Florida
Power
CORPORATION
Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72

February 9, 2000
3F0200-01

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Special Report 00-01: Results of the Once-Through Steam Generator (OTSG) Tube Inservice Inspection Conducted During Refuel Outage 11

References:
1. FPC to NRC Letter, 3F1199-03, dated November 5, 1999, "Crystal River Unit 3 - Special Report 99-03: Once Through Steam Generator (OTSG) Notifications Required Prior to MODE 4 and Results of OTSG Tube Inspections that Fall into Category C-3"
2. FPC to NRC Letter, 3F0897-09, dated August 20, 1997, "Request for Additional Information Regarding Technical Specification Change Request Notice No. 211, Revision 0"

Dear Sir:

The purpose of this letter is to submit Florida Power Corporation's (FPC) Special Report 00-01, "Results of the Once-Through Steam Generator (OTSG) Tube Inservice Inspection Conducted During Refuel Outage 11." This report is provided pursuant to Improved Technical Specification (ITS) 5.7.2.e, which requires submittal of the report to the NRC within 90 days following output breaker closure. Breaker closure for CR-3 occurred on November 12, 1999.

Special Report 00-01 contains the following information:

1. Number and extent of tubes inspected,
2. Location and percent of wall-thickness penetration for each indication of an imperfection,
3. Location, bobbin coil amplitude, and axial and circumferential extent (if determined) for each first span IGA indication, and
4. Identification of tubes plugged or repaired, and specification of the repair methodology implemented for each tube.

Also included in Special Report 00-01 is a summary of FPC's assessment of the inspection results previously identified in FPC's Mode 4 Report [Reference 1]. The summary includes FPC's basis for a 24-month OTSG inspection interval for Cycle 12.

FPC is also providing additional information regarding first span IGA in OTSG-B in Attachment 2. The additional information includes the axial distribution, percent through-wall

(TW) distribution, voltage distribution and percent TW growth distribution of first span intergranular attack (IGA) in OTSG-B. The additional information is consistent with the content of the growth studies discussed in Reference 2.

This letter establishes no new regulatory commitments. If you have any questions regarding this submittal, please contact Mr. Sid Powell, Manager, Nuclear Licensing at (352) 563-4883.

Sincerely,

Daniel L. Roderick

D. L. Roderick
Director, Nuclear Engineering & Projects

DLR/lvc/pmp

Attachments: 1. Special Report 00-01: Results of Once-Through Steam Generator (OTSG) Tube Inservice Inspection Conducted During Refuel Outage 11.

2. Axial Distribution, Percent TW Distribution, Voltage Distribution and Percent TW Growth Distribution of First Span IGA in OTSG-B.

xc: Regional Administrator, Region II
NRR Project Manager
Senior Resident Inspector

ATTACHMENT 1

SPECIAL REPORT 00-01

RESULTS OF THE ONCE-THROUGH STEAM GENERATOR TUBE INSERVICE INSPECTION CONDUCTED DURING REFUEL OUTAGE 11

SPECIAL REPORT 00-01

RESULTS OF THE ONCE-THROUGH STEAM GENERATOR TUBE INSERVICE INSPECTION CONDUCTED DURING REFUEL OUTAGE 11

Introduction

Inservice inspection (ISI) of the Crystal River Unit 3 (CR-3) Once-Through Steam Generator (OTSG) tubes was performed during Refueling Outage 11 (11R), October 1 through November 12, 1999. In accordance with Improved Technical Specifications (ITS) Section 5.7, Reporting Requirements, Florida Power Corporation (FPC) is submitting Special Report 00-01. A diagram of an OTSG is attached in Figure 1.

ITS Section 5.7.2.e states:

> *The complete results of the OTSG tube inservice inspection shall be submitted to the NRC within 90 days after breaker closure following restart. The report shall include:*
>
> 1. *Number and extent of tubes inspected,*
> 2. *Location and percent of wall-thickness penetration for each indication of an imperfection,*
> 3. *Location, bobbin coil amplitude, and axial and circumferential extent (if determined) for each first span IGA indication, and*
> 4. *Identification of tubes plugged or repaired and specification of the repair methodology implemented for each tube.*

The following information is presented to satisfy ITS Section 5.7.2.e requirements:

1. *Number and extent of tubes inspected,*

   The eddy current testing (ECT) inspection plan and selection of techniques for the OTSG tubes were designed to detect certain degradation mechanisms for each area of the OTSG. The ISI of the OTSG tubes during 11R satisfies the requirements of ITS Section 5.6.2.10. The OTSG tubes were inspected using techniques qualified in accordance with industry protocol, Electric Power Research Institute (EPRI) PWR Steam Generator Examination Guidelines, Revision 5, Appendix H.

   Two ECT techniques were used to inspect the OTSG tubes as detailed below. ECT techniques are based on the type of probe used for the inspection; bobbin or motorized rotating pancake coil (MRPC). The bobbin coil is used for the entire length of the tube, tube end to tube end. Indications identified using the bobbin coil were further characterized using MRPC (containing 0.115" pancake coil and a Plus Point coil). MRPC is qualified to detect primary water stress corrosion cracking

(PWSCC) in the upper tube sheet (UTS) region, intergranular attack (IGA), and outside diameter stress corrosion cracking (ODSCC) in the lower tube sheet (LTS) and sleeved tubes.

The bobbin coil was used to examine 100% of the tubes in service in both OTSGs to the fullest extent possible (15,380 tubes in OTSG-A, 14,897 in OTSG-B).

MRPC was used to examine the following specific areas of OTSG-A:

- 100% UTS roll area
- 100% LTS Crevice in the kidney region
- 20 % Tubes in the Lane and Wedge region (UTS and 15th Support Plate)
- 20% Sleeved Tubes
- 20% Dents in the sludge Pile Region
- 20% Plugs
- Further characterization of indications identified by the bobbin coil exam.

MRPC was used to examine the following specific areas of OTSG-B:

- 100% UTS roll area
- 40% LTS Crevice in the kidney region
- 20 % Tubes in the Lane and Wedge region (UTS and 15th Support Plate)
- 100% Sleeved Tubes
- 20% Dents in the sludge Pile Region
- 20% Plugs
- Further characterization of indications identified by the bobbin coil exam.

