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

Gentlemen:

Re: Turkey Point Unit 3
Docket No. 50-250
Startup Report

The attached Startup Report is provided in accordance with Technical Specification 6.9.1.a. The Unit 3 Cycle XII Startup Report documents the first use of the Debris Resistant Fuel Assembly (DRFA) design, axial blankets, Reconstitutable Top Nozzle (RTN), fuel assemblies modified for extended burnup, burnable absorber assemblies updated via the Core Component Update Program, Standardized Fuel pellets, and thimble plug removal.

If you have any questions concerning this information please contact us.

Very truly yours,

K. N. Harris
Plant Vice President
Turkey Point Plant Nuclear

KNH/JEK/jk

Attachment

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

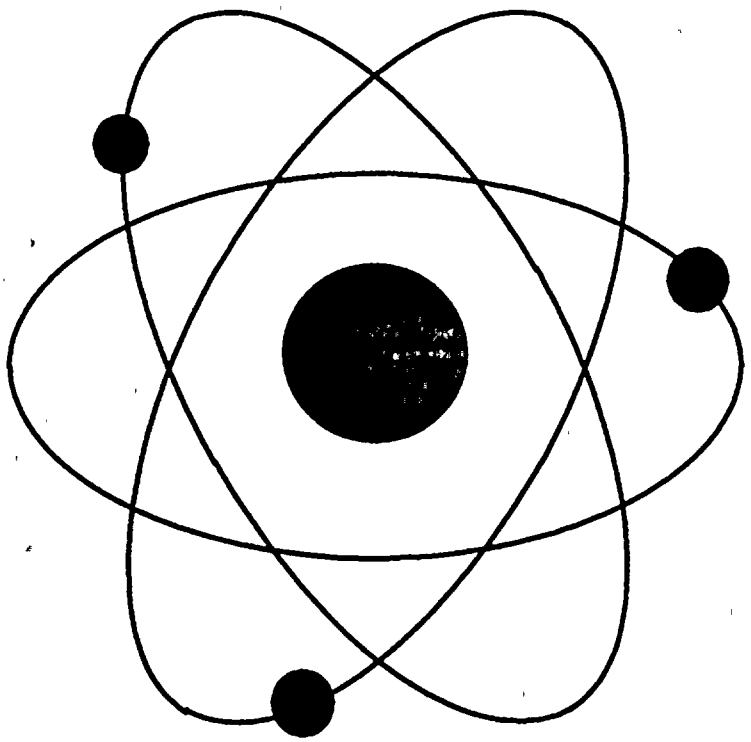
IE26
1/1

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT NUCLEAR PLANT

UNIT 3 CYCLE XII

STARTUP REPORT



INTRODUCTION

This report contains the official summary of the Startup Physics Tests performed on Turkey Point Unit 3 at the beginning of Cycle XII. The testing program was conducted in accordance with Operating Procedure 0204.3, Initial Criticality After Refueling, and Operating Procedure 0204.5, Nuclear Design Check Tests During Startup Sequence After Refueling, and meets the minimum requirements of ANSI/ANS 19.6.1, Revision 0 (12-13-85), Startup Physics Tests for Pressurized Water Reactors. Testing commenced on May 24, 1990, at 0050 and was completed on May 25, 1990 at 0629.

The Westinghouse Nuclear Design Report for Unit 3, Cycle XII, (WCAP-12538) is the design data from which deviations were measured for the purpose of verifying that acceptance criteria were met. The acceptance criteria stated are the more conservative of ANSI/ANS 19.6.1, Revision 0 or Operating Procedure 0204.5.

All of the tests included in this report meet their acceptance criteria.

The contents of this report provide the documentation required by Technical Specification 6.9.1.a.

Author: _____
Arlon Costa
Reactor Engineer

Reviewed by: _____
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Reviewed by: _____ 5/8/90
J. L. Perryman
Reactor Support Supervisor

Approved by: _____
G. L. Marsh
Reactor Supervisor PTN

TABLE OF CONTENTS

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1.0 UNIT 3 CYCLE XII CORE

1.1 Fuel Design Changes

The Cycle 12 reload introduces for the first time: the Debris Resistant Fuel Assembly (DRFA) design, axial blankets, the Reconstitutable Top Nozzle (RTN), fuel assemblies modified for extended burnup, burnable absorber assemblies updated via the Core Component Update Program, standardized fuel pellets, and thimble plug removal. Additionally, the core has 9 reconstituted fuel assemblies that contain 16 stainless steel and 4 low enriched rods.

