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U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Additional Information in Support of Proposed License Change For Cycle 14 Risk-Informed Operation

Gentlemen:

On March 9, 2000 (2CAN030003), Entergy Operations submitted a proposed license change to allow risk-informed operation for the remainder of the 14th operational cycle for Arkansas Nuclear One, Unit 2 (ANO-2). Supplemental information in support of the proposed change was submitted on April 11, 2000 (2CAN040005) April 28, 2000 (2CAN040006), May 30, 2000 (2CAN050011), and June 20, 2000 (2CAN060015). Based on several interactions with the Staff concerning the proposed change, the following supplemental information is provided as attachments to this letter:

1. Mp values based on best estimate calculations for ANO-2
2. Additional Mp data for ANO-2
3. Description of growth rate distribution curves used in the ANO-2 steam generator operational assessment
4. Additional Mp Data for ANO-2, Revision 1
5. Rotating pancake coil (RPC) confirmation rates for 2R13 and 2P99

Attachments 1 and 2 represent attempts to develop revised input assumptions for risk calculations based on comments received from the Staff. The data included in these attachments are conservative representations developed for discussion purposes and are not to be considered representative of actual steam generator conditions.

Should you have questions concerning the information provided, please contact me.

A001

Very truly yours,

Jimmy D. Vandergrift
Director, Nuclear Safety Assurance

JDV/jjd
attachments

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Attachment 1

Mp Values Based on Best Estimate Calculations for ANO-2

Mp Values Based on Best Estimate Calculations
For ANO2

The attached sheets (CASES 1-3) are a listing of the Mp calculations based on the best estimate conditions for the ANO2 steam generators. The analysis is based on the following inputs to the model:

1. Probabilistic growth rate as determined from the ANO2 data randomly assigned to the value.

2. Conservative depth measurements based on profiling the 2P99 data set per the Westinghouse methodology.

3. Using a POD based on a site specific performance demonstration using pulled tube data and an improved POD beginning in 2P99. The improved POD reflects the use of a new calibration standard, which results in improved flaw detection.

4. Using the following operational runtimes:

	Actual	Temperature Corrected
2R13 to 2P99	0.69	0.72
2P99 to 2P00 (June 15)	0.54	0.56
2P99 to 2R14 (Sept. 15)	0.80	0.83

Case 1 is the beginning of cycle for conditions for cycle 14

Case 2 is based on operating from 2P99 to the proposed tri-cycle 2P00 (June 15th)

Case 3 is based on operating from 2P99 to the proposed refueling outage 2R14 (June 15th)

Both the tabulated data as well as a graphic is attached for each case.

5. The following are outputs from the operational assessment:

	2R13	2P99	2P00	2R14
# Of intersections with detected flaws	69	154	56	
# of undetected flaws	72	82		
# of initiated flaws	112	87	42	

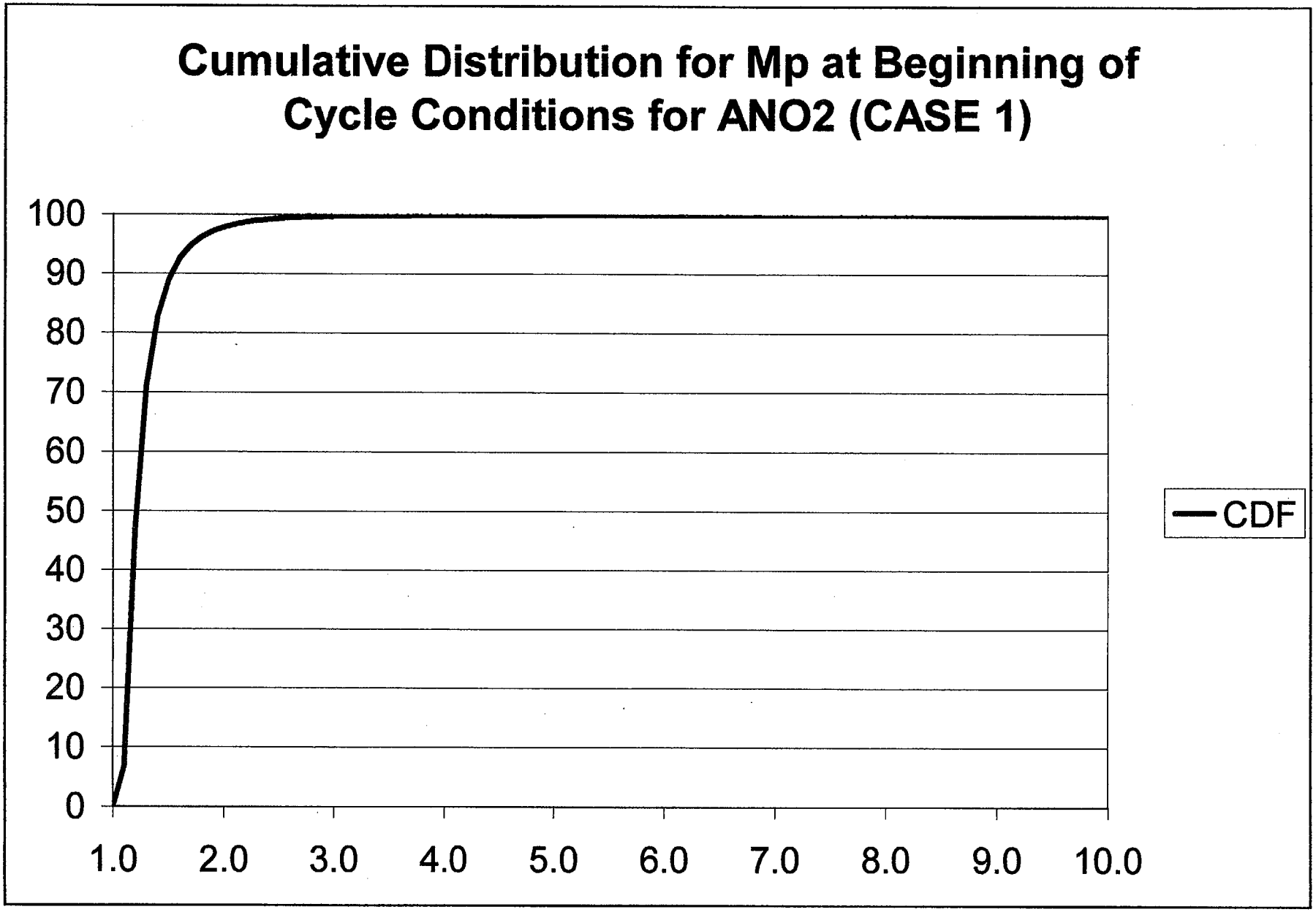
The number of initiated flaws is based on 156 per EFPY.

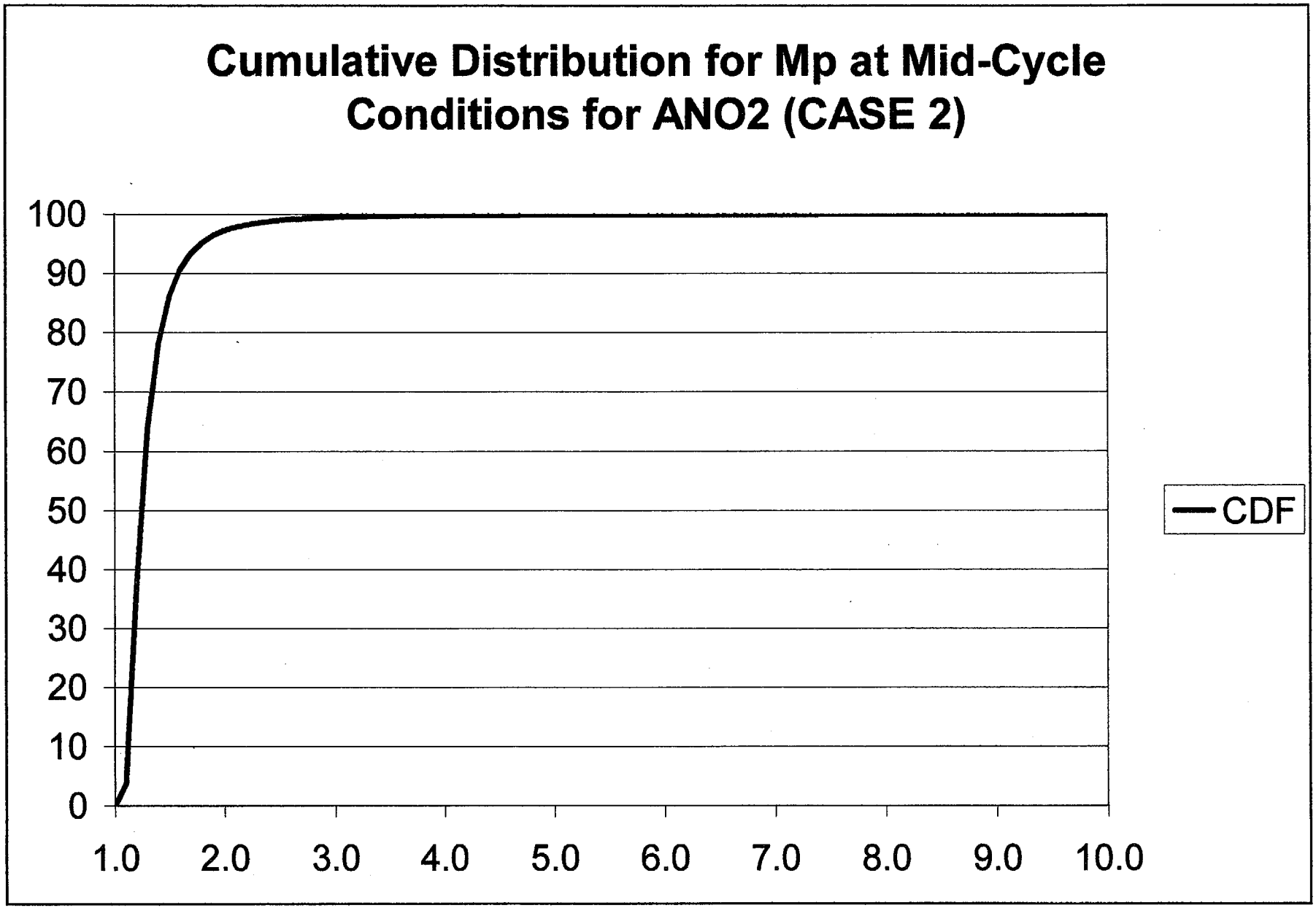
The above numbers are based on intersections. This is because the bobbin coil is used for detection and can typically identify only one flaw per intersection. The total number of flaws in 2P99 was 185 in 154 intersections. The 185 were determined from RPC analysis of each intersection.

