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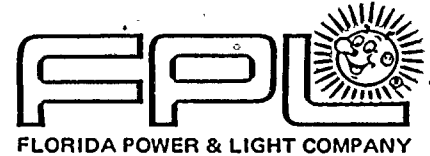
ACCESSION NBR: 8406080175 DOC. DATE: 84/06/04 NOTARIZED: NO DOCKET #
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
 AUTH. NAME AUTHOR AFFILIATION
 WILLIAMS, J.W. Florida Power & Light Co.
 RECIP. NAME: RECIPIENT AFFILIATION
 VARGA, S.A. Operating Reactors Branch 1

SUBJECT: Responds to 831117 request for integral neutron source data
 for evaluating & verifying flux reduction as part of
 pressurized thermal shock program, Cycle 10 data encl.

DISTRIBUTION CODE: A049S COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 11
 TITLE: OR Submittal: Thermal Shock to Reactor Vessel

NOTES:

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INTERNAL:	ELD/HDS4 12	1	0	NRR	DIR	1	1
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	NRR/DSI/RSB	1	1	NRR	DST DIR	1	1
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EXTERNAL:	ACRS 10	6	6	LPDR	03	1	1
	NRC PDR 02	1	1	NSIC	06	1	1
	NTIS	1	1				



June 4, 1984
L-84-150

Office of Nuclear Reactor Regulation
Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555.

RE: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Pressurized Thermal Shock -
Flux Reduction Program

Reference: "Turkey Point Unit 3 and 4 Neutron Source Data
Schedule", Letter from Mr. J. W. Williams to
Mr. S. A. Varga, December 21, 1983; L-83-597

Dear Mr. Varga:

Your letter dated November 17, 1983, requested integral neutron source data for the purpose of evaluating and verifying flux reduction. The data in Attachment A to this letter is submitted for Turkey Point Unit 4, Cycle 10 in accordance with our schedule in the Reference and consists of:

1. Cycle 10 core octant time averaged relative power density.
2. Cycle average peripheral assembly axial power shape.
3. Cycle average peripheral assembly radial pin power.

The time averaged core octant relative power densities provided are based on predicted assembly powers from the FPL PDQ-7 model, assuming an expected cycle burnup of 14,600 MWD/MTU.

The peripheral assembly axial power shapes are based on predicted data from the FPL EPRI-NODE model. Previous cycle comparisons of measured and predicted axial power data show good correlation and make the predicted value applicable for the purpose of the flux reduction evaluation.

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PDR ADOCK 05000250
PDR

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The peripheral assembly radial pin powers provided are based on predicted values from the FPL PDQ-7 model and are representative of the cycle average. These pin powers form the basis of the azimuthal flux variation to be used at the core periphery. The pin powers of all other assemblies are assumed to be flat.

The data provided for Turkey Point Unit 4, Cycle 10 completes all items of your data request as agreed upon in the reference and includes the additional data requested by Mr. Lambros Lois of your office by telephone on March 20, 1984. Should you have any questions, please contact Dr. Finis Southworth at 305-552-3468.

