \right]^{\frac{1}{2}} \times 100 \quad \leq 7.5\%$$

Where: PP = Predicted radial peaking factor
MP = Measured radial peaking factor
n = Total number of operable incore detector strings

4.0 <u>Power Imbalance Detector Correlation</u>

The Power Imbalance Detector Correlation Test was performed at 73% FP. The purpose of this test was to measure the excore to full incore power imbalance correlation slopes for NI Channels 5, 6, 7, and 8, and to verify these slopes to be equal to or greater than 0.95.

The incore/excore imbalance correlation slope for each NI Channel (5-8) was determined by a least squares fit of excore to incore imbalance indications. A total of 14 incore imbalance points which ranged between -7.14% and +3.79% FP were used. All the slopes were verified to be greater than 0.95.

The correlation slopes for NI Channels 5 and 6 were calculated to be 1.12; the slopes for NI Channels 7 and 8 were calculated to be 1.09 and 1.11 respectively. The differential amp gain settings for NI Channels 5-8 were 4.14, 4.26, 3.77, and 4.08 respectively.

5.0 Reactivity Measurement at Power

Per the Oconee Generic Startup Physics Test Program (May 1986 reissue), testing for measurement of reactivity coefficients at power is no longer required. The All Rods Out Critical Boron at Power measurement was made at 99% FP, and the boron anomaly between measured and predicted concentration was verified to be less than 50 ppmB.

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 1.0

ALL-RODS-OUT (ARO) BORON AND DIFFERENTIAL BORON WORTH RESULTS

	Zero Power ARO Critical Boron Concentration	At-Power ARO Critical Boron concentration	Differential Boron Worth
CONDITIONS	0% FP, 0 EFPD Gp 7 @ 100% wd Gp 8 @ 35% wd (Initial critical equilibrium: Gp 7 @ 90% wd Gp 8 @ 35% wd 1663 ppmB)	100% FP, 3.7 EFPD Gp 7 @ 100% wd Gp 8 @ 35% wd (Conditions at time of Measurement: Gp 7 @ 94% wd Gp 8 @ 35% wd 1144 ppmB)	Initial: Gp 7 @ 80% wd Gp 8 @ 35% wd 1653 ppmb Final: Gp 4 @ 50% wd Gp 5 @ 0% wd Gp 8 @ 35% wd 1301 ppmB
MEASURED VALUE	1669 ppmB	1137 ppmB	- 0.8670% Δk/k per 100 ppmB
PREDICTED VALUE	1661 ppmB	1090 ppmB	- 0.8360% Δk/k per 100 ppmB
DEVIATION	+ 8 ppmB	+ 47 ppmB	- 3.60% (% Dev = $\frac{\text{Pred - Meas}}{\text{Meas}}$ X 100)
ACCEPTANCE CRITERIA	Predicted ± 50 ppmB	Predicted ± 50 ppmB	Measured more positive than - 1.33% Δk/k and ± 15% deviation from predicted

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 2.0

INTEGRAL GROUP ROD WORTH MEASUREMENTS

PARAMETER	MEASURED VALUE (% Δk/k)	PREDICTED VALUE (% Δk/k)	DEVIATION* (%)	ACCEPTANCE CRITERIA
Gp 7 Integral Worth	- 0.733	- 0.762	+ 4.0	± 15% Deviation
Gp 6 Integral Worth	- 0.892	- 0.948	+ 6.2	± 15% Deviation
Gp 5 Integral Worth	- 1.080	- 1.072	+ 0.7	± 15% Deviation
Gp 5-7 Integral Worth	- 2.705	- 2.782	+ 2.9	± 10% Deviation

* % Deviation = $\frac{\text{predicted-measured}}{\text{measured}} \times 100$

REACTIVITY COEFFICIENTS

PARAMETER	CONDITIONS	MEASURED VALUE	PREDICTED VALUE	DEVIATION (Meas - Pred)	ACCEPTANCE CRITERIA
Hot Zero Power Temperature Coefficient (ARO)	T_{av} = 537°F Gp 7 @ 81% wd Gp 8 @ 35% wd 1653 ppmB	-5.87×10^{-6} Δk/k/°F	-5.87×10^{-6} Δk/k/°F	$+4.26 \times 10^{-6}$ Δk/k/°F	Deviation Less than $\pm 0.3 \times 10^{-4}$ Δk/k/°F
Hot Zero Power Moderator Temperature Coefficient (ARO)		$+1.46 \times 10^{-5}$ Δk/k/°F	$+3.25 \times 10^{-6}$ Δk/k/°F	$+1.13 \times 10^{-5}$ Δk/k/°F	Deviation Less than $\pm 0.3 \times 10^{-4}$ Δk/k/°F and Measured Value ≤ $+0.5 \times 10^{-4}$ Δk/k/°F