1.2 Loading Pattern

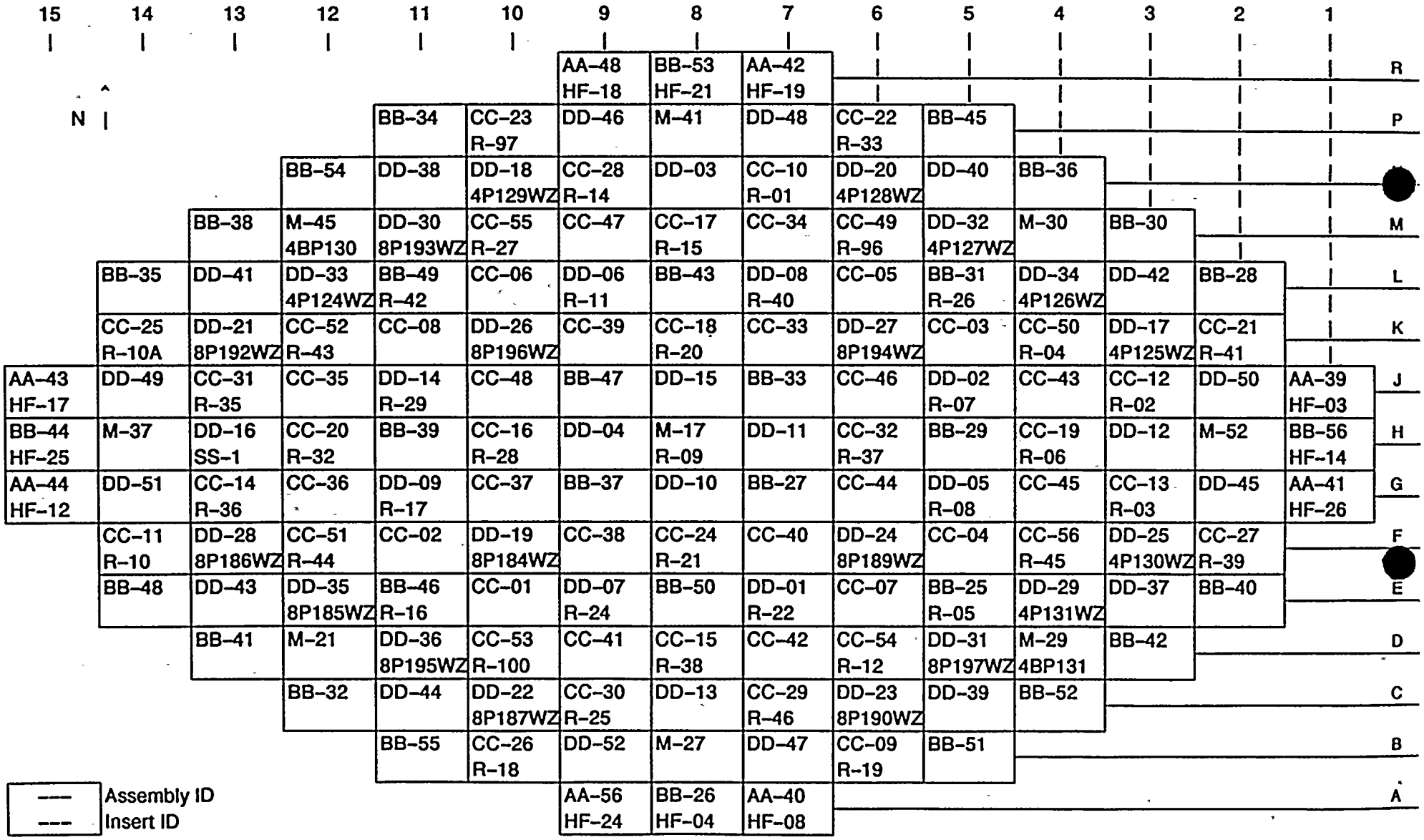
This section presents the as-loaded core configuration (Figure 1, page 2).

1.3 Rod Pattern and Rod Drop Times

This section presents the Control and Shutdown Rod pattern and the Rod Drop Times for all rods as measured per Procedure 3-PMI-028.3 RPI Hot Calibration, CRDM Stepping Test, and Rod Drop Test (Figure 2, page 3). All rods met the drop time limit of 2.4 seconds as per Technical Specification 3.2.3.

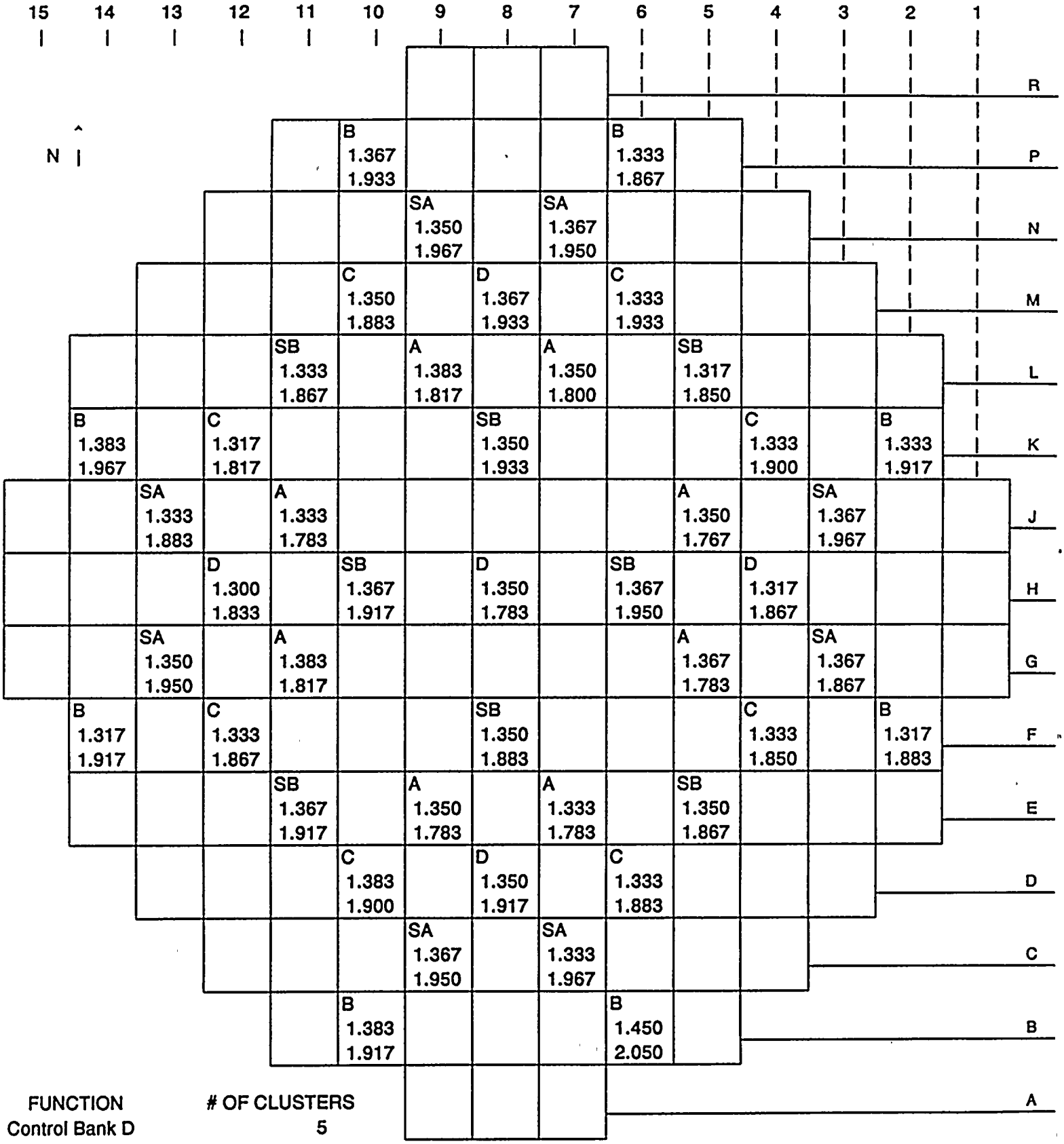
FLORIDA POWER AND LIGHT
TURKEY POINT NUCLEAR
UNIT 3 CYCLE 12

