TURKEY POINT PLANT

UNITS 3 AND 4

FIRST YEAR OPERATION REPORT

DOCKETS 50-250 AND 50-251

FACILITY LICENCES DPR-31 AND DPR-41

FLORIDA POWER AND LIGHT COMPANY

TABLE OF CONTENTS

1.0 INTRODUCTION

This report is submitted to the Nuclear Regulatory Commission by Florida Power and Light Company for Turkey Point Plant Units 3 and 4, Dockets 50-250 and 50-251, Operating Licences DPR-31 and DPR-41, in accordance with Technical Specification 6.6.1, which states:

a. OPERATIONS REPORTS

(2) First Year Operation Report - A report shall be submitted within 14 months following commencement of rated power operation. This report may be incorporated into the Semiannual Operating Report and shall cover the following:

(a) An evaluation of unit performance to date in comparison with design predictions and specifications;

(b) A reassessment of the safety analysis submitted with the license application in light of measured operating characteristics when such measurements indicate that there may be substantial variance from prior analysis;

(c) An assessment of the performance of structures, systems, and components important to safety;

(d) A progress and status report on any items identified as requiring additional information during the operating license review or during the startup of the nuclear units, including items discussed in the AEC's safety evaluation, items on which additional information was required as conditions of the license and items identified in the licensee's startup report.

2.0 EVALUATION OF UNIT PERFORMANCE

Turkey Point Plant Nuclear Generating Units 3 and 4 first achieved rated power (2200 MWt) on March 9, 1974, and March 11, 1974, respectively. Events leading up to and subsequent to these dates have previously been reported in the plant Startup and Semiannual Reports. Though not free of the normal problems associated with operation of a new generating station; Florida Power and Light takes the position that the first year of rated power operation for both units has been one of operational success and increased reliability.

2.1 REACTOR AND PLANT AVAILABILITY AND PERFORMANCE

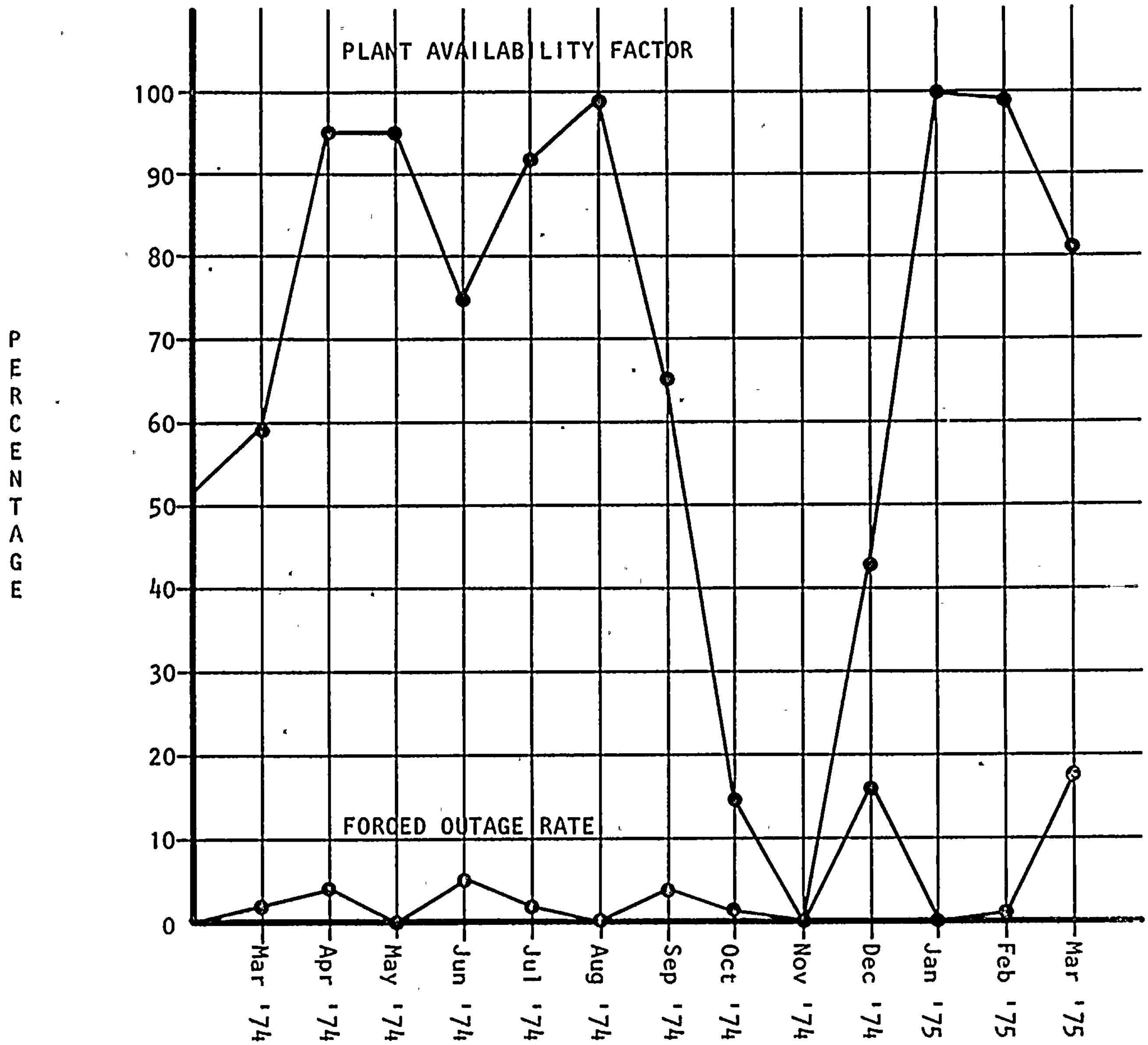
Figures 2.1-1 through 2.1-4 with tables 2.1-5 and 2.1-6 will offer a comparison of the plant availability factor versus forced outage rate with the reactor availability factor for Units 3 and 4, respectively.

Evaluation of the previously mentioned performance data reveals that both Units 3 and 4 reactors have been able to maintain a higher availability factor than their respective balance-of-plant availability factor. Events contributing to the forced outage factors in most cases are directly attributable to the balance-of-plant equipment. In many cases this condition has resulted in plant improvements and modifications to upgrade balance-of-plant equipment. In all cases where plant modifications and improvements have been implemented, it has been done through the normal method of affecting Plant Change/Modifications (PC/Ms) as required by Section 6.0 of the Technical Specifications and 10 CFR 50.59. Implementation of all PC/Ms for both units has previously been documented in the Semiannual Operating Reports.

UNIT 3

PLANT AVAILABILITY FACTOR/FORCED OUTAGE RATE

FIGURE 2.1-1



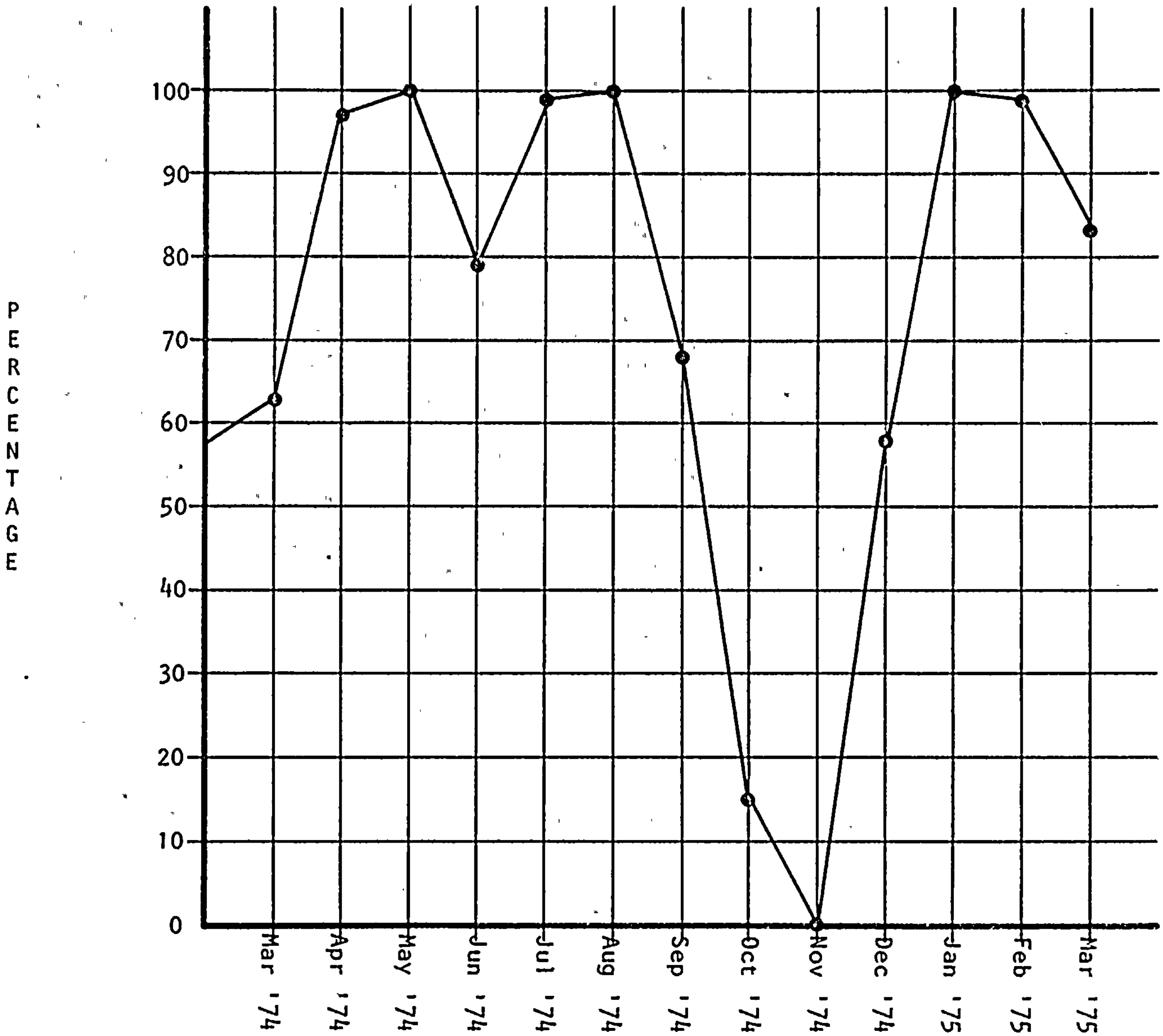
$$\text{UNIT AVAILABILITY FACTOR} = \frac{\text{HOURS GENERATOR ON LINE} \times 100}{\text{GROSS HOURS IN REPORT PERIOD}}$$

$$\text{FORCED OUTAGE RATE} = \frac{\text{FORCED OUTAGE HOURS} \times 100}{\text{HOURS GENERATOR ON LINE + FORCED OUTAGE HOURS}}$$

UNIT 3

REACTOR AVAILABILITY FACTOR

FIGURE 2.1-2

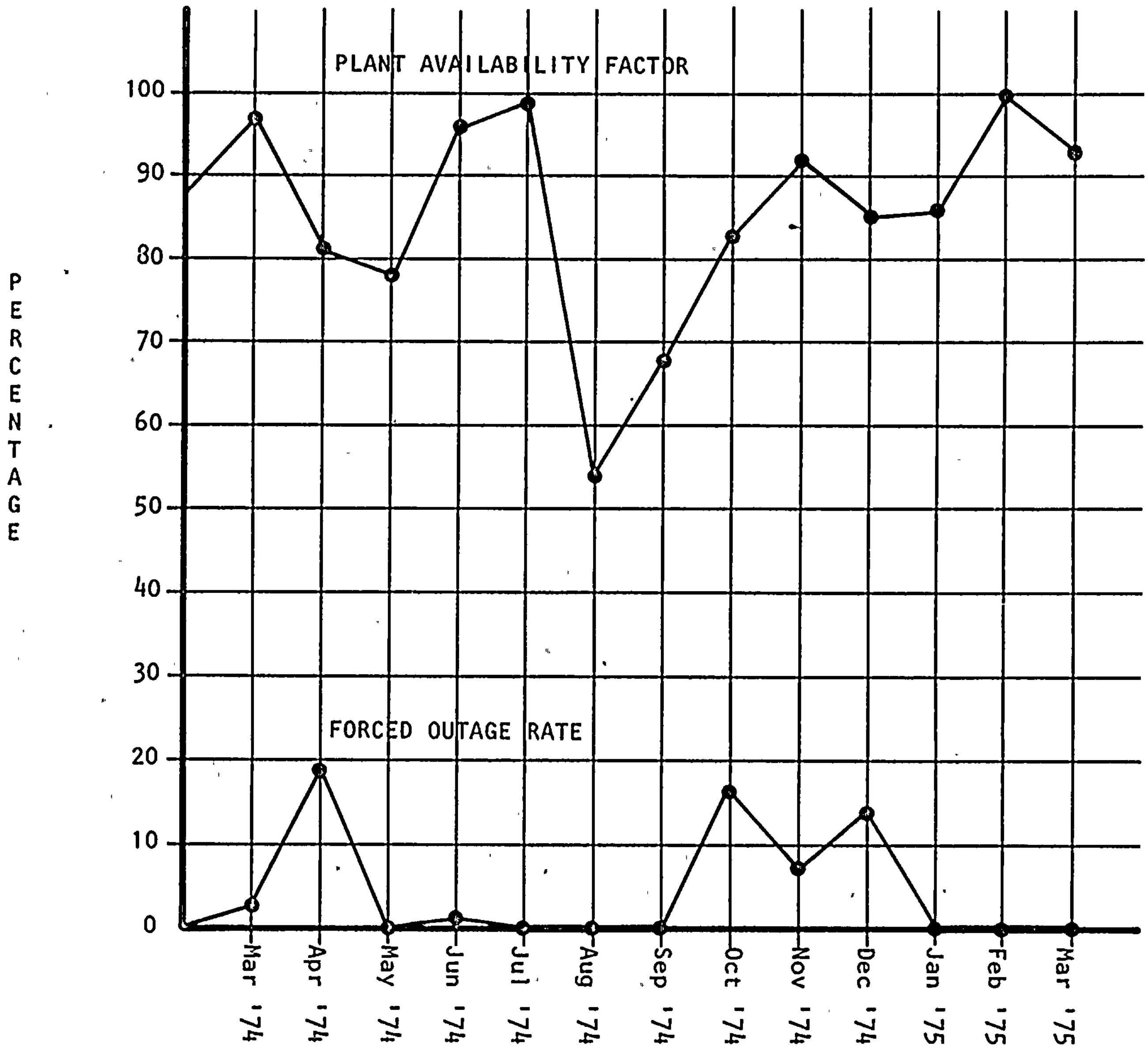


$$\text{REACTOR AVAILABILITY FACTOR} = \frac{\text{HOURS REACTOR WAS CRITICAL} \times 100}{\text{GROSS HOURS IN REPORTING PERIOD}}$$