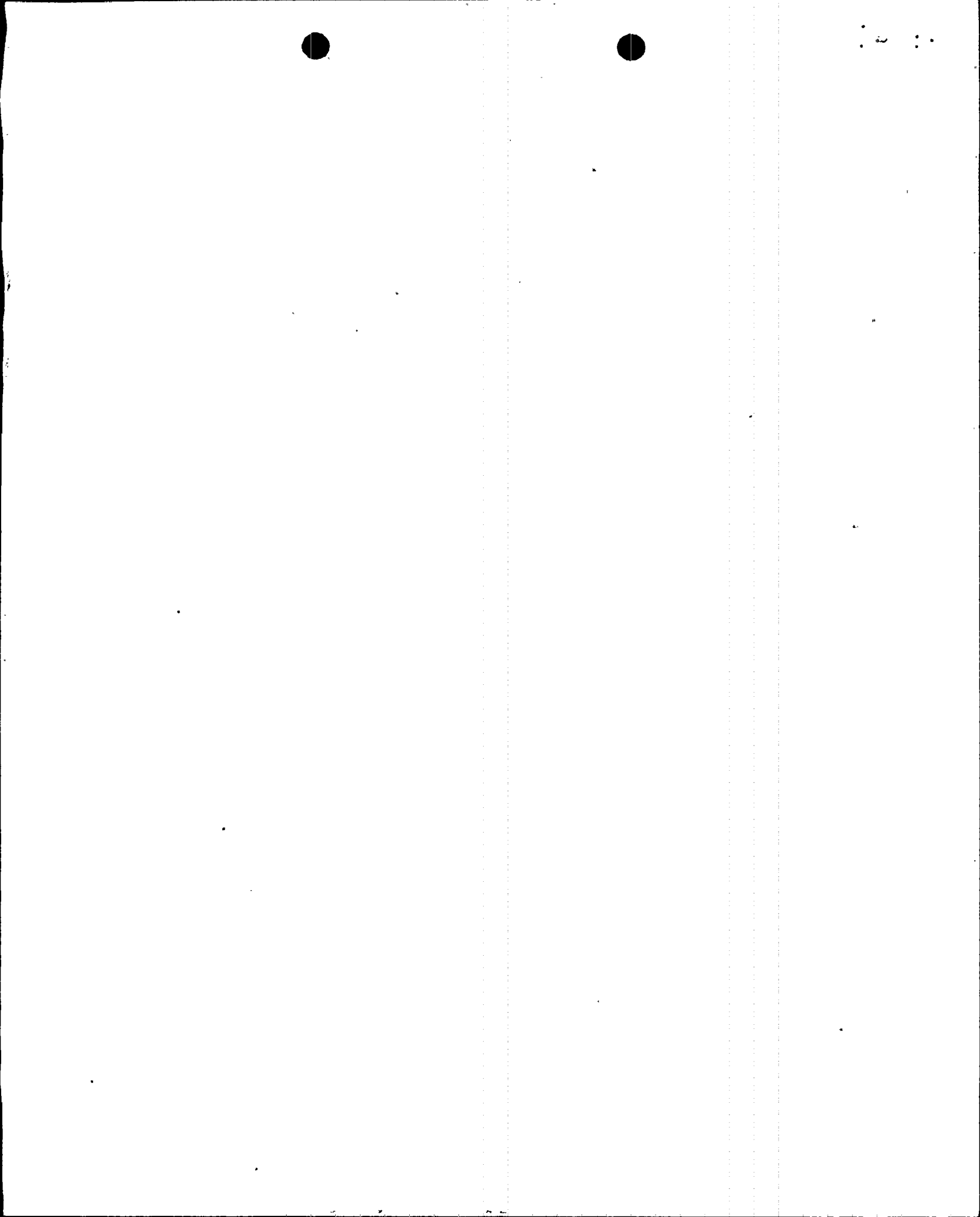
Very truly yours,


J. W. Williams, Jr.
Group Vice President

JWW/ERK/daj

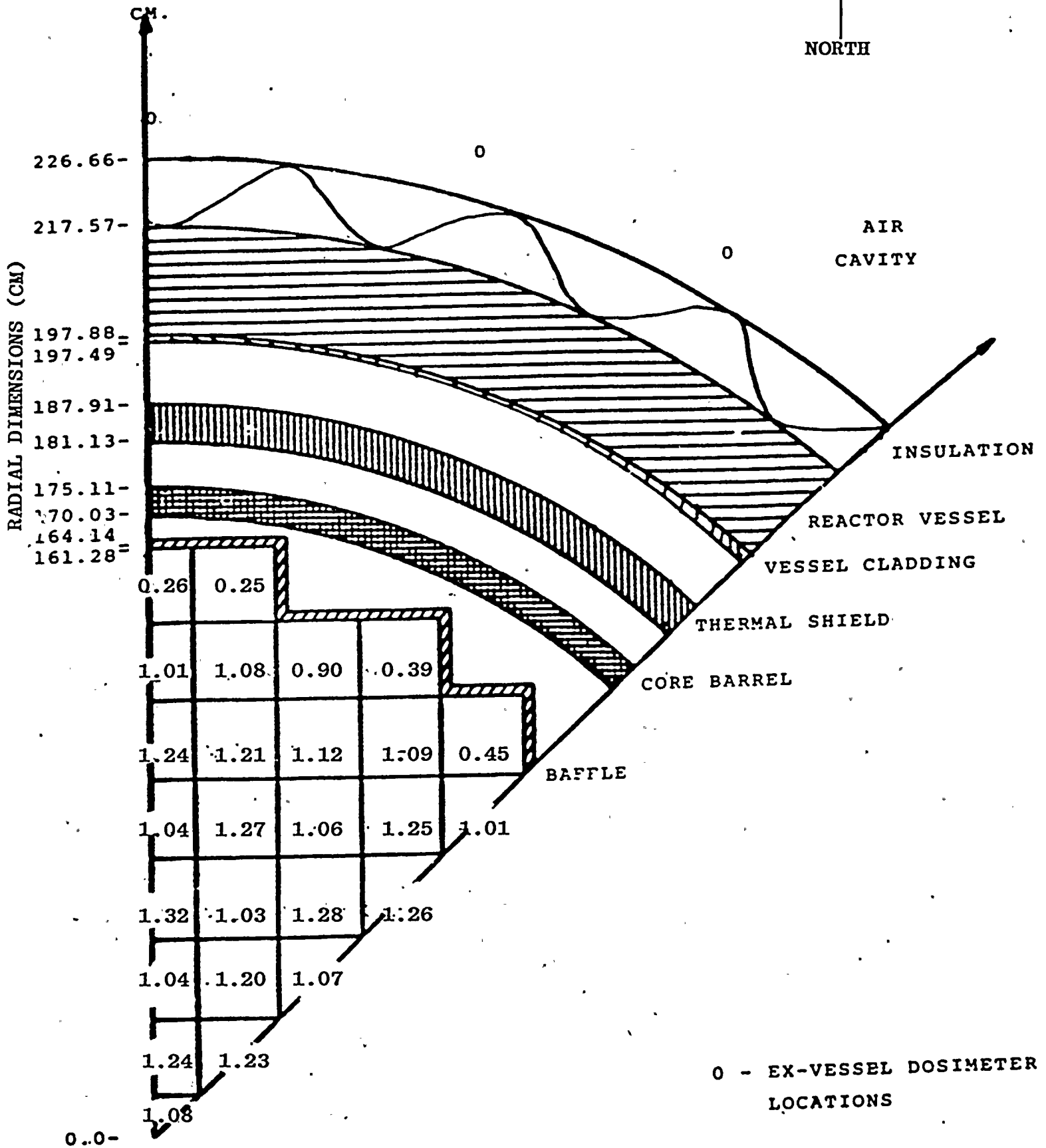
cc: J. P. O'Reilly, Region II
Harold F. Reis, Esquire