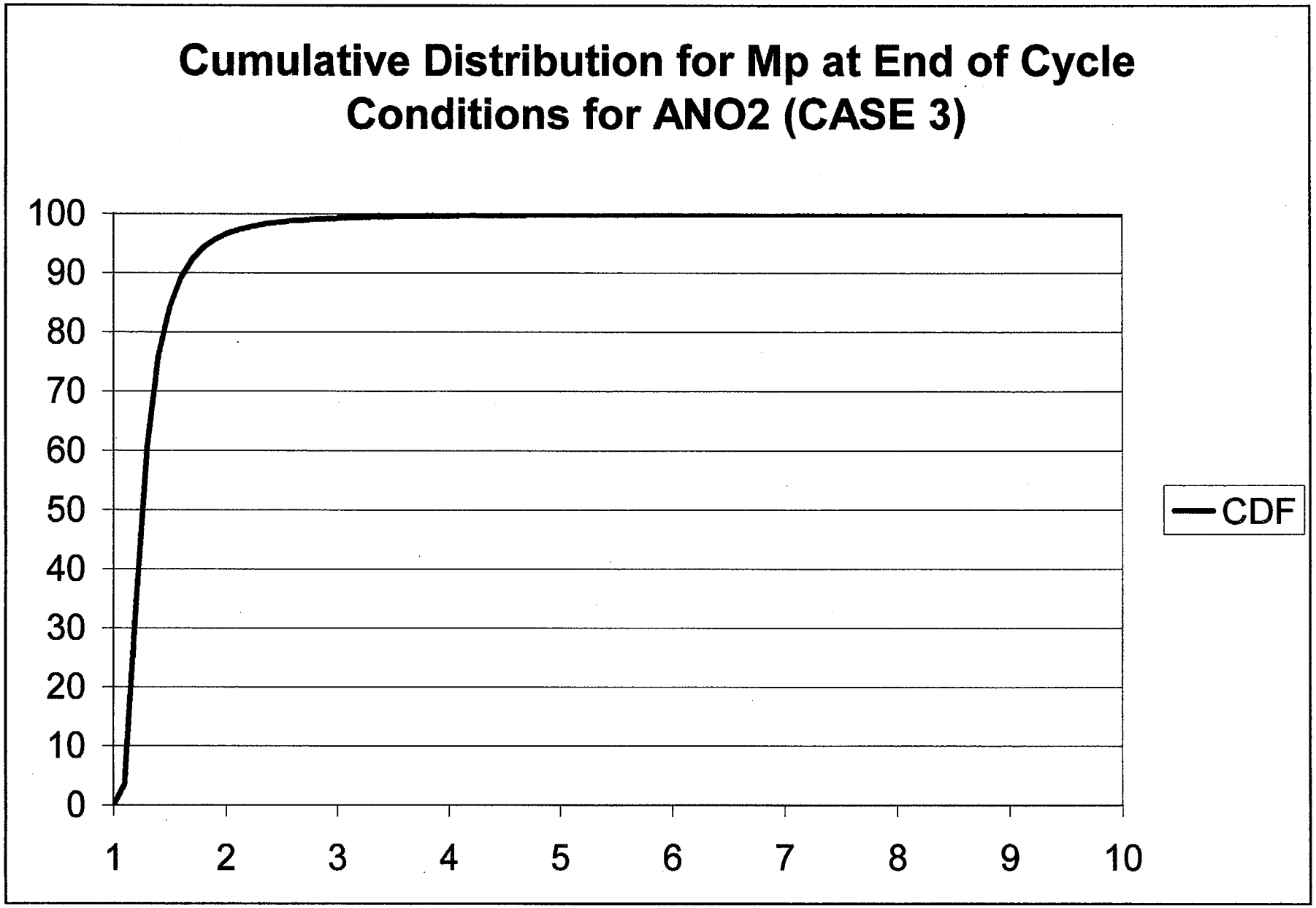
The tables are categorized by the Mp and CDF values in ascending order. The following is an index of the titles:

Mp Tearing Modulus

CDF Cumulative Distribution Function


Cumulative Distribution for Mp at Beginning of Cycle Conditions for ANO2 (CASE 1)
100
90
80
70
60
50
40
30
20
10
0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
CDF


Cumulative Distribution for Mp at Mid-Cycle Conditions for ANO2 (CASE 2)
100
90
80
70
60
50
40
30
20
10
0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
CDF


Cumulative Distribution for Mp at End of Cycle Conditions for ANO2 (CASE 3)
100
90
80
70
60
50
40
30
20
10
0
1
2
3
4
5
6
7
8
9
10
CDF

Mp and CDF Values for
the Beginning of Cycle Conditions for ANO2
(CASE 1)

Mp	CDF	Mp	CDF	Mp	CDF
1.0	0.00000	5.1	0.99968	9.2	0.99991
1.1	0.06777	5.2	0.99970	9.3	0.99991
1.2	0.47099	5.3	0.99973	9.4	0.99991
1.3	0.71055	5.4	0.99973	9.5	0.99991
1.4	0.82756	5.5	0.99973	9.6	0.99991
1.5	0.89105	5.6	0.99974	9.7	0.99991
1.6	0.92681	5.7	0.99975	9.8	0.99991
1.7	0.94922	5.8	0.99976	9.9	0.99991
1.8	0.96363	5.9	0.99976	10.0	0.99991
1.9	0.97313	6.0	0.99976		
2.0	0.97940	6.1	0.99977		
2.1	0.98441	6.2	0.99980		
2.2	0.98805	6.3	0.99980		
2.3	0.99067	6.4	0.99982		
2.4	0.99240	6.5	0.99983		
2.5	0.99382	6.6	0.99983		
2.6	0.99489	6.7	0.99983		
2.7	0.99566	6.8	0.99983		
2.8	0.99634	6.9	0.99984		
2.9	0.99690	7.0	0.99985		
3.0	0.99727	7.1	0.99985		
3.1	0.99759	7.2	0.99985		
3.2	0.99791	7.3	0.99985		
3.3	0.99815	7.4	0.99985		
3.4	0.99835	7.5	0.99986		
3.5	0.99851	7.6	0.99986		
3.6	0.99866	7.7	0.99987		
3.7	0.99881	7.8	0.99988		
3.8	0.99889	7.9	0.99988		
3.9	0.99902	8.0	0.99988		
4.0	0.99914	8.1	0.99988		
4.1	0.99920	8.2	0.99988		
4.2	0.99932	8.3	0.99988		
4.3	0.99935	8.4	0.99988		
4.4	0.99942	8.5	0.99988		
4.5	0.99948	8.6	0.99988		
4.6	0.99953	8.7	0.99988		
4.7	0.99954	8.8	0.99988		
4.8	0.99959	8.9	0.99988		
4.9	0.99961	9.0	0.99988		
5.0	0.99964	9.1	0.99991		

Mp and CDF Values for
Mid-Cycle Conditions for ANO2 (CASE 2)

Mp	CDF	Mp	CDF	Mp	CDF
1.0	0.00000	5.1	0.99911	9.2	0.99975
1.1	0.03814	5.2	0.99918	9.3	0.99975
1.2	0.37439	5.3	0.99922	9.4	0.99976
1.3	0.64071	5.4	0.99923	9.5	0.99977
1.4	0.78234	5.5	0.99926	9.6	0.99978
1.5	0.86098	5.6	0.99929	9.7	0.99978
1.6	0.90716	5.7	0.99932	9.8	0.99979
1.7	0.93485	5.8	0.99936	9.9	0.99980
1.8	0.95272	5.9	0.99938	10.0	0.99981
1.9	0.96468	6.0	0.99940		
2.0	0.97263	6.1	0.99942		
2.1	0.97850	6.2	0.99944		
2.2	0.98273	6.3	0.99945		
2.3	0.98593	6.4	0.99946		
2.4	0.98840	6.5	0.99947		
2.5	0.99016	6.6	0.99949		
2.6	0.99182	6.7	0.99951		
2.7	0.99308	6.8	0.99952		
2.8	0.99392	6.9	0.99954		
2.9	0.99469	7.0	0.99955		
3.0	0.99512	7.1	0.99957		
3.1	0.99577	7.2	0.99959		
3.2	0.99621	7.3	0.99959		
3.3	0.99646	7.4	0.99961		
3.4	0.99682	7.5	0.99961		
3.5	0.99716	7.6	0.99962		
3.6	0.99749	7.7	0.99962		
3.7	0.99767	7.8	0.99963		
3.8	0.99779	7.9	0.99964		
3.9	0.99792	8.0	0.99966		
4.0	0.99808	8.1	0.99967		
4.1	0.99820	8.2	0.99967		
4.2	0.99833	8.3	0.99967		
4.3	0.99844	8.4	0.99969		
4.4	0.99859	8.5	0.99969		
4.5	0.99864	8.6	0.99971		
4.6	0.99877	8.7	0.99971		
4.7	0.99882	8.8	0.99973		
4.8	0.99892	8.9	0.99973		
4.9	0.99899	9.0	0.99973		
5.0	0.99905	9.1	0.99974		

Mp and CDF Values for
End of Cycle Conditions for ANO2 (CASE 3)

Mp	CDF	Mp	CDF	Mp	CDF
1.0	0.00000	5.1	0.99843	9.2	0.99934
1.1	0.03554	5.2	0.99850	9.3	0.99935
1.2	0.33866	5.3	0.99857	9.4	0.99936
1.3	0.60814	5.4	0.99864	9.5	0.99937
1.4	0.75898	5.5	0.99870	9.6	0.99938
1.5	0.84297	5.6	0.99873	9.7	0.99938
1.6	0.89274	5.7	0.99875	9.8	0.99940
1.7	0.92393	5.8	0.99881	9.9	0.99940
1.8	0.94408	5.9	0.99884	10.0	0.99941
1.9	0.95741	6.0	0.99887		
2.0	0.96648	6.1	0.99888		
2.1	0.97288	6.2	0.99892		
2.2	0.97781	6.3	0.99892		
2.3	0.98165	6.4	0.99898		
2.4	0.98469	6.5	0.99899		
2.5	0.98684	6.6	0.99901		
2.6	0.98851	6.7	0.99903		
2.7	0.99004	6.8	0.99904		
2.8	0.99140	6.9	0.99906		
2.9	0.99233	7.0	0.99908		
3.0	0.99320	7.1	0.99911		
3.1	0.99387	7.2	0.99913		
3.2	0.99454	7.3	0.99916		
3.3	0.99495	7.4	0.99916		
3.4	0.99549	7.5	0.99916		
3.5	0.99579	7.6	0.99917		
3.6	0.99615	7.7	0.99918		
3.7	0.99640	7.8	0.99919		
3.8	0.99669	7.9	0.99920		
3.9	0.99695	8.0	0.99921		
4.0	0.99711	8.1	0.99922		
4.1	0.99731	8.2	0.99924		
4.2	0.99743	8.3	0.99926		
4.3	0.99760	8.4	0.99928		
4.4	0.99776	8.5	0.99929		
4.5	0.99786	8.6	0.99930		
4.6	0.99794	8.7	0.99930		
4.7	0.99805	8.8	0.99930		
4.8	0.99819	8.9	0.99932		
4.9	0.99831	9.0	0.99933		
5.0	0.99837	9.1	0.99934		

Attachment 2

Additional Mp Data for ANO-2

Additional Mp Data for ANO2

The attached table of data is being provided at your request. The following is an explanation of the data:

1. Uses the 185 indications identified in 2P99 by individual flaws.

2. The bobbin volts are based on the mix channel response.

3. The Mp data is the median value.

4. The POD is the average of the 5 curves using both maximum depth and bobbin voltage as inputs.

5. Maximum depth is based on the RPC profile data

6. Length is based on the RPC raw data measurement.

The following are descriptions of the titles:

ROW	Tube Row
COL	Tube Column
TSP	Tube Support Plate
POS	Tube Position
AVG DEP	Average Depth
MAX DEP	Maximum Depth
Bobbin Volts	Bobbin Volts
LENGTH	Length
MP50	Mp (median value)
PODAV	Average POD Value

Median Mp Values with Corresponding Voltage and POD for ANO2

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
1	102	110	02H	0.06	82.66	99	0.68	1.55	4.51	0.99300
2	48	96	01H	-0.12	53.30	67	0.41	0.96	4.41	0.85945
3	23	55	02H	0.29	63.74	79	0.3	1.39	4.30	0.86605
4	28	36	02H	0.35	62.52	90	0.34	0.49	3.82	0.93567
5	72	72	02H	0.27	80.95	92	0.99	1.34	3.65	0.99767
6	36	36	02H	0.33	62.88	73	0.42	1.03	3.55	0.89927
7	1	51	04H	0.49	71.94	86	0.6	0.95	3.37	0.97883
8	23	143	02H	-0.21	42.15	64	0.37	0.8	3.36	0.80776
9	37	95	01H	-0.55	56.73	72	0.51	0.99	3.36	0.93118
10	10	16	02H	0.38	55.83	74	0.49	0.94	3.35	0.93155
11	47	93	01H	-0.6	57.64	70	0.29	0.76	3.13	0.78587
12	28	44	01H	-0.01	51.47	93	0.69	1.58	3.10	0.99074
13	13	31	02H	-0.05	56.73	90	0.6	0.85	3.08	0.98294
14	36	116	01H	0.62	63.02	75	0.7	0.39	3.07	0.97646
15	12	106	01H	0.61	54.73	65	0.39	0.78	3.03	0.83150
16	17	49	06H	0.58	74.39	87	0.44	0.77	2.95	0.95502
17	32	108	01H	0.19	64.82	83	1.49	0.49	2.94	0.99957
18	47	91	01H	0.49	67.57	79	1.1	0.91	2.92	0.99707
19	33	109	01H	-0.41	61.34	68	0.32	0.81	2.92	0.79940
20	9	115	01H	0.49	70.92	96	0.43	0.78	2.91	0.97040
21	1	51	03H	0.58	56.91	69	0.63	0.62	2.88	0.95469
22	65	119	01H	-0.57	45.86	68	0.3	0.53	2.87	0.78140
23	16	118	01H	0.49	54.41	69	0.35	0.81	2.86	0.83184
24	102	98	02H	0.24	79.61	94	0.23	0.6	2.83	0.90719
25	106	90	02H	-0.24	62.79	92	0.41	0.61	2.81	0.95953
26	12	62	01H	0.3	51.19	69	0.37	0.44	2.81	0.84633
27	47	93	01H	-0.31	52.57	65	0.29	0.97	2.81	0.74218
28	4	156	02H	0.72	59.06	70	0.41	0.5	2.75	0.87798