UNIT 4

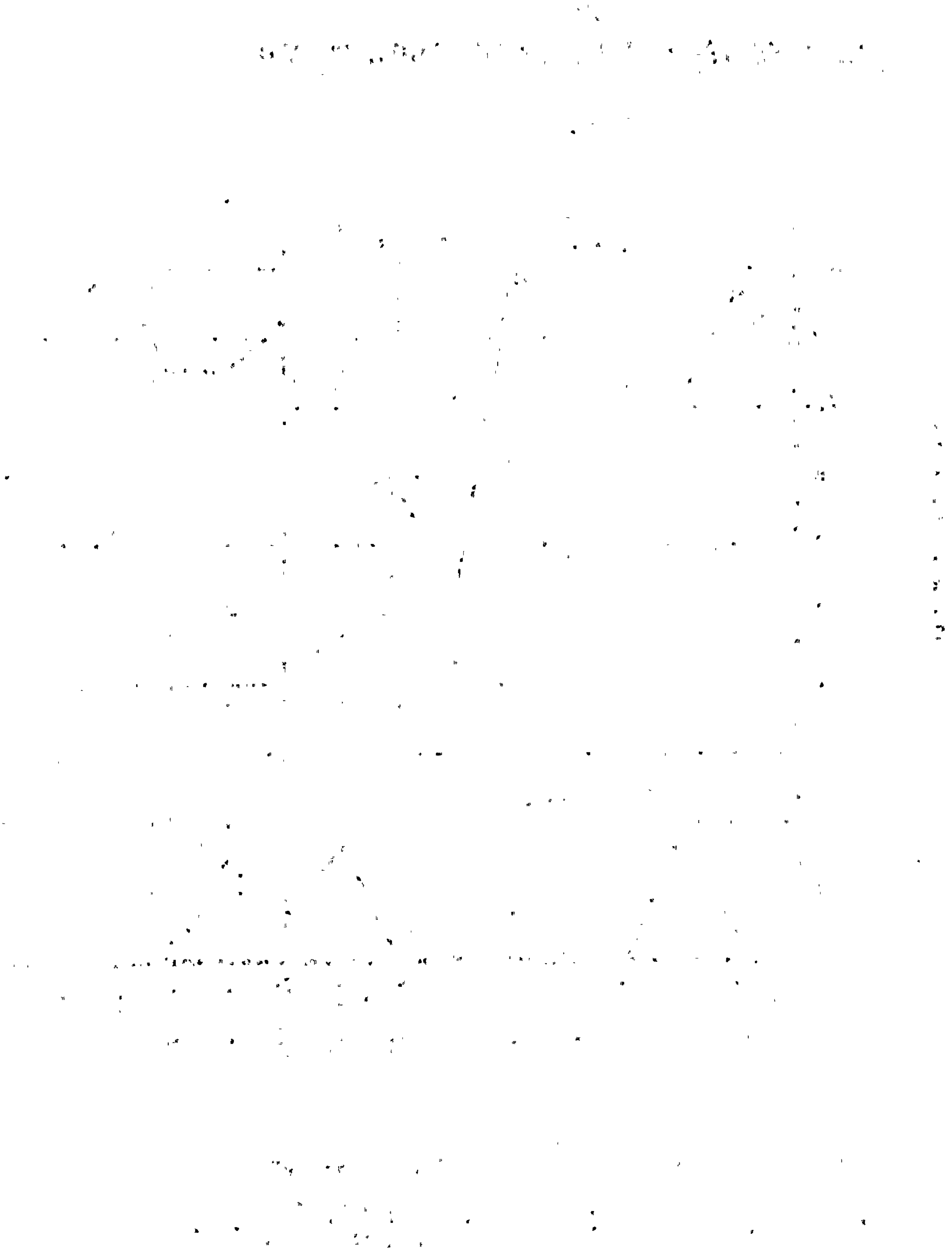
PLANT AVAILABILITY FACTOR/FORCED OUTAGE RATE

FIGURE 2.1-3



$$\text{UNIT AVAILABILITY FACTOR} = \frac{\text{HOURS GENERATOR ON LINE} \times 100}{\text{GROSS HOURS IN REPORT PERIOD}}$$

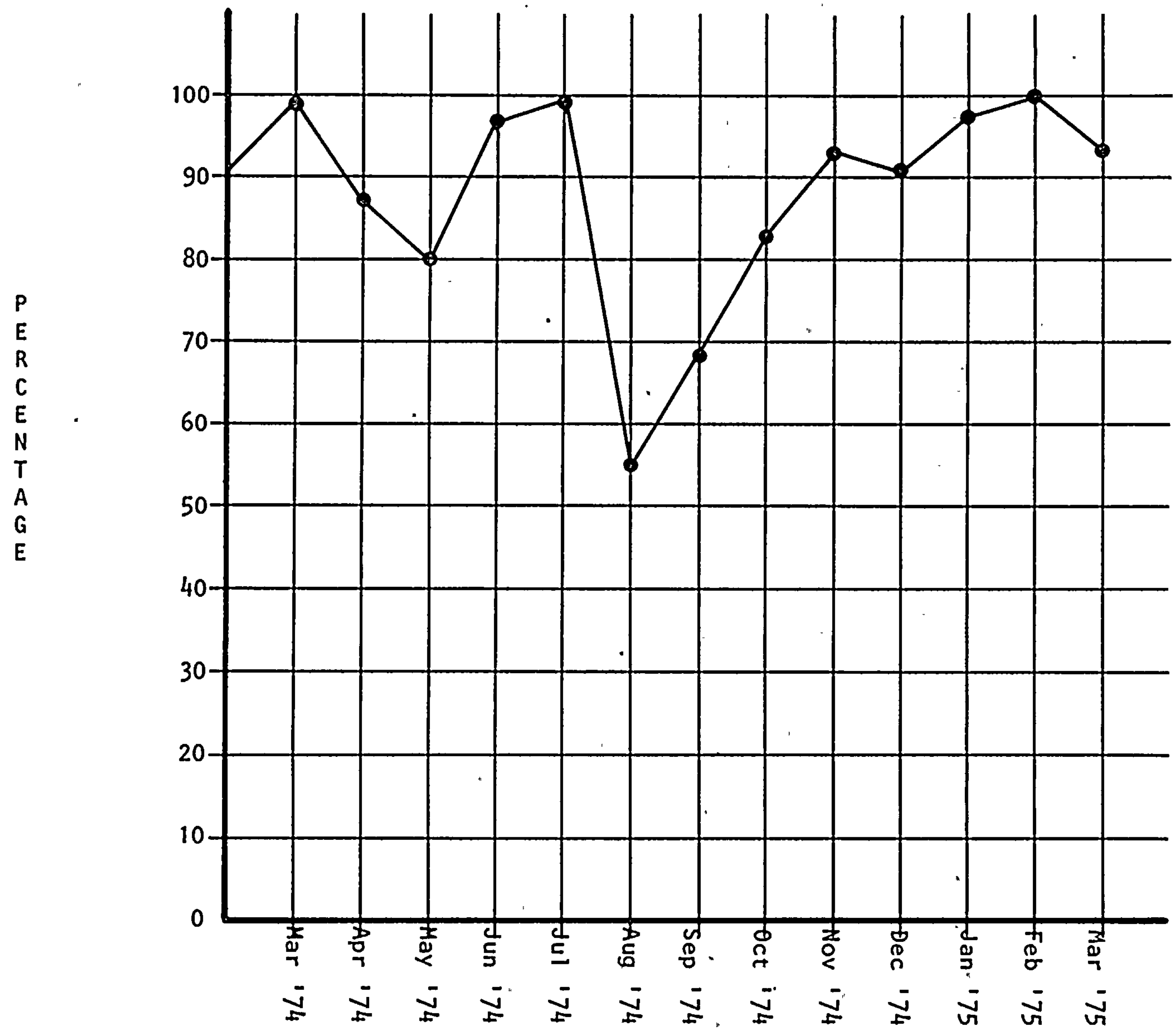
$$\text{FORCED OUTAGE RATE} = \frac{\text{FORCED OUTAGE HOURS} \times 100}{\text{HOURS GENERATOR ON LINE + FORCED OUTAGE HOURS}}$$



Unit 4

REACTOR AVAILABILITY FACTOR

Figure 2.1-4



REACTOR AVAILABILITY FACTOR = $\frac{\text{HOURS REACTOR WAS CRITICAL} \times 100}{\text{GROSS HOURS IN REPORTING PERIOD}}$

TURKEY POINT UNIT 3
Table 2.1-5

MONTH	REACTOR AVAILABILITY FACTOR	PLANT AVAILABILITY FACTOR	FORCED OUTAGE RATE
March, 1974	62.7	59.6	2.6
April, 1974	97.6	95.3	4.7
May, 1974	100.0	95.9	0
June, 1974	79.6	74.4	5.2
July, 1974	99.1	92.9	2.3
August, 1974	100.0	99.7	0.3
September, 1974	68.3	65.9	4.0
October, 1974	15.8	15.6	1.7
November, 1974	0	0	0
December, 1974	58.9	43.5	16.2
January, 1975	100.0	100.0	0
February, 1975	99.6	99.1	0.9
March, 1975	83.3	81.6	18.4

TURKEY POINT UNIT 4
Table 2.1-6

MONTH	REACTOR AVAILABILITY FACTOR	PLANT AVAILABILITY FACTOR	FORCED OUTAGE RATE
March, 1974	99.5	97.0	3.0
April, 1974	87.7	81.0	18.8
May, 1974	80.4	78.6	0
June, 1974	97.4	96.0	0.7
July, 1974	99.8	99.7	0.3
August, 1974	55.0	54.7	0
September, 1974	68.7	68.3	0
October, 1974	83.5	83.4	16.6
November, 1974	93.6	92.2	7.8
December, 1974	88.6	85.6	14.3
January, 1975	89.6	86.9	0
February, 1975	100.0	100.0	0
March, 1975	93.8	93.5	0

DEFINITIONS:

$$\text{REACTOR AVAILABILITY FACTOR} = \frac{\text{HOURS REACTOR WAS CRITICAL} \times 100}{\text{GROSS HOURS IN REPORTING PERIOD}}$$

$$\text{UNIT AVAILABILITY FACTOR} = \frac{\text{HOURS GENERATOR ON LINE} \times 100}{\text{GROSS HOURS IN REPORT PERIOD}}$$

$$\text{FORCED OUTAGE RATE} = \frac{\text{FORCED OUTAGE HOURS} \times 100}{\text{HOURS GENERATOR ON LINE + FORCED OUTAGED HOURS}}$$

2.2 REACTOR PERFORMANCE

2.2.1 CORE PERFORMANCE ANALYSIS

Through the first year of commercial operation Turkey Point Unit 3 has accumulated 13020 MWD/MTU during Cycle I and 2500 MWD/MTU during Cycle II, while Unit 4 has accumulated 13000 MWD/MTU. To verify that both cores were performing as designed and meeting Technical Specifications during this time, two principle performance indicators were analyzed routinely. These were power distribution follow, and reactivity depletion core power distribution follow, which included monitoring of (1) Nuclear Hot Channel Factors $F_{\Delta h}^N$, F_Q^N, and (2) Radial Tilt to ensure critical heat flux thermal limits were maintained and that no uneven burnup distribution was occurring.

Reactivity depletion was monitored to (1) detect the existence of any abnormal reactivity behavior, and determine if the core was depleting as designed.

The results for both units are summarized as follows:

2.2.1.1. POWER DISTRIBUTION FOLLOW

For Unit 3 Cycle II the latest core distribution map is shown in Table 5, while Table 1 is the power distribution map at the beginning of the reporting period, which occurred during Cycle I. Tables 2 through 4 are intermediate power distribution maps.

For Unit 4, the latest core distribution map is shown in Table 8, while Table 6 is a power distribution map at the beginning of the reporting period, and Table 7 is an intermediate map.

As can be seen in these tables, the measured assembly powers are generally within $\pm$ 10% of the predicted values. In addition, as indicated by the quadrant tilt factors, the power distribution has been essentially symmetric.

The Technical Specification limit on the heat flux hot channel factor F_Q^N is dependent upon core power and axial position in the core. As shown in figures 2, 3, and 7, the measured heat flux hot channel factor which includes the engineering hot channel factor of 1.03 and 1.05 has been maintained well below the indicated Technical Specification limit.

The radial hot channel factor monitored routinely is $F_{\Delta h}^N$, the enthalpy rise hot channel factor. As displayed in Figures, 1, 3, and 6, the measured $F_{\Delta h}^N$, which includes the engineering hot channel factor of 1.04, has been maintained well below the Technical Specification limit which is power dependent.

The peak linear power as shown in Figures 4 and 8 has been maintained well below the Technical Specification limit of 18 kw/ft.

Therefore, the core has been performing satisfactorily with power distribution analysis verifying that the design predictions are accurate and that the hot channel factors are meeting Technical Specification limits.

2.2.1.2 REACTIVITY DEPLETION FOLLOW

The critical boron concentration versus core burnup curve is shown in Figures 5, 9, and 10 for Unit 3, Cycle I and II and Unit 4. It can be seen that the measured data has been generally within ± 20 to 30 ppm of the design predictions with exception in Cycle I of both units. These exceptions have been made known to the designer who is in the process of analyzing design prediction, but in no case was ± 1% ΔK/K exceeded. The new design curve for Unit 3 Cycle II shows that the core is depleting well within design specifications.