Inspection Summary

The bobbin coil inspection resulted in the A and B OTSG being classified with Category C-2 inspection results in accordance with ITS 5.6.2.10. The remaining areas inspected were calculated independently for categorization to identify if further actions were necessary to determine the extent of degradation. The separate inspection areas were then combined to determine the overall Category of the OTSG. The UTS roll area is a "Specific Limited Area" as defined in the Improved Technical Specifications, Section 5.6.2.10.d. The calculation for the overall categorization of the OTSGs did not include the UTS in accordance with ITS Section 5.6.2.10.d.

Table 1

OTSG-A Examination	Tubes Examined	Number Degraded	Number Defective
Bobbin Examination (Special Interest)	15, 380	231	7
Upper Tube Sheet Roll Area	15,217	1123*	839*
Lower Tube Sheet Crevice region	3,195	0	36
Lane & Wedge Region	148	0	1
Sleeved Tubes	33	0	0
Repairs (Plugs)	38	0	0
TOTAL		231	44**
CLASSIFICATION		C-2	C-2

* Consistent with ITS 5.6.2.10.d, this total was not included for overall categorization of the OTSG for Specific Limited area.

** Additional 8 tubes were preventatively plugged for other reasons (over-rolling, leakage without ECT indication corresponding and multiple dent indications.)

Table 2

OTSG-B Examination	Tubes Examined	Number Degraded	Number Defective
Bobbin Examination (Special Interest)	14,897	552	8
Upper Tube Sheet Roll Area	14,735	1399*	793*
Lower Tube Sheet Crevice region	894	0	0
Lane & Wedge Region	148	0	0
Sleeved Tubes	162	0	3
Repairs (Plugs)	38	0	0
First Span IGA (LTS to 1st Support Plate)	159	145	45
TOTAL		697	56**
CLASSIFICATION		C-2	C-2

* Consistent with ITS 5.6.2.10.d, this total was not included for overall categorization of the OTSG for Specific Limited area.

** Additional 13 tubes were preventatively plugged for other reasons (over-rolling, leakage without ECT indication corresponding and multiple dent indications.)

2. *Location and percent of wall-thickness penetration for each indication of an imperfection.*

   Percent through-wall degradation is only assigned to tube support plate wear indications and OTSG-B first span IGA indications. A complete list of inspection results for inservice tubes with indications 1% to 39% through-wall in OTSG-A and OTSG-B is provided in Appendix 1 of this Attachment. A complete listing of tubes with first span IGA indications in OTSG-B is provided in Appendix 2.

3. *Location, bobbin coil amplitude, and axial and circumferential extent (if determined for each first span IGA indication*

First span IGA is a degradation mechanism specific to OTSG-B. Prior to the 1999 inspection, there were 159 known tubes with first span IGA in service. As a result of this inspection, fourteen (14) tubes from this population were plugged and forty-two (42) additional tubes were identified with first span IGA. Of theses 42 tubes, 30 tubes were plugged based on no previous sizing data. Twelve (12) tubes were added to the population of tubes with first span IGA remaining in service in OTSG-B. There are a total of 157 tubes in OTSG-B in-service with first span IGA. Appendix 2 contains the list of tubes in OTSG-B with first span IGA.

4. *Identification of tubes plugged or repaired and specification of the repair methodology implemented for each tube.*

   Tubes identified with unacceptable indications were plugged by using a threaded plug rolled into both ends of the tube. A complete list of plugged tubes in OTSG-A and OTSG-B is provided in Appendix 3.

   Tubes with unacceptable indications in the UTS within the roll-transition area were repaired using a repair roll (re-roll) as described in ITS 5.6.2.10.11.b. A complete list of tubes repaired by the re-roll method in OTSG-A and OTSG-B is provided in Appendix 4.

   No tubes were sleeved during the 1999 OTSG inspection.

   Tubes with axially oriented tube end cracks (TEC) within the Inconel clad region of the primary face of the UTS were left in-service using the method described in Topical Report BAW-2346P, Revision 0, as approved in License Amendment No. 188 issued October 1, 1999. The through-wall extent is conservatively assumed to be 100%. Therefore, a leakage value based on tube sheet radial position has been assigned to each TEC to calculate the potential primary-to-secondary leakage in the event of a design basis accident. Other indications of wall loss or cracking are plugged or repaired on detection and are not assigned a percent wall penetration.

   A complete list of the tubes remaining in service with TEC is in Appendix 5.

Bubble Test

The primary-to-secondary leakage in the OTSGs was approximately seven gallons-per-day (gpd) prior to shutdown for 11R. Therefore, FPC performed a secondary-to-primary leakage test inservice inspection of the OTSGs. The leakage test was to identify potential primary-to-secondary leak paths in the UTS region in both OTSGs. The secondary side of the OTSG was filled to the 14th support plate with water and then pressurized with nitrogen between the 14th support plate and the UTS. The water level on the primary face of the UTS

was raised to approximately two inches of water to provide a medium to support bubbles for identifying tube leakage.

Twenty-one (21) leak sites were identified in OTSG-A and thirty-eight (38) leak sites were identified in OTSG-B. All tubes identified with leakage during the bubble test were repaired by re-rolling or plugging. Several leak sites were from TEC. Tubes identified as leak sites without a corresponding ECT indication were conservatively removed from service. Primary-to-secondary leakage after 11R has been reduced to approximately one gpd.

In-situ Pressure Test

FPC performed in-situ pressure testing of four tubes in OTSG-A. The tubes were selected due to circumferential crack-like indications approximately 0.25" below the secondary face of the LTS. The indications represented the largest radial indication and largest response voltage.

The test pressure was equivalent to simulate a Main Steam Line Break accident. No leakage from the tubes occurred. The indications were re-tested with ECT following the pressure test and no change in size or voltage was noted.