Median Mp Values with Corresponding Voltage and POD for ANO2

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
29	52	82	01H	0.52	42.18	64	0.31	0.67	2.75	0.75253
30	60	108	01H	0.13	52.86	62	0.41	1.14	2.75	0.82343
31	23	143	01H	-0.33	34.03	47	0.38	0.27	2.73	0.63873
32	60	44	02H	0.43	54.26	72	0.25	0.9	2.69	0.77126
33	16	140	03H	0.46	66.39	76	0.89	0.72	2.69	0.99092
34	12	106	01H	-0.39	51.75	63	0.47	0.85	2.67	0.87078
35	52	36	01H	0.58	54.22	73	0.32	0.75	2.67	0.83922
36	4	150	01H	-0.48	28.90	56	0.26	0.75	2.63	0.60000
37	36	116	01H	0.62	54.60	67	0.7	0.78	2.63	0.96380
38	53	83	01H	0.1	78.23	98	0.71	0.64	2.59	0.99363
39	27	127	02H	0.51	22.58	34	0.36	0.82	2.59	0.44032
40	33	71	01H	-0.53	64.38	91	0.34	0.42	2.58	0.93884
41	58	106	01H	-0.52	64.01	91	0.41	0.55	2.52	0.95737
42	38	110	01H	0.57	51.90	70	0.36	0.54	2.47	0.84639
43	4	20	01H	-0.11	59.06	69	1.55	0.71	2.45	0.99926
44	65	97	02H	-0.5	55.51	69	0.55	0.58	2.38	0.93375
45	14	112	04H	0.56	47.13	67	0.22	0.59	2.37	0.68584
46	7	61	02H	0.62	59.73	96	0.37	0.46	2.36	0.95947
47	77	113	01H	0.39	60.17	79	0.71	0.56	2.36	0.98195
48	3	57	01H	-0.71	40.06	68	0.14	0.59	2.34	0.59673
49	13	55	01H	0.12	51.43	68	0.87	0.59	2.34	0.98447
50	8	148	01H	0.6	54.82	72	0.49	0.65	2.31	0.92425
51	4	28	01H	-0.46	51.26	64	0.67	0.72	2.30	0.95118
52	26	40	02H	0.63	75.14	92	0.19	0.64	2.30	0.87526
53	16	140	02H	0.68	52.12	61	0.62	0.23	2.29	0.92814
54	6	116	01H	-0.21	42.64	56	0.4	0.55	2.28	0.76174
55	42	38	01H	0.52	51.38	72	0.41	0.39	2.28	0.88913
56	32	108	01H	-0.18	65.06	81	1.66	0.55	2.27	0.99977
57	33	71	01H	0.46	70.58	82	0.34	0.69	2.25	0.90435

Median Mp Values with Corresponding Voltage and POD for ANO2

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
58	32	46	02H	0.7	68.32	82	0.82	0.62	2.21	0.99096
59	24	24	01H	0.53	38.77	75	0.18	0.26	2.21	0.72352
60	31	49	01H	0.75	40.81	69	0.22	0.77	2.20	0.70858
61	8	134	01H	0.48	90.09	100	2.49	0.56	2.16	1.00000
62	68	44	03H	0.54	56.22	85	0.19	0.98	2.16	0.82881
63	33	117	05H	0.64	46.95	58	0.25	0.42	2.15	0.61279
64	68	112	02H	-0.03	58.36	69	0.55	0.69	2.11	0.93375
65	40	116	01H	0.62	53.50	66	0.83	0.59	2.08	0.97857
66	60	108	01H	0.63	57.33	67	0.41	1.08	2.07	0.85945
67	86	118	01H	0.39	38.84	61	0.41	0.52	2.07	0.81131
68	34	130	02H	0.47	23.67	44	0.44	0.48	2.06	0.67392
69	38	110	01H	0.69	44.81	73	0.36	0.89	2.05	0.86632
70	20	52	01H	0.75	62.59	79	0.53	0.51	2.05	0.95652
71	48	52	01H	0.66	72.17	84	0.49	0.51	2.03	0.95916
72	77	125	02H	0.36	62.31	89	0.3	0.82	1.99	0.91709
73	89	73	02H	0.55	52.38	74	0.24	0.67	1.99	0.78035
74	18	126	01H	0.62	40.18	52	0.48	0.56	1.99	0.79634
75	53	109	01H	-0.65	45.74	60	0.56	0.57	1.98	0.90064
76	1	137	01H	-0.36	33.71	61	0.44	0.59	1.95	0.83797
77	31	125	01H	-0.47	35.89	57	0.41	0.59	1.93	0.78059
78	27	127	04H	0.62	33.29	50	0.36	0.62	1.93	0.65128
79	32	108	01H	-0.61	57.71	98	1.66	0.68	1.92	0.99991
80	95	45	02H	0.64	63.85	86	0.43	0.43	1.92	0.95017
81	115	65	02H	0.4	54.06	66	0.55	0.41	1.91	0.92284
82	58	106	01H	0.35	43.07	64	0.41	0.55	1.90	0.83864
83	62	36	03H	0.35	17.96	61	0.34	0.59	1.89	0.75255
84	9	115	01H	-0.66	68.15	88	0.43	0.49	1.89	0.95506
85	55	95	01H	0.69	35.66	60	0.29	0.75	1.88	0.68716
86	34	52	06H	0.89	41.01	55	0.62	0.43	1.87	0.90292

Median Mp Values with Corresponding Voltage and POD for ANO2

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
87	10	150	01H	0.66	55.20	69	0.66	0.46	1.86	0.96070
88	52	82	01H	0.05	31.62	57	0.31	0.34	1.86	0.66957
89	10	150	03H	0.37	78.14	97	1.32	0.59	1.86	0.99961
90	48	52	01H	0.72	59.18	72	0.49	0.66	1.85	0.92232
91	75	85	03H	0.56	57.52	69	0.49	0.67	1.83	0.91198
92	84	112	02H	-0.72	58.54	71	0.44	0.37	1.83	0.89899
93	28	36	02H	-0.19	53.76	75	0.34	0.44	1.81	0.86633
94	84	76	01H	0.63	72.09	91	0.48	0.49	1.81	0.97026
95	12	56	02H	0.69	56.10	89	0.5	0.54	1.81	0.97015
96	61	115	02H	0.55	33.79	45	0.33	0.62	1.79	0.54771
97	67	111	01H	-0.48	56.96	73	0.52	0.59	1.78	0.93768
98	11	155	02H	0.76	60.39	79	0.58	0.4	1.77	0.96600
99	29	123	04H	0.52	69.31	77	0.39	0.84	1.77	0.90433
100	9	127	01H	0.75	67.60	84	0.37	0.39	1.74	0.92534
101	65	125	02H	-0.71	63.46	72	0.52	0.46	1.73	0.93441
102	63	115	01H	0.05	66.35	78	0.44	0.64	1.72	0.92868
103	83	109	01H	-0.33	47.22	63	0.64	0.45	1.72	0.94087
104	83	109	01H	0.65	45.98	65	0.64	0.3	1.71	0.94671
105	77	83	02H	-0.33	68.27	85	0.22	0.38	1.70	0.85132
106	117	89	01H	-0.48	52.58	63	0.59	0.42	1.70	0.92354
107	123	99	01H	-0.34	31.70	53	0.27	0.59	1.70	0.57379
108	16	116	05H	0.43	32.45	51	0.33	0.65	1.68	0.62003
109	16	140	03H	-0.39	57.05	69	0.89	0.71	1.65	0.98660
110	12	148	02H	0.18	54.98	78	0.43	0.53	1.63	0.92509
111	102	98	01H	0.4	48.91	77	0.26	0.35	1.63	0.82334
112	20	132	02H	-0.07	44.10	51	0.24	0.46	1.63	0.50564
113	4	156	02H	-0.44	65.18	82	0.41	0.83	1.62	0.93240
114	6	138	01H	0.61	43.40	53	0.55	0.28	1.62	0.85488
115	45	89	01H	0.64	56.67	65	0.33	0.39	1.62	0.78153

Median Mp Values with Corresponding Voltage and POD for ANO2

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
116	121	113	01H	-0.65	45.24	73	0.75	0.25	1.62	0.97932
117	46	126	01H	0.6	49.03	63	0.25	0.44	1.61	0.66885
118	67	57	01H	0.79	75.65	85	0.66	0.43	1.61	0.98339
119	36	116	01H	0.17	61.93	81	0.7	0.72	1.60	0.98301
120	2	34	02H	0.1	60.78	86	0.2	0.94	1.59	0.84374
121	89	51	01H	0.05	50.59	62	0.59	0.38	1.59	0.91958
122	7	119	01H	-0.13	52.23	73	0.48	0.29	1.58	0.92443
123	5	3	01H	0.61	43.34	52	0.43	0.87	1.57	0.75103
124	49	19	04H	0.8	55.72	69	0.54	0.34	1.56	0.92874
125	104	116	01H	0.34	59.29	80	0.2	0.29	1.53	0.79689
126	45	69	02H	-0.56	50.45	61	0.45	0.44	1.52	0.84135
127	9	127	01H	-0.48	24.13	33	0.37	0.36	1.51	0.44057
128	39	111	01H	0.61	48.30	75	0.51	0.29	1.51	0.94097
129	12	30	01H	0.73	44.94	52	0.53	0.44	1.50	0.83459
130	32	100	01H	0.16	73.49	97	1.82	0.52	1.50	0.99995
131	136	88	01H	0.36	37.79	70	0.33	0.44	1.49	0.82416
132	6	140	02H	-0.52	42.86	57	0.22	0.36	1.48	0.55948
133	8	128	01H	0.7	41.54	65	0.55	0.52	1.48	0.91886
134	106	90	02H	0.54	67.85	92	0.41	0.71	1.48	0.95846
135	42	38	01H	0.04	80.03	92	0.41	0.7	1.48	0.95953
136	11	13	03H	0.13	65.54	82	0.24	0.54	1.47	0.84505
137	119	65	04H	0.56	56.07	73	0.24	0.57	1.47	0.77101
138	104	116	01H	-0.58	68.75	83	0.2	0.23	1.47	0.82154
139	26	144	01H	-0.3	46.27	58	0.37	0.31	1.46	0.75230
140	47	145	02H	0.6	61.02	88	0.39	0.41	1.46	0.94488
141	3	141	01H	0.33	42.42	57	0.3	0.45	1.45	0.65741
142	75	91	02H	0.11	63.89	85	0.3	0.56	1.45	0.89925
143	10	150	01H	0.41	75.57	86	0.66	0.38	1.45	0.98384
144	5	153	07H	0.37	89.07	97	0.62	0.59	1.45	0.98944