ATTACHMENT A



ORKEY POINT UNIT 4 CYCLE 10
 CYCLE AVERAGE
 RELATIVE POWER DENSITY

NORTH
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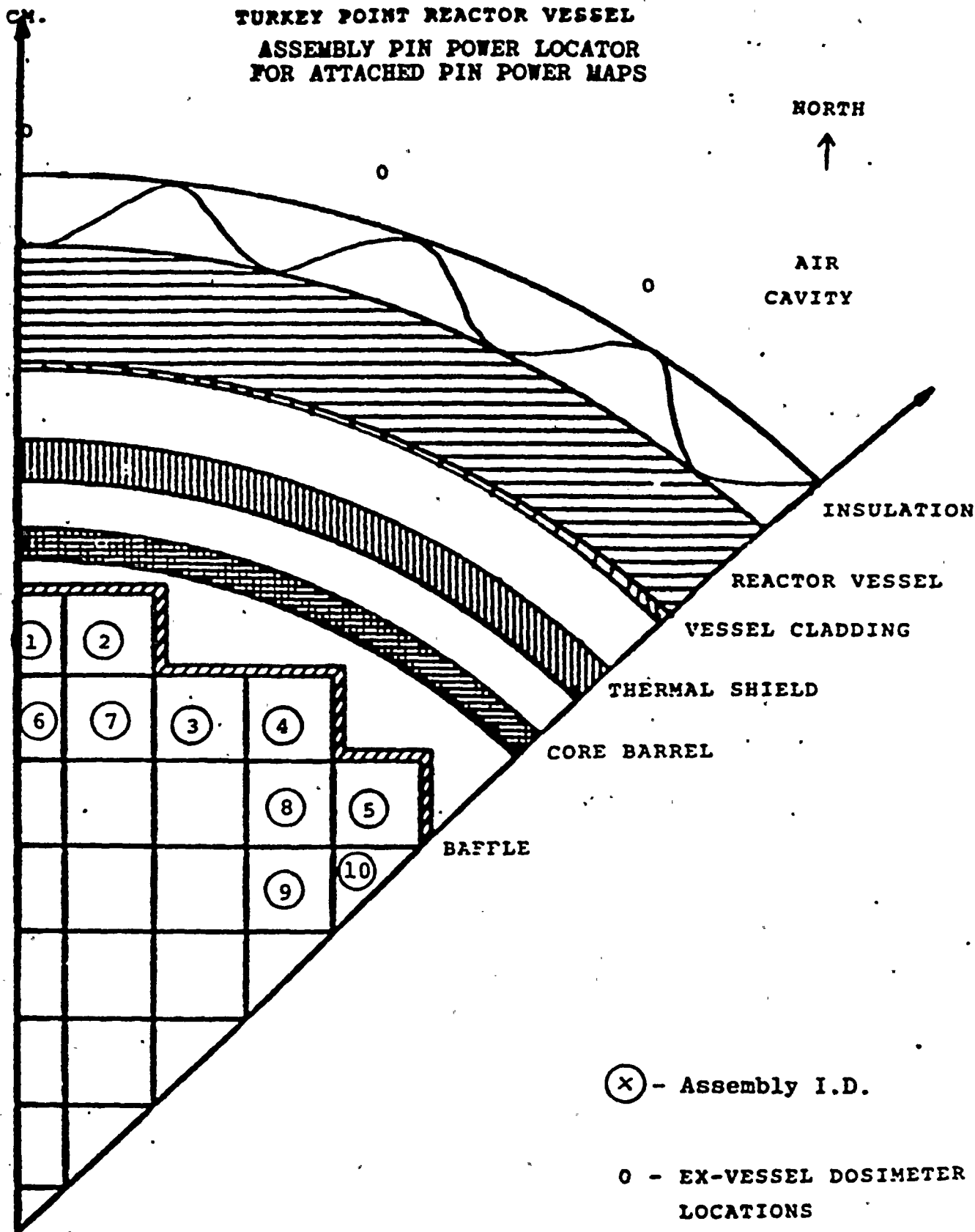
TURKEY POINT UNIT 4 CYCLE 10