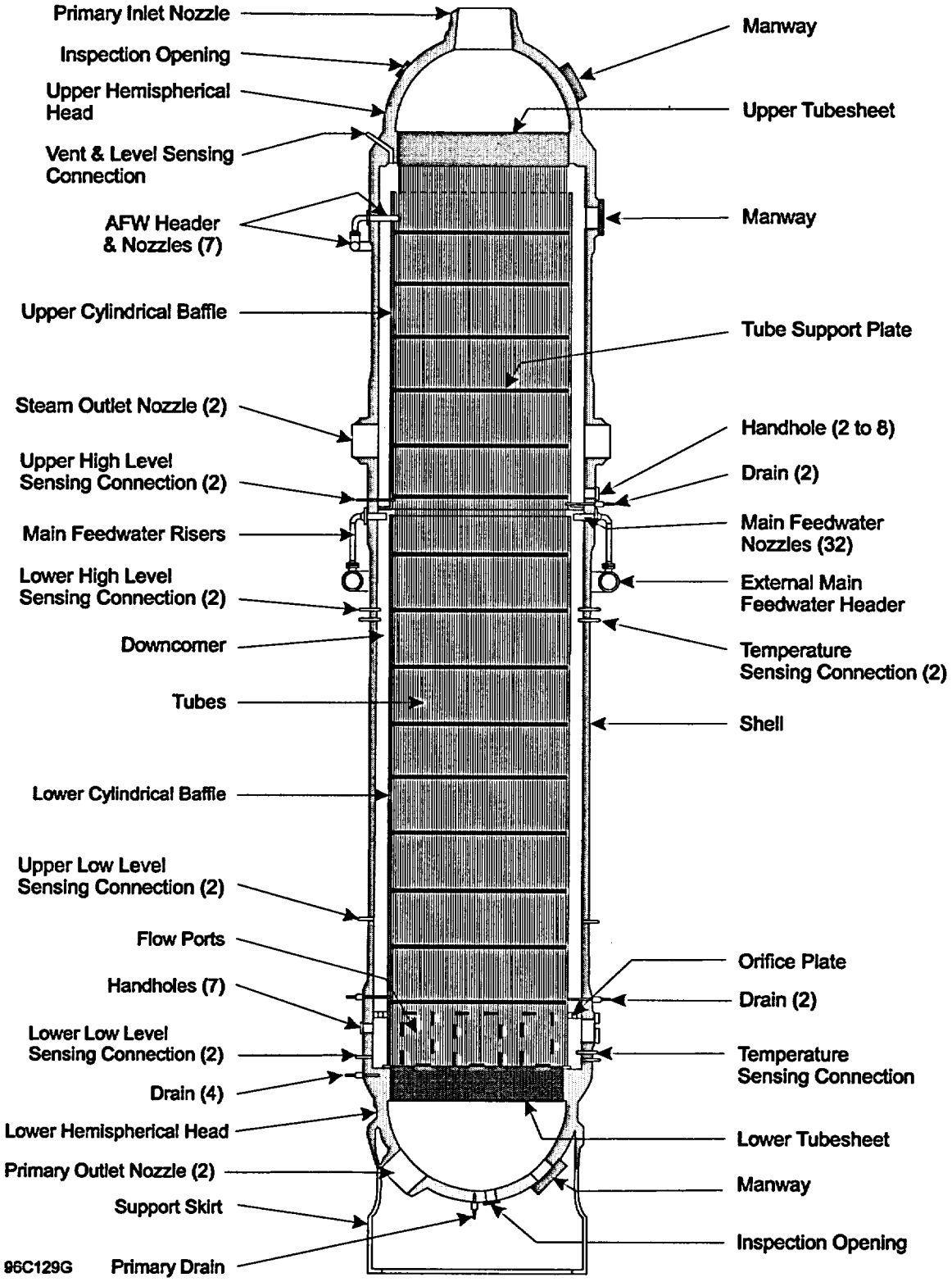
Conclusion

The Operational Assessment (OA) evaluated the degradation mechanisms of the CR-3 OTSG tubes. The evaluation concluded that the tubes would maintain structural integrity with reasonable assurance throughout fuel cycle 12. This is based on the inspection results, in-situ testing results, and worst-case Monte Carlo type simulations. Additionally, this was the second consecutive 100% full length bobbin coil and UTS MRPC inspection of the inservice tubes.

The bobbin coil inspection resulted in Category C-2 as described in ITS 5.6.2.10. The overall classification for the inspection performed was C-2 for both steam generators. The classification of the 100% upper tube end "Specific Limited Area" inspections in both steam generators was C-3. The UTS calculation was not included in the overall categorization of the OTSGs, as previously discussed.

Therefore, based on inspection results and the OA of the structural and leakage integrity of in-service OTSG tubing, the inspection interval between 11R and 12R will be 24 months.

ONCE-THROUGH STEAM GENERATOR



ATTACHMENT 1
SPECIAL REPORT 00-01

APPENDIX 1

TUBES LEFT IN-SERVICE WITH THROUGH-WALL INDICATIONS 1%-39%

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-A

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
2	8	0.74	95	28	12S	0.73
2	9	0.63	52	14	12S	0.69
4	28	0.35		4	08S	0.67
5	41	0.42		5	12S	0.71
6	25	0.85	78	13	09S	0.67
6	51	0.78		10	13S	0.82
7	21	0.61	61	23	11S	0.73
7	52	0.54		7	10S	0.77
8	22	0.53	75	8	07S	0.71
8	23	1.08		17	12S	0.70
8	28	0.66	107	10	08S	-0.68
		0.83	67	13	08S	0.67
8	30	0.63		8	07S	0.72
		0.49		6	07S	-0.74
9	42	0.49		6	08S	0.71
9	53	0.57		8	07S	0.68
10	57	0.24		3	07S	0.64
11	1	0.91		15	12S	0.74
11	7	1.36		21	12S	0.74
11	14	0.33	86	5	08S	0.84
12	1	0.75		12	09S	-0.61
12	18	0.47		6	07S	0.79
		0.54		7	07S	-0.52
12	70	0.91	88	18	10S	0.64
13	6	0.45	84	7	07S	-0.89
13	9	0.34	78	5	07S	-0.76
13	69	0.52		6	08S	0.59
14	8	0.65	69	10	07S	-0.75
15	6	0.68	83	11	08S	-0.80
15	30	1.25		14	06S	0.67
16	5	0.38	65	6	07S	-0.77
16	8	0.59	63	14	07S	-0.70
16	9	0.44	87	7	07S	-0.80
16	77	0.92	91	18	09S	-0.65
17	8	0.7	119	14	07S	-0.80
17	70	0.84		10	07S	0.63
17	75	0.5		6	08S	0.63
19	3	1.5		17	12S	0.69
19	75	0.78		9	07S	0.65
19	76	0.92	66	12	07S	0.67
24	88	0.57	122	8	08S	0.67
		1.04	81	15	08S	-0.67