TURKEY POINT UNIT-3 CYCLE I

Figure 1

ENTHALPY RISE HOT CHANNEL FACTOR vs. CORE BURNUP

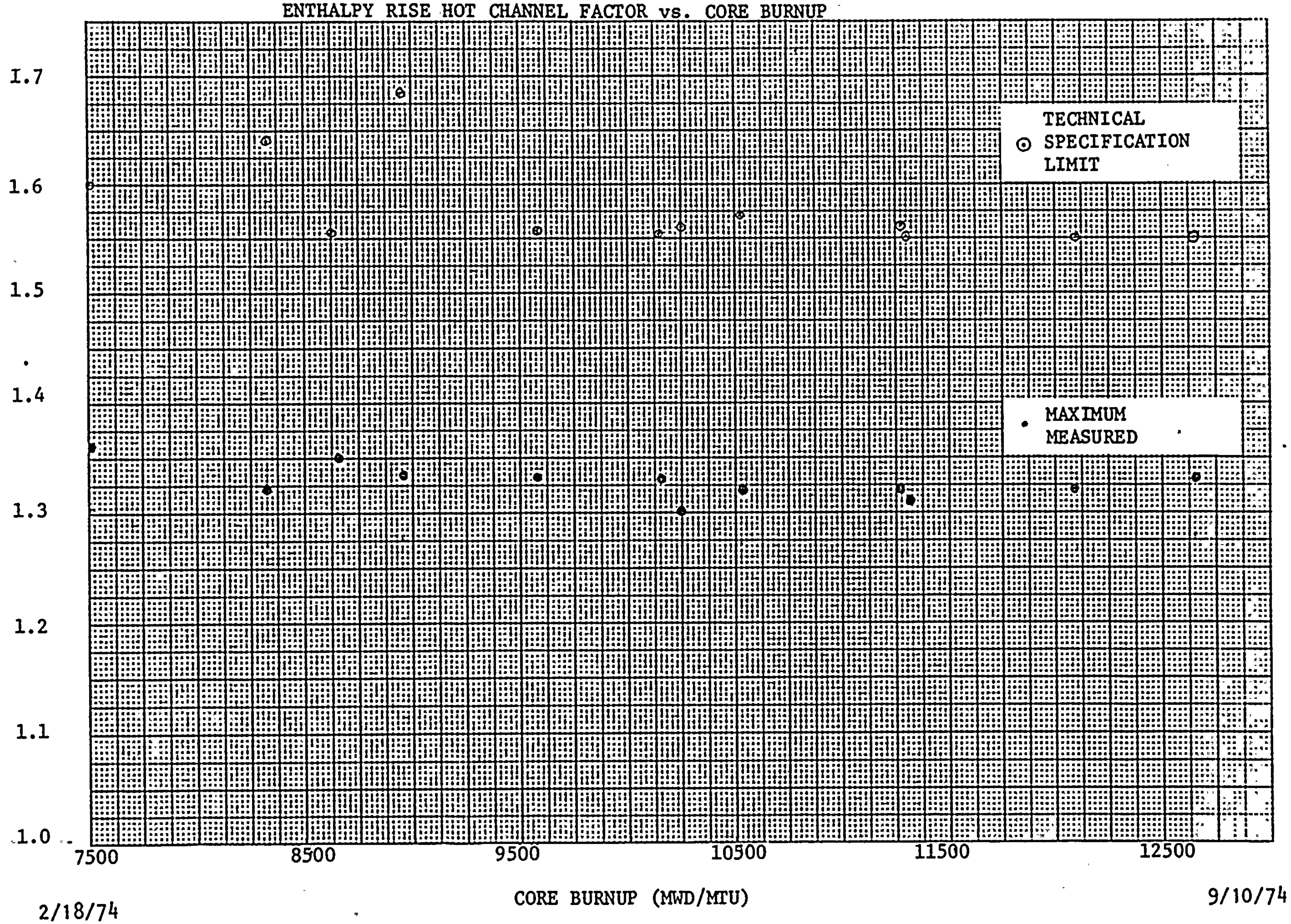
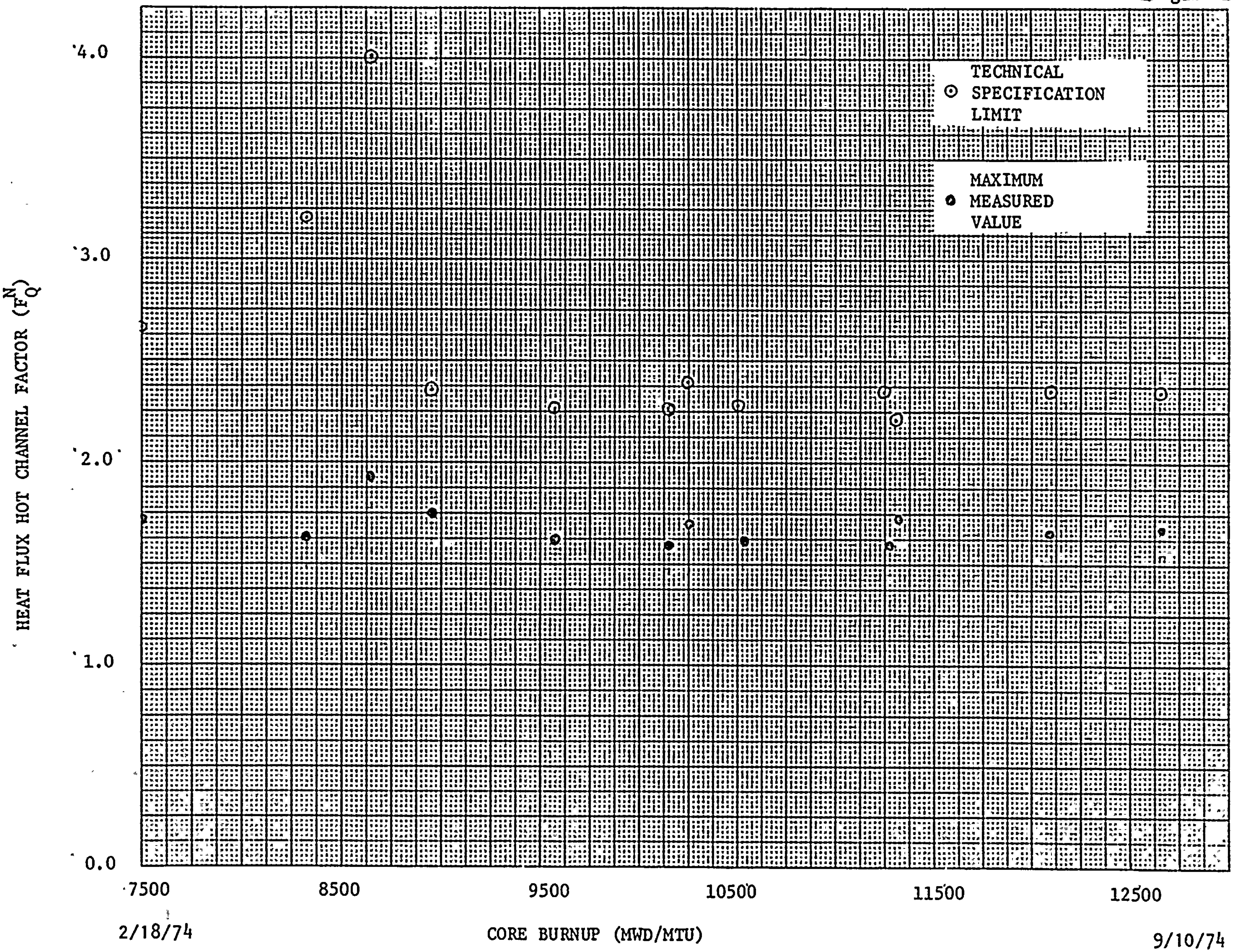