ASSEMBLY AXIAL POWER PROFILES (Normalized to Unity)

Assembly No.	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	
	.86	.80	.59	.68	.69	- Top
	1.13	1.10	.91	.96	.98	
	1.19	1.18	1.03	1.06	1.07	
	1.22	1.22	1.08	1.10	1.09	
	1.19	1.20	1.10	1.09	1.09	
	1.15	1.16	1.11	1.10	1.09	
	.87	.89	1.11	1.08	1.07	
	0.84	.87	1.12	1.09	1.08	- Critical Weld
	0.83	.86	1.13	1.08	1.07	
	0.85	.88	1.12	1.07	1.06	
	1.04	1.04	1.02	.99	.99	
	<u>0.85</u>	<u>.81</u>	<u>.69</u>	<u>.72</u>	<u>.73</u>	- Bottom
	0.26	0.25	0.90	0.39	0.45	Assembly Average (RPD)

Assembly No.	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	
	.64	.60	.59	.60	.63	- Top
	.94	.91	.90	.91	.94	
	1.05	1.03	1.02	1.03	1.04	
	1.09	1.08	1.07	1.07	1.08	
	1.09	1.10	1.09	1.09	1.08	
	1.09	1.10	1.10	1.10	1.09	
	1.07	1.09	1.11	1.10	1.09	
	1.08	1.10	1.13	1.12	1.10	- Critical Weld
	1.08	1.11	1.13	1.13	1.10	
	1.08	1.11	1.12	1.12	1.10	
	1.03	1.04	1.03	1.03	1.02	
	<u>.75</u>	<u>.73</u>	<u>.71</u>	<u>.72</u>	<u>.73</u>	- Bottom
	1.01	1.08	1.09	1.25	1.01	Assembly Average (RPD)