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 3.0

NSS HEAT BALANCE/RC FLOW VERIFICATION

Test Plateau	Plant Computer On-Line Primary Power Level (% FP)	Plant Computer On-Line Secondary Power Level	Plant Computer "Delta Temp" Power Level	Off-Line* Calculated Primary Power Level	Off Line* Calculated Secondary Power Level	RCS Flow (% Design Flow)
LPT	15.5	N/A	15.4	15.57	N/A	115.7
IMPT	59.1	57.7	59.3	59.1	57.8	112.5 *
FPT	95.1	92.3	95.3	95.2	92.4	111.0 *
FPT (adjusted constants)	99.4	99.4	99.4	N/A	N/A	110.8

*Calculated by the off-line secondary heat balance program (POWER)

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 4.0

RADIAL PEAKING FACTORS AT IMPT

	8	9	10	11	12	13	14	15
H	1.01 0.98 -3.3%	1.31 1.28 -2.2%	1.34 1.27 -5.4%	1.40 1.38 -1.4%	0.96 1.05 8.9%	1.23 1.18 -4.4%	**** 1.08 ****	0.38 0.39 3.2%
K		**** 1.25 ****	1.24 1.19 -4.3%	0.97 0.96 -0.7%	1.37 1.36 -0.9%	1.08 1.09 0.7%	1.28 1.30 1.0%	0.51 0.52 2.6%
L			1.09 1.08 -1.2%	1.39 1.35 -3.2%	1.05 1.07 1.9%	1.33 1.35 1.6%	0.94 1.00 5.8%	0.32 0.31 -2.7%
M				0.97 0.99 2.3%	1.32 1.32 0.1%	1.03 1.08 4.0%	0.64 0.63 -2.0%	
N					**** 0.92 ****	1.07 1.06 -1.1%	0.32 0.33 1.7%	
O						0.34 0.34 0.4%		

Meas
Pred
% Dev

$$\% \text{ Dev.} = \frac{\text{Predicted} - \text{Measured}}{\text{Measured}} * 100$$

Core Conditions

	Predicted		Measured	
Power	75.0	%FP	73.0	%FP
Group 5	100	%wd	100	%wd
Group 6	100	%wd	100	%wd
Group 7	92	%wd	87	%wd
Group 8	35	%wd	47	%wd
Imbalance	- 1.19	%FP	- 0.32	%FP
Burnup	3	EFPD	1.8	EFPD
RCS Boron	1153	ppmB	1256	ppmB
Incore tilt				
WX: -0.25			XY: +0.18	
YZ: +1.01			ZW: -0.94	

The highest % Deviation is +8.9% at location H-12.
The highest measured radial peak is 1.40 at location H-11.
The largest peak % Deviation is +1.4%.
The full core RMS % Deviation is 3.34% with 49 operable detectors.

**** The Detector in this location is inoperable.

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 4.1

TOTAL PEAKING FACTORS AT IMPT

	8	9	10	11	12	13	14	15
H	1.18 1.13 -4.2%	1.56 1.48 -5.2%	1.58 1.45 -8.2%	1.65 1.56 -5.4%	1.17 1.18 0.7%	1.44 1.34 -7.1%	**** 1.25 ****	0.43 0.45 4.7%
K		**** 1.45 ****	1.50 1.36 -9.8%	1.11 1.07 -3.7%	1.61 1.54 -4.2%	1.26 1.23 -2.8%	1.55 1.52 -2.1%	0.58 0.61 4.5%
L			1.26 1.20 -4.6%	1.62 1.52 -6.7%	1.23 1.23 1.5%	1.59 1.57 -1.2%	1.12 1.15 3.0%	0.38 0.35 -6.6%
M				1.12 1.10 -2.2%	1.57 1.52 -3.2%	1.22 1.23 1.4%	0.77 0.72 -6.4%	
N					**** 1.06 ****	1.30 1.25 -4.1%	0.39 0.37 -4.1%	
O						0.41 0.40 -2.2%		

Meas
Pred
% Dev

$$\% \text{ Dev.} = \frac{\text{Predicted - Measured}}{\text{Measured}} * 100$$

Core Conditions

	Predicted		Measured	
Power	75.0	%FP	73.0	%FP
Group 5	100	%wd	100	%wd
Group 6	100	%wd	100	%wd
Group 7	92	%wd	87	%wd
Group 8	35	%wd	47	%wd
Imbalance	- 1.19	%FP	- 0.32	%FP
Burnup	3	EFPD	1.8	EFPD
RCS Boron	1153	ppmB	1256	ppmB
Incore tilt				
WX: -0.25			XY: +0.18	
YZ: +0.22			ZW: +0.33	

The highest % Deviation is +9.8% at location K-10.
The highest measured total peak is 1.65 at location H-11.
The largest peak % Deviation is +5.1%.
The full core RMS % Deviation is 6.02% with 49 operable detectors.