Figure 2

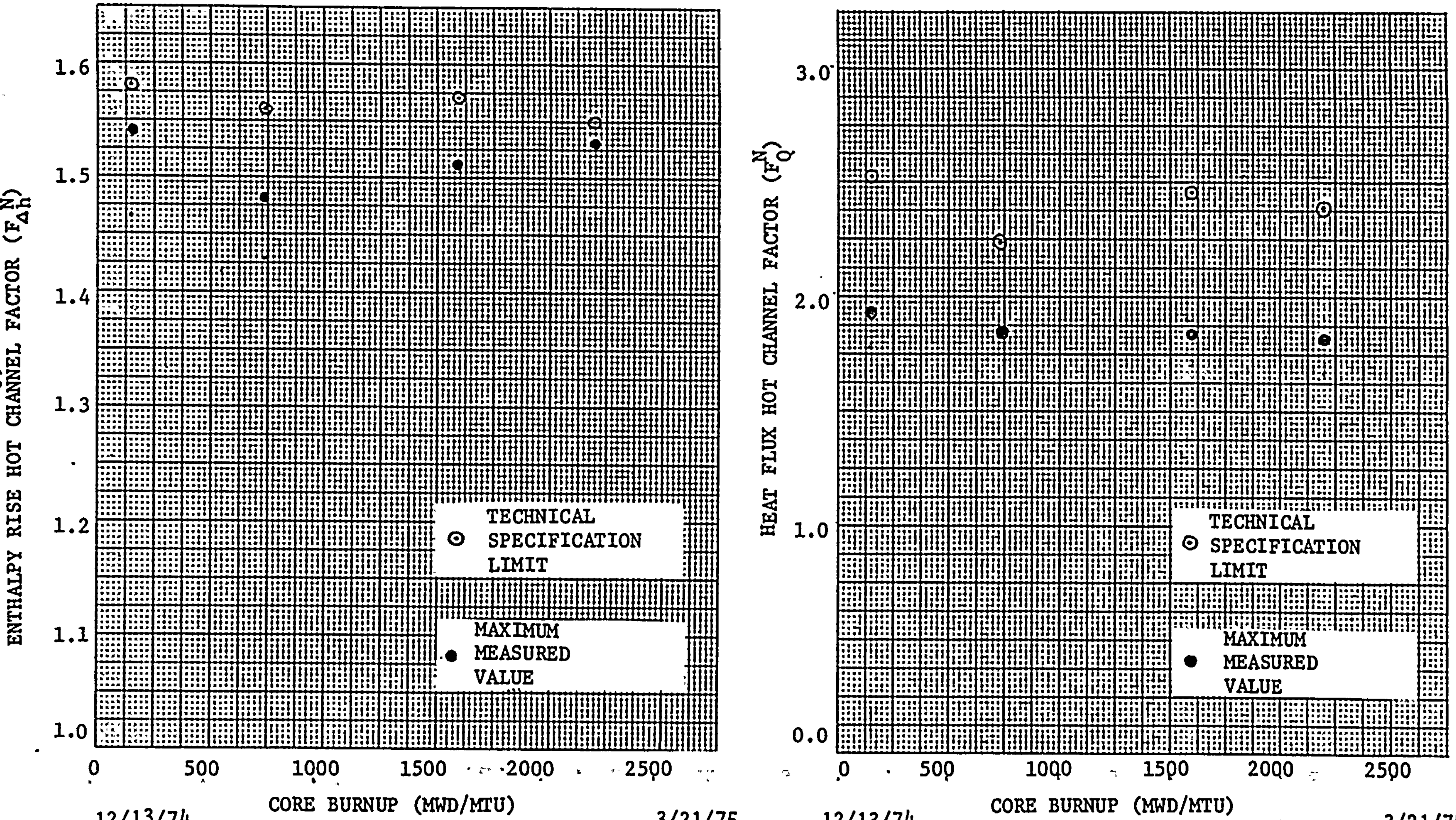


TURKEY POINT UNIT-3 CYCLE I

TOTAL PEAKING FACTOR vs. CORE BURNUP

Figure 3

TURKEY POINT UNIT-3 CYCLE II



ENTHALPY RISE HOT CHANNEL FACTOR
vs.
CORE BURNUP

TOTAL PEAKING FACTOR
vs.
CORE BURNUP

Figure 4

TURKEY POINT UNIT-3 CYCLE I

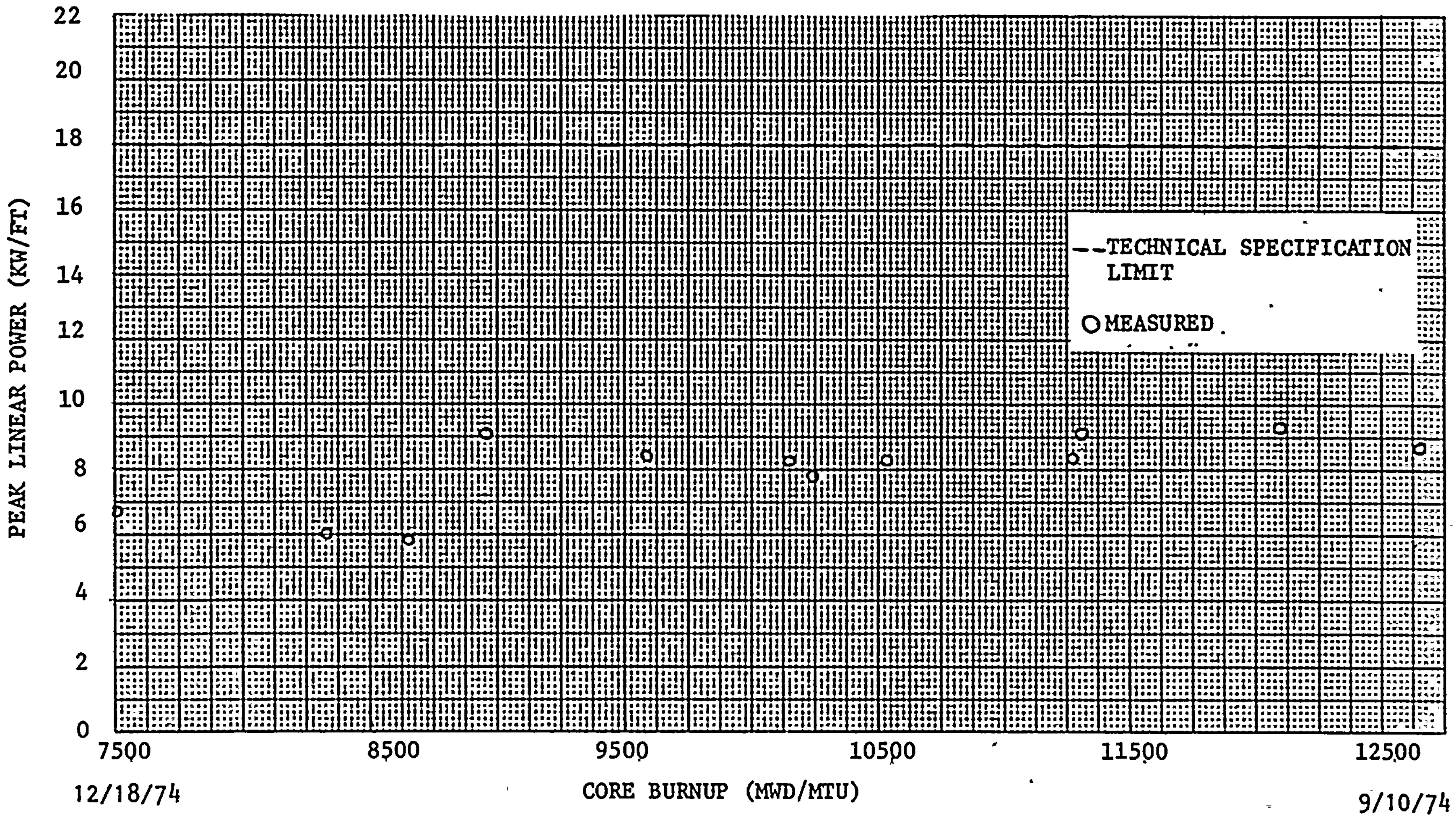


Figure 5

TURKEY POINT UNIT-3 CYCLE I

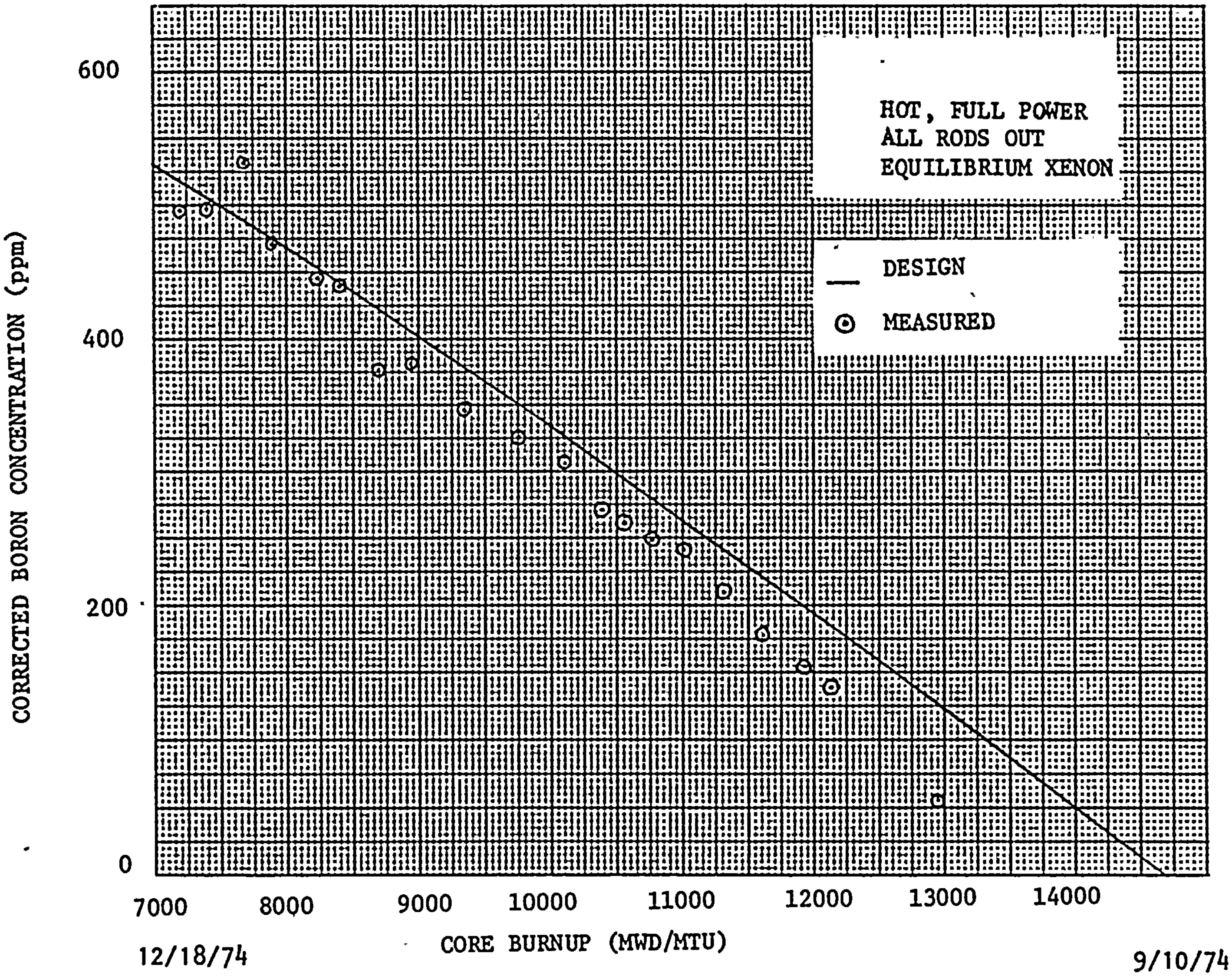
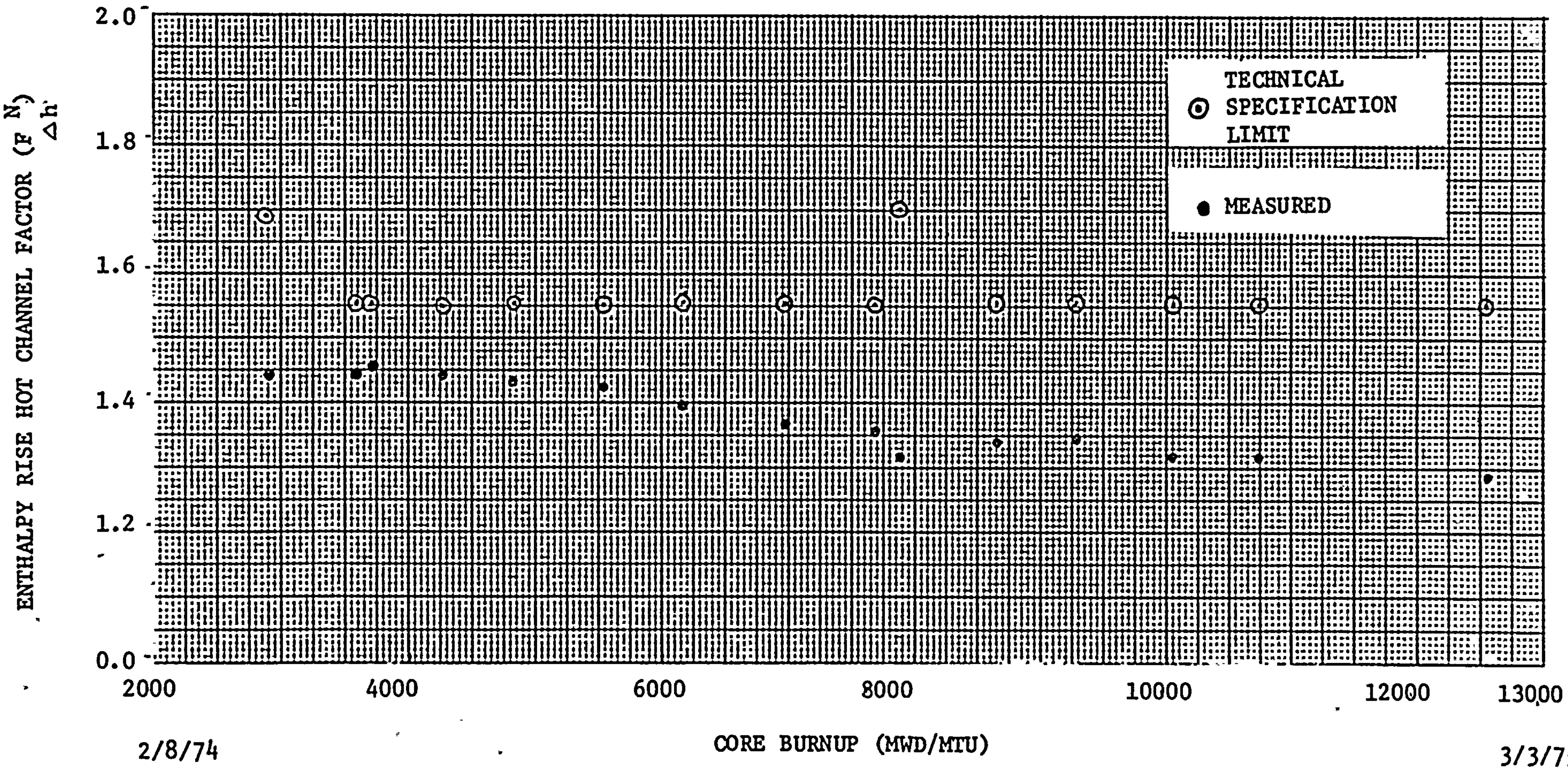