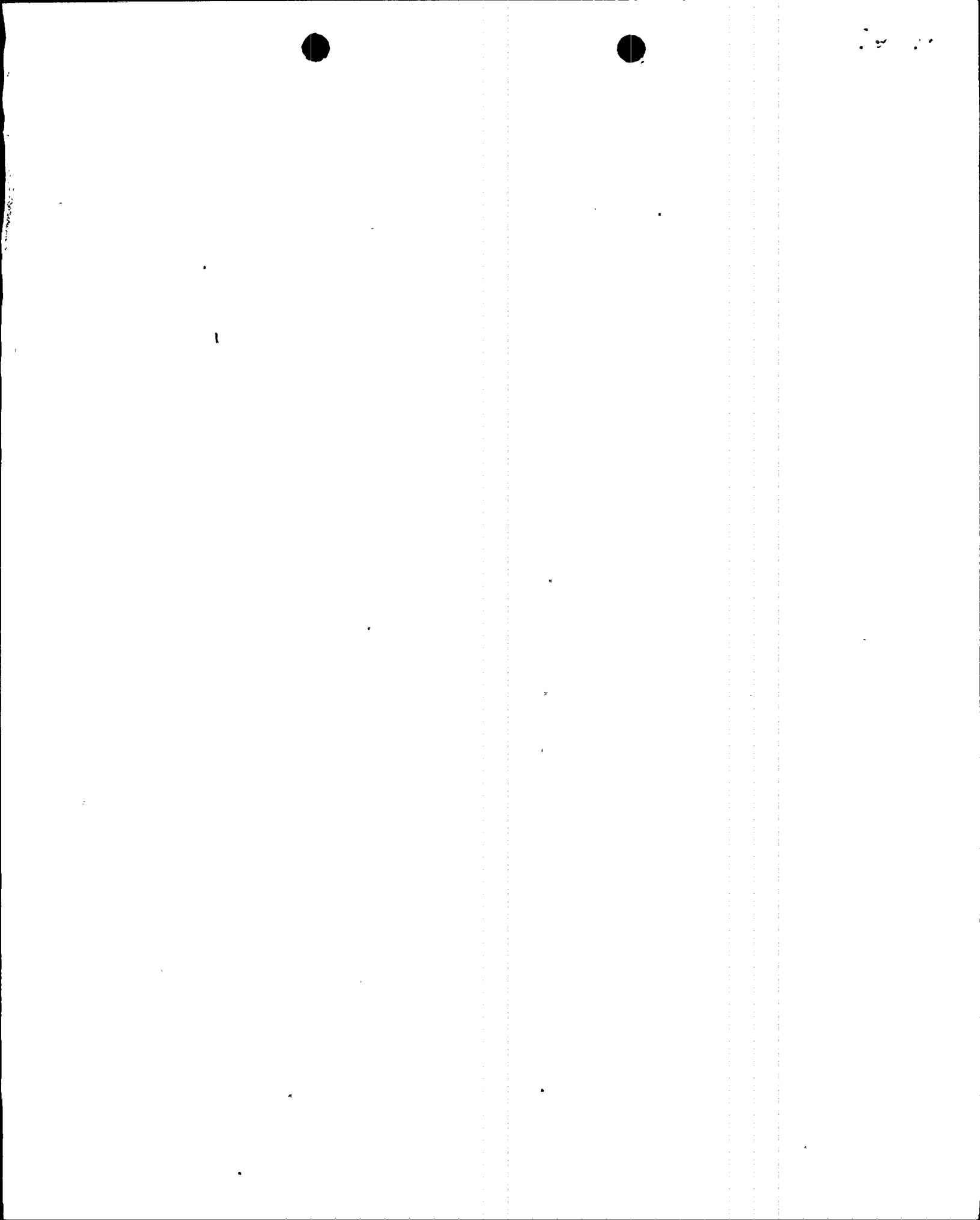
NOTE: Axial profile times RPD equals axial power density.





1 2 3

J	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1															
2															
3															
4															
5															
6															
7															
8	47	43	38	0	32	31	29	0	24	21	18	0	14	12	10
9	47	42	38	35	32	31	28	26	23	21	18	15	14	12	10
10	47	42	0	35	32	30	28	25	23	20	18	15	0	12	10
11	47	43	38	35	0	29	27	24	22	20	0	15	14	12	10
12	47	43	39	35	32	29	26	0	22	19	17	16	14	12	10
13	47	43	0	36	32	0	27	24	22	0	18	16	0	12	10
14	47	43	40	36	33	30	27	25	23	20	18	16	14	12	10
15	47	44	40	37	34	31	28	25	23	21	19	16	14	12	10



BY JDM

DATE

5/16/84



FLORIDA POWER & LIGHT COMPANY

SHEET NO. 2 OF 5

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DATE

5/16/84

PROJECT NO.