Median Mp Values with Corresponding Voltage and POD for ANO2

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
145	92	102	02H	0.62	68.08	81	0.24	0.35	1.45	0.83792
146	74	66	01H	0.79	39.47	69	0.68	0.65	1.44	0.96425
147	86	104	01H	-0.49	35.29	54	0.37	0.42	1.43	0.70983
148	32	24	01H	0.59	58.84	69	0.31	0.28	1.42	0.79499
149	9	125	01H	0.35	50.99	61	0.27	0.46	1.41	0.67516
150	32	148	03H	0.53	68.59	79	0.36	0.56	1.41	0.89963
151	40	116	01H	0.53	57.66	84	0.83	0.46	1.41	0.99228
152	21	109	01H	0.55	66.42	78	0.32	0.52	1.40	0.87236
153	38	144	03H	-0.59	72.77	85	0.3	0.36	1.40	0.89925
154	6	138	01H	0.73	28.68	42	0.55	0.4	1.38	0.76038
155	40	56	03H	0.68	61.88	74	0.59	0.39	1.37	0.95782
156	75	89	02H	0.75	77.66	92	0.77	0.49	1.36	0.99339
157	75	45	02H	-0.38	52.71	61	0.31	0.4	1.36	0.72110
158	24	136	03H	0.21	60.43	83	0.29	0.31	1.35	0.88355
159	6	136	01H	-0.39	48.81	64	0.37	0.38	1.34	0.80776
160	42	142	01H	0.54	49.59	61	0.33	0.41	1.34	0.74236
161	44	72	01H	0.07	53.64	95	0.29	0.45	1.33	0.93518
162	84	112	02H	0.51	59.16	98	0.44	0.79	1.33	0.97472
163	49	77	01H	0.78	85.14	98	0.52	0.39	1.33	0.98288
164	63	123	02H	0.4	81.83	93	0.31	0.59	1.33	0.93542
165	11	143	01H	0.69	79.25	87	0.33	0.33	1.32	0.91940
166	23	143	01H	0.81	30.46	53	0.38	0.25	1.30	0.70409
167	13	57	01H	0.71	40.11	58	0.75	0.39	1.30	0.95367
168	11	143	01H	-0.15	50.78	69	0.33	0.39	1.27	0.81619
169	42	78	01H	-0.72	56.03	68	0.36	0.72	1.26	0.83180
170	35	33	03H	0.48	80.71	99	0.24	0.18	1.26	0.93097
171	67	119	01H	-0.1	79.31	93	0.26	0.31	1.25	0.91644
172	7	119	01H	0.14	48.16	67	0.48	0.29	1.24	0.89819
173	10	148	01H	0.8	46.19	56	0.35	0.33	1.24	0.71003

Median Mp Values with Corresponding Voltage and POD for ANO2

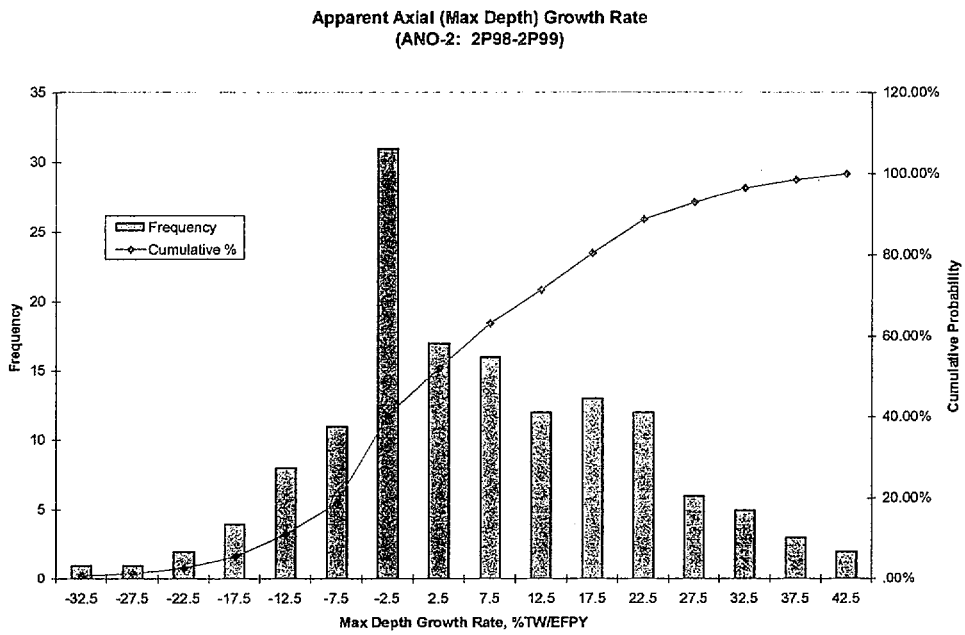
	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
174	7	113	01H	0.6	65.75	92	0.87	0.33	1.23	0.99591
175	38	114	02H	-0.11	47.70	63	0.32	0.42	1.22	0.75257
176	120	114	03H	0.81	57.03	67	0.56	0.28	1.22	0.93002
177	92	100	02H	0.63	48.80	67	0.46	0.68	1.20	0.88828
178	11	135	03H	-0.28	33.88	47	0.22	0.33	1.18	0.42365
179	53	109	01H	-0.02	24.88	47	0.56	0.15	1.18	0.81748
180	66	28	02H	-0.56	50.50	66	0.27	0.36	1.18	0.73144
181	84	116	02H	0.65	33.46	57	0.36	0.82	1.15	0.72637
182	104	100	02H	0.36	66.75	82	0.29	0.85	1.13	0.87500
183	4	150	01H	0.68	45.95	66	0.26	0.43	1.11	0.72053
184	5	21	03H	0.15	56.10	72	0.32	0.43	1.11	0.83181
185	57	83	01H	0.46	35.93	53	0.27	0.49	1.11	0.57379

Attachment 3

**Description of Growth Rate Distribution Curves
Used in the ANO-2 Steam Generator Operational Assessment**

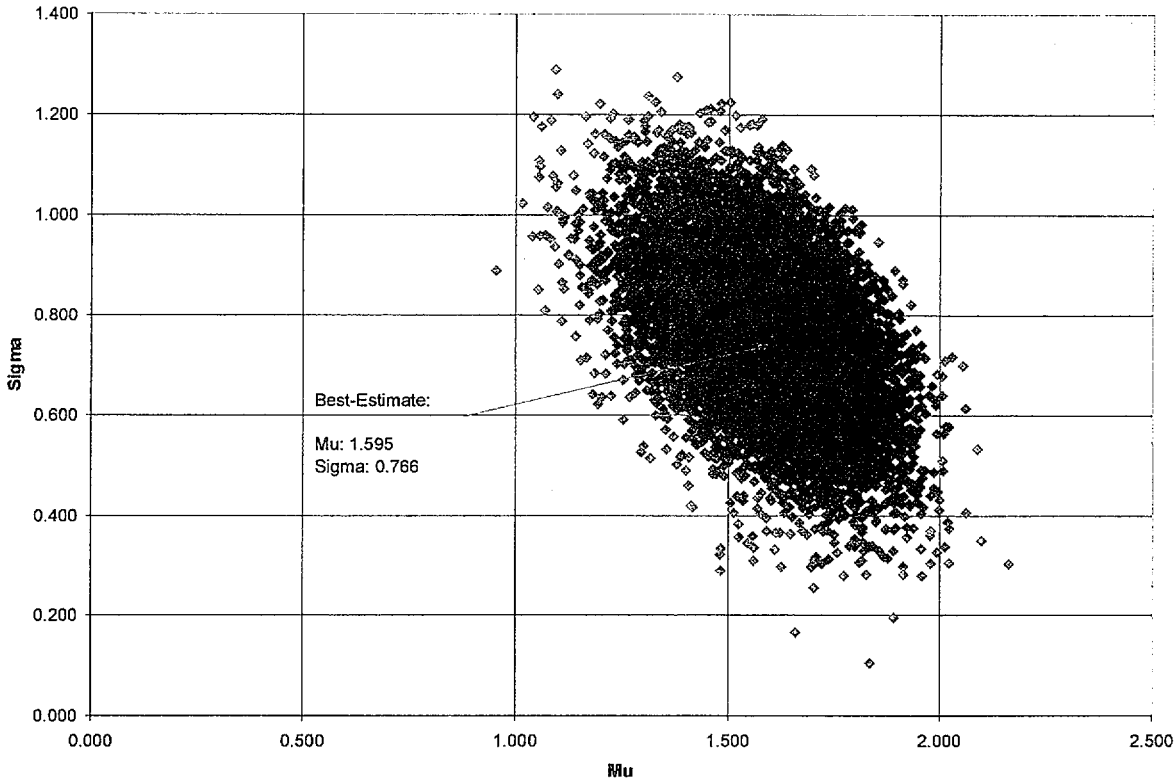
Description of the Growth Rate Distribution Curves Used In the ANO2 Steam Generator Operation Assessment

An extensive growth rate evaluation was performed following the 2P99 mid-cycle outage. Indications confirmed by MRPC were evaluated in the previous mid-cycle outage (2P98) to evaluate growth over a full operating interval. The results were consistent with those developed in prior years as well as with industry data. The main purpose of this document is to identify the amount of variance that is contained in the distributions of growth used in the model. This particular operational assessment (OA) utilized a probabilistic approach to determining the growth rate of a flaw in a simulation. Listed below is a histogram of the apparent growth. The large amount of negative growth is symptomatic of eddy current (EC) uncertainties mixed with actual physical growth.

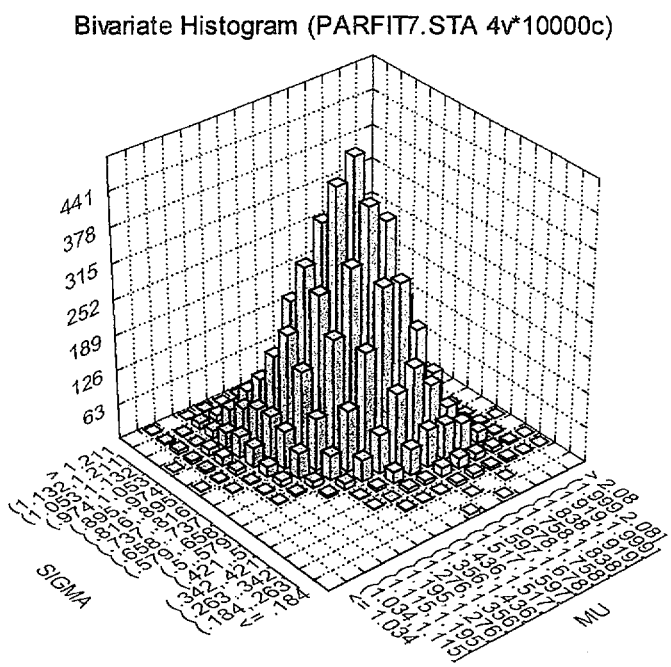


Pulled tube data was evaluated to determine the amount of uncertainty associated with sizing by EC. Once this was applied it was evident that the actual growth was being masked by the uncertainties. A statistical optimization process was performed to determine the true growth. This was then used to develop the growth rate curves used in the model.

In an attempt to graphically display the variance in the distributions the following figures were developed:



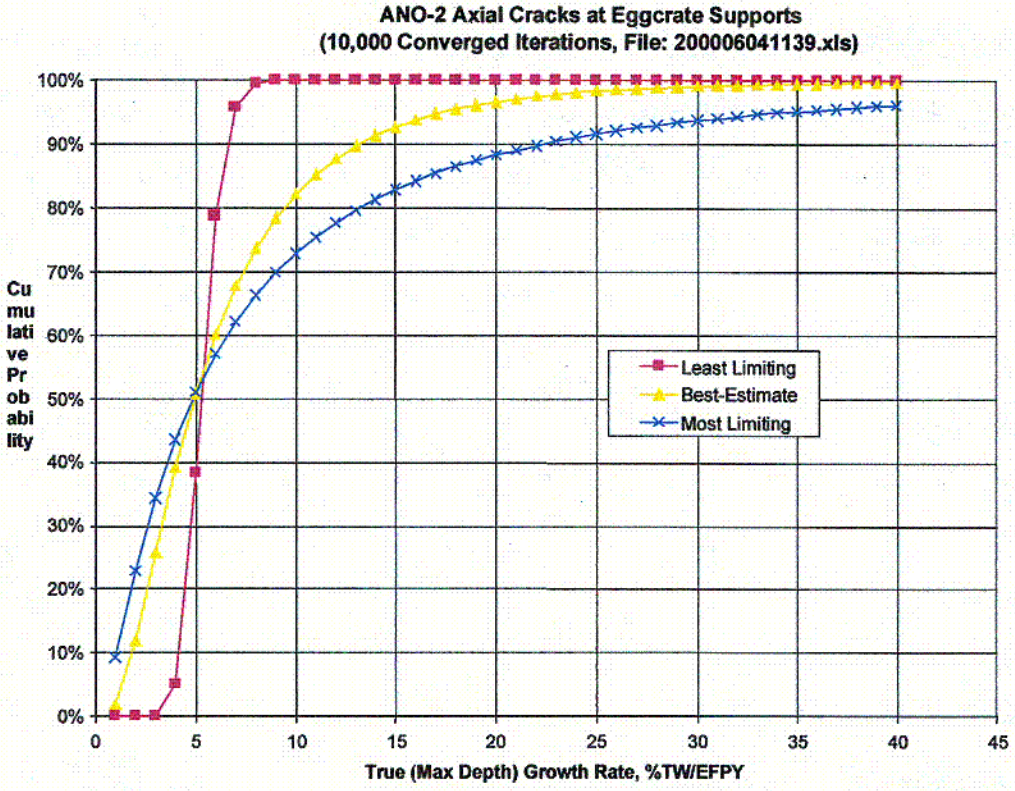
This scatter plot represents the variables associated with each distribution curve. The arrow points to the best estimate value.