FIGURE 1: CORE CONFIGURATION



VERIFIED BY: J. K. Dyches DATE: 8/13/90

TURKEY POINT NUCLEAR PLANT
UNIT 3 – CYCLE 12
FIGURE 2: CONTROL ROD BANK LOCATION AND ROD DROP TIMES



FUNCTION	# OF CLUSTERS
Control Bank D	5
Control Bank C	8
Control Bank B	8
Control Bank A	8
Control Bank SB	8
Control Bank SA	8

LEGEND:
--- CONTROL BANK
--- TIME TO DASHPOT (s)
--- TIME TO BOTTOM (s)

2.0 INITIAL CRITICALITY

The approach to criticality began May 24, 1990, at 0515 hours in accordance with Operating Procedure 0204.3, Initial Criticality After Refueling. Criticality was achieved May 24, 1990 at 1132 hours by withdrawing control rods to 175 steps on Bank D and diluting the RCS with 18,101 gallons of water. Figure 3 (pages 5 and 6) is a plot of the ICRR during the approach to criticality.

Upon attaining criticality the flux level was increased to 1 x 10^{-8} amps on the intermediate range to obtain critical data, as follows:

TABLE 2.1: CRITICAL DATA

Tavg	=	547.7 °F
Control Bank D	=	197 Steps
RCS Boron	=	1462 ppm
Picoammeter Flux	=	1 x 10^{-8} A
N35 Flux	=	1.9 x 10^{-8} A
N36 Flux	=	1.9 x 10^{-8} A

Figure 3.