Turkey Point Unit 4

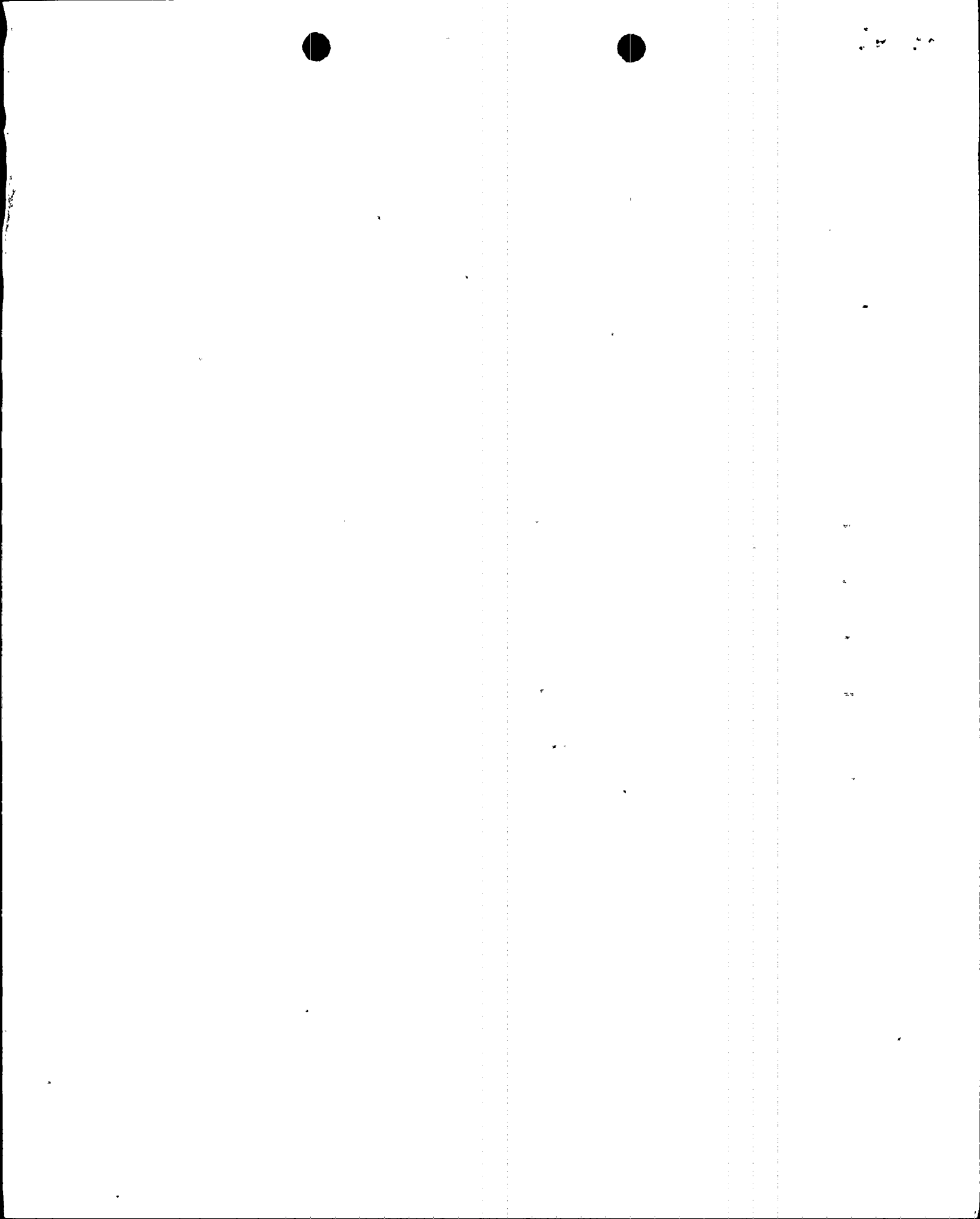
Cycle 10 Average

Relative Pin Powers (x100)

ASSEMBLY 2

NORTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	52	47	43	40	36	33	30	27	24	22	20	17	15	13	10
2	52	47	42	39	35	32	29	26	24	21	19	17	15	13	10
3	51	46	40	38	34	30	28	25	23	20	18	16	14	12	10
4	51	46	41	37	34	31	28	25	22	20	18	16	14	12	10
5	51	46	41	37	34	31	28	25	23	20	18	16	14	12	10
6	51	45	40	37	34	31	29	26	23	21	18	15	13	12	10
7	51	45	40	36	34	31	29	26	23	20	18	15	13	11	10
8	50	45	39	36	33	31	28	25	23	20	17	14	13	11	9
9	49	44	38	35	32	30	28	25	22	19	17	14	12	11	9
10	49	43	40	34	31	29	26	24	21	18	16	14	12	10	8
11	48	42	37	33	30	27	25	22	20	17	15	13	11	10	8
12	47	41	36	32	29	26	23	20	18	16	14	12	11	9	7
13	45	39	34	31	27	24	21	19	17	15	13	12	10	9	7
14	43	37	32	29	26	23	20	18	16	14	12	11	9	8	6
15	39	33	29	26	23	20	18	16	14	12	11	9	8	7	6