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-A

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
25	7	0.32		3	08S	-0.81
26	94	1.01		11	08S	-0.74
26	95	1.12	91	26	08S	-0.74
27	98	1.57	89	19	08S	-0.80
28	9	0.79		9	07S	-0.79
29	98	0.57	74	8	12S	0.73
31	32	0.73	77	15	10S	0.68
32	101	0.4	62	6	04S	0.57
32	105	0.35	47	5	08S	0.61
34	86	0.59	72	4	15S	0.56
34	106	0.58	100	8	09S	0.67
36	113	0.71	71	14	02S	-0.80
37	114	0.46	115	10	11S	0.72
40	7	0.7		14	08S	-0.62
40	116	0.77	85	15	08S	0.54
41	116	0.79	66	10	11S	-0.78
44	118	0.38	79	8	08S	0.62
45	65	0.52	99	14	04S	0.71
52	5	0.78		14	09S	0.76
52	6	0.99		18	09S	0.77
52	11	0.54		10	03S	0.71
53	5	0.52		10	09S	0.73
54	4	0.89		10	09S	0.68
55	96	0.92	98	19	03S	0.69
55	119	0.54	75	10	08S	0.66
56	1	0.36		12	12S	0.64
56	3	0.97		17	10S	0.78
56	5	1.03		18	09S	0.70
57	1	0.56	94	17	10S	0.60
57	2	0.98		13	08S	0.78
57	127	1.17	72	22	10S	0.57
58	128	0.65	73	13	10S	0.37
59	2	1.25		12	08S	0.71
60	1	1.47		19	10S	0.77
61	1	1.78		23	10S	0.78
		0.89		12	09S	0.72
61	110	1.12	57	19	14S	0.70
61	124	1.53	91	27	10S	0.56
		0.32	109	7	08S	-0.70
62	4	0.84		12	07S	-0.70
62	124	0.36	43	6	08S	0.69
62	128	1.06	85	20	10S	0.01

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-A

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
		0.74	89	15	08S	-0.64
63	124	0.43	80	8	07S	-0.64
63	128	1.28	89	23	10S	0.60
		0.33	59	7	08S	-0.74
64	1	1.07		15	06S	-0.80
64	114	0.43	80	10	04S	0.01
64	128	0.53	62	11	12S	-0.69
65	87	0.6	53	13	04S	0.64
65	122	0.17	121	4	08S	0.48
65	128	0.53	76	11	08S	-0.64
65	129	1.56	90	28	10S	0.68
		0.47	98	10	08S	-0.66
66	126	0.73	64	14	07S	-0.76
66	130	0.82	105	16	12S	-0.73
67	6	1.34		18	10S	0.82
67	62	0.5	91	10	10S	0.77
67	129	1.05	93	20	10S	0.68
68	3	1		14	11S	0.73
68	130	0.4	105	8	11S	-0.82
69	5	1.07		14	11S	0.78
70	5	1.22		16	11S	0.77
70	16	0.93		13	11S	0.78
70	130	0.74	123	15	11S	0.69
		0.57	81	12	11S	-0.89
71	128	0.96		14	15S	-0.71
71	129	1.5	97	27	09S	0.34
72	3	0.69		10	12S	0.75
72	31	0.27		9	12S	0.73
72	38	0.95		13	11S	0.75
72	58	0.74	77	15	11S	0.67
72	127	1.23	92	23	10S	-0.65
73	20	0.92		6	12S	0.76
73	22	0.48		7	11S	0.74
73	57	0.36	112	9	10S	0.71
73	128	1.12	100	21	10S	-0.75
		1.35	86	25	09S	0.63
		0.57	81	12	08S	-0.56
74	123	0.36	97	7	08S	-0.33
75	29	1.25	64	13	07S	-0.70
75	123	1.34	104	24	11S	-0.61
		1.63	98	29	10S	-0.66
76	123	0.67	91	13	11S	0.03

Tubes In-Service with Through-Wall Indication 1%-39%

OTSG-A

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
		0.76	109	15	11S	-0.69
		0.65	117	13	10S	-0.74
		0.91	110	18	10S	0.69
77	17	1.07		28	07S	-0.78
77	65	0.2	102	5	09S	0.73
		0.35	136	9	09S	-0.68
77	76	1		12	07S	-0.80
77	80	2.16		23	05S	0.68
		1.33		15	05S	-0.63
		1.73		19	04S	0.69
		1.34		15	04S	-0.73
77	86	0.6		18	04S	0.65
78	123	1.13		16	08S	-0.65
78	125	1.26		18	09S	0.47
		0.62		9	09S	-0.45
79	19	0.7	87	8	10S	-0.68
		0.3	50	6	06S	0.70
79	35	0.71	69	9	10S	-0.74
79	38	0.61	75	8	10S	-0.79
79	95	1.08		13	04S	0.62
79	128	0.38		6	10S	-0.74
		0.81		12	10S	0.68
79	129	0.88		13	11S	-0.70
80	29	1.12	99	25	10S	-0.68
80	43	0.54	86	14	11S	0.65
80	66	0.53	73	11	07S	-0.77
80	131	0.36		5	11S	-0.79
81	29	0.7	85	17	10S	-0.70
81	30	0.92	68	21	10S	-0.75
81	34	1.06	89	24	10S	-0.73
81	46	0.72	105	18	10S	-0.79
81	48	0.9	68	21	10S	-0.74
81	73	0.35	89	9	09S	-0.73
81	130	0.95		14	11S	-0.72
		0.52		8	10S	-0.76
82	40	0.61	95	15	08S	-0.78
82	43	0.78	76	19	08S	-0.76
82	45	0.41	99	9	10S	0.71
82	53	0.8	81	19	10S	0.68
83	30	0.93	87	19	10S	-0.77
83	53	0.59	94	15	10S	0.71
83	54	0.81	73	17	10S	0.68