Figure 6

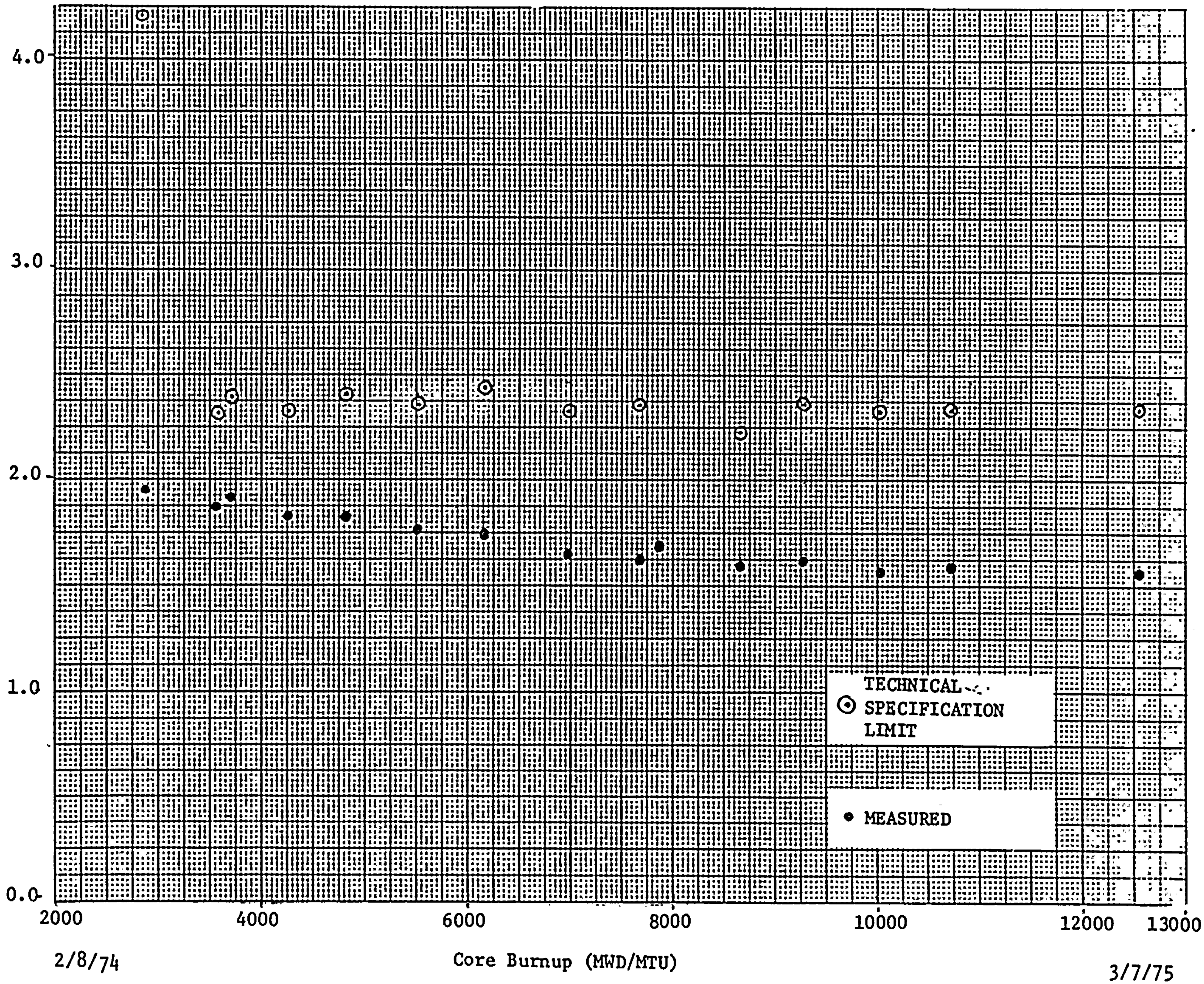
TURKEY POINT UNIT-4

ENTHALPY RISE HOT CHANNEL FACTOR vs. CORE BURNUP



TURKEY POINT UNIT NO. 4
HEAT FLUX HOT CHANNEL FACTOR VS. CORE BURNUP

Figure 7



TURKEY POINT UNIT-4 Figure 8

PEAK LINEAR POWER vs. CORE BURNUP

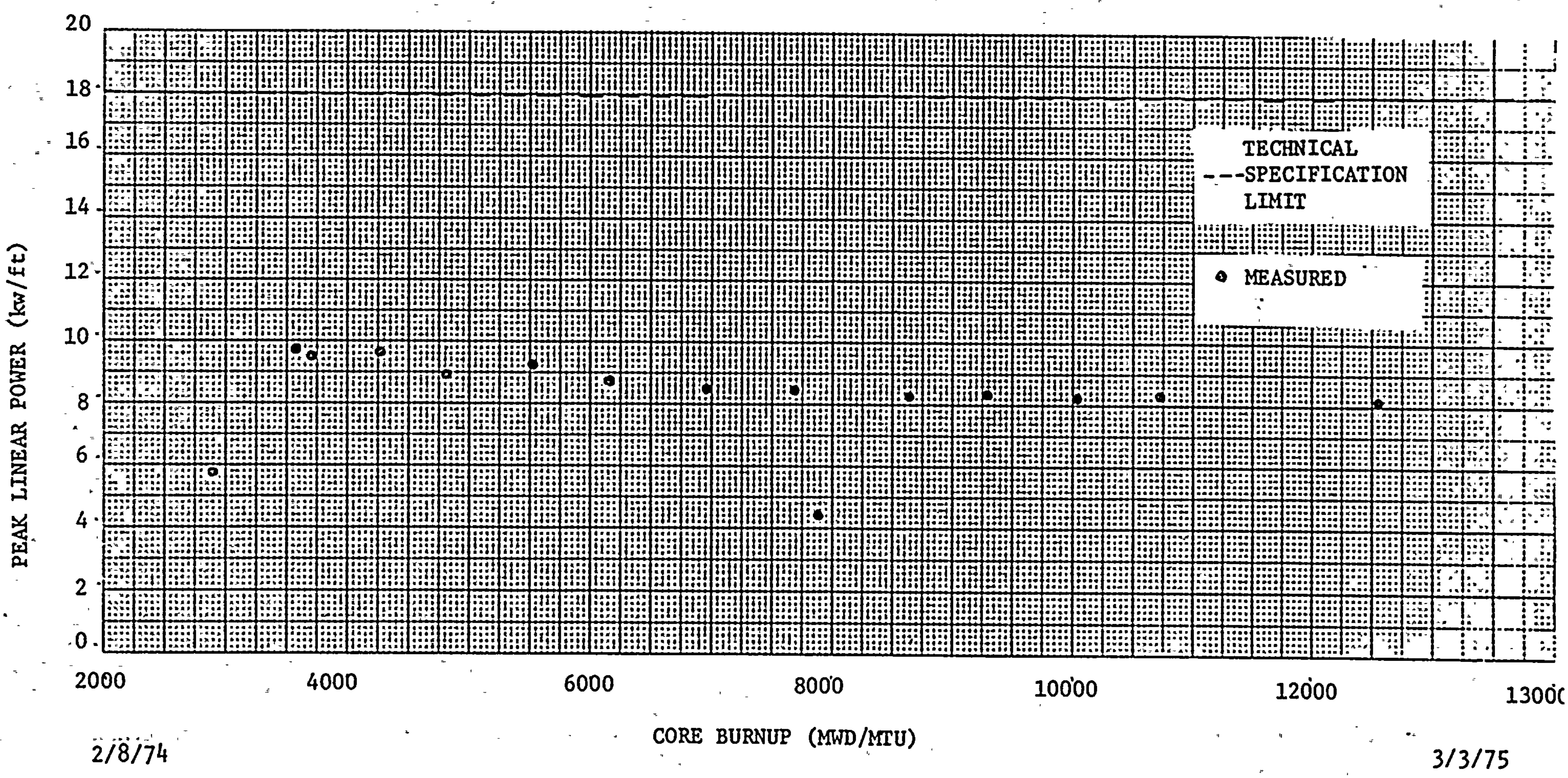


Figure 9

TURKEY POINT UNIT-4

CORRECTED CRITICAL BORON CONCENTRATION vs. BURNUP

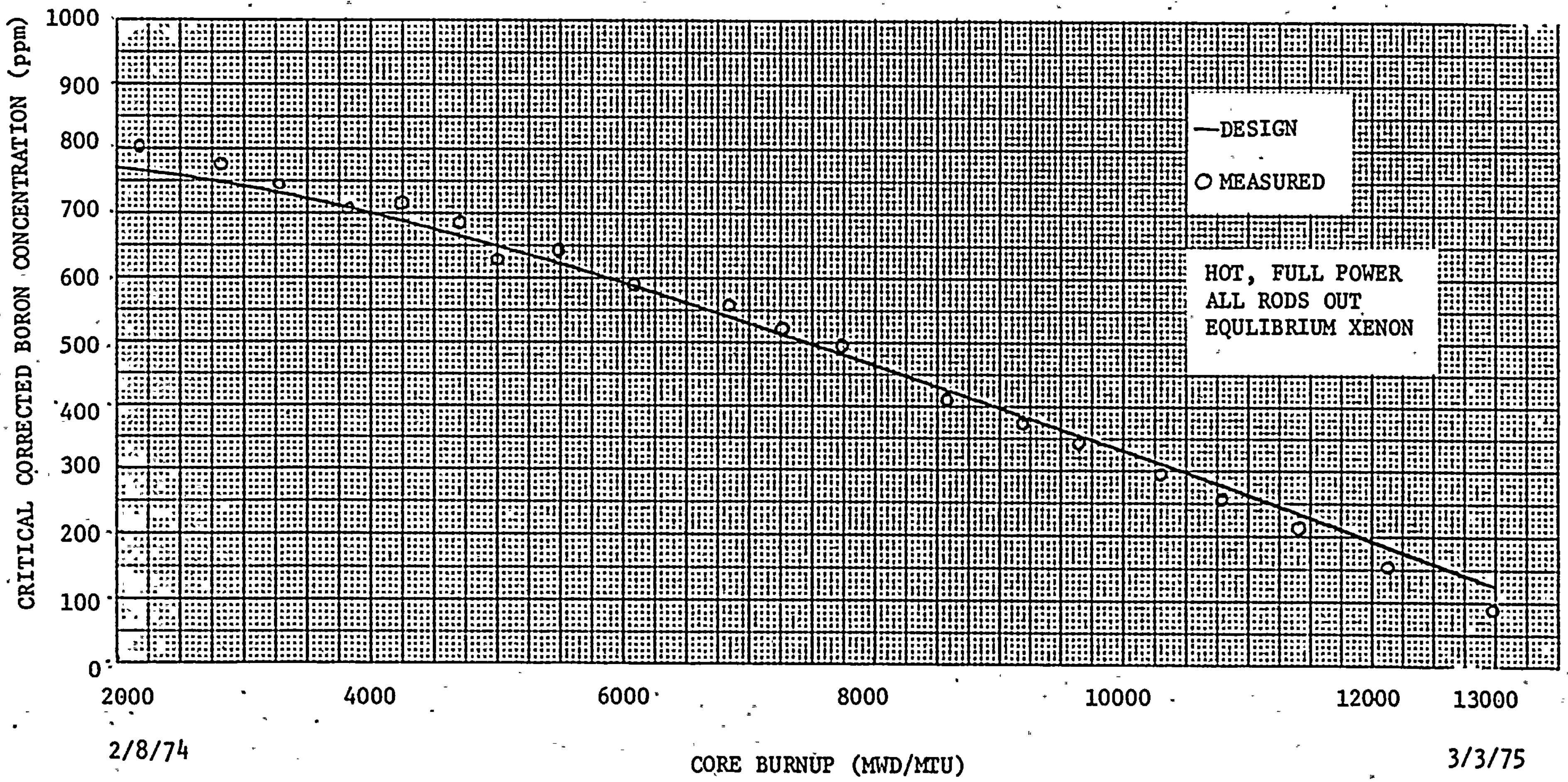
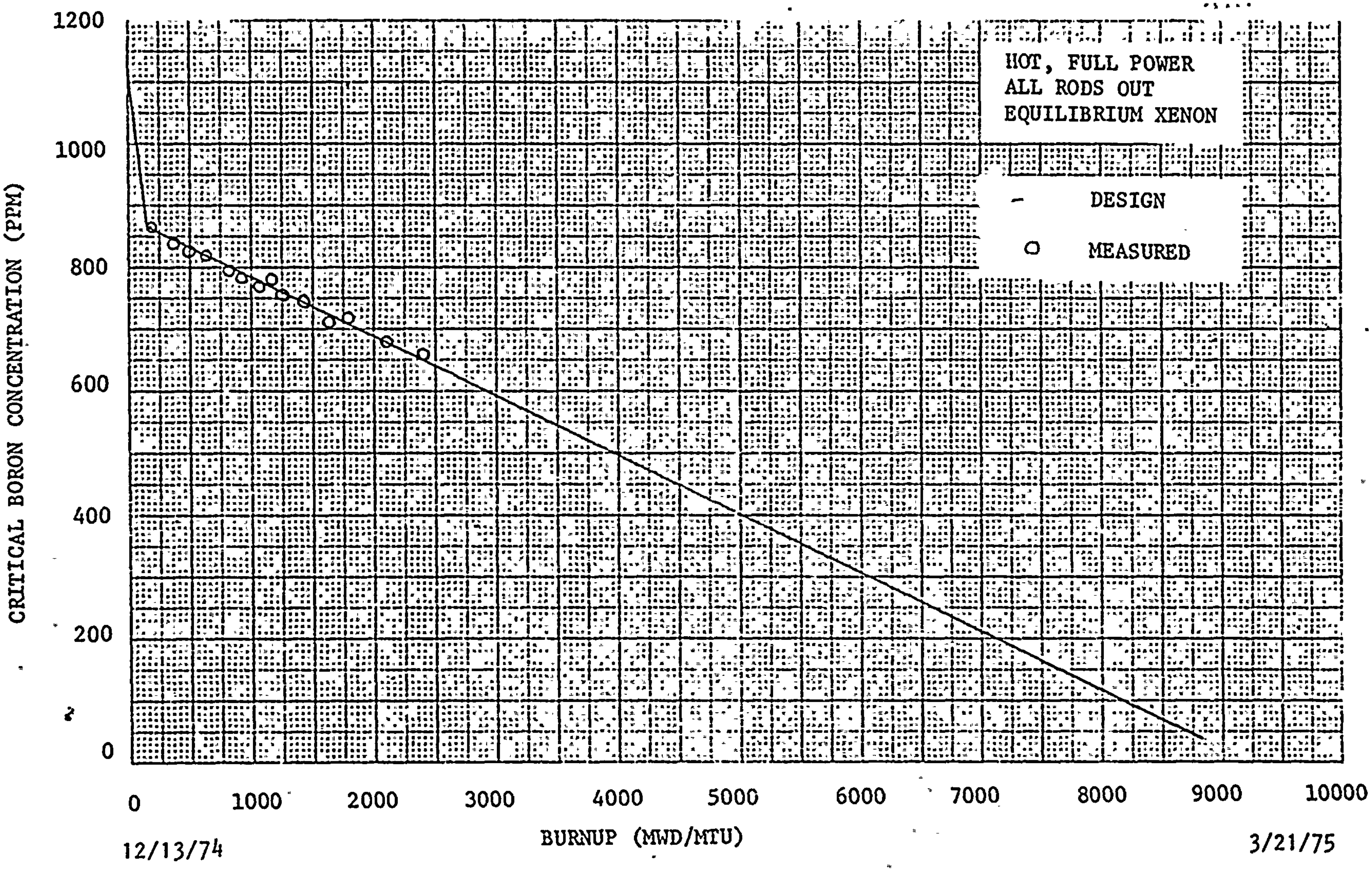


Figure 10



Critical Boron Concentration versus Cycle Lifetime, HFP,ARO.

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 3
OPERATING SUMMARY
2/18/74

Table 1

Row	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.58	0.72	0.58						
							0.58	0.72	0.58						
							-1.	-0.	0.						
2					0.63	0.87	0.99	0.91	1.00	0.88	0.61				
					0.60	0.87	1.00	0.92	1.00	0.87	0.60				
					4.	-0.	-1.	-1.	0.	0.	2.				
3				0.67	0.98	1.06	1.03	1.13	1.02	1.07	0.98	0.66			
				0.64	0.96	1.06	1.03	1.14	1.03	1.06	0.96	0.64			
				4.	3.	0.	-0.	-1.	-1.	1.	2.	4.			
4			0.65	0.85	1.08	1.07	1.18	1.08	1.18	1.07	1.08	0.85	0.65		
			0.64	0.84	1.07	1.06	1.19	1.10	1.19	1.06	1.07	0.84	0.64		
			2.	2.	1.	0.	-1.	-2.	-1.	1.	1.	2.	2.		
5		0.61	0.96	1.07	1.07	1.20	1.10	1.22	1.11	1.21	1.07	1.08	0.97	0.62	
		0.60	0.96	1.07	1.07	1.21	1.12	1.23	1.12	1.21	1.07	1.07	0.96	0.60	
		0.	0.	0.	0.	-1.	-2.	-1.	-1.	-0.	0.	0.	1.	2.	
6		0.88	1.07	1.06	1.19	1.11	1.23	1.14	1.23	1.11	1.20	1.06	1.06	0.88	
		0.87	1.06	1.06	1.21	1.13	1.24	1.14	1.24	1.13	1.21	1.06	1.06	0.87	
		0.	0.	-1.	-2.	-2.	-1.	-0.	-1.	-1.	-0.	-0.	0.	1.	
7	0.60	1.02	1.05	1.19	1.11	1.22	1.11	1.23	1.11	1.22	1.11	1.18	1.04	1.00	0.59
	0.58	1.00	1.03	1.19	1.12	1.24	1.14	1.25	1.14	1.24	1.12	1.19	1.03	1.00	0.58
	4.	3.	2.	-0.	-1.	-2.	-2.	-2.	-3.	-2.	-1.	-1.	1.	0.	1.
8	0.75	0.94	1.16	1.10	1.23	1.13	1.22	1.11	1.22	1.11	1.21	1.10	1.16	0.95	0.75
	0.72	0.92	1.14	1.10	1.23	1.14	1.25	1.14	1.25	1.14	1.23	1.10	1.14	0.92	0.72
	4.	3.	2.	0.	-0.	-1.	-2.	-3.	-3.	-3.	-2.	0.	2.	4.	3.
9	0.60	1.01	1.04	1.19	1.11	1.22	1.10	1.21	1.11	1.21	1.11	1.21	1.05	1.02	0.60
	0.58	1.00	1.03	1.19	1.12	1.24	1.14	1.25	1.14	1.24	1.12	1.19	1.03	1.00	0.58
	4.	2.	1.	-0.	-1.	-2.	-4.	-3.	-3.	-3.	-1.	1.	2.	3.	3.
10		0.87	1.06	1.06	1.21	1.10	1.20	1.12	1.22	1.11	1.21	1.07	1.07	0.88	
		0.87	1.06	1.06	1.21	1.13	1.24	1.14	1.24	1.13	1.21	1.06	1.06	0.87	
		0.	0.	-0.	-0.	-2.	-4.	-2.	-2.	-2.	-0.	1.	1.	1.	
11		0.62	0.98	1.09	1.08	1.20	1.10	1.24	1.12	1.19	1.08	1.09	0.98	0.61	
		0.60	0.96	1.07	1.07	1.21	1.12	1.23	1.12	1.21	1.07	1.07	0.96	0.60	
		2.	2.	2.	1.	-1.	-2.	1.	-0.	-1.	1.	2.	2.	2.	
12			0.67	0.86	1.08	1.05	1.17	1.09	1.19	1.06	1.09	0.86	0.66		
			0.64	0.84	1.07	1.06	1.19	1.10	1.19	1.06	1.07	0.84	0.64		
			4.	3.	1.	-1.	-2.	-1.	-0.	-0.	1.	3.	4.		
13				0.66	0.98	1.06	1.02	1.14	1.03	1.06	0.97	0.66			
				0.64	0.96	1.06	1.03	1.14	1.03	1.06	0.96	0.64			
				3.	3.	0.	-1.	-0.	-0.	0.	1.	3.			
14					0.62	0.90	1.01	0.92	0.99	0.87	0.60				
					0.60	0.87	1.00	0.92	1.00	0.87	0.60				
					3.	3.	2.	0.	-0.	-0.	0.				
15							0.60	0.74	0.58						
							0.58	0.72	0.58						
							3.	2.	-0.						

MEASURED F DELTA H
EXPECTED F DELTA H
DIFFERENCE

INCORE TILTS

	E	
N	0.9991 | 0.9987	S
	1.0008 | 1.0014	
	W	

ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	203
P/L	228

Classification

Map No. FM3I37
Power (%) 83.7
Axial Offset 4.65
Max $F^N_{\Delta H}$ 1.304
Max F^N_Q 1.589

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 3
OPERATING SUMMARY
5/16/74

Table 2

Row	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.62	0.76	0.61						
							0.59	0.73	0.59						
							4.	4.	2.						
2					0.64	0.89	1.02	0.94	1.02	0.88	0.62				
					0.62	0.89	1.01	0.92	1.01	0.89	0.62				
					2.	0.	1.	1.	0.	-1.	-1.				
3				C.68	1.02	1.09	1.04	1.13	1.03	1.08	0.98	0.66			
				0.66	1.00	1.09	1.03	1.15	1.03	1.C9	1.C0	0.66			
				2.	2.	0.	0.	-1.	-0.	-1.	-1.	-1.			
4			C.67	C.87	1.11	1.06	1.19	1.11	1.20	1.C5	1.10	0.85	0.66		
			C.66	C.86	1.10	1.06	1.19	1.08	1.19	1.C6	1.10	0.86	0.66		
			0.	1.	1.	-0.	0.	3.	0.	-1.	-1.	-1.	-0.		
5		0.62	C.99	1.10	1.07	1.19	1.08	1.23	1.10	1.19	1.C6	1.09	0.99	0.63	
		0.62	1.00	1.10	1.06	1.20	1.09	1.21	1.09	1.20	1.06	1.10	1.00	0.62	
		-0.	-0.	-1.	0.	-1.	-1.	2.	1.	-1.	0.	-2.	-0.	1.	
6		0.88	1.09	1.05	1.17	1.07	1.21	1.12	1.21	1.C8	1.19	1.05	1.08	0.88	
		0.89	1.09	1.06	1.20	1.09	1.21	1.09	1.21	1.C9	1.20	1.06	1.09	0.89	
		-0.	-0.	-1.	-3.	-1.	0.	3.	1.	-1.	-1.	-1.	-1.	-0.	
7	0.60	1.02	1.04	1.19	1.08	1.19	1.07	1.21	1.07	1.20	1.08	1.21	1.04	1.00	0.60
	0.59	1.01	1.03	1.19	1.09	1.21	1.09	1.20	1.09	1.21	1.09	1.19	1.03	1.01	0.59
	1.	1.	0.	0.	-1.	-1.	-1.	0.	-1.	-1.	-1.	2.	1.	-1.	1.
8	0.74	0.94	1.16	1.09	1.21	1.09	1.19	1.07	1.19	1.C7	1.18	1.10	1.17	0.97	0.75
	0.73	0.92	1.15	1.08	1.21	1.09	1.20	1.08	1.20	1.C9	1.21	1.08	1.15	0.92	0.73
	1.	1.	2.	1.	1.	0.	-1.	-1.	-1.	-1.	-2.	2.	2.	4.	2.
9	0.59	1.01	1.03	1.19	1.10	1.21	1.07	1.20	1.08	1.18	1.07	1.19	1.05	1.04	0.60
	0.59	1.01	1.03	1.19	1.09	1.21	1.09	1.20	1.09	1.21	1.09	1.19	1.03	1.01	0.59
	-0.	-0.	-0.	0.	0.	0.	-1.	-0.	-0.	-2.	-2.	0.	2.	3.	2.
10		0.86	1.06	1.05	1.20	1.08	1.19	1.09	1.20	1.C8	1.19	1.06	1.08	0.90	
		0.89	1.09	1.06	1.20	1.09	1.21	1.09	1.21	1.C9	1.20	1.06	1.09	0.89	
		-2.	-2.	-1.	0.	-1.	-1.	-0.	-0.	-1.	-1.	-1.	-1.	2.	
11		0.63	1.00	1.11	1.06	1.19	1.09	1.21	1.10	1.20	1.06	1.12	1.02	0.64	
		0.62	1.00	1.10	1.06	1.20	1.09	1.21	1.09	1.20	1.06	1.10	1.00	0.62	
		0.	0.	0.	-0.	-1.	-0.	1.	1.	-C.	-C.	1.	2.	3.	
12			C.69	0.89	1.12	1.06	1.18	1.08	1.18	1.C5	1.11	0.89	0.68		
			C.66	0.86	1.10	1.06	1.19	1.08	1.19	1.C6	1.10	0.86	0.66		
			3.	3.	1.	-1.	-1.	-0.	-1.	-1.	1.	3.	3.		
13				0.68	1.00	1.09	1.03	1.14	1.02	1.C7	1.00	0.68			
				0.66	1.00	1.09	1.03	1.15	1.03	1.C9	1.C0	0.66			
				2.	1.	0.	-1.	-1.	-1.	-1.	-0.	3.			
14					0.63	0.89	1.01	0.92	1.00	0.87	0.61				
					0.62	0.89	1.01	0.92	1.01	0.89	0.62				
					1.	1.	-1.	-1.	-1.	-1.	-1.				
15							0.59	0.72	0.59						
							0.59	0.73	0.59						
							-0.	-1.	-1.						