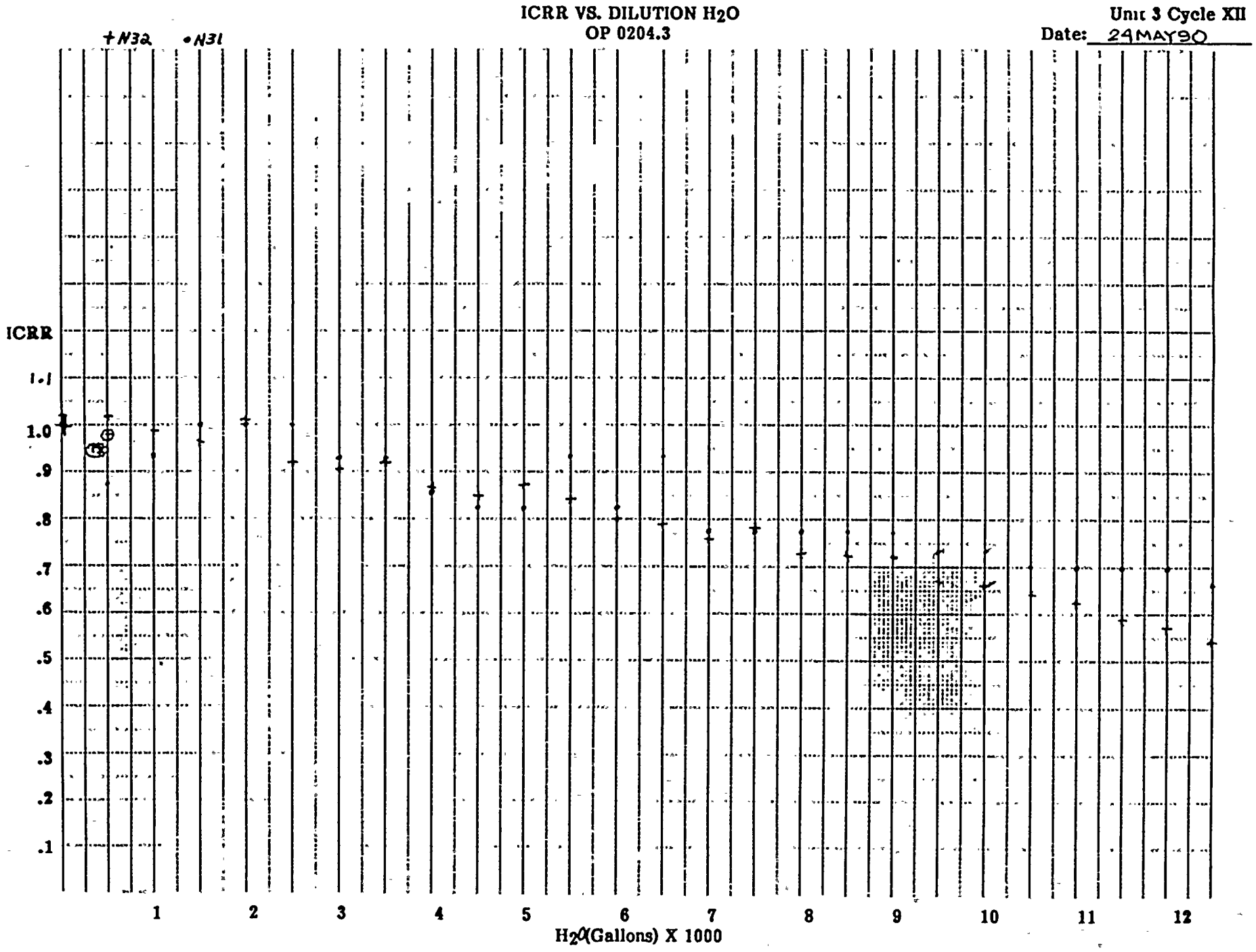
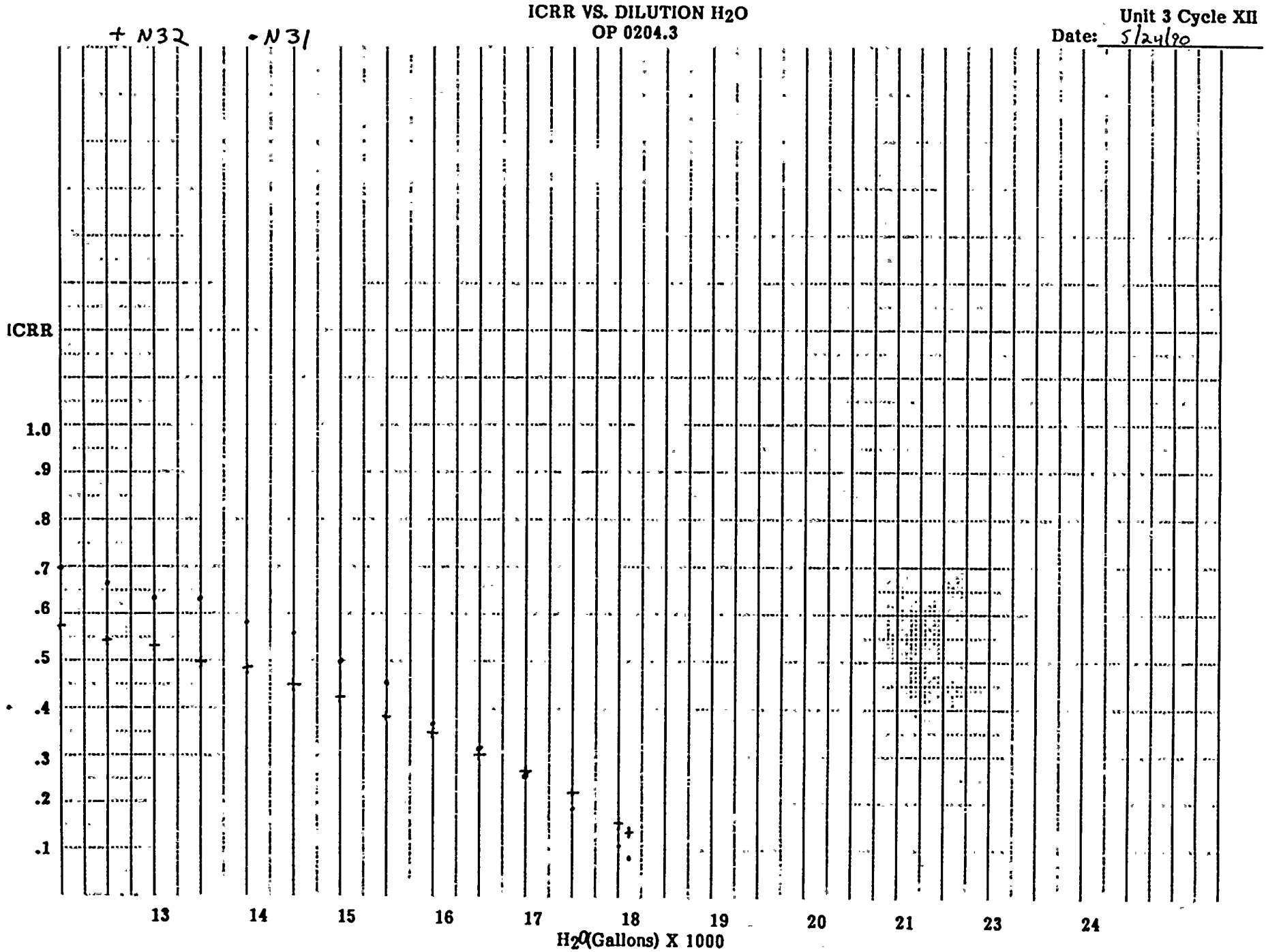

ICRR VS. DILUTION H2O
OP 0204.3
Unit 3 Cycle XII
Date: 24MAY90
+N32
•N31
ICRR
1.1
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
1
2
3
4
5
6
7
8
9
10
11
12
H2O(Gallons) X 1000

Figure 3 (cont'd)



3.0 SUMMARY OF TESTS

This section provides a summary of the results of the low power physics tests for Unit 3, Cycle XII along with the Westinghouse design data. For each test, the acceptance criteria is listed at the bottom of the table. This report compares design and measured data using Difference and Percent Difference.

Difference = Predicted - Measured

For calculating Percent Difference, the equation is:

$$\%\,Diff = \left[\frac{Predicted\ Value}{Measured\ Value} - 1 \right] x\,100$$

3.1 Nuclear Heating

The point of adding Nuclear Heat was determined in accordance with Operating Procedure 0204.3, Initial Criticality After Refueling, Step 8.15 and Appendix A. This is performed by establishing a small positive startup rate and measuring the point (flux level) at which T_{avg} departs from its established steady value. Nuclear Heating was measured to first occur at values presented on Table 3.1.1.