This three-dimensional histogram is another way to graphically display the various distributions. Once again the data is plotted using the two variables that describe the individual curves (sigma and mu).

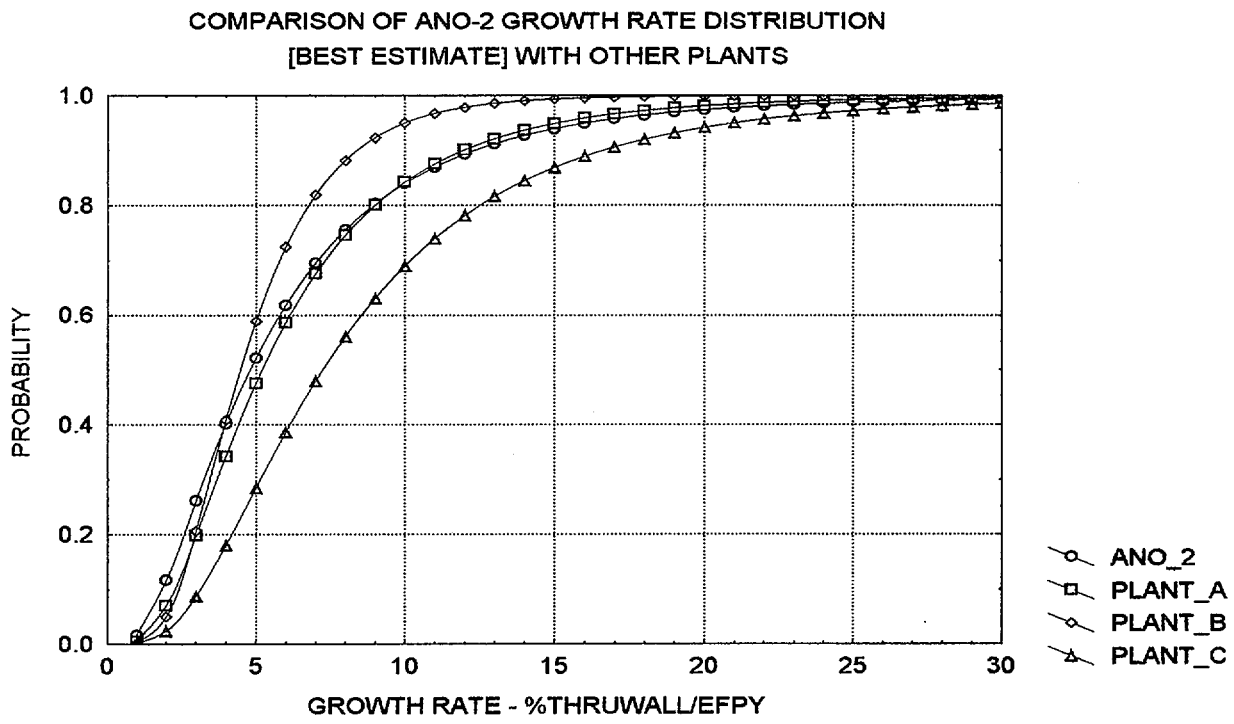
Finally, listed below are three bounding curves that are based on 10000 converged iterations. This represents the following estimates in an effort to bound the distributions:

- Least Limiting
- Best estimate
- Most Limiting



Previous to this process, the bobbin phase angle was used to estimate the change in growth. The values used for growth were based on a mean of ~ 7 %TW /EFPY with a maximum value of 40 %TW/EFPY. This data is consistent with other CE plants. This is listed in the graph below:

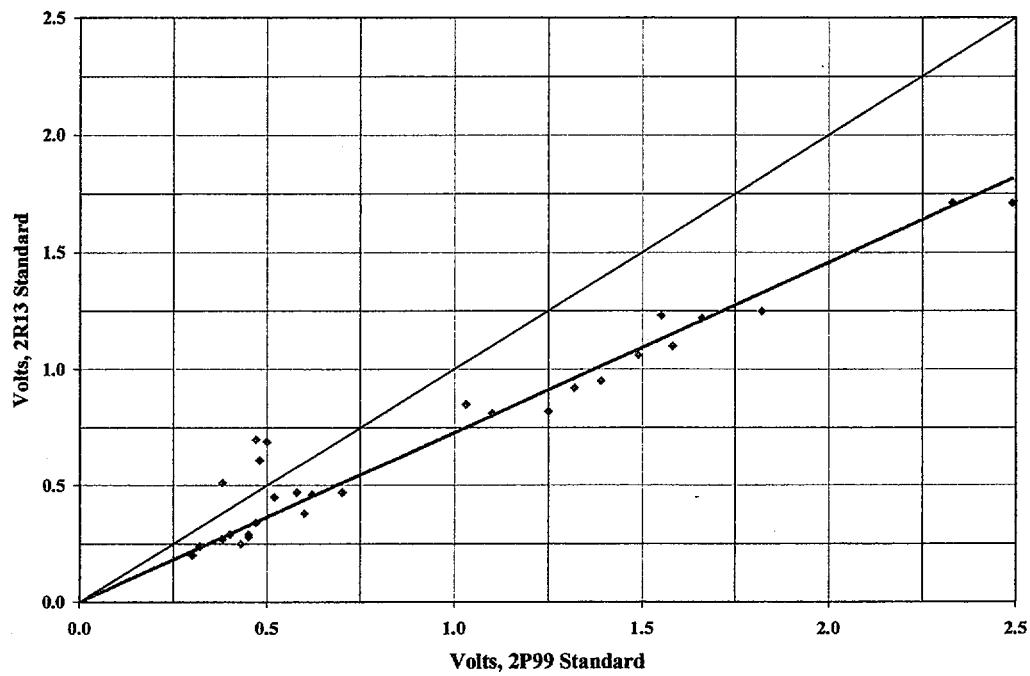
C1.


COMPARISON OF ANO-2 GROWTH RATE DISTRIBUTION
[BEST ESTIMATE] WITH OTHER PLANTS
PROBABILITY
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
25
30
GROWTH RATE - %THRUWALL/EFPY
ANO_2
PLANT_A
PLANT_B
PLANT_C

Description of the Bi-Variant Probability of Detection Curves Used in the ANO2 Operational Assessment June 5, 2000

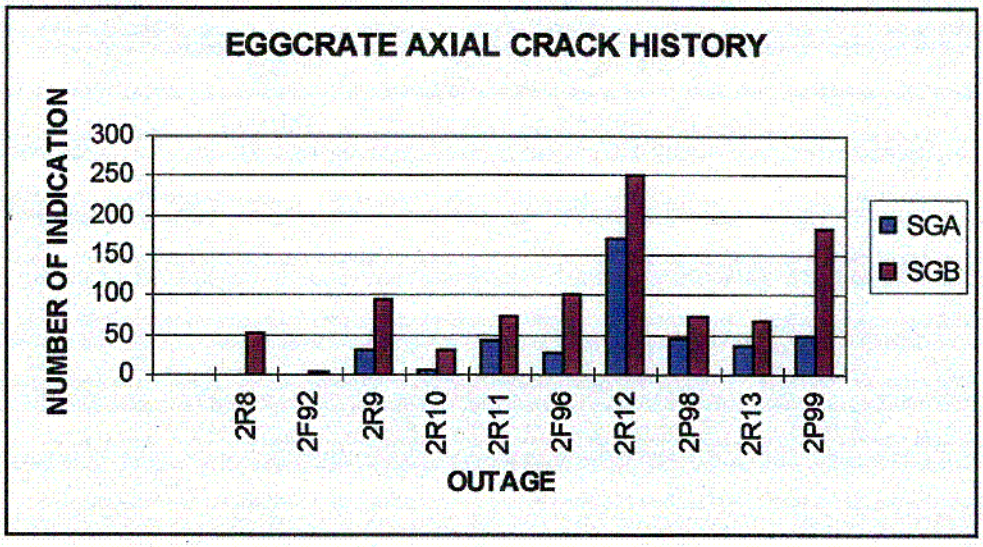
Following the 2P99 mid-cycle outage, a probabilistic operational assessment was performed to provide input into a risk evaluation. Historically, a probability of detection (POD) curve was used based on peak depth. This had provided the necessary information based on detection of flaws with bobbin. An extensive test program was performed using pulled tubes and ANO2 specific data. Five teams of analysts were used and five separate curves were developed. This was presented to the Staff following 2R13. During the 2P99 outage however, different calibration standards were used. These standards produced signals with higher amplitudes than the previous standards. A study performed during 2P99 on approximately 30 flaws confirmed the new standards gave significantly larger amplitude signals for the same indication.

Figure 1



This resulted in a significant increase in the number of indications identified in 2P99. This is demonstrated in Figure 2:

Figure 2



This inspection transient can be explained by a change in equipment and training. Special emphasis was placed on the identification of low amplitude flaws and their corresponding signal response. There were no other adverse changes made during the most recent operating periods. Therefore, a new POD function was developed to take into account this improvement to the process. Since the improvement was due to a change in voltage, a bi-variant curve was developed using both peak depth and voltage. The data from the five teams of analysts from the SSPD was used with the following equation:

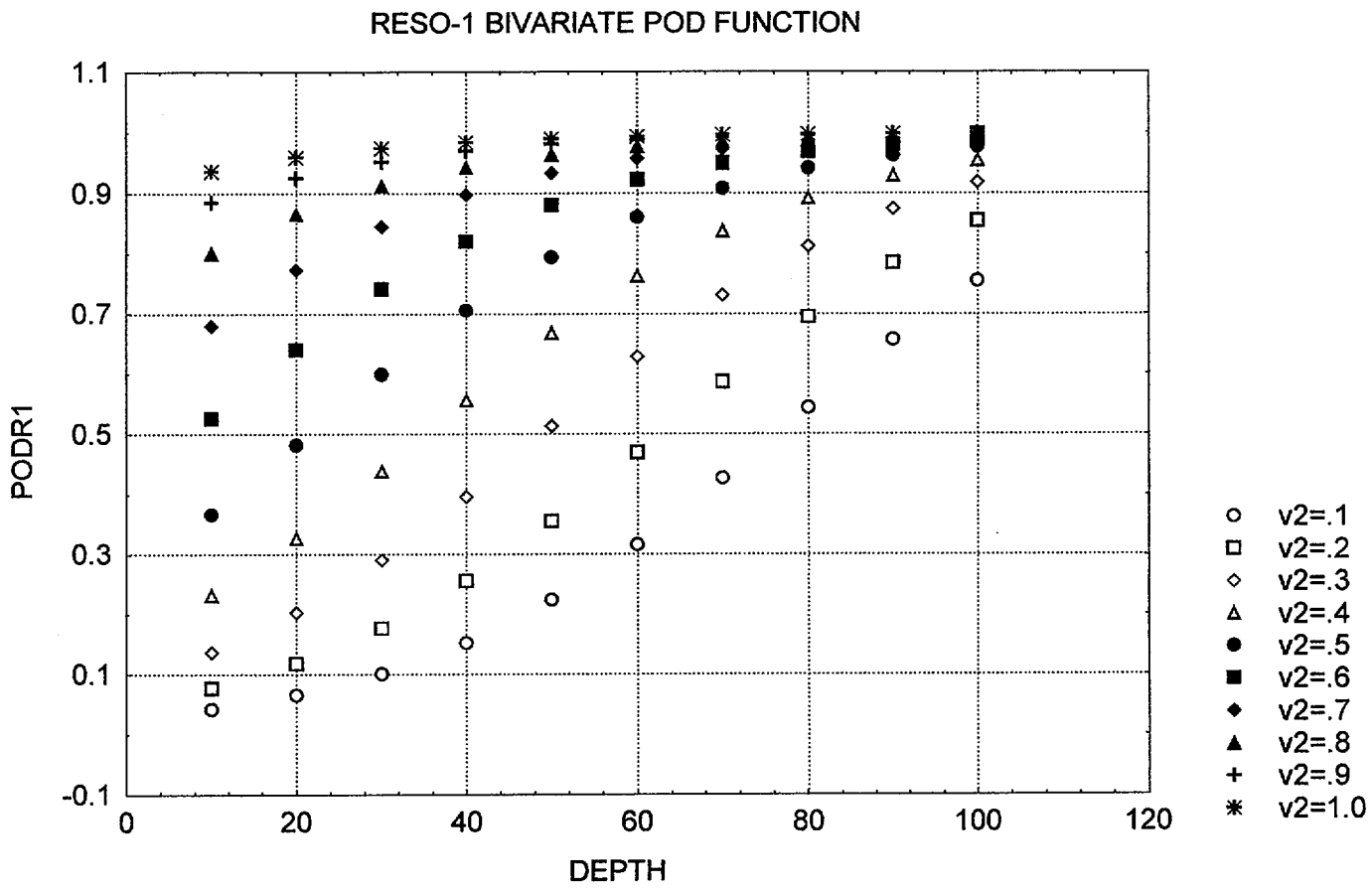
$$POD=1.0/(1.0+EXP(A+B*DEPTH+C*VOLTS))$$