BY JDM

DATE 5/16/84



SHEET NO. 3 OF 5

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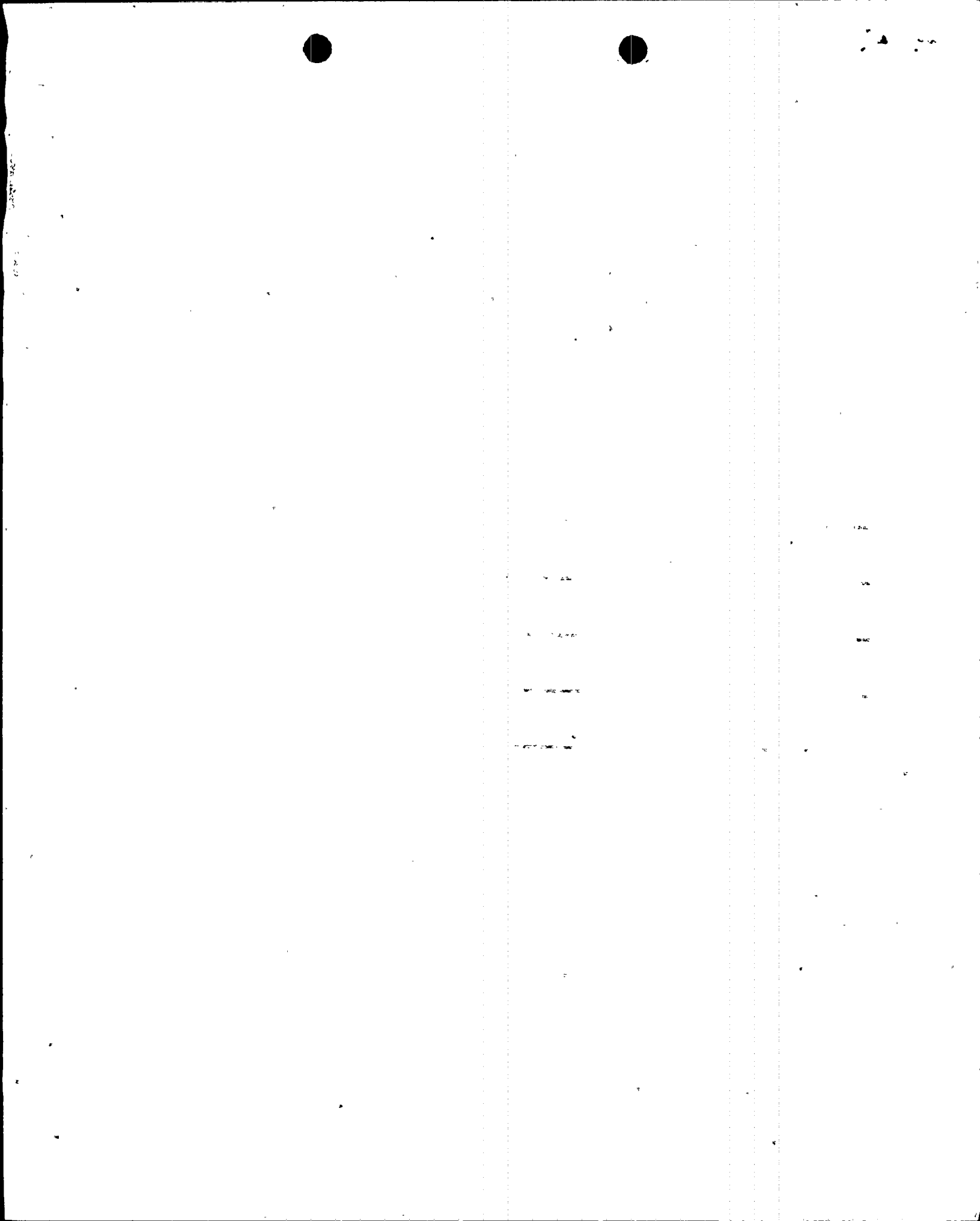
DATE 5/16/84

PROJECT NO. ...