TABLE 3.1.1: FLUX LEVEL (AMPS)

Picoammeter	N-35	N-36
2.0×10^{-7}	3.5×10^{-7}	3.5×10^{-7}

All physics tests were conducted at or below 1×10^{-7} amps on the picoammeter connected to N-44 to assure Nuclear Heating did not occur.

3.2 Reactivity vs. Period

Reactivity Computer checkout was done in accordance with Operating Procedure 0204.3, Initial Criticality After Refueling, Step 8.17 and Appendix B. This checkout is performed by inserting small positive and negative reactivities using rod motion, measuring the period generated and the indicated worth, and then comparing design worths to measured worths for the given period.

TABLE 3.2.1: REACTIVITY VS. PERIOD

PERIOD (SEC)	REACTIVITY (PCM)	DESIGN REACTIVITY (PCM)	% DIFF*
-187.1	-46.0	-48.5	+5.4
+87.3	+59.5	+60.4	+1.5
+57.3	+80.0	+82.3	+2.9

*Acceptance Criteria is ± 4% for positive period and ± 6% for negative period.

3.3 Boron Endpoints (ppm)

The Boron Endpoints noted below are determined as per Operating Procedure 0204.5, Appendix A. A just-critical condition is established as near as practicable to the required rod configuration (i.e., ARO and control Bank C in). The RCS boron concentration was determined and then adjusted analytically for the ppm worth of the reactivity (measured in pcm) by which the actual critical state deviated from the design condition. Appendix A was performed for the ARO boron endpoint and later for the CBC in boron endpoint.

TABLE 3.3.1: BORON ENDPOINTS (ppm)

	MEASURED	WESTINGHOUSE	DIFFERENCE*
ARO	1376	1405	29 ppm
CBC	1227	1240	13 ppm

* Acceptance Criteria is +/- 50 ppm

3.4 Rod Worth (ppm), Most Reactive Bank

Rod worths were measured as per Operating Procedure 0204.5, Appendices D and F. The Reference Bank (highest predicted worth) was diluted into the core. The boron concentration prior to and subsequent to this insertion was determined and the difference in the two boron concentrations is defined as the boron (Rod) worth of the Bank (Table 3.4.1). The differential and integral worth of control bank C was measured and plotted (Figure 4, page 10).

TABLE 3.4.1: ROD WORTH (ppm)

	MEASURED	WESTINGHOUSE
CBC	149	165

3.5 Rod Worth (pcm)

The remaining rod bank worths were measured using the rod swap technique, "swapping" negative reactivity insertions on the bank being measured with positive reactivity insertions from the Reference Bank.

TABLE 3.5.1: ROD WORTH (pcm)

	Measured	Westinghouse	Diff (pcm)	% Diff
CBD[2]	844.6	848	+3.4	+0.40
CBC[1]	1371.0	1427	+56.0	+4.09
CBB[2]	450.8	447	-3.8	-0.84
CBA[2]	1127.8	1131	+3.2	+0.28
SBA[2]	1201.4	1206	+4.6	+0.38
SBB[2]	1023.6	1079	+55.4	+5.41
Total[3]	6019.2	6138	+118.8	+1.97

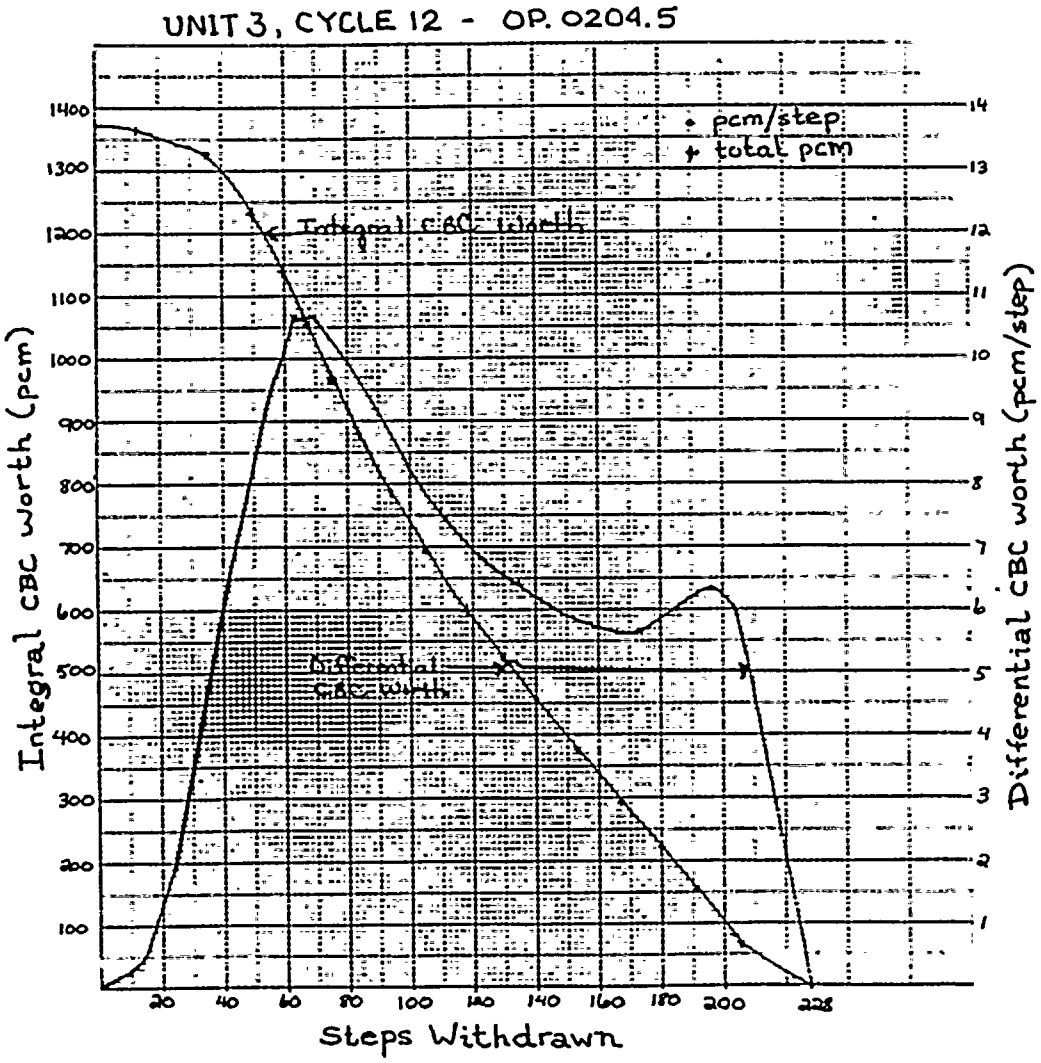
The acceptance criteria for rod worth measurements are:

1 Reference bank within +/- 10% of design, and

2 Individual banks within +/- 15% or +/- 100 pcm of design, whichever is greater, and

3 Sum of all measured banks within +/- 10% of design.

FIGURE 4
HOT ZERO POWER
DIFFERENTIAL AND INTEGRAL BANK C WORTH
VS.
BANK POSITION



UNIT: 3
CYCLE: XII
EXPOSURE: 0.0 MWD/MTU
BANK: CBC

BANK POSITIONS

	OUT	IN	MOVING
SBA	☒	☐	☐
SBB	☒	☐	☐
CBA	☒	☐	☐
CBB	☒	☐	☐
CBC	☐	☐	☒
CBD	☒	☐	☐

TEST METHOD

DILUTION	☒
BORATION	☐

3.6 Temperature Coefficient

The isothermal and moderator temperature coefficients were determined using Appendix B in Operating Procedure 0204.5, Nuclear Design Check Tests During Startup Sequence After Refueling. The values determined for this testing sequence are presented on Tables 3.6.1 and 3.6.2 below:

TABLE 3.6.1: ISOTHERMAL TEMPERATURE COEFICIENT (pcm/°F)

RODS	MEASURED[1]	WESTINGHOUSE	DIFF*
D/197	-2.73	-2.0	+0.73

*Acceptance Criteria is +/- 2 pcm/°F of design.

TABLE 3.6.2: MODERATOR TEMPERATURE COEFFICIENT (pcm/°F)

RODS	MEASURED[1]*	WESTINGHOUSE[2]	DIFF
D/197	-1.03	-0.614	+0.416

*Acceptance Criteria is < + 5 pcm/oF.

1 This is the average of one heat up and one cool down measurement.

2 This value has been adjusted for boron and temperature sensitivity.

3.7. HZP Differential Boron Worth

The Hot Zero Power (HZP) Differential Boron worth was measured using Control Bank C, which had a bank worth of 1371 pcm. The value obtained for this test is presented on Table 3.7.1.

TABLE 3.7.1: HZP DIFFERENTIAL BORON WORTH (pcm/ppm)

MEASURED	WESTINGHOUSE	% DIFF*
9.2	8.63	-6.2

*Acceptance criteria is ≤ +/- 15%.

4.0 SHUTDOWN MARGIN

The Shutdown Margin was calculated prior to power escalation to verify adequate shutdown capability. For this calculation the total of the design rod worths (minus the most reactive stuck rod) were reduced by 10%. The results show adequate shutdown margin at BOL and EOL. The following is a summary of the data used*:

TABLE 4.1: UNIT 3, CYCLE XII SHUTDOWN DATA

	BOL	EOL
Control Rod Worth (%Δρ)		
All Rods Inserted Less Worst Stuck Rod	7.07	6.45
(l) Less 10%	6.36	5.81
Control Rod Requirements (%Δρ)		
Reactivity Defects (Doppler, T_{avg}, Void, Redistribution)	2.05	2.85
Rod Insertion Allowance	0.60	0.50
(2) Total Requirements	2.65	3.35
Shutdown Margin (l) - (2) %Δρ	3.71	2.46
Required Shutdown Margin (%Δρ)	1.00	1.77

*Source: WCAP -12538

5.0 POWER DISTRIBUTION MAPS

The core was mapped using incore instrumentation for power levels of 30%, 50% and 100%. A summary of the results are presented on pages 13 through15.