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-A

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
83	73	0.67	85	13	08S	-0.55
84	59	0.74	55	15	10S	-0.72
		0.49	74	10	10S	0.74
84	60	0.96	74	18	10S	-0.66
85	9	0.53		8	08S	-0.75
85	25	0.81	78	19	10S	-0.70
85	27	0.68	87	17	10S	-0.61
85	28	0.93	87	19	10S	-0.79
85	49	0.59	64	13	10S	0.69
85	50	0.56	45	12	10S	0.67
86	131	0.85		12	11S	-0.68
87	35	2.5	85	17	10S	-0.67
88	53	3.03	83	19	09S	0.69
89	73	0.48		4	04S	0.65
90	9	1.52		21	08S	-0.69
90	82	1.57		18	04S	0.60
92	89	0.85		10	04S	0.54
92	127	2.29		24	04S	0.57
93	88	0.93		11	04S	0.66
94	75	0.7		5	04S	0.65
94	129	2.24		23	11S	-0.74
		0.49		16	11S	-0.76
		1.6		18	08S	-0.70
		0.56		17	08S	-0.74
95	74	0.65		5	04S	0.76
95	87	0.61		18	04S	0.67
96	70	1.02	75	17	04S	0.72
96	127	0.43		14	10S	-0.69
		0.84	69	11	10S	-0.71
98	125	0.64	75	8	09S	-0.82
		0.48		15	09S	-0.68
101	7	0.37	39	7	07S	-0.76
101	55	0.66	100	14	05S	-0.67
101	79	0.53		17	04S	0.74
105	5	0.56	46	11	07S	-0.80
106	7	0.54	89	8	07S	-0.65
107	15	1	80	14	14S	-0.73
107	31	0.56	43	11	09S	0.82
109	98	0.4		8	07S	-0.80
109	117	0.5		10	10S	-0.75
111	48	0.18	95	2	05S	-0.73
112	93	0.24		5	15S	-0.80

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-A

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
114	109	0.44		9	07S	-0.83
115	47	0.45	122	9	05S	-0.81
115	50	0.14	63	2	05S	-0.81
115	63	0.16	63	4	05S	-0.70
116	6	0.83		24	07S	-0.69
117	1	0.49	111	7	08S	0.78
117	34	0.88		25	05S	-0.71
119	3	0.57	92	9	08S	0.62
120	1	0.4		13	08S	0.83
121	94	0.36	73	6	09S	-0.70
121	105	1.01	69	15	10S	0.74
122	104	0.41	78	7	09S	0.65
123	1	0.72		21	12S	0.67
		0.98		27	11S	-0.65
		0.44		8	08S	0.76
125	63	0.94	83	16	08S	0.64
125	80	0.4	54	7	04S	0.70
126	92	0.57	87	9	07S	-0.72
131	84	0.52	80	9	07S	-0.70
133	2	1.07	90	15	10S	-0.72
134	3	0.89	68	13	12S	0.76
135	71	0.97	97	16	09S	-0.68
135	72	0.44	72	7	09S	0.70
138	8	0.48	56	7	09S	-0.75
139	2	1.44	98	20	10S	-0.71
139	47	0.6	98	11	09S	0.76
139	62	0.35	63	6	11S	-0.75
140	2	1.22	92	17	10S	-0.73
		0.72	80	11	08S	0.79
140	3	1.8	89	23	10S	-0.58
141	3	0.55		10	10S	-0.73
143	3	1.43	73	19	15S	0.73
143	47	0.39	48	7	07S	-0.67
143	48	0.55	57	10	07S	-0.68
143	57	0.6	89	11	09S	0.71
145	52	0.65	106	16	12S	0.62
145	53	0.54	98	13	10S	-0.70
146	21	0.83	73	12	07S	-0.58
146	22	0.99	78	14	07S	-0.81
146	26	0.53	49	8	07S	-0.82
146	29	0.52	58	13	07S	-0.68
146	34	1.19	67	17	08S	-0.65

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-A

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
146	50	0.63	97	15	10S	-0.67
148	3	0.79	86	12	11S	0.74
148	23	0.62	90	15	12S	-0.68
149	14	1.11		19	10S	-0.61
149	19	0.45	98	11	12S	-0.66
149	19	1.21	84	25	10S	-0.63
149	21	0.78	82	18	10S	-0.70
150	7	0.92	84	13	10S	-0.75
150	10	0.91	89	13	10S	-0.71
150	14	0.99	93	14	10S	-0.57
150	16	1.18	84	25	10S	-0.62
150	18	0.55		11	10S	-0.62

266 Indications
232 Tubes

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
2	20	0.79		14	10S	-0.72
2	21	1.27		22	10S	-0.63
2	26	0.36		7	08S	-0.70
3	1	1.02	95	13	07S	0.83
3	15	0.82		13	09S	0.68
3	21	0.63		12	10S	-0.74
3	24	0.41		8	10S	0.72
3	24	0.78		14	10S	-0.62
4	13	0.69		11	08S	-0.75
4	17	0.99	88	13	09S	0.72
4	18	0.69		11	09S	0.67
4	19	1.01	87	13	09S	0.77
4	24	0.59		13	09S	-0.78
5	26	0.87		16	07S	0.70
5	27	1.01		18	07S	0.67
5	44	0.52		10	09S	-0.63
6	36	0.7		13	08S	-0.77
6	44	0.55		10	09S	-0.78
7	10	1.1		17	08S	0.61
7	29	0.45		10	09S	0.75
		0.57		12	09S	-0.74
		0.72		15	08S	0.66
		1		18	07S	-0.76
		1.23		21	07S	0.77
7	30	0.79		14	07S	-0.76
8	7	0.87	91	10	08S	-0.68
8	46	0.3		7	07S	0.74
		0.47		10	07S	-0.78
8	49	0.36		7	08S	-0.67
		0.71		13	08S	0.73
9	5	1.52		22	09S	-0.77
		1.12		17	07S	-0.74
9	17	0.58		9	09S	-0.75
10	12	0.55		9	09S	-0.70
10	35	0.53		10	09S	-0.88
11	55	0.32		7	08S	-0.65
11	68	0.37		7	07S	-0.75
		0.44		8	07S	0.73
12	1	0.87		13	08S	-0.64
12	4	0.55		9	09S	-0.75
12	40	0.6		11	07S	-0.65
12	66	0.39		7	10S	-0.73