MEASURED F DELTA H
EXPECTED F DELTA H
DIFFERENCE

INCORE
TILTS

	E	
1.0017		0.9989
N		S
0.9987		1.0006
	W	

ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	220
P/L	228

Classification

Map No. FM3I42
Power (%) 98.8
Axial Offset -0.94
Max $F^{N}_{\Delta H}$ 1.284
Max F^{N}_{Q} 1.496

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 3
OPERATING SUMMARY
9/10/74

Table 3

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.63 0.62 1.	0.76 0.76 -0.	0.61 0.62 -2.						
2					0.66 0.66 0.	0.93 0.91 2.	1.07 1.05 1.	0.95 0.94 1.	1.03 1.05 -2.	0.89 0.91 -2.	0.64 0.66 -3.				
3				0.70 0.70 0.	1.03 1.05 -2.	1.12 1.12 0.	1.06 1.04 2.	1.15 1.15 -0.	1.03 1.04 -0.	1.10 1.12 -2.	1.02 1.05 -3.	0.68 0.70 -3.			
4			0.70 0.70 -1.	0.88 0.90 -2.	1.09 1.14 -4.	1.05 1.06 -1.	1.19 1.17 2.	1.09 1.05 3.	1.18 1.17 1.	1.04 1.06 -2.	1.13 1.14 -1.	0.88 0.90 -2.	0.68 0.70 -3.		
5		0.65 0.66 -1.	1.04 1.05 -1.	1.12 1.14 -2.	1.03 1.05 -3.	1.16 1.17 -1.	1.05 1.05 1.	1.18 1.16 2.	1.06 1.05 1.	1.18 1.17 1.	1.08 1.05 ?.	1.11 1.14 -2.	1.02 1.05 -3.	0.64 0.66 -3.	
6		0.90 0.91 -1.	1.11 1.12 -1.	1.05 1.06 -1.	1.16 1.17 -1.	1.04 1.04 0.	1.15 1.15 1.	1.04 1.03 1.	1.16 1.15 1.	1.05 1.04 1.	1.18 1.17 0.	1.04 1.06 -1.	1.09 1.12 -2.	0.89 0.91 -3.	
7	0.62 0.62 -0.	1.08 1.05 3.	1.09 1.04 5.	1.20 1.17 2.	1.05 1.05 1.	1.15 1.15 1.	1.04 1.02 2.	1.15 1.13 2.	1.04 1.02 2.	1.19 1.15 4.	1.06 1.05 1.	1.15 1.17 -2.	1.03 1.04 -0.	1.03 1.05 -2.	0.62 0.62 -0.
8	0.76 0.76 -0.	0.97 0.94 3.	1.21 1.15 5.	1.10 1.05 4.	1.19 1.16 3.	1.05 1.03 2.	1.15 1.13 2.	1.03 1.01 2.	1.17 1.13 4.	1.11 1.03 8.	1.20 1.16 4.	1.05 1.05 -0.	1.17 1.15 2.	0.98 0.94 4.	0.77 0.76 1.
9	0.62 0.62 -0.	1.06 1.05 1.	1.05 1.04 1.	1.19 1.17 2.	1.07 1.05 3.	1.17 1.15 2.	1.04 1.02 2.	1.15 1.13 2.	1.05 1.02 3.	1.15 1.15 -0.	1.06 1.05 ?.	1.17 1.17 -0.	1.04 1.04 1.	1.06 1.05 1.	0.62 0.62 1.
10		0.88 0.91 -3.	1.09 1.12 -3.	1.03 1.06 -2.	1.16 1.17 -1.	1.05 1.04 1.	1.17 1.15 2.	1.05 1.03 3.	1.14 1.15 -0.	1.02 1.04 -2.	1.16 1.17 -1.	1.05 1.06 -1.	1.09 1.12 -2.	0.88 0.91 -3.	
11		0.64 0.66 -3.	1.02 1.05 -3.	1.12 1.14 -2.	1.04 1.05 -1.	1.17 1.17 -0.	1.07 1.05 3.	1.20 1.16 3.	1.04 1.05 -0.	1.13 1.17 -4.	1.05 1.05 -1.	1.13 1.14 -0.	1.05 1.05 -0.	0.65 0.66 -2.	
12			0.69 0.70 -2.	0.89 0.90 -1.	1.12 1.14 -1.	1.05 1.06 -1.	1.19 1.17 2.	1.07 1.05 2.	1.16 1.17 -1.	1.03 1.06 -3.	1.11 1.14 -?.	0.91 0.90 1.	0.71 0.70 2.		
13				0.69 0.70 -1.	1.04 1.05 -1.	1.11 1.12 -1.	1.04 1.04 0.	1.15 1.15 0.	1.03 1.04 -1.	1.09 1.12 -3.	1.02 1.05 -3.	0.71 0.70 2.			
14					0.65 0.66 -1.	0.89 0.91 -2.	1.03 1.05 -2.	0.94 0.94 -0.	1.06 1.05 1.	0.90 0.91 -1.	0.64 0.66 -3.				
15							0.60 0.62 -3.	0.74 0.76 -2.	0.62 0.62 1.						

MEASURFO F. DELTA H.
EXPECTED F DELTA H
DIFFERENCE

INCORE
TILTS

E

N side	S side
1.0046	0.9977
1.0001	0.9977

N — S

W

ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	228
P/L	228

Classification

Map No. FM3I49

Power (%) 98.9

Axial Offset -2.12

Max $F^N_{\Delta H}$ 1.279

Max F^N_Q 1.548

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 3
OPERATING SUMMARY
12/21/74

Table 4

INCORE TILTS

Row	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.61	0.78	0.61						
							0.57	0.72	0.57						
							8.	8.	8.						
2					0.62	0.90	1.14	1.21	1.18	0.95	0.62				
					0.58	0.88	1.12	1.19	1.12	0.88	0.58				
					7.	2.	2.	2.	5.	8.	8.				
3				0.63	1.11	1.22	1.02	0.94	1.05	1.25	1.12	0.63			
				0.59	1.08	1.23	1.06	0.99	1.06	1.23	1.08	0.59			
				7.	3.	-1.	-4.	-4.	-1.	2.	4.	7.			
4			0.63	0.81	1.21	1.05	1.15	1.04	1.13	1.01	1.20	0.82	0.61		
			0.59	0.80	1.22	1.07	1.18	1.07	1.18	1.07	1.22	0.80	0.59		
			7.	2.	-1.	-2.	-3.	-3.	-5.	-5.	-1.	3.	4.		
5		0.56	1.07	1.19	1.01	1.15	1.01	1.18	1.00	1.13	1.01	1.19	1.10	0.61	
		0.57	1.08	1.22	1.04	1.18	1.03	1.20	1.03	1.18	1.04	1.22	1.08	0.57	
		-2.	-0.	-2.	-2.	-2.	-2.	-2.	-3.	-4.	-3.	-2.	2.	7.	
6		0.86	1.21	1.04	1.15	1.00	1.10	0.97	1.10	0.99	1.15	1.05	1.26	0.93	
		0.88	1.23	1.06	1.17	1.01	1.12	0.99	1.12	1.01	1.17	1.06	1.23	0.88	
		-2.	-2.	-2.	-2.	-2.	-1.	-1.	-2.	-3.	-2.	-1.	2.	6.	
7	0.61	1.13	1.04	1.16	1.01	1.10	0.99	1.22	0.98	1.10	1.02	1.18	1.08	1.17	0.59
	0.57	1.12	1.06	1.18	1.03	1.12	0.99	1.23	0.99	1.12	1.03	1.18	1.06	1.12	0.57
	8.	1.	-2.	-2.	-2.	-1.	-0.	-1.	-1.	-2.	-1.	-0.	1.	4.	4.
8	0.78	1.24	0.96	1.04	1.18	0.97	1.23	0.94	1.21	0.98	1.20	1.07	0.98	1.23	0.79
	0.72	1.18	0.99	1.07	1.20	0.99	1.23	0.95	1.23	0.99	1.20	1.07	0.99	1.18	0.72
	8.	5.	-2.	-2.	-2.	-2.	-0.	-1.	-1.	-1.	-0.	-0.	-0.	4.	10.
9	0.61	1.16	1.05	1.15	1.00	1.08	0.97	1.20	0.97	1.11	1.02	1.16	1.07	1.19	0.63
	0.57	1.12	1.06	1.18	1.03	1.12	0.99	1.23	0.99	1.12	1.03	1.18	1.06	1.12	0.57
	8.	3.	-1.	-3.	-3.	-3.	-2.	-2.	-2.	-1.	-1.	-2.	0.	7.	12.
10		0.87	1.21	1.04	1.14	0.98	1.09	0.97	1.10	1.00	1.15	1.04	1.25	0.92	
		0.88	1.23	1.06	1.17	1.01	1.12	0.99	1.12	1.01	1.17	1.06	1.23	0.88	
		-1.	-1.	-2.	-3.	-3.	-2.	-2.	-2.	-2.	-2.	-2.	1.	5.	
11		0.59	1.10	1.22	1.01	1.14	1.01	1.18	1.01	1.15	1.02	1.20	1.09	0.60	
		0.57	1.08	1.22	1.04	1.18	1.03	1.20	1.03	1.18	1.04	1.22	1.08	0.57	
		2.	2.	-0.	-3.	-3.	-2.	-2.	-2.	-3.	-2.	-1.	1.	4.	
12			0.62	0.82	1.18	1.04	1.15	1.04	1.16	1.05	1.21	0.80	0.59		
			0.59	0.80	1.22	1.07	1.18	1.07	1.18	1.07	1.22	0.80	0.59		
			6.	3.	-3.	-3.	-3.	-3.	-2.	-2.	-1.	0.	0.		
13				0.63	1.16	1.27	1.03	0.95	1.04	1.22	1.07	0.59			
				0.59	1.08	1.23	1.06	0.99	1.06	1.23	1.08	0.59			
				7.	8.	3.	-3.	-4.	-2.	-1.	-1.	0.			
14					0.62	0.96	1.19	1.20	1.09	0.87	0.57				
					0.58	0.88	1.12	1.19	1.12	0.88	0.58				
					8.	9.	6.	1.	-2.	-1.	-1.				
15							0.63	0.80	0.58						
							0.57	0.72	0.57						
							11.	11.	3.						

MEASURED F-DELTA-H
EXPECTED F DELTA H
DIFFERENCE

ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	228
P/L	228

Classification

Map No. FM3II7
Power (%) 91.5
Axial Offset 17.55
Max $F^N_{\Delta H}$ 1.430
Max F^N_Q 2.035

-23-

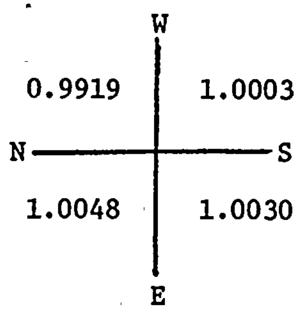
Row	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.57	0.75	0.63						
							0.59	0.75	0.59						
							-4.	0.	8.						
2					0.65	0.85	1.09	1.16	1.19	0.96	0.64				
					0.59	0.90	1.13	1.19	1.13	0.90	0.59				
					10.	-5.	-4.	-3.	5.	8.	7.				
3				0.67	1.13	1.17	1.01	0.98	1.05	1.26	1.14	0.65			
				0.61	1.08	1.22	1.07	1.00	1.07	1.22	1.08	0.61			
				10.	4.	-4.	-5.	-2.	-1.	3.	5.	7.			
4			0.61	0.83	1.19	1.03	1.12	0.97	1.12	1.04	1.19	0.83	0.63		
			0.61	0.81	1.20	1.06	1.17	1.06	1.17	1.06	1.20	0.81	0.61		
			1.	3.	-1.	-2.	-5.	-9.	-5.	-1.	-1.	2.	4.		
5		0.57	1.05	1.18	1.02	1.15	1.02	1.12	0.99	1.13	0.98	1.21	1.09	0.61	
		0.59	1.08	1.20	1.03	1.16	1.02	1.19	1.02	1.16	1.03	1.20	1.08	0.59	
		-3.	-3.	-2.	-1.	-1.	-1.	-5.	-4.	-2.	-5.	0.	1.	2.	
6		0.86	1.18	1.04	1.15	1.01	1.11	0.99	1.10	1.01	1.13	1.04	1.23	0.94	
		0.90	1.22	1.05	1.16	1.01	1.11	0.98	1.11	1.01	1.16	1.05	1.22	0.90	
		-3.	-3.	-1.	-0.	0.	0.	0.	-0.	-0.	-2.	-1.	1.	4.	
7	0.66	1.18	1.03	1.15	1.02	1.11	1.00	1.21	0.99	1.08	0.99	1.15	1.07	1.18	0.60
	0.59	1.13	1.06	1.17	1.02	1.10	0.99	1.21	0.99	1.10	1.02	1.17	1.06	1.13	0.59
	11.	4.	-3.	-1.	-0.	0.	1.	0.	-0.	-3.	-3.	-2.	1.	4.	1.
8	0.83	1.23	0.96	1.04	1.18	0.98	1.22	0.95	1.17	0.91	1.13	1.06	1.01	1.15	0.78
	0.75	1.19	1.00	1.06	1.18	0.98	1.21	0.94	1.21	0.98	1.18	1.06	1.00	1.19	0.75
	11.	4.	-3.	-2.	-1.	-0.	1.	0.	-3.	-7.	-4.	-0.	1.	-3.	5.
9	0.66	1.17	1.05	1.16	1.02	1.06	0.92	1.12	0.96	1.10	1.00	1.18	1.08	1.20	0.68
	0.59	1.13	1.06	1.17	1.02	1.10	0.99	1.21	0.99	1.10	1.02	1.17	1.06	1.13	0.59
	11.	3.	-1.	-1.	-1.	-4.	-7.	-7.	-3.	-0.	-2.	1.	1.	5.	15.
10		0.91	1.24	1.06	1.14	0.96	1.03	0.95	1.09	1.00	1.15	1.06	1.26	0.95	
		0.90	1.22	1.05	1.16	1.01	1.11	0.98	1.11	1.01	1.16	1.05	1.22	0.90	
		1.	1.	0.	-1.	-5.	-7.	-4.	-1.	-1.	-0.	0.	4.	7.	
11		0.60	1.10	1.20	1.01	1.12	0.98	1.17	1.01	1.13	1.03	1.21	1.11	0.62	
		0.59	1.08	1.20	1.03	1.16	1.02	1.19	1.02	1.16	1.03	1.20	1.08	0.59	
		1.	1.	-0.	-1.	-3.	-4.	-1.	-2.	-3.	0.	1.	3.	5.	
12			0.61	0.80	1.19	1.04	1.14	1.04	1.15	1.05	1.20	0.82	0.62		
			0.61	0.81	1.20	1.06	1.17	1.06	1.17	1.06	1.20	0.81	0.61		
			0.	-1.	-1.	-1.	-3.	-3.	-2.	-0.	0.	1.	2.		
13				0.68	1.21	1.36	1.01	0.95	1.05	1.25	1.11	0.62			
				0.61	1.08	1.22	1.07	1.00	1.07	1.22	1.08	0.61			
				11.	11.	11.	-5.	-5.	-1.	2.	2.	2.			
14					0.66	0.99	1.18	1.19	1.13	0.90	0.61				
					0.59	0.90	1.13	1.19	1.13	0.90	0.59				
					11.	11.	5.	-0.	-0.	1.	2.				
15							0.64	0.79	0.59						
							0.59	0.75	0.59						
							9.	6.	-0.						