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT UNIT 3
OPERATING SUMMARY

MEASURED ASSEMBLY POWER AND PERCENT DIFF. TO EXPECTED POWER

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	
						NORTH →									
						0.233 2.3	0.249 4.4	0.242 6.3							15
					0.323 -0.2	0.789 0.9	1.122 2.0	0.789 2.0	1.123 2.1	0.789 0.8	0.310 -4.1				14
				0.360 -0.5	0.945 -0.2	1.268 -0.2	1.346 0.0	1.243 -1.6	1.305 -3.1	1.215 -4.4	0.907 -4.1	0.350 -3.3			13
			0.355 -0.5	0.845 -0.6	1.304 -0.5	1.290 -0.4	1.253 -1.4	1.225 -2.9	1.214 -4.5	1.237 -4.4	1.249 -4.6	0.821 -3.4	0.348 -2.5			12
		0.329 1.3	0.942 -0.1	1.287 -1.6	1.080 -0.5	1.249 -0.5	1.245 -1.9	0.931 -2.9	1.228 -3.2	1.211 -3.5	1.038 -4.3	1.271 -2.8	0.926 -1.8	0.319 -1.7	11
		0.810 3.0	1.277 0.2	1.267 -2.2	1.244 -1.3	1.307 -0.7	1.173 -1.1	1.213 -1.7	1.166 -1.8	1.278 -2.9	1.217 -3.4	1.263 -2.5	1.263 -1.0	0.779 -1.0	10
0.245 6.5	1.146 3.0	1.372 0.9	1.255 -1.2	1.254 -1.4	1.180 -1.1	1.014 -0.2	1.096 -1.1	0.998 -1.8	1.165 -2.3	1.245 -2.1	1.248 -1.8	1.345 -1.1	1.126 1.2	0.243 5.6	9
0.254 5.3	0.814 3.4	1.284 0.0	1.272 0.2	0.958 -0.5	1.240 -0.2	1.110 0.0	0.816 1.2	1.128 1.7	1.229 -1.1	0.936 -2.8	1.251 -1.4	1.270 -1.0	0.800 1.6	0.254 5.6	8
0.241 4.7	1.176 5.7	1.389 2.2	1.270 -0.1	1.283 0.9	1.214 1.8	1.040 2.4	1.133 2.3	1.034 1.8	1.152 -3.4	1.192 -6.3	1.228 -3.4	1.361 0.1	1.129 1.5	0.243 5.6	7
		0.818 4.0	1.309 2.7	1.313 1.4	1.283 1.8	1.359 3.2	1.221 2.9	1.272 3.2	1.211 2.0	1.284 -2.4	1.138 -9.6	1.244 -4.0	1.274 0.0	0.787 0.1	6
		0.332 2.3	0.968 2.7	1.349 3.2	1.094 0.9	1.274 1.5	1.296 2.2	0.982 2.4	1.287 1.4	1.230 -2.1	1.060 -2.3	1.264 -3.4	0.943 0.0	0.325 0.1	5
			0.372 4.1	0.881 3.7	1.344 2.6	1.299 0.4	1.294 1.8	1.293 2.5	1.303 2.6	1.310 1.2	1.340 2.3	0.837 -1.5	0.342 -4.3			4
				0.386 6.8	0.980 3.6	1.296 2.1	1.379 2.4	1.300 2.9	1.394 3.5	1.306 2.8	0.936 -1.1	0.346 -4.3			3
					0.341 5.4	0.814 4.1	1.156 5.1	0.812 5.0	1.153 4.9	0.810 3.5	0.310 -4.3				2
						0.242 6.6	0.259 8.7	0.247 8.7					MEAS DIFF		1

ROD POSITION

Bank	Location in Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	174

Classification

Map No. FM3XII1

Power 30%

Axial Offset 7.324%

Max $F^N_{\Delta H}$ ... 1.5272

Max F^N_Q ... 2.0666

INCORE TILT

N

1.0245	0.9975
0.9983	0.9796

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT UNIT 3
OPERATING SUMMARY

MEASURED ASSEMBLY POWER AND PERCENT DIFF. TO EXPECTED POWER

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	
							NORTH →								
						0.252 5.2	0.260 2.3	0.238 -0.4							15
					0.347 1.7	0.810 3.8	1.140 5.9	0.795 2.0	1.076 0.0	0.759 -2.7	0.325 -4.6				14
				0.356 -7.3	0.971 2.0	1.265 2.1	1.337 3.1	1.248 1.2	1.285 -0.9	1.191 -3.9	0.907 -4.8	0.363 -5.3			13
			0.351 -7.3	0.801 -7.4	1.284 -0.7	1.267 -0.6	1.249 0.1	1.208 -0.7	1.211 -2.9	1.222 -4.1	1.221 -5.5	0.815 -5.8	0.356 -6.1		12
		0.334 -2.0	0.924 -2.5	1.192 -7.5	1.062 -2.9	1.222 -3.0	1.239 -3.3	0.955 -2.9	1.268 -1.1	1.228 -2.4	1.035 -5.4	1.246 -3.3	0.928 -2.1	0.334 -2.1	11
		0.805 2.9	1.275 2.7	1.312 3.0	1.227 -2.7	1.285 -3.3	1.180 -3.1	1.248 -1.3	1.232 1.2	1.302 -2.0	1.218 -3.5	1.254 -1.6	1.269 2.2	0.798 2.1	10
0.248 3.0	1.102 1.7	1.330 1.9	1.269 1.9	1.278 -0.4	1.192 -2.4	1.026 -3.9	1.147 -1.7	1.080 1.2	1.199 -1.9	1.263 -1.6	1.234 -0.9	1.325 1.6	1.089 0.6	0.238 -1.2	9
0.258 0.8	0.796 0.9	1.271 2.1	1.218 -0.1	0.978 -0.9	1.296 1.9	1.150 -1.5	0.833 -2.7	1.142 -2.2	1.233 -3.0	0.934 -5.3	1.212 -0.7	1.258 1.0	0.796 0.8	0.253 -1.2	8
0.243 0.8	1.091 0.7	1.307 0.1	1.216 -2.4	1.288 0.4	1.233 0.9	1.057 -0.9	1.165 -0.1	1.047 -1.9	1.185 -3.1	1.234 -3.9	1.235 -0.9	1.344 3.0	1.092 0.9	0.238 -1.2	7
		0.762 -2.5	1.234 -0.5	1.275 0.1	1.267 0.4	1.351 1.7	1.233 1.3	1.305 3.2	1.225 0.6	1.291 -2.8	1.236 -2.1	1.260 -1.1	1.277 3.0	0.806 3.0	6
		0.332 -2.5	0.951 0.3	1.331 3.3	1.084 -0.9	1.274 1.2	1.315 2.6	1.015 3.2	1.322 3.1	1.237 -1.8	1.049 -4.1	1.264 -1.9	0.977 3.0	0.351 3.0	5
			0.377 -0.4	0.867 0.2	1.303 0.8	1.312 2.9	1.282 2.7	1.304 7.1	1.346 7.8	1.295 1.6	1.304 0.9	0.843 -2.6	0.362 -4.6		4
				0.378 -1.6	0.957 0.4	1.273 2.7	1.333 2.8	1.325 7.5	1.399 7.9	1.294 4.4	0.934 -1.9	0.366 -4.6			3
					0.335 -1.6	0.803 2.9	1.104 2.7	0.842 8.1	1.159 7.8	0.843 8.1	0.325 -4.6				2
						0.260 8.6	0.276 8.7	0.260 8.6						MEAS DIFF	1