TEAM	A	B	C
1	4.254	-0.0473	-6.475
2	3.943	-0.0635	-4.407
3	4.044	-0.0565	-3.976
4	4.264	-0.0566	-5.351
5	4.368	-0.0546	-8.069

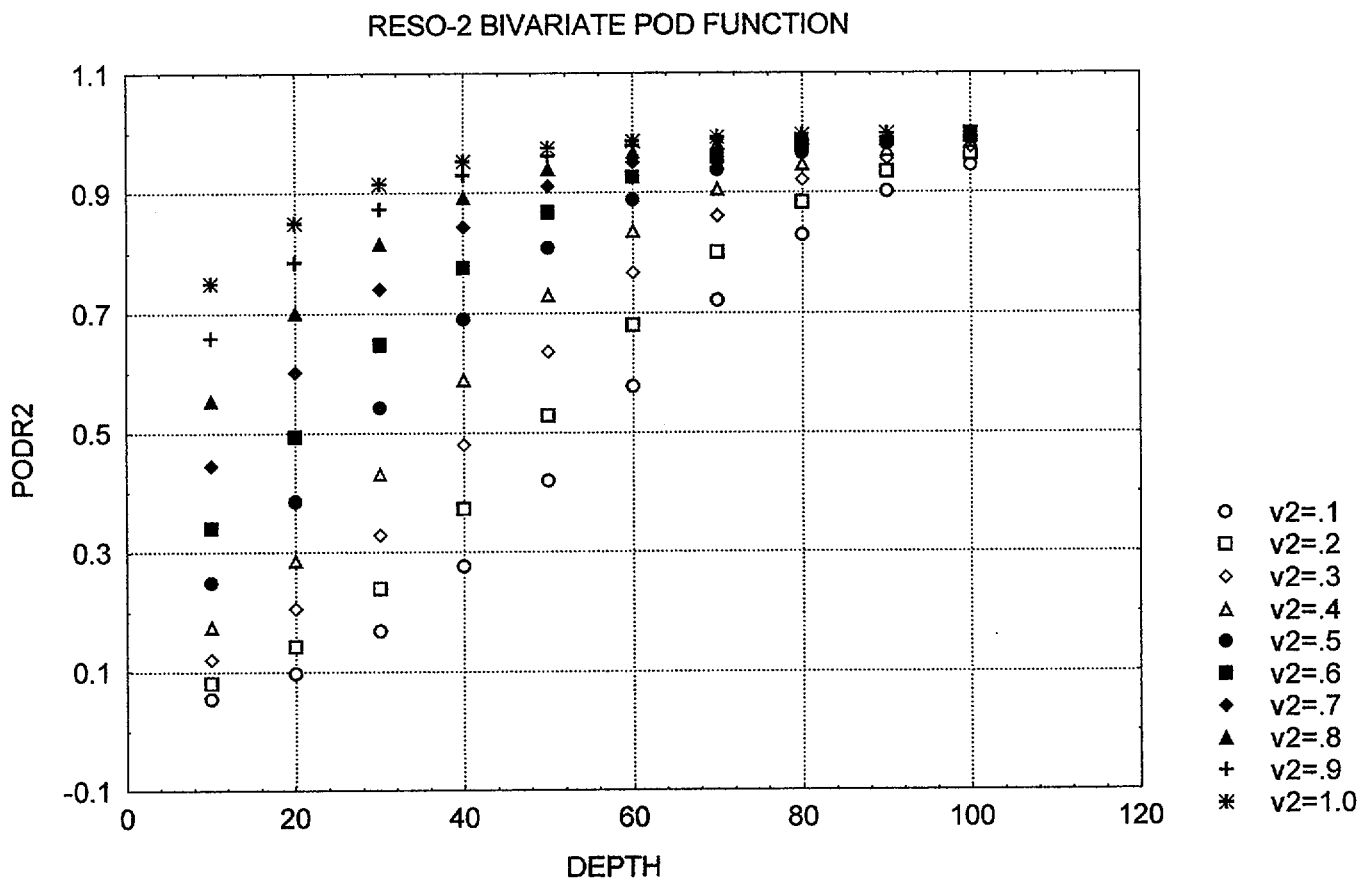
C2

Using this bi-variant function creates a method by which both parameters are considered when determining the probability of detection. Attached are graphics for each analyst teams that were developed from the SSPD. Each is a family of POD verses peak depth curves for signal voltages from 0.1 to 1.0 volts.