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
13	1	1.06	79	14	13S	-0.73
13	9	1.12	84	15	08S	-0.76
13	10	0.7	136	7	03S	-0.70
13	20	0.61		10	07S	-0.71
13	27	0.5		8	03S	-0.76
13	43	0.75		14	09S	-0.69
13	73	0.2		4	09S	-0.78
		0.63		12	09S	0.61
14	5	0.63	129	6	09S	-0.70
14	27	0.72		11	07S	-0.72
14	34	1.07		16	07S	-0.71
14	72	0.73		13	07S	-0.77
15	7	0.5		8	09S	-0.71
15	8	0.62		10	09S	-0.76
15	64	0.48		9	09S	-0.81
15	69	0.91		16	07S	0.59
15	70	0.78		14	07S	0.75
15	73	0.46		10	09S	-0.57
15	75	1.3		22	10S	0.18
		0.47		8	09S	-0.72
15	75	0.7		12	09S	0.71
16	6	0.68		11	09S	-0.73
16	38	0.65		10	07S	-0.74
16	77	0.24		4	09S	-0.76
		0.71		12	09S	0.71
		0.52		10	07S	-0.59
16	80	0.74		14	09S	-0.79
17	5	0.76		12	09S	-0.79
17	7	0.54	123	4	09S	-0.78
17	45	0.52		9	09S	-0.68
17	77	0.82		14	09S	-0.73
17	78	0.94		16	09S	0.73
18	76	0.68		12	07S	-0.75
18	76	0.83		15	07S	0.73
18	79	0.59		11	09S	-0.78
		0.67		12	09S	0.56
19	5	0.66	97	9	09S	-0.68
19	8	0.5		6	08S	-0.73
19	19	0.97		15	07S	-0.74
19	28	0.66		10	07S	-0.77
19	30	0.89		14	07S	-0.74
19	32	0.64		10	03S	-0.73

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
19	79	0.57		11	09S	-0.58
19	80	0.58		11	09S	-0.65
20	5	1.14	90	14	08S	-0.73
20	6	0.85	111	13	08S	-0.81
20	77	0.78		14	09S	-0.70
21	37	0.71	75	10	09S	-0.67
21	38	0.87	76	11	09S	-0.71
21	40	0.61	79	8	09S	-0.67
		0.54	76	6	07S	-0.70
21	81	0.26		5	07S	0.69
		0.82		14	07S	-0.70
22	35	0.16	62	2	07S	-0.57
22	93	0.65		12	09S	-0.63
23	36	1.05	83	13	03S	-0.67
23	83	0.77		14	09S	-0.84
23	91	0.5		9	09S	0.73
		0.6		11	09S	-0.76
24	43	0.38	54	5	03S	-0.69
24	93	0.62		11	09S	-0.66
25	38	0.98	86	12	09S	-0.64
26	9	1.29	70	15	09S	0.72
26	26	0.46	85	9	07S	-0.72
		0.54	64	10	03S	-0.75
26	97	0.46		8	08S	-0.74
27	2	0.29		4	03S	-0.65
27	5	0.74		10	09S	0.71
27	5	0.76		11	09S	-0.73
27	6	0.39		5	08S	-0.71
		0.76		11	08S	0.68
		0.92		13	07S	0.67
27	9	0.53	53	7	08S	-0.61
27	10	0.27	78	3	08S	-0.67
27	32	1.53	82	17	05S	-0.67
27	40	0.51	56	6	03S	-0.68
27	42	0.52	82	6	03S	-0.67
27	45	0.69	65	9	03S	-0.67
27	94	0.32		6	08S	-0.74
		1.46		24	08S	0.75
27	95	0.43		8	08S	-0.74
		1.34		22	08S	0.72
28	13	0.82	118	16	05S	-0.57
29	7	0.89		12	07S	0.76

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
29	42	0.88	85	11	03S	-0.71
30	11	0.54	85	10	08S	-0.68
31	7	0.61	78	12	08S	-0.64
31	8	0.34	62	7	07S	0.63
31	22	0.56	85	11	07S	-0.69
32	6	0.79		11	03S	-0.75
32	35	0.31	95	6	09S	-0.70
32	89	0.21		4	05S	-0.57
33	8	0.46		9	08S	-0.65
		0.56	78	11	07S	0.60
33	47	0.24	40	5	09S	-0.68
35	20	0.33	41	6	04S	-0.73
36	9	0.34	81	7	09S	-0.67
36	10	0.29	78	6	09S	0.63
36	11	0.56	95	11	08S	-0.73
36	19	0.86	91	16	09S	-0.57
36	47	1	98	18	07S	-0.71
36	57	0.43		8	09S	-0.63
37	6	0.64		11	05S	-0.71
37	8	0.72		12	07S	0.65
37	18	0.38	65	8	03S	-0.70
37	48	0.81	60	15	07S	-0.68
38	8	0.76		12	08S	-0.75
38	11	0.73		12	08S	-0.77
38	27	0.55	121	11	03S	-0.63
38	38	0.49	103	10	09S	-0.62
38	45	0.45	112	9	07S	-0.68
38	62	0.17		3	03S	-0.65
39	8	0.76	107	15	07S	0.74
39	44	0.39	39	8	07S	-0.70
39	52	0.46	79	9	09S	-0.59
39	116	0.33		6	09S	-0.67
40	8	0.9		15	07S	0.63
40	49	0.28	67	5	07S	-0.60
40	52	0.52	92	10	07S	-0.66
41	38	1.47		22	09S	-0.73
41	56	0.4	40	8	03S	-0.63
42	113	0.69		12	09S	-0.56
43	7	0.24		4	09S	-0.68
43	8	0.39		7	09S	-0.74
43	19	0.65		12	09S	-0.61
43	26	0.77	89	15	07S	-0.79

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
43	44	0.4	141	8	03S	-0.59
43	116	0.45		8	03S	-0.74
44	22	0.52		9	03S	-0.73
45	3	0.44		8	09S	0.63
45	7	1.16		18	07S	0.62
45	55	0.39	77	7	07S	-0.74
46	12	0.65		12	03S	-0.64
46	52	0.4		8	07S	-0.60
46	67	0.77		13	07S	-0.76
47	6	0.44		8	07S	0.70
47	7	1.27		20	07S	0.63
48	7	1.16		18	07S	0.65
48	35	0.31		6	09S	-0.80
48	35	0.65		9	09S	-0.72
48	64	0.5		9	09S	-0.76
49	119	0.7		12	06S	0.75
50	3	0.31		6	09S	-0.75
50	13	0.73		12	03S	-0.68
50	25	0.25	59	4	07S	-0.75
50	37	0.91	71	13	03S	-0.74
51	17	0.31		5	07S	-0.74
51	50	0.3		4	07S	-0.75
52	6	1.43		22	07S	0.58
52	28	0.46		9	07S	-0.67
52	46	0.78		13	07S	-0.79
53	7	0.72		9	09S	0.73
53	32	0.6		11	07S	-0.72
53	36	0.91		15	09S	-0.70
53	57	0.3		6	07S	-0.69
53	59	0.33		6	07S	-0.68
54	6	0.76		9	07S	0.81
54	58	0.6		8	09S	-0.68
54	121	0.58		10	07S	-0.76
54	124	0.57		10	09S	-0.80
56	21	0.9		11	05S	-0.70
56	122	0.69		12	07S	-0.86
57	39	0.84		10	07S	-0.75
57	122	0.45		8	07S	-0.74
57	126	0.42		8	07S	-0.81
58	78	0.52		9	07S	-0.74
59	45	0.35		4	07S	-0.83
59	56	0.61		11	07S	-0.75