Turkey Point Unit 4
Cycle 10 Average
Relative Pin Powers (x100)
ASSEMBLY 3



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	116	114	113	111	109	106	103	98	95	91	86	80	74	65	53
2	117	117	118	115	112	111	106	101	98	85	88	82	76	65	51
3	118	120	120	119	117	111	111	106	102	102	91	84	76	66	50
4	118	118	120	120	119	116	111	106	102	98	92	84	76	64	49
5	117	118	120	121	119	111	105	102	96	93	86	84	75	63	48
6	117	119	119	119	113	106	100	96	91	88	86	82	72	62	48
7	115	116	119	117	109	102	99	96	90	84	82	80	72	60	46
8	113	112	116	117	108	100	98	90	90	82	80	75	69	57	44
9	112	113	116	114	106	98	95	92	86	80	78	75	68	56	43
10	111	112	116	112	106	98	92	88	83	80	78	74	68	55	42
11	109	109	110	110	104	100	93	89	84	81	78	72	63	53	40
12	107	106	107	105	104	100	95	90	85	81	75	68	60	50	38
13	105	105	107	101	98	90	91	85	82	70	71	64	53	49	37
14	101	99	98	94	91	88	83	77	74	70	64	59	53	45	35
15	97	94	91	88	84	81	76	72	68	64	59	53	48	41	32



BY JDM

DATE

1/16/84



SHEET NO. 4 OF 5

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DATE

5/16/84

FLORIDA POWER & LIGHT COMPANY

PROJECT NO.

Turkey Point Unit 4

Cycle 10 Average

Relative Pin Powers (x100)

ASSEMBLY 4

↑
NORTH

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	77	74	71	68	65	62	58	55	51	48	44	40	36	31	25
2	75	73	70	67	64	61	57	53	50	47	43	39	35	30	24
3	73	71	68	66	62	60	56	52	49	46	42	38	34	29	23
4	71	69	67	64	61	57	53	50	47	44	40	36	32	27	21
5	69	67	64	62	60	55	51	47	44	41	38	35	31	26	20
6	67	65	63	59	56	52	48	44	41	38	36	33	30	25	19
7	64	62	60	56	53	49	45	42	39	36	33	30	27	23	18
8	62	59	57	54	50	46	43	40	37	34	31	28	25	22	17
9	59	57	55	51	48	44	40	38	35	32	29	27	24	20	16
10	57	55	53	49	46	42	38	35	32	30	28	25	21	19	15
11	54	52	49	47	44	40	36	33	31	28	24	22	19	18	13
12	51	49	46	43	41	37	34	30	29	27	24	22	19	16	12
13	48	45	43	40	37	34	31	29	26	24	22	20	17	15	11
14	44	40	38	35	32	30	27	25	23	21	19	17	15	13	10
15	37	33	30	28	26	24	22	20	18	17	15	13	12	10	8

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BY SDM

DATE

1/6/84SHEET NO. 5 OF 5CHKD. BY 7/18

DATE

5/16/84

FLORIDA POWER & LIGHT COMPANY

PROJECT NO. ...

Turkey Point Unit 4

Cycle 10 Average

Relative Pin Powers (x100)

ASSEMBLY 5

NORTH

J	I														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	81	79	77	75	73	70	67	64	62	59	56	52	49	44	37
2	79	78	77	74	72	69	66	63	60	57	54	50	47	41	33
3	77	77	77	73	70	67	65	61	59	57	52	49	47	39	31
4	75	74	73	71	69	66	62	60	56	54	50	46	42	37	29
5	72	71	70	69	67	63	59	56	53	50	47	44	40	34	28
6	69	69	67	66	63	58	55	52	49	46	44	41	38	32	26
7	66	65	64	62	58	55	51	49	46	43	40	38	34	30	24
8	63	62	61	60	55	51	49	47	43	40	38	35	32	27	22
9	61	59	58	56	52	48	46	43	40	37	35	33	30	25	20
10	58	57	57	53	50	46	43	40	37	35	33	31	28	24	19
11	55	53	52	50	47	44	40	38	35	33	30	28	25	21	17
12	51	50	48	46	44	41	38	36	33	31	28	26	23	19	15
13	48	46	46	42	39	37	34	32	29	27	25	23	20	17	14
14	43	41	39	36	34	32	29	27	25	23	21	19	17	15	12
15	37	33	31	29	27	25	23	22	20	18	17	15	13	12	10