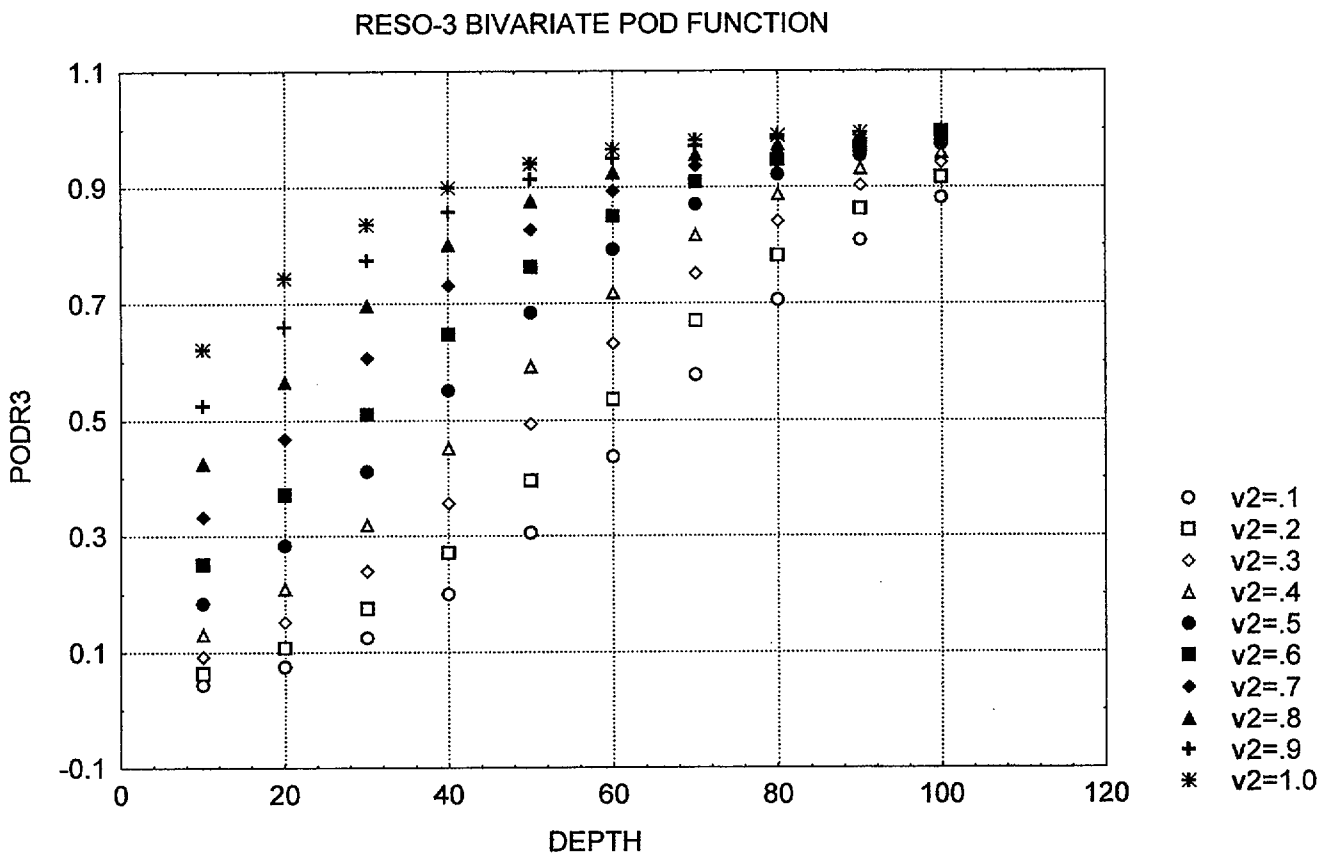
Attachment 1



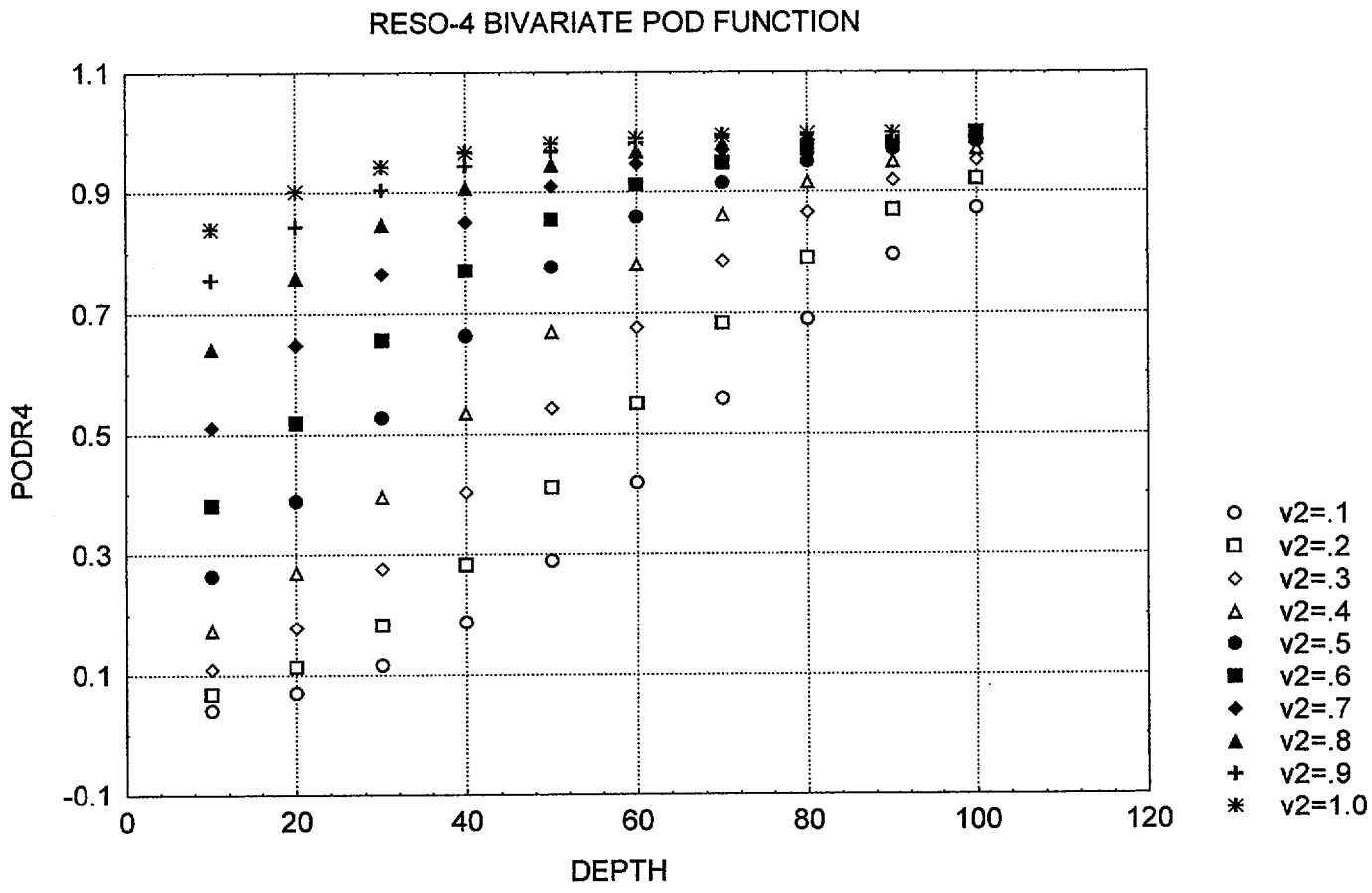
Team 1 Results



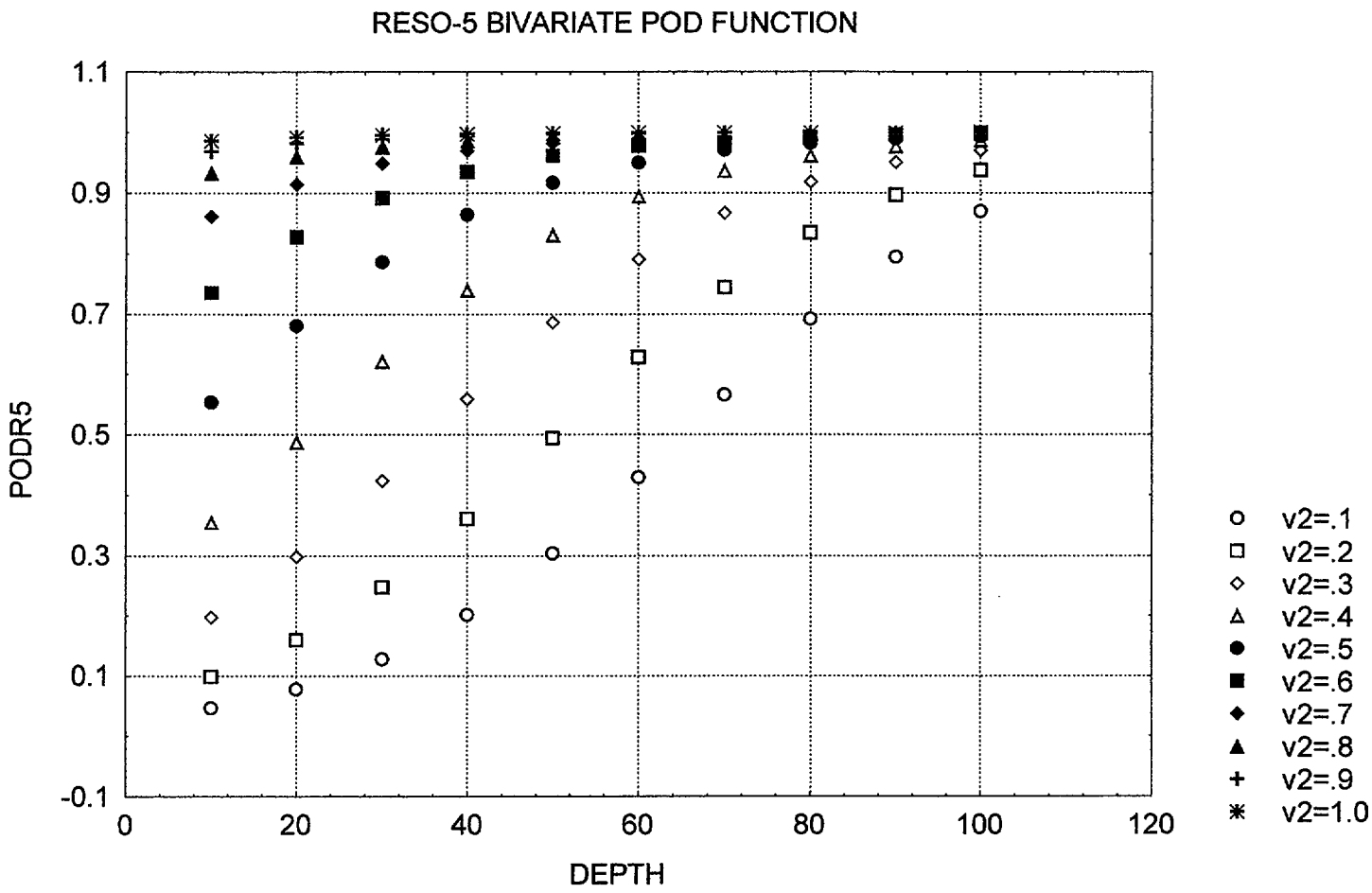
Team 2 Results



Team 3 Results



Team 4 Results



Team 5 Results

Attachment 4

Additional Mp Data for ANO-2, Revision 1

Additional Mp Data for ANO2 Revision 1
June 6, 2000

The attached table of data was previously submitted that contained an error. The original table had the M values instead of Mp values listed under MP50. The attached table has been corrected. The following is an explanation of the data:

1. Uses the 185 indications identified in 2P99 by individual flaws.

2. The bobbin volts are based on the mix channel response.

3. The Mp data is the median value.

4. The POD is the average of the 5 curves using both maximum depth and bobbin voltage as inputs.

5. Maximum depth is based on the RPC profile data

6. Length is based on the RPC raw data measurement.

The following are descriptions of the titles:

ROW	Tube Row
COL	Tube Column
TSP	Tube Support Plate
POS	Tube Position
AVG DEP	Average Depth
MAX DEP	Maximum Depth
Bobbin Volts	Bobbin Volts
LENGTH	Length
MP50	Mp (median value)
PODAV	Average POD Value

Mp Values with Corresponding Bobbin Bolts and POD Revision 1

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
1	72	72	02H	0.27	80.95	92	0.99	1.34	3.6790	0.99767
2	102	110	02H	0.06	82.66	99	0.68	1.55	3.4272	0.99300
3	8	134	01H	0.48	90.09	100	2.49	0.56	3.4206	1.00000
4	102	98	02H	0.24	79.61	94	0.23	0.6	2.8097	0.90719
5	53	83	01H	0.1	78.23	98	0.71	0.64	2.6026	0.99363
6	17	49	06H	0.58	74.39	87	0.44	0.77	2.5952	0.95502
7	1	51	04H	0.49	71.94	86	0.6	0.95	2.4899	0.97883
8	32	108	01H	-0.18	65.06	81	1.66	0.55	2.4328	0.99977
9	32	108	01H	-0.61	57.71	98	1.66	0.68	2.4119	0.99991
10	23	55	02H	0.29	63.74	79	0.3	1.39	2.3588	0.86605
11	47	91	01H	0.49	67.57	79	1.1	0.91	2.2752	0.99707
12	26	40	02H	0.63	75.14	92	0.19	0.64	2.2517	0.87526
13	36	36	02H	0.33	62.88	73	0.42	1.03	2.1836	0.89927
14	9	115	01H	-0.66	68.15	88	0.43	0.49	2.1749	0.95506
15	36	116	01H	0.57	54.60	67	0.7	0.78	2.1581	0.96380
16	16	140	03H	-0.39	57.05	69	0.89	0.71	2.1224	0.98660
17	48	52	01H	0.72	59.18	71.5	0.49	0.66	2.1156	0.92232
18	33	71	01H	0.46	70.58	82	0.34	0.69	2.0945	0.90435
19	28	36	02H	0.35	62.52	90	0.34	0.49	2.0823	0.93567
20	32	100	01H	0.16	73.49	97	1.82	0.52	2.0667	0.99995
21	32	46	02H	0.7	68.32	82	0.82	0.62	2.0612	0.99096
22	4	156	02H	0.72	59.06	70	0.41	0.5	2.0299	0.87798
23	5	153	07H	0.37	89.07	97	0.62	0.59	1.9862	0.98944
24	10	150	01H	0.41	75.57	85.5	0.66	0.38	1.9768	0.98384
25	68	44	03H	0.54	56.22	85	0.19	0.98	1.9719	0.82881
26	33	109	01H	-0.41	61.34	68	0.32	0.81	1.9381	0.79940
27	33	71	01H	-0.53	64.38	91	0.34	0.42	1.9155	0.93884
28	58	106	01H	-0.52	64.01	91	0.41	0.55	1.9152	0.95737
29	37	95	01H	-0.55	56.73	72	0.51	0.99	1.9004	0.93118

Mp Values with Corresponding Bobbin Bolts and POD Revision 1

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
30	32	108	01H	0.19	64.82	82.5	1.49	0.49	1.8991	0.99957
31	67	57	01H	0.79	75.65	85	0.66	0.43	1.8785	0.98339
32	106	90	02H	0.54	67.85	91.5	0.41	0.71	1.8737	0.95846
33	84	76	01H	0.63	72.09	91	0.48	0.49	1.8684	0.97026
34	10	16	02H	0.38	55.83	74	0.49	0.94	1.8577	0.93155
35	77	113	01H	0.39	60.17	79	0.71	0.56	1.8490	0.98195
36	9	127	01H	0.75	67.60	84	0.37	0.39	1.8351	0.92534
37	77	125	02H	0.36	62.31	89	0.3	0.82	1.8334	0.91709
38	47	93	01H	-0.6	57.64	69.5	0.29	0.76	1.8323	0.78587
39	12	106	01H	0.61	54.73	65	0.39	0.78	1.8273	0.83150
40	16	118	01H	0.49	54.41	69	0.35	0.81	1.8119	0.83184
41	9	115	01H	0.49	70.92	96	0.43	0.78	1.7990	0.97040
42	95	45	02H	0.64	63.85	86	0.43	0.43	1.7911	0.95017
43	29	123	04H	0.52	69.31	77	0.39	0.84	1.7854	0.90433
44	48	96	01H	-0.12	53.30	67	0.41	0.96	1.7844	0.85945
45	7	61	02H	0.62	59.73	96	0.37	0.46	1.7768	0.95947
46	13	31	02H	-0.05	56.73	90	0.6	0.85	1.7688	0.98294
47	60	44	02H	0.43	54.26	72	0.25	0.9	1.7677	0.77126
48	49	77	01H	0.78	85.14	97.5	0.52	0.39	1.7615	0.98288
49	4	20	01H	-0.11	59.06	68.5	1.55	0.71	1.7440	0.99926
50	68	112	02H	-0.03	58.36	69	0.55	0.69	1.7416	0.93375
51	20	52	01H	0.75	62.59	79	0.53	0.51	1.7396	0.95652
52	52	36	01H	0.58	54.22	73	0.32	0.75	1.7358	0.83922
53	1	51	03H	0.58	56.91	69	0.63	0.62	1.7352	0.95469
54	65	97	02H	-0.5	55.51	69	0.55	0.58	1.7288	0.93375
55	47	93	01H	-0.31	52.57	65	0.29	0.97	1.7214	0.74218
56	63	115	01H	0.05	66.35	78	0.44	0.64	1.7144	0.92868
57	8	148	01H	0.6	54.82	72	0.49	0.65	1.6857	0.92425
58	12	106	01H	-0.39	51.75	63	0.47	0.85	1.6670	0.87078