MEASURED F. DELTA. H.
EXPECTED F DELTA. H
DIFFERENCE

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 3
OPERATING SUMMARY
3/15/75

Table 5

INCORE TILTS



ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	224
P/L	228

Classification

Map No. FM3II10.1

Power (%) 99.2

Axial Offset 2.66

Max $F^N_{\Delta H}$ 1.475

Max F^N_Q 1.680

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 4
OPERATING SUMMARY
6/29/73

Table 6

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.62 0.60 3.	0.79 0.76 3.	0.61 0.60 2.						
2					0.62 0.59 4.	0.89 0.88 1.	1.00 1.00 0.	0.94 0.94 0.	1.00 1.00 1.	0.89 0.88 1.	0.61 0.59 2.				
3				0.64 0.62 4.	0.91 0.91 1.	1.00 1.01 -2.	1.02 1.04 -2.	1.09 1.12 -2.	1.03 1.04 -1.	1.02 1.01 0.	0.93 0.91 2.	0.65 0.62 4.			
4			0.55 0.52 4.	0.81 0.80 1.	0.99 1.01 -2.	1.05 1.06 -1.	1.16 1.17 -1.	1.12 1.12 0.	1.16 1.17 -1.	1.05 1.06 -1.	1.01 1.01 0.	0.81 0.80 1.	0.63 0.62 2.		
5		0.62 0.59 5.	0.91 0.91 1.	1.00 1.01 -1.	1.06 1.06 -0.	1.17 1.18 -1.	1.15 1.16 -1.	1.24 1.24 -0.	1.16 1.16 -0.	1.18 1.19 -0.	1.06 1.06 -0.	0.99 1.01 -2.	0.91 0.91 1.	0.61 0.59 3.	
6		0.92 0.88 5.	1.05 1.01 5.	1.05 1.06 -1.	1.15 1.19 -3.	1.15 1.17 -2.	1.26 1.27 -1.	1.21 1.20 0.	1.27 1.27 -0.	1.16 1.17 -0.	1.18 1.19 -1.	1.04 1.06 -2.	1.01 1.01 -1.	0.89 0.88 1.	
7	0.62 0.60 4.	1.03 1.00 3.	1.08 1.04 4.	1.19 1.17 1.	1.13 1.16 -2.	1.24 1.27 -2.	1.20 1.22 -2.	1.29 1.30 -1.	1.22 1.22 0.	1.27 1.27 0.	1.14 1.16 -2.	1.13 1.17 -3.	1.04 1.04 -0.	0.99 1.00 -1.	0.60 0.60 1.
8	0.80 0.76 4.	0.97 0.94 3.	1.12 1.12 1.	1.13 1.12 0.	1.23 1.24 -1.	1.19 1.20 -1.	1.28 1.30 -2.	1.21 1.23 -2.	1.29 1.30 -1.	1.21 1.20 1.	1.23 1.24 -1.	1.11 1.12 -1.	1.14 1.12 2.	0.98 0.94 4.	0.78 0.76 2.
9	0.63 0.60 4.	1.02 1.00 2.	1.05 1.04 1.	1.17 1.17 -0.	1.14 1.16 -1.	1.24 1.27 -2.	1.17 1.22 -4.	1.27 1.30 -2.	1.20 1.22 -2.	1.23 1.27 -3.	1.15 1.16 -1.	1.19 1.17 1.	1.06 1.04 2.	1.02 1.00 2.	0.61 0.60 2.
10		0.89 0.88 1.	1.03 1.01 1.	1.06 1.06 1.	1.19 1.19 -0.	1.15 1.17 -2.	1.22 1.27 -4.	1.18 1.20 -2.	1.24 1.27 -2.	1.14 1.17 -2.	1.18 1.19 -0.	1.07 1.06 1.	1.03 1.01 1.	0.89 0.88 1.	
11		0.61 0.59 3.	0.93 0.91 3.	1.03 1.01 2.	1.07 1.06 1.	1.17 1.19 -1.	1.13 1.16 -3.	1.23 1.24 -1.	1.14 1.16 -2.	1.16 1.19 -3.	1.06 1.06 0.	1.03 1.01 2.	0.93 0.91 2.	0.60 0.59 2.	
12			0.55 0.52 4.	0.83 0.80 3.	1.02 1.01 1.	1.04 1.06 -2.	1.13 1.17 -3.	1.10 1.12 -2.	1.16 1.17 -1.	1.05 1.06 -1.	1.02 1.01 1.	0.83 0.80 4.	0.64 0.62 3.		
13				0.64 0.62 3.	0.92 0.91 2.	1.01 1.01 -1.	1.00 1.04 -3.	1.09 1.12 -3.	1.03 1.04 -1.	1.02 1.01 1.	0.92 0.91 2.	0.64 0.62 3.			
14					0.61 0.59 2.	0.90 0.88 2.	1.02 1.00 2.	0.94 0.94 -0.	0.98 1.00 -2.	0.88 0.85 -1.	0.60 0.59 1.				
15							0.61 0.60 2.	0.77 0.76 1.	0.59 0.60 -2.						

MEASURED F DELTA H
EXPECTED F DELTA H
DIFFERENCE

INCORE TILTS

	N	S
E	1.0021	0.9994
W	0.9990	0.9995

ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	206
P/L	228

Classification

Map No. FM3I24

Power (%) 55.0

Axial Offset -0.32

Max $F^N_{\Delta H}$ 1.389

Max F^N_Q 1.797

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.57	0.73	0.59						
							0.58	0.73	0.58						
							-1.	0.	3.						
2					0.62	0.86	0.98	0.91	1.00	0.89	0.61				
					0.59	0.87	0.98	0.92	0.98	0.87	0.59				
					5.	-1.	-1.	-1.	1.	3.	3.				
3				0.66	0.96	1.03	1.02	1.11	1.04	1.05	0.95	0.65			
				0.62	0.92	1.03	1.03	1.12	1.03	1.03	0.92	0.62			
				5.	4.	0.	-1.	-1.	0.	2.	3.	4.			
4			0.66	0.85	1.06	1.07	1.19	1.12	1.19	1.08	1.05	0.82	0.63		
			0.62	0.82	1.04	1.06	1.19	1.11	1.19	1.06	1.04	0.82	0.62		
			5.	4.	2.	1.	-0.	0.	1.	1.	1.	1.	1.		
5		0.59	0.93	1.03	1.06	1.21	1.15	1.26	1.16	1.21	1.06	1.02	0.92	0.59	
		0.59	0.92	1.04	1.06	1.21	1.15	1.25	1.15	1.21	1.06	1.04	0.92	0.59	
		-0.	1.	-1.	-1.	0.	1.	1.	1.	0.	-1.	-2.	-1.	0.	
6		0.86	1.03	1.04	1.17	1.14	1.28	1.19	1.27	1.15	1.20	1.04	1.01	0.86	
		0.87	1.03	1.06	1.21	1.16	1.27	1.18	1.27	1.16	1.21	1.06	1.03	0.87	
		-0.	-0.	-2.	-3.	-1.	0.	1.	-0.	0.	-1.	-2.	-2.	-1.	
7	0.61	1.00	1.03	1.18	1.14	1.27	1.19	1.29	1.18	1.27	1.13	1.15	1.03	0.96	0.58
	0.58	0.98	1.03	1.19	1.15	1.27	1.19	1.30	1.19	1.27	1.15	1.19	1.03	0.98	0.58
	4.	1.	-0.	-0.	-1.	-0.	0.	-0.	-1.	-0.	-1.	-3.	-0.	-2.	-1.
8	0.75	0.94	1.13	1.12	1.26	1.19	1.30	1.20	1.29	1.19	1.24	1.12	1.16	0.95	0.74
	0.73	0.92	1.12	1.11	1.25	1.18	1.30	1.20	1.30	1.18	1.25	1.11	1.12	0.92	0.73
	[illegible]	2.	1.	0.	1.	0.	0.	-1.	-1.	0.	-1.	0.	3.	3.	2.
9	0.61	1.00	1.03	1.18	1.13	1.26	1.15	1.28	1.19	1.25	1.14	1.23	1.06	1.01	0.59
	0.58	0.98	1.03	1.19	1.15	1.27	1.19	1.30	1.19	1.27	1.15	1.19	1.03	0.98	0.58
	4.	2.	0.	-0.	-1.	-1.	-3.	-1.	-0.	-1.	-1.	4.	3.	3.	3.
10		0.87	1.03	1.06	1.21	1.14	1.23	1.16	1.26	1.15	1.21	1.07	1.05	0.88	
		0.87	1.03	1.06	1.21	1.16	1.27	1.18	1.27	1.16	1.21	1.06	1.03	0.87	
		-0.	-0.	-0.	0.	-2.	-3.	-2.	-1.	-0.	-0.	0.	1.	1.	
11		0.60	0.94	1.06	1.08	1.20	1.12	1.24	1.14	1.21	1.07	1.04	0.93	0.60	
		0.59	0.92	1.04	1.06	1.21	1.15	1.25	1.15	1.21	1.06	1.04	0.92	0.59	
		2.	2.	2.	2.	-1.	-2.	-1.	-0.	0.	0.	0.	0.	1.	
12			0.65	0.84	1.06	1.05	1.15	1.09	1.19	1.07	1.05	0.82	0.62		
			0.62	0.82	1.04	1.06	1.19	1.11	1.19	1.06	1.04	0.82	0.62		
			3.	3.	2.	-1.	-3.	-2.	1.	1.	1.	0.	-0.		
13				0.63	0.92	1.02	1.00	1.09	1.02	1.06	0.94	0.62			
				0.62	0.92	1.03	1.03	1.12	1.03	1.03	0.92	0.62			
				1.	-0.	-2.	-3.	-3.	-1.	2.	2.	-0.			
14					0.59	0.86	0.96	0.89	0.95	0.86	0.61				
					0.59	0.87	0.98	0.92	0.98	0.87	0.59				
					-0.	-0.	-2.	-4.	-3.	-1.	2.				
15							0.57	0.70	0.56						
							0.58	0.73	0.58						
							-2.	-4.	-4.						

MEASURED F DELTA H
EXPECTED F DELTA H
DIFFERENCE

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 4
OPERATING SUMMARY
4/26/74

Table 7

INCORE TILTS

	N side	S side
E	1.0032	1.0007
W	0.9947	1.0015

ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	218
P/L	228

Classification

Map No. FM4I29

Power (%) 93.1

Axial Offset 0.38

Max $F^N_{\Delta H}$ 1.381

Max F^N_Q 1.683

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT UNIT 4
OPERATING SUMMARY
12/30/74

Table 8

	R	P	N	M	L	K	J	H	G	F	E	D	C	B	A
1							0.61	0.75	0.60						
							0.60	0.74	0.60						
							1.	1.	0.						
2					0.65	0.90	1.03	0.93	1.02	0.88	0.64				
					0.64	0.90	1.03	0.93	1.03	0.90	0.64				
					1.	0.	0.	0.	-1.	-2.	-0.				
3				0.69	1.03	1.10	1.03	1.14	1.03	1.10	1.04	0.70			
				0.68	1.03	1.11	1.03	1.15	1.03	1.11	1.03	0.68			
				1.	-0.	-1.	-1.	-1.	-1.	-0.	1.	3.			
4			0.69	0.88	1.11	1.05	1.18	1.06	1.19	1.07	1.13	0.88	0.68		
			0.68	0.88	1.12	1.06	1.18	1.07	1.18	1.06	1.12	0.88	0.68		
			1.	-0.	-1.	-1.	-1.	-1.	0.	1.	1.	0.	-1.		
5		0.64	1.02	1.11	1.05	1.17	1.10	1.22	1.08	1.20	1.05	1.09	1.00	0.62	
		0.64	1.03	1.12	1.06	1.19	1.07	1.18	1.07	1.19	1.06	1.12	1.03	0.64	
		-0.	-1.	-1.	-1.	-1.	3.	3.	2.	1.	-1.	-3.	-3.	-3.	
6		0.90	1.10	1.04	1.15	1.05	1.20	1.09	1.19	1.07	1.18	1.05	1.08	0.87	
		0.90	1.11	1.06	1.19	1.06	1.18	1.05	1.18	1.06	1.19	1.06	1.11	0.90	
		-0.	-0.	-2.	-3.	-1.	2.	3.	1.	1.	-0.	-2.	-2.	-3.	
7	0.62	1.04	1.03	1.18	1.06	1.18	1.06	1.18	1.05	1.20	1.08	1.18	1.02	0.99	0.58
	0.60	1.03	1.03	1.18	1.07	1.18	1.05	1.16	1.05	1.18	1.07	1.18	1.03	1.03	0.60
	3.	1.	-0.	0.	-1.	0.	1.	2.	0.	2.	1.	-0.	-1.	-4.	-4.
8	0.76	0.95	1.18	1.08	1.20	1.06	1.18	1.05	1.18	1.10	1.21	1.07	1.17	0.92	0.73
	0.74	0.93	1.15	1.07	1.18	1.05	1.16	1.04	1.16	1.05	1.18	1.07	1.15	0.93	0.74
	3.	2.	2.	1.	1.	1.	1.	1.	2.	4.	2.	1.	1.	-1.	-2.
9	0.62	1.05	1.04	1.19	1.06	1.18	1.06	1.18	1.06	1.17	1.08	1.20	1.03	1.02	0.60
	0.60	1.03	1.03	1.18	1.07	1.18	1.05	1.16	1.05	1.18	1.07	1.18	1.03	1.03	0.60
	3.	1.	1.	0.	-1.	0.	1.	1.	1.	-1.	1.	2.	-0.	-1.	-1.
10		0.89	1.10	1.06	1.19	1.06	1.18	1.06	1.18	1.06	1.18	1.06	1.07	0.87	
		0.90	1.11	1.06	1.19	1.06	1.18	1.05	1.18	1.06	1.19	1.06	1.11	0.90	
		-1.	-1.	-1.	-0.	-0.	1.	1.	0.	-0.	-0.	-0.	-4.	-4.	
11		0.64	1.02	1.12	1.06	1.18	1.06	1.19	1.07	1.19	1.06	1.13	1.01	0.62	
		0.64	1.03	1.12	1.06	1.19	1.07	1.18	1.07	1.19	1.06	1.12	1.03	0.64	
		-1.	-1.	-0.	0.	-0.	-0.	1.	0.	-0.	-0.	0.	-1.	-4.	
12			0.68	0.88	1.13	1.05	1.17	1.06	1.19	1.06	1.13	0.89	0.69		
			0.68	0.88	1.12	1.06	1.18	1.07	1.18	1.06	1.12	0.88	0.68		
			0.	0.	0.	-1.	-1.	-0.	0.	-0.	0.	1.	1.		
13				0.68	1.02	1.09	1.02	1.15	1.03	1.11	1.03	0.69			
				0.68	1.03	1.11	1.03	1.15	1.03	1.11	1.03	0.68			
				-0.	-1.	-1.	-1.	-0.	0.	0.	1.	1.			
14					0.64	0.90	1.04	0.94	1.03	0.90	0.64				
					0.64	0.90	1.03	0.93	1.03	0.90	0.64				
					-1.	-0.	1.	0.	0.	0.	0.				
15							0.61	0.75	0.61						
							0.60	0.74	0.60						
							1.	1.	1.						

MEASURED F DELTA H
EXPECTED F DELTA H
DIFFERENCE

INCORE TILTS

	E	
N	1.0008	0.9983	S
	1.0007	1.0002
	W	

ROD POSITION

Bank	Location In Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	223/224
P/L	228

Classification

Map No. FM4I38

Power (%) 99.4

Axial Offset -2.29

Max $F^N_{\Delta H}$ 1.283

Max F^N_Q 1.468

-27-

3.0 SAFETY ANALYSIS REASSESSMENT

During the first year of operation of Turkey Point Plant Units 3 and 4, one distinct area surfaced which exceeded original estimates contained in Section 14 of the FSAR. In each case, however, Florida Power and Light Company was able to implement temporary corrective measures to ensure that the health and safety of the general public as well as that of the operating staff was not jeopardized. Permanent corrective measures are currently in the process of being implemented and are discussed as follows:

3.1 RADIOACTIVE WASTE DISPOSAL SYSTEMS

The liquid waste disposal system at Turkey Point Plant processes waste water from the holdup tanks and predominately borated water from the chemical and volume control systems. The two gpm evaporator originally designated as a waste evaporator proved itself inadequate to process the volume of water at a sufficient rate during periods of high water accumulation. A CVCS evaporator was then temporarily converted to waste processing and has since adequately handled the waste water processing at a ten gpm rate. Permanent improvements in the equipment designated to handle the waste processing load are currently being implemented as follows:

Florida Power and Light Company has purchased two new fifteen gpm waste evaporators which will be housed in a new eight million dollar radioactive waste facility currently under construction at the Turkey Point site. These evaporators are expected to be placed in operation in the third quarter of 1975. At that time, the converted CVCS evaporator will be returned to its originally designated service.

3.1.1 LIQUID WASTE DISPOSAL

Total annual volume to be discharged from Turkey Point Units 3 and 4 was estimated at 324,000 gallons in the FSAR. The actual volume released from the liquid waste disposal system in 1974 was 4,050,000 gallons.

Total annual activity to be discharged from Units 3 and 4 was also underestimated in the FSAR. Estimates of 75 mCi excluding noble gases and tritium were discussed in the FSAR. Actual quantity releases in 1974 were approximately 267 mCi excluding tritium and noble gas.

FSAR estimated activity of tritium wastes to be released was 2900 Ci. The actual quantity released was approximately 580 Ci.

3.1.2 GASEOUS WASTE DISPOSAL SYSTEM

The gaseous waste disposal system is designed to collect and process gaseous waste from the following sources:

(a) Degassing operations of the reactor coolant.

(b) Displacement of cover gases as liquid levels increase in various tanks.

(c) Miscellaneous equipment vents and relief valves.

(d) Sampling operations and automatic gas analysis for hydrogen and oxygen content in cover gases.

FSAR estimates were based on six to twenty gas decay tank releases per year having 760 to 2,460 curies per release. This assumption is based on degasing the reactor coolant for three cold shutdowns and removing noble gases from the RCS to the waste disposal system as a result of four hot shutdowns.