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
59	113	0.67		12	07S	-0.81
59	118	0.37		7	07S	-0.75
59	122	1.34		22	09S	-0.82
		0.69		12	07S	-0.84
60	48	0.37		5	07S	-0.77
60	70	0.52		10	05S	0.67
60	119	1.12		19	07S	-0.78
60	124	0.51		9	07S	0.75
		0.53		9	07S	-0.80
61	21	0.82		10	03S	-0.74
61	27	1.35		16	09S	-0.71
61	42	0.61		10	07S	-0.78
61	50	0.57	89	8	07S	-0.69
61	68	0.5		9	05S	0.67
62	13	0.63		8	03S	-0.77
62	56	0.66		6	07S	-0.79
62	115	0.66		12	14S	-0.73
63	1	0.67		9	12S	-0.78
63	34	1.64		19	07S	-0.73
64	68	1.3		22	07S	-0.77
64	121	0.59		10	04S	0.74
65	1	0.4		5	14S	-0.75
65	8	0.58		7	03S	-0.73
65	50	0.49		6	07S	-0.78
65	112	0.67		11	04S	0.69
65	113	0.21		3	04S	0.75
65	119	1.18		18	05S	0.69
65	121	0.87		14	05S	0.67
65	125	0.45		7	04S	0.75
		0.51		8	09S	0.79
		1.19		19	09S	-0.73
		0.64		10	07S	0.75
		0.91		14	07S	-0.80
66	4	0.46		6	09S	0.77
66	5	0.67		9	09S	-0.84
66	37	0.69		8	09S	0.69
		1.45		17	09S	-0.74
66	72	0.92		19	07S	-0.67
66	106	0.56		9	07S	-0.83
66	111	0.32		5	05S	0.71
66	126	1.02		16	04S	0.77
67	5	0.66		9	09S	-0.80

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
67	33	1.49		17	07S	-0.73
67	38	0.51		6	09S	0.69
67	112	0.64		10	05S	0.76
		0.69		11	04S	0.65
67	113	0.75		12	04S	0.68
68	21	1.36		16	08S	-0.78
68	33	0.98		12	07S	-0.73
68	45	1.24		15	09S	0.68
68	47	1.18		14	09S	0.74
68	48	1.6		18	09S	0.78
68	50	0.96		11	09S	-0.69
		1.08		13	09S	0.71
68	52	0.79		9	09S	0.76
		0.99		12	09S	-0.67
68	59	0.43		10	09S	0.73
		0.48		11	09S	-0.70
68	63	0.56		12	09S	0.58
68	64	0.34		8	09S	0.64
68	111	0.56		9	04S	0.73
68	125	1.03		16	05S	-0.60
68	129	0.37		6	09S	0.73
		0.58		9	09S	-0.75
69	40	0.45		6	09S	0.77
69	45	0.86		11	09S	0.77
69	46	0.91		12	09S	0.79
69	46	0.62		8	07S	-0.80
69	47	1.04		13	09S	0.74
69	48	0.6		8	09S	-0.72
		0.72		9	09S	0.76
69	49	1.04		13	09S	0.70
		1.24		16	09S	-0.70
69	50	0.76		10	09S	0.76
		0.81		10	09S	-0.66
69	51	0.81		10	09S	-0.66
		0.87		11	09S	0.78
69	56	1.01		13	07S	-0.76
69	58	0.36		8	09S	0.73
		0.41		9	09S	-0.71
69	111	0.47		8	05S	0.77
69	112	1.47		22	04S	0.78
69	126	0.74		12	09S	0.68
		1.18		18	09S	-0.60

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
		0.3		5	04S	0.77
69	128	0.53		9	07S	-0.71
70	38	0.57		7	09S	-0.73
70	47	0.58		8	09S	0.77
		0.66		9	09S	-0.76
70	62	0.44		10	09S	0.79
70	68	0.95		19	07S	-0.82
70	111	0.39		6	04S	0.72
71	54	0.55		7	09S	0.76
71	63	0.49		11	09S	0.67
72	13	0.5		7	12S	0.72
72	39	0.99		13	12S	0.77
72	41	0.73		9	09S	0.72
72	50	0.72		9	07S	-0.81
72	51	0.47		6	09S	0.71
72	65	1.03		20	07S	-0.64
72	67	0.56		12	03S	-0.81
73	51	0.67		9	03S	-0.75
73	53	0.58		6	09S	-0.72
73	58	0.66		14	07S	-0.72
73	67	0.31		7	07S	-0.74
73	128	0.54		9	09S	0.72
75	24	0.76		10	04S	0.66
75	51	0.85		11	03S	-0.79
75	66	0.44		10	10S	-0.71
76	64	0.57		12	14S	-0.68
76	64	1.07		21	07S	-0.77
76	100	1.16		12	02S	-0.79
76	119	1.39		15	08S	0.61
76	120	1.26	82	18	09S	-0.76
76	123	0.92		10	11S	-0.73
77	102	1.7	88	18	15S	0.64
		1.75	84	18	15S	-0.83
77	125	0.81	54	9	11S	-0.66
78	113	0.46		7	05S	-0.68
78	123	2.01		26	09S	0.54
79	21	0.63		7	07S	-0.80
79	39	0.78		9	12S	-0.86
79	57	0.87		18	07S	-0.73
79	62	0.21		5	09S	0.67
79	62	0.39		9	09S	-0.66
79	114	0.67	83	10	07S	0.43