Mp Values with Corresponding Bobbin Bolts and POD Revision 1

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
59	65	125	02H	-0.71	63.46	72	0.52	0.46	1.6612	0.93441
60	36	116	01H	0.62	63.02	75	0.7	0.39	1.6478	0.97646
61	42	38	01H	0.52	51.38	72	0.41	0.39	1.6461	0.88913
62	28	44	01H	-0.01	51.47	93	0.69	1.58	1.6457	0.99074
63	63	123	02H	0.4	81.83	93	0.31	0.59	1.6417	0.93542
64	48	52	01H	0.66	72.17	84	0.49	0.51	1.6344	0.95916
65	60	108	01H	0.13	52.86	62	0.41	1.14	1.6291	0.82343
66	77	83	02H	-0.33	68.27	85	0.22	0.38	1.6230	0.85132
67	60	108	01H	0.63	57.33	67	0.41	1.08	1.6218	0.85945
68	12	62	01H	0.3	51.19	69	0.37	0.44	1.6193	0.84633
69	10	150	03H	0.37	78.14	97	1.32	0.59	1.6162	0.99961
70	4	28	01H	-0.46	51.26	64	0.67	0.72	1.6080	0.95118
71	11	143	01H	0.69	79.25	86.5	0.33	0.33	1.5848	0.91940
72	16	140	03H	0.46	66.39	76	0.89	0.72	1.5833	0.99092
73	38	110	01H	0.69	44.81	73	0.36	0.89	1.5809	0.86632
74	42	38	01H	0.04	80.03	92	0.41	0.7	1.5796	0.95953
75	13	55	01H	0.12	51.43	68	0.87	0.59	1.5772	0.98447
76	75	89	02H	0.75	77.66	92	0.77	0.49	1.5690	0.99339
77	11	155	02H	0.76	60.39	79	0.58	0.4	1.5662	0.96600
78	11	13	03H	0.13	65.54	82	0.24	0.54	1.5648	0.84505
79	104	116	01H	-0.58	68.75	83	0.2	0.23	1.5572	0.82154
80	89	73	02H	0.55	52.38	74	0.24	0.67	1.5429	0.78035
81	4	156	02H	-0.44	65.18	82	0.41	0.83	1.5428	0.93240
82	115	65	02H	0.4	54.06	66	0.55	0.41	1.5422	0.92284
83	75	85	03H	0.56	57.52	69	0.49	0.67	1.5368	0.91198
84	92	102	02H	0.62	68.08	81	0.24	0.35	1.5315	0.83792
85	38	144	03H	-0.59	72.77	85	0.3	0.36	1.5292	0.89925
86	65	119	01H	-0.57	45.86	68	0.3	0.53	1.5253	0.78140
87	36	116	01H	0.17	61.93	81	0.7	0.72	1.5237	0.98301

Mp Values with Corresponding Bobbin Bolts and POD Revision 1

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
88	67	111	01H	-0.48	56.96	73	0.52	0.59	1.5233	0.93768
89	84	112	02H	0.51	59.16	98	0.44	0.79	1.5196	0.97472
90	106	90	02H	-0.24	62.79	92	0.41	0.61	1.5115	0.95953
91	14	112	04H	0.56	47.13	67	0.22	0.59	1.4994	0.68584
92	40	116	01H	0.53	57.66	84	0.83	0.46	1.4988	0.99228
93	23	143	01H	-0.33	34.03	47	0.38	0.27	1.4891	0.63873
94	10	150	01H	0.66	55.20	69	0.66	0.46	1.4876	0.96070
95	2	34	02H	0.1	60.78	86	0.2	0.94	1.4832	0.84374
96	28	36	02H	-0.19	53.76	75	0.34	0.44	1.4811	0.86633
97	12	56	02H	0.69	56.10	89	0.5	0.54	1.4732	0.97015
98	32	148	03H	0.53	68.59	79	0.36	0.56	1.4668	0.89963
99	67	119	01H	-0.1	79.31	93	0.26	0.31	1.4624	0.91644
100	33	117	05H	0.64	46.95	58	0.25	0.42	1.4552	0.61279
101	16	140	02H	0.68	52.12	61	0.62	0.23	1.4524	0.92814
102	52	82	01H	0.52	42.18	64	0.31	0.67	1.4460	0.75253
103	21	109	01H	0.55	66.42	78	0.32	0.52	1.4447	0.87236
104	104	116	01H	0.34	59.29	80	0.2	0.29	1.4364	0.79689
105	45	89	01H	0.64	56.67	65	0.33	0.39	1.4347	0.78153
106	6	116	01H	-0.21	42.64	56	0.4	0.55	1.4326	0.76174
107	75	91	02H	0.11	63.89	85	0.3	0.56	1.4316	0.89925
108	49	19	04H	0.8	55.72	68.5	0.54	0.34	1.4308	0.92874
109	24	24	01H	0.53	38.77	74.5	0.18	0.26	1.4171	0.72352
110	117	89	01H	-0.48	52.58	62.5	0.59	0.42	1.4145	0.92354
111	38	110	01H	0.57	51.90	70	0.36	0.54	1.4107	0.84639
112	53	109	01H	-0.65	45.74	60	0.56	0.57	1.4042	0.90064
113	47	145	02H	0.6	61.02	88	0.39	0.41	1.4036	0.94488
114	12	148	02H	0.18	54.98	78	0.43	0.53	1.4013	0.92509
115	35	33	03H	0.48	80.71	99	0.24	0.18	1.3850	0.93097
116	40	56	03H	0.68	61.88	74	0.59	0.39	1.3846	0.95782

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
117	31	49	01H	0.75	40.81	69	0.22	0.77	1.3676	0.70858
118	7	119	01H	-0.13	52.23	73	0.48	0.29	1.3661	0.92443
119	119	65	04H	0.56	56.07	73	0.24	0.57	1.3582	0.77101
120	3	57	01H	-0.71	40.06	68	0.14	0.59	1.3575	0.59673
121	83	109	01H	0.65	45.98	65	0.64	0.3	1.3511	0.94671
122	102	98	01H	0.4	48.91	77	0.26	0.35	1.3436	0.82334
123	31	125	01H	-0.47	35.89	57	0.41	0.59	1.3432	0.78059
124	46	126	01H	0.6	49.03	62.5	0.25	0.44	1.3401	0.66885
125	45	69	02H	-0.56	50.45	60.5	0.45	0.44	1.3362	0.84135
126	40	116	01H	0.62	53.50	65.5	0.83	0.59	1.3329	0.97857
127	121	113	01H	-0.65	45.24	73	0.75	0.25	1.3315	0.97932
128	89	51	01H	0.05	50.59	61.5	0.59	0.38	1.3302	0.91958
129	23	143	02H	-0.21	42.15	64	0.37	0.8	1.3270	0.80776
130	86	118	01H	0.39	38.84	60.5	0.41	0.52	1.3256	0.81131
131	39	111	01H	0.61	48.30	75	0.51	0.29	1.3249	0.94097
132	24	136	03H	0.21	60.43	83	0.29	0.31	1.3147	0.88355
133	58	106	01H	0.35	43.07	64	0.41	0.55	1.3102	0.83864
134	32	24	01H	0.59	58.84	68.5	0.31	0.28	1.3091	0.79499
135	18	126	01H	0.62	40.18	52	0.48	0.56	1.3059	0.79634
136	83	109	01H	-0.33	47.22	63	0.64	0.45	1.3027	0.94087
137	20	132	02H	-0.07	44.10	51	0.24	0.46	1.2960	0.50564
138	34	52	06H	0.89	41.01	55	0.62	0.43	1.2891	0.90292
139	9	125	01H	0.35	50.99	61	0.27	0.46	1.2821	0.67516
140	27	127	04H	0.62	33.29	50	0.36	0.62	1.2748	0.65128
141	6	138	01H	0.61	43.40	53	0.55	0.28	1.2736	0.85488
142	75	45	02H	-0.38	52.71	61	0.31	0.4	1.2709	0.72110
143	4	150	01H	-0.48	28.90	56	0.26	0.75	1.2692	0.60000
144	5	3	01H	0.61	43.34	52	0.43	0.87	1.2621	0.75103
145	12	30	01H	0.73	44.94	52	0.53	0.44	1.2569	0.83459

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
146	55	95	01H	0.69	35.66	60	0.29	0.75	1.2545	0.68716
147	84	112	02H	-0.72	58.54	71	0.44	0.37	1.2530	0.89899
148	44	72	01H	0.07	53.64	95	0.29	0.45	1.2522	0.93518
149	7	113	01H	0.6	65.75	92	0.87	0.33	1.2498	0.99591
150	26	144	01H	-0.3	46.27	58	0.37	0.31	1.2472	0.75230
151	1	137	01H	-0.36	33.71	61	0.44	0.59	1.2452	0.83797
152	27	127	02H	0.51	22.58	34	0.36	0.82	1.2265	0.44032
153	3	141	01H	0.33	42.42	56.5	0.3	0.45	1.2252	0.65741
154	52	82	01H	0.05	31.62	56.5	0.31	0.34	1.2225	0.66957
155	6	140	02H	-0.52	42.86	57	0.22	0.36	1.2186	0.55948
156	61	115	02H	0.55	33.79	45	0.33	0.62	1.2140	0.54771
157	8	128	01H	0.7	41.54	65	0.55	0.52	1.2126	0.91886
158	42	78	01H	-0.72	56.03	68	0.36	0.72	1.2055	0.83180
159	16	116	05H	0.43	32.45	50.5	0.33	0.65	1.2052	0.62003
160	42	142	01H	0.54	49.59	61	0.33	0.41	1.2040	0.74236
161	136	88	01H	0.36	37.79	70	0.33	0.44	1.1976	0.82416
162	6	136	01H	-0.39	48.81	64	0.37	0.38	1.1923	0.80776
163	120	114	03H	0.81	57.03	67	0.56	0.28	1.1835	0.93002
164	123	99	01H	-0.34	31.70	53	0.27	0.59	1.1776	0.57379
165	11	143	01H	-0.15	50.78	69	0.33	0.39	1.1750	0.81619
166	74	66	01H	0.79	39.47	69	0.68	0.65	1.1736	0.96425
167	34	130	02H	0.47	23.67	44	0.44	0.48	1.1686	0.67392
168	7	119	01H	0.14	48.16	67	0.48	0.29	1.1580	0.89819
169	104	100	02H	0.36	66.75	81.5	0.29	0.85	1.1540	0.87500
170	86	104	01H	-0.49	35.29	54	0.37	0.42	1.1535	0.70983
171	10	148	01H	0.8	46.19	56	0.35	0.33	1.1456	0.71003
172	13	57	01H	0.71	40.11	58	0.75	0.39	1.1432	0.95367
173	38	114	02H	-0.11	47.70	63	0.32	0.42	1.1349	0.75257
174	92	100	02H	0.63	48.80	67	0.46	0.68	1.1320	0.88828

	ROW	COL	TSP	POS	AVG DEP	MAX DEP	Bobbin Volts	LENGTH	MP50	PODAV
175	66	28	02H	-0.56	50.50	66	0.27	0.36	1.1275	0.73144
176	9	127	01H	-0.48	24.13	33	0.37	0.36	1.1193	0.44057
177	6	138	01H	0.73	28.68	41.5	0.55	0.4	1.1171	0.76038
178	62	36	03H	0.35	17.96	61	0.34	0.59	1.1136	0.75255
179	5	21	03H	0.15	56.10	72	0.32	0.43	1.1020	0.83181
180	23	143	01H	0.81	30.46	52.5	0.38	0.25	1.0964	0.70409
181	11	135	03H	-0.28	33.88	47	0.22	0.33	1.0764	0.42365
182	4	150	01H	0.68	45.95	66	0.26	0.43	1.0680	0.72053
183	84	116	02H	0.65	33.46	56.5	0.36	0.82	1.0621	0.72637
184	53	109	01H	-0.02	24.88	47	0.56	0.15	1.0478	0.81748
185	57	83	01H	0.46	35.93	53	0.27	0.49	1.0470	0.57379

Attachment 5

RPC Confirmation Rates for 2R13 and 2P99

	2R13			2P99		
SG	DSI	SAI/ MAI	RPC Conf. Rate	DSI	SAI/ MAI	RPC Conf. Rate
SGA	163	38	23.3%	265	49	18.5%
SG B	158	71	48.0%	202	185	91.6%
Total	321	109	34.0%	467	234	50.1%