**** The Detector in this location is inoperable.

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 4.2

RADIAL PEAKING FACTORS AT FPT

	8	9	10	11	12	13	14	15
H	1.02 0.98 -4.1%	1.32 1.28 -3.3%	1.34 1.26 5.7%	1.40 1.37 -1.9%	1.00 1.05 4.7%	1.23 1.17 -4.5%	**** 1.08 ****	0.38 0.40 4.6%
K		**** 1.25 ****	1.24 1.18 -4.4%	0.98 0.97 -1.2%	1.37 1.35 -1.4%	1.08 1.09 1.2%	1.26 1.29 2.1%	0.51 0.53 3.7%
L			1.09 1.08 -1.1%	1.39 1.34 -3.6%	1.04 1.07 3.0%	1.32 1.35 2.3%	0.94 1.00 5.9%	0.32 0.32 -1.2%
M				0.97 1.00 2.6%	1.32 1.31 -0.2%	1.04 1.08 3.6%	0.65 0.63 -2.6%	
N					**** 0.92 ****	1.08 1.06 -1.9%	0.33 0.33 0.2%	
O						0.35 0.35 -1.1%		

Meas
Pred
% Dev

$$\% \text{ Dev.} = \frac{\text{Predicted - Measured}}{\text{Measured}} * 100$$

Core Conditions

	Predicted		Measured	
Power	100.0	%FP	99.4	%FP
Group 5	100	%wd	100	%wd
Group 6	100	%wd	100	%wd
Group 7	92	%wd	95	%wd
Group 8	35	%wd	35	%wd
Imbalance	- 4.89	%FP	+ 1.86	%FP
Burnup	4	EFPD	3.94	EFPD
RCS Boron	1087	ppmB	1144	ppmB
Incore tilt				
WX: -0.43			XY: +0.03	
YZ: +1.29			ZW: -0.88	

The highest % Deviation is +5.9% at location L-14.
The highest measured radial peak is 1.40 at location H-11.
The largest peak % Deviation is +1.9%.
The full core RMS % Deviation is 3.54% with 49 operable detectors.

**** The Detector in this location is inoperable.

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 4.3

TOTAL PEAKING FACTORS AT FPT

	8	9	10	11	12	13	14	15
H	1.18 1.11 -6.4%	1.57 1.44 -8.3%	1.56 1.42 -9.2%	1.60 1.55 -2.8%	1.13 1.19 5.0%	1.39 1.34 -3.3%	**** 1.25 ****	0.42 0.45 7.1%
K		**** 1.41 ****	1.48 1.33 -10.3%	1.11 1.06 -4.4%	1.53 1.57 2.3%	1.23 1.24 1.6%	1.49 1.53 3.4%	0.58 0.61 5.2%
L			1.25 1.19 -4.6%	1.56 1.54 -1.1%	1.14 1.28 11.5%	1.51 1.59 5.8%	1.09 1.16 7.4%	0.36 0.36 -0.6%
M				1.05 1.12 6.3%	1.48 1.55 4.9%	1.16 1.25 7.8%	0.75 0.73 -3.2%	
N					**** 1.08 ****	1.25 1.27 1.8%	0.37 0.38 2.4%	
O						0.40 0.41 2.5%		

Meas
Pred
% Dev

$$\% \text{ Dev.} = \frac{\text{Predicted - Measured}}{\text{Measured}} * 100$$

Core Conditions

	Predicted		Measured	
Power	100.0	%FP	99.4	%FP
Group 5	100	%wd	100	%wd
Group 6	100	%wd	100	%wd
Group 7	92	%wd	95	%wd
Group 8	35	%wd	35	%wd
Imbalance	- 4.89	%FP	+ 1.86	%FP
Burnup	4	EFPD	3.94	EFPD
RCS Boron	1087	ppmB	1144	ppmB
Incore tilt				
			WX: -0.43	XY: +0.03
			YZ: +1.29	ZW: -0.88

The highest % Deviation is +11.5% at location L-12.
The highest measured total peak is 1.60 at location H-11.
The largest peak % Deviation is +0.4%.
The full core RMS % Deviation is 7.82% with 49 operable detectors.

**** The Detector in this location is inoperable.

OCONEE 3 CYCLE 12

STARTUP REPORT

ENCLOSURE 5.0

CORE POWER DISTRIBUTION DATA SUMMARY AT

LPT, IMPT AND FPT PLATEAUS

	LPT	IMPT	FPT
Power Level (% FP)	15.4	58.0	92.3
Burnup (EFPD)	0.02	1.79	2.12
Group 6/7/8 Positions (% wd)	81/07/35	100/87/47	100/91/39
RCS Boron Concentration (ppmB)	1484	1256	1205
Incore Imbalance (% FP)	+ 0.90	- 7.70	- 0.45
Incore Tilt WX/XY YZ/ZW	-0.09/-0.58 +1.18/-1.67	-0.41/+0.11 +1.04/-0.75	-0.38/-0.11 +1.17/-0.90
Minimum DNBR	21.03	6.53	3.60
Extrapolated* Worst Case Minimum DNBR	3.34	3.78	2.67
Maximum Linear Heat Rate (kW/ft)	2.30	7.35	10.52
Extrapolated* Worst Case Linear Heat Rate (kW/ft)	13.02	13.00	12.05

* Extrapolated to 85% FP for LPT, 105.5% FP for IMPT and FPT