ROD POSITION

Bank	Location in Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	179

Classification

Map No. FM3XII2

Power 50%

Axial Offset 4.609%

Max $F^N_{\Delta H}$ ... 1.5205

Max F^N_Q ... 1.9725

INCORE TILT

N

1.0124	0.9951
1.0099	0.9826

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT UNIT 4
OPERATING SUMMARY

MEASURED ASSEMBLY POWER AND PERCENT DIFF. TO EXPECTED POWER

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	
						NORTH →									
						0.245	0.260	0.243							15
						3.9	3.6	3.2							
					0.336	0.788	1.111	0.796	1.083	0.773	0.327				14
					1.1	2.5	4.0	2.3	1.4	0.5	-1.8				
				0.365	0.942	1.240	1.329	1.262	1.306	1.199	0.911	0.366			13
				-1.8	1.3	1.3	1.6	-0.1	-0.2	-2.1	-2.0	-1.7			
			0.361	0.825	1.270	1.269	1.275	1.333	1.259	1.225	1.224	0.816	0.357		12
			-1.8	-1.9	0.5	0.6	-0.1	-0.8	-1.4	-3.0	-3.1	-3.0	-2.8		
		0.333	0.920	1.237	1.073	1.246	1.278	0.998	1.274	1.224	1.040	1.223	0.901	0.323	11
		0.1	-0.6	-1.8	0.0	0.0	-0.9	-1.2	-1.1	-1.8	-2.9	-2.9	-2.7	-2.8	
		0.786	1.228	1.245	1.241	1.315	1.214	1.266	1.209	1.291	1.211	1.225	1.192	0.749	10
		1.9	0.1	-1.3	-0.6	-0.1	-0.2	-0.4	-0.5	-1.9	-2.9	-2.9	-2.7	-2.9	
0.247	1.086	1.311	1.240	1.290	1.214	1.086	1.190	1.071	1.207	1.268	1.236	1.270	1.066	0.246	9
4.3	1.1	-0.4	-2.6	0.0	-0.5	0.9	0.0	-0.5	-1.1	-1.7	-2.9	-3.5	-0.8	3.9	
0.258	0.805	1.227	1.312	1.015	1.307	1.203	0.967	1.216	1.281	0.996	1.307	1.226	0.790	0.262	8
2.4	2.0	-3.8	-2.6	0.3	2.3	1.0	1.8	2.1	0.3	-1.6	-2.9	-3.9	0.1	3.8	
0.240	1.083	1.308	1.259	1.308	1.251	1.099	1.213	1.102	1.215	1.264	1.239	1.262	1.077	0.246	7
1.4	0.8	-0.6	-1.1	1.4	2.5	2.1	2.0	2.4	-0.4	-2.0	-2.6	-4.1	0.2	3.9	
			0.776	1.232	1.266	1.261	1.360	1.248	1.297	1.232	1.311	1.222	1.238	1.196	0.803	6
			0.7	0.5	0.3	1.0	3.4	2.6	2.0	1.3	-0.4	-2.1	-1.9	-2.4	4.1	
			0.335	0.946	1.285	1.072	1.261	1.321	1.031	1.296	1.239	1.055	1.248	0.910	0.332	5
			0.7	2.1	2.0	0.0	1.2	2.5	2.0	0.5	-0.5	-1.6	-0.9	-1.7	-0.2	
				0.377	0.855	1.278	1.268	1.282	1.395	1.292	1.274	1.282	0.840	0.367	4
				2.6	1.7	1.2	0.4	0.4	3.8	1.3	1.0	1.5	-0.1	-0.2	
					0.384	0.954	1.254	1.327	1.225	1.359	1.251	0.936	0.372		3
					3.0	2.5	2.4	1.4	-3.0	3.9	2.2	0.6	-0.1		
						0.346	0.805	1.079	0.780	1.068	0.796	0.332			2
						3.9	4.7	1.0	0.2	0.1	3.6	-0.2			
							0.247	0.245	0.242					MEAS	1
							4.8	-2.2	2.9					DIFF	

ROD POSITION

Bank	Location in Steps
SBA	228
SBB	228
CBA	228
CBB	228
CBC	228
CBD	228

Classification

Map No. FM3XII3

Power 100%

Axial Offset 2.317%

Max $F^N_{\Delta H}$ ... 1.4875

Max F^N_Q ... 1.7533

INCORE TILT

N

1.0131	1.0014
1.0007	0.9848

6.0 CRITICAL BORON CONCENTRATION

The critical boron concentration was calcualted by adjusting a measured boron concentration to the equilibrium hot full power, all rods out condition, as per Operating Procedure 1009.6, "Critical Boron Concentration-Full Power". For Unit 3 Cycle XII, this calculation was performed at 390 MWD/MTU.The following is a summary of the results in ppm.

TABLE 6.1: SUMMARY OF CRITICAL BORON CONCENTRATION (ppm)

MEASURED[1]	WESTINGHOUSE	DIFF*
932	950	+ 18

*Acceptance Criteria is +/-50 ppm

[1]Actual boron concentration (adjusted to equilibrium, HFP, ARO conditions) + 29 ppm (Predicted HZP, ARO C_B - Measured HZP, ARO C_B).