During 1974, sixty-seven gas decay tanks were released. Maximum curies released in any one release was 21.4 Ci.

The variation of gas released via the gaseous waste disposal system versus the FSAR estimates is mainly due to the number of load reductions and reactor trips actually experienced, but not projected in the FSAR. During such reductions and trips, gas is displaced from the CVCS hold-up tanks to the gas waste disposal system on shutdown and startup operations. This is particularly significant when approaching the end of core life.

Additional gas releases were also a result of nitrogen leaks into the system caused by inadvertant failure to close specifc valves.

Significant problems have also resulted from overpressurizing the vent header above that pressure which the diaphragm valves can withstand. Back leakage of the vent header gases into the boric acid evaporator rooms has resulted during these periods of overpressurization

Corrective measures are currently in progress to install pressure controlling devices on the system, and to disconnect the low gaseous activity sources from the vent header to prevent this back leakage. In addition, one of the two waste gas compressors is currently being replaced due to excessive wear and bearing failure.

3.1.3 SOLID WASTE DISPOSAL SYSTEM

The solid waste disposal system provides for holdups, packaging, and storage facilities for evaporator concentrates, spent resin, and solid radioactive waste material. Estimated annual volume given in the FSAR for solids shipped for burial was 300 to 600 fifty-five gallon drums. Actual volume shipped in 1973 was 1067 fifty-five-gallon drums and in 1974 was 2034 fifty-five-gallon drums. No spent resin was shipped during these periods.

As a result of using one of the boron recycle evaporator for waste water processing (see Liquid Waste Disposal System section), the drumming system as

designed became inadequate. The system was modified to utilize vermiculite-filled drums and a single drum-filling station. The drum storage area (50 drum capacity) was also found to be inadequate to handle the volume of waste in an efficient and economical manner. In early 1975, 177 cubic feet of resin was packaged by transferring directly to a large, shielded container, dewatered and shipped offsite for burial. This method results in lower exposures to the operation and is more economical and, therefore, will be used in place of the installed equipment. Upon completion of the new waste handling facility discussed in section 3.1, all evaporator concentrates will be solidified and spent resin will be packaged utilizing the solidification portion of the system.

4.0 ASSESSMENT OF THE PERFORMANCE OF STRUCTURES, SYSTEMS AND COMPONENTS RELATED TO SAFETY

As previously stated in Section 2.0 of this report, Florida Power and Light Company takes the position that the first year of operation under rated power conditions has been one of success. The structures, systems and components related to safety have generally performed their designated functions within the safe operating parameters as outlined in the FSAR.

4.1 GENERAL PERFORMANCE OF STRUCTURES, SYSTEMS AND COMPONENTS

As required by Section 6.0 of the Technical Specifications, operation of Turkey Point Units 3 and 4 has been conducted in compliance with detailed, written procedures, including applicable check-off lists and instructions. Routine and periodic testing and surveillance has been conducted in compliance with Section 4.0 of the Technical Specifications; and the results have been documented and retained as historical data for review by members of the commission at their discretion.

Deviations from safe operating conditions have been reported to the commission in the form of Abnormal Occurrences and Unusual Events.

Specific structures, systems and components requiring more detailed surveillance are discusssed in greater depth in the paragraphs to follow.

4.1.1 UNIT #3 CONTAINMENT STRUCTURE AND BOUNDARY ISOLATION

The Turkey Point Unit 3 concrete dome of the containment experienced concrete delaminations in December of 1970. The removal and replacement of the delaminated concrete was reported in a detailed, sequential report to the U.S. Atomic Energy Commission in the document entitled, Florida Power and Light, Turkey Point Unit #3, Docket No. 50-250, "Containment Dome, Concrete Replacement Report," dated January 26, 1972.

The Turkey Point Unit 3 containment was then structurally tested prior to operation by increasing the internal pressure to 63.25 psig. The Structural Integrity Test was considered acceptable and detailed results of the test were transmitted to the U.S. Atomic Energy Commission in the document entitled, Florida Power and Light Company, Turkey Point Unit #3, Docket No. 50-250, "Structual Integrity Test Report" on January 19, 1972.

Additional periodic surveillance on the Unit 3 containment dome has continued in compliance with the Technical Specifications for Turkey Point Nuclear Units 3 and 4, which requires additional surveillance on Unit 3 dome. Reports on this surveillance have been documented and transmitted to the U.S. Atomic Energy Commission as follows:

1. Florida Power and Light Company, Turkey Point Unit 3, Docket No. 50-250, "Containment Dome Report," dated February 25, 1972.

2. Florida Power and Light Company, Turkey Point Unit 3, Docket No. 50-250, "Containment Surveillance Six Months After the Structural Integrity Test," dated July 27, 1972.

3. Florida Power and Light Company, Turkey Point Unit 3, Docket No. 50-250, "Containment Building Post-Tensioning System, One Year Surveillance," dated September 12, 1973.

4. Florida Power and Light Company, Turkey Point Unit 3, Docket No. 50-250, "Unit 3 Containment Structure Dome Post Tensioning System - Two-Year Surveillance," dated January 22, 1974.

Prior to conducting the Integrated Leak Rate Test, a series of local leak tests were performed to verify containment integrity. Both the local leak rate testing and integrated leak rate testing was accomplished for Florida Power and Light under the technical supervision of Bechtel Corporation and witnessed by Florida Power and Light Company. Results of the initial Local Leak Rate Tests and Integrated Leak Rate Test were documented and furnished to the U.S. Atomic Energy Commission in the document entitled, Florida Power and Light Company, Turkey Point Plant, Unit 3, Reactor Containment Building, "Integrated Leak Rate Test." These tests were conducted and, in fact, did verify that the overall potential leakage from the containment structure under design conditions was within the acceptance values as set forth in the Turkey Point Plant, Unit 3, Final Safety Analysis Report. The next Integrated Leak Rate Test is currently scheduled to be accomplished simultaneously with refueling activities on Turkey Point Plant Unit 3 in the fourth quarter of 1975.

Since startup of the Turkey Point Plant Unit 3, the routine and periodic leak rate testing of the various access hatches, piping and electrical penetrations has been performed in compliance with Technical Specifications 4.4.2 (Local Penetrations) and 4.4.4 (Isolation Valves). The results of which have been previously documented as part of Turkey Point Plant Units 3 and 4 Semiannual Operating Reports for the periods ending June 30, 1974, and December 31, 1974.

4.1.2 UNIT 3 SPENT FUEL PIT AND REACTOR REFUELING CAVITY LEAKS

Filling of Unit 3 spent fuel pit and reactor refueling cavity during refueling activities in the fourth quarter of 1974 revealed leakage in the stainless steel liner plate of both structures. This leakage was first detected during pre-operational testing in 1972 but was considered minor at that time, and it was expected that this minor leakage could be handled by the waste disposal system. The severity of this leakage has since been compounded by apparent leakage through the construction joints of the surrounding concrete structures.

This entire event has been documented as Unusual Event 250-74-6 and transmitted to the U.S. Atomic Energy Commission on November 26, 1974. Also included in this report are the temporary corrective measures effected by Florida Power and Light Company to protect the health and safety of plant employees as well as that of the general public.

Florida Power and Light Company has also retained the services of a consultant to determine a solution to this problem. A supplement to Unusual Event 250-74-6 will be issued when permanent corrective action has been determined and taken

4.1.3 MODIFICATION OF CONDENSATE SYSTEM (PC/M 74-79)

Increased performance of the condensate system has been implemented by Plant Change/Modification 74-79. An additional condensate pump was installed in Unit 3 during the first year of operation. The additional condensate pump for Unit 4 is presently being installed concurrently with the Unit 4 refueling outage.

The purpose of these additional pumps is to improve the reliability of the condensate/feedwater system and thus improve the overall reliability of the secondary system. This will allow the full utilization of the availability of the nuclear steam supply system.

4.1.4 FAILURE OF UNIT 4 SPENT FUEL RACK SEISMIC RESTRAINING SPRINGS

At the end of the first year of operation of Unit 4, it was discovered that six of the total 116 spent fuel rack seismic restraining springs were broken in the Unit 4 spent fuel pit. These springs provide restraint for the spent fuel racks in case a seismic event should occur.

Investigation of the failure determined that the springs failed in a stress corrosion mode. To ensure a high level of reliability, all 116 seismic springs were replaced.

An investigation of the condition of the Unit 3 springs is currently being conducted, and the results of the investigation are not yet available.

4.1.5 FAILURE OF STATION 4B BATTERY TO PASS ANNUAL DISCHARGE TEST

The electrical system batteries have been tested periodically since initial operation to verify that the batteries are maintained serviceable and are capable of functioning under a sustained emergency load. The 4B battery failed a discharge load test. In about thirty seconds, at a discharge rate of 1345 amps, the battery voltage dropped to 102 volts and the test was aborted. The minimum allowable DC bus is 105 volts.

Visual examination revealed large amounts of debris in the bottom of the cells, cracked and buckled battery plates, and parts of the grids disintegrated. The early deterioration of the batteries was attributed mainly to overcharge due to poor charging practices during the construction phase of the plant. Additional deterioration was attributed to high.battery room temperature due to lack of air conditioning in the battery room.

Air conditioning has since been installed in all battery rooms and the 3A and 4B batteries are in the process of being replaced. Abnormal Occurrence 251-74-5

dated October 23, 1974, further delineates specific details of the problem and resulting corrective action.

4.1.6 REPLACEMENT TO EXISTING VITAL A.C. BUS DISTRIBUTION PANELS

Both Units 3 and 4 experienced problems with the vital instrument A.C. power. An investigation revealed that the standard inverter did not have automatic control of output current. In the event of an overload, the selenium rectifiers are protected by current limiting fuses. The D.C. input circuit breaker is an instantaneous magnetic type and will trip for a lesser overload as well as for a heavy overload.

A modification was added to the system as a current limit feature which allows the inverter voltage to return automatically after an overload without the necessity of replacing a fuse or resetting a circuit breaker.

Implementation of Plant Change/Modification 74-64 incorporating a new circuitry resolved the problem.

5.0 PROGRESS AND STATUS OF OPEN ITEMS REQUIRING ADDITIONAL INFORMATION

This section is to provide a progress and status report on any items identified as requiring additional informaiton during the operating license review or during the startup of the nuclear units, including items discussed in the AEC's safety evaluation, items on which additional information was required as conditions of the license and items identified in the licensee's startup report.

5.1 AEC SAFETY EVALUATION OPEN ITEMS

Review of the AEC Safety Evaluation dated March 16, 1972, revealed three open items requiring additional information. Those items with their respective resolutions are discussed in the paragraphs to follow.

5.1.1 IMPLEMENTATION OF COOLING CANAL SYSTEM

Section 2.0 of the AEC Safety Evaluation referenced the Final Judgement in the U.S. District Court for the Southern District of Florida, Civil Action No. 70-328-CA; U.S.A., Plaintiff, versus the Florida Power and Light Company, Defendant, September 10, 1971.

The above decision ultimately resulted in design and construction of a unique cooling canal system implementing a closed circuit mode of recirculating cooling water. The cooling canals were placed in operation on February 18, 1973, and have been in operation since that time. Events leading up to the evolution, conversion, and testing surveillance are documented in the report entitled, "A Summary Report of the Turkey Point Cooling Canal System," prepared for Florida Power and Light Company by Ray L. Lyerly and Associates of Dunnedin, Florida, in December of 1973.

In conjunction with activating the closed circuit cooling canal system as outlined by the above referenced document, Florida Power and Light Company also commissioned Dames and Moore Consulting Engineers of Atlanta, Georgia, to develop a "Contingency Plan on Restoration of Cooling Facilities, Cooling Canal System." Dames and Moore completed their study and transmitted their findings to Florida Power and Light Company on September 7, 1973. This same study was then transmitted to the U.S. Atomic Energy Commission on November 2, 1973, to satisfy Appendix B of the Environmental Technical Specifications, Paragraph 4.C.3.

5.1.2 EXAMINATION OF REACTOR INTERNALS FOR INDICATION OF DAMAGING VIBRATION

Paragraph 4.5 of the AEC Safety Evaluation requires that: "Upon completion of preoperational testing, the reactor internals will be subjected to detailed examination for evidence of fretting, wear, and cracks, which are positive indicators of damaging vibration."

A detailed examination was conducted on Unit 3 reactor internals to determine indications of damaging vibration as required by the above section of the AEC Safety Evaluation. This examination was conducted concurrently with the Unit 3 refueling outage in October of 1974 by the Nuclear Service Division of Westinhouse Electric Corporation. Results of this examination are contained in Westinghouse NSD Procedures TO-0-74-4, TO-0-74-1, TO-0-74-2, TO-0-74-7, TO-0-74-9, TO-0-74-12, and TO-0-74-16; and are available in records as historical data. In addition to the above records, a complete set of the actual TV video tapes have been retained as historical data. Results of these tests disclosed no unsatisfactory items.

A like examination is currently being conducted on Unit 4 reactor internals concurrently with the ongoing refueling outage. Results of these tests will similarly be made available as historical data prior to resumption of rated power.

5.1.3 INSTALLATION OF INTERLOCKS ON MOVs 750 AND 751

Paragraph 9.2 of the AEC Safety Evaluation requested modification of the control circuitry of the residual heat removal (RHR) system MOVs 750 and 751 by installation of a pressure interlock to automatically close the valves when the reactor coolant system pressure exceeds 465 psig. Florida Power and Light agreed to perform this modification prior to startup following the first refueling.

This modification was accomplished on Unit 3 MOVs 750 and 751 during Unit 3 refueling by PC/M 73-113.

The same modification is currently being effected on Unit 4 MOVs 750 and 751 by PC/M 73-113 and will be complete prior to resumption of rated power at the conclusion of refueling activities

5.2 PLANT STARTUP REPORT OPEN ITEMS

Review of the Turkey Point Plant Units 3 and 4 "Startup Report" submitted to the commission on May 3, 1974, revealed three open items requiring additional information. These items and their respective resolutions are discussed in the paragraphs to follow.

5.2.1 INSTALLATION OF TWO NEW PILLOW BLOCKS ON UNIT 4 FUEL HANDLING EQUIPMENT

Page 13, Paragraph D of the Startup Report states:

> *"The pillow block used to adjust the tension of the drive chain (Fuel Transfer System) developed extensive wear. The vendor (Stearns-Roger Corporation) is fabricating a sprocket shaft using two pillow blocks rather than one."*

Plant Change/Modification 73-54 was completed on June 25, 1974, incorporating the two new pillow blocks.

5.2.2 ADJUSTMENT OF SELSYN INDEXING INSTRUMENT - UNIT 4

Page 13, Paragraph G of the "Startup Report" states:

> *"The Selsyn indexing instrument on the manipulator crane appeared to 'change' during initial fuel loading. Adjustment made by the vendor has improved the situation; but, additional work appears to be required."*

Improvements in the accuracy of the Selsyn indexing instrument have been effected by improved gear and shaft alignment.

5.2.3 CONSTRUCTION OF A NEW WASTE HANDLING FACILITY

Pages 19 and 20 of the "Startup Report" discuss the inadequacies of the waste handling facilities common to Turkey Point Plant Units 3 and 4.

As previously discussed in Section 3.1 of this report, the waste facility is now under construction and should be placed in operation during the third quarter of 1975.

6.0 CONCLUSIONS

This report has summarized those items delineated in Technical Specification 6.6.1.a(2). Additional information is contained in the Semiannual Operating Reports, Abnormal Occurrence Reports, Unusual Safety Related Event Reports, and other Special Reports which have been submitted by Florida Power and Light Company to date.

During the first year of rated power operation, many problems have been identified and corrected, and others are under investigation. Most of the problems which have been experienced are those normally associated with the initial startup and operation of a large, new generating facility; however, some unexpected problems were also experienced and corrected.

In summary, the first year of commercial operation has been satisfactory; however, unit availability and performance are expected to be improved in the future as a result of resolving many of the problems associated with the startup of any new facility.