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
79	123	0.57	74	8	06S	-0.75
80	52	0.42		7	09S	0.74
80	58	0.55		12	09S	-0.73
		0.67		14	07S	-0.68
80	61	0.4		9	09S	0.70
80	62	0.62		13	12S	-0.72
80	70	0.5	89	13	07S	-0.75
80	76	0.38	106	10	07S	-0.77
80	126	0.23		3	07S	-0.74
80	127	0.32	56	5	07S	0.72
		0.58	72	9	07S	-0.75
81	35	0.42		5	05S	-0.78
81	64	0.58	107	14	10S	-0.65
81	65	0.32	105	8	10S	-0.68
81	122	0.88		11	07S	-0.65
81	125	0.61		8	03S	-0.67
81	126	0.99		12	08S	0.56
		0.96		12	07S	-0.49
82	6	0.83	65	16	09S	-0.67
82	49	0.25		3	07S	-0.80
82	125	0.41	109	4	09S	0.16
83	9	0.58	78	11	09S	-0.77
83	45	0.6		7	07S	-0.72
83	57	0.49		12	09S	-0.73
		0.59		15	07S	-0.78
83	61	0.32	94	8	09S	0.70
		0.33	100	8	07S	-0.71
83	99	0.34		5	06S	-0.73
84	27	0.45	145	7	03S	-0.74
84	39	0.91	74	14	07S	-0.86
84	61	0.66		16	09S	0.69
84	72	0.3	73	10	07S	-0.79
84	75	0.44	50	17	07S	-0.72
84	80	0.42		6	05S	-0.61
84	85	1.11	71	11	07S	-0.68
84	123	1.09		15	08S	0.63
84	125	1.25		17	08S	0.68
84	126	1.7	76	16	09S	0.16
84	128	0.67		9	07S	-0.74
85	123	1.42	87	14	08S	0.68
85	126	0.34		5	07S	-0.75
85	127	0.2		3	07S	-0.74

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
86	25	0.65		11	07S	-0.80
86	38	0.37		6	09S	-0.70
86	104	0.63		9	07S	-0.74
86	112	0.39		5	02S	-0.74
86	116	0.38	68	4	05S	-0.74
86	124	1.69		22	08S	0.74
86	126	0.89	66	9	07S	0.05
87	8	0.42	89	8	09S	-0.78
87	40	1.11	42	17	09S	-0.69
87	49	0.48	158	7	06S	-0.83
87	67	0.51	93	13	07S	-0.69
87	123	0.5	54	5	08S	-0.10
87	125	0.76	74	7	08S	0.01
88	8	0.28		7	07S	-0.70
88	12	0.73	66	14	07S	-0.82
88	51	0.32	28	5	03S	-0.66
88	70	0.43	95	11	06S	-0.70
88	123	0.54		7	08S	0.28
		0.77	82	7	03S	-0.03
89	5	0.45	57	9	01S	-0.71
89	84	1.2	94	12	07S	-0.76
90	5	0.54	63	7	07S	-0.66
90	48	0.4	159	6	07S	-0.73
90	60	0.99	66	22	07S	-0.75
90	65	0.31	65	8	07S	-0.71
90	128	0.71	77	11	09S	-0.80
91	7	0.62	82	12	09S	0.66
91	12	0.49		8	07S	-0.73
92	17	0.79	68	12	09S	-0.66
92	60	0.63		15	07S	-0.82
92	124	0.71	100	11	07S	-0.70
93	34	0.27	54	4	07S	-0.70
93	55	0.26	79	7	07S	-0.72
94	7	0.69	93	18	09S	0.55
94	17	0.3	65	5	15S	0.92
94	66	0.33	58	8	07S	-0.72
95	1	0.27	86	5	07S	-0.69
95	5	0.67		7	07S	-0.73
95	6	0.65	84	12	09S	0.50
95	23	0.82	122	13	07S	-0.70
96	66	1.25		16	07S	-0.73
96	70	0.75	42	12	07S	-0.74

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
97	5	0.7	80	13	07S	0.82
97	123	0.57	62	8	09S	0.70
98	124	0.73		10	09S	0.74
99	4	1.11	93	20	09S	0.75
99	41	0.74		12	03S	-0.70
99	46	0.41		7	07S	-0.77
99	123	1.01		13	09S	-0.74
100	5	0.75		17	09S	0.67
		0.59	52	6	07S	-0.74
100	21	0.62		7	07S	-0.63
100	123	0.37		5	09S	0.74
		0.82		11	09S	-0.79
101	10	0.54		9	07S	-0.72
102	95	0.93		13	07S	-0.77
102	113	0.86		12	07S	0.71
102	115	1.05		15	07S	0.70
103	5	1.03	85	19	09S	0.82
103	55	0.32		4	07S	-0.71
103	97	0.36		5	04S	-0.75
104	46	0.5	71	8	07S	-0.68
105	42	0.77		9	07S	-0.71
105	44	0.53	74	8	10S	-0.39
105	113	0.95		14	07S	-0.75
106	38	0.94	93	15	07S	-0.70
106	61	1.07		14	07S	-0.70
106	97	0.49		7	02S	-0.54
107	23	1.22	107	19	07S	-0.74
108	55	0.29	71	6	07S	-0.81
109	52	0.5	66	10	07S	-0.76
109	84	0.67		10	07S	-0.71
110	24	0.91	75	14	09S	-0.70
111	27	0.56		6	07S	-0.70
111	66	0.59		8	07S	-0.59
111	71	1.18		16	07S	-0.69
		0.66		10	03S	-0.71
112	82	0.54		8	07S	-0.64
115	40	0.6	76	11	07S	-0.78
115	43	0.52	102	10	07S	-0.75
115	57	0.69	83	13	07S	-0.79
115	87	0.89		13	07S	-0.57
115	100	0.39		5	07S	-0.63
		0.55		8	07S	-0.66

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
116	49	1.22	78	22	07S	-0.71
116	50	0.57	79	11	07S	-0.72
116	62	0.45		6	07S	-0.59
116	80	0.85		12	07S	-0.61
116	100	0.38		6	13S	-0.69
117	71	0.89		13	07S	-0.67
117	73	0.87		13	07S	-0.61
117	82	0.7		10	07S	-0.73
118	66	0.59		8	07S	-0.69
118	99	0.38		5	07S	-0.69
119	48	0.59	90	11	07S	-0.72
119	75	0.7		10	07S	-0.64
120	97	0.69	91	9	07S	-0.69
121	38	0.64	59	12	07S	-0.75
121	45	0.71	78	13	07S	-0.80
121	49	0.45	71	9	07S	-0.83
121	63	0.51	78	7	07S	-0.89
121	64	0.58	78	8	07S	-0.72
121	68	1.17	67	16	07S	-0.67
122	38	0.73		10	07S	-0.70
122	55	0.72	69	10	07S	-0.69
122	56	0.76	94	10	07S	-0.68
122	57	0.4	75	5	07S	-0.68
122	72	0.79	97	11	07S	-0.73
123	76	0.7	73	10	07S	-0.72
123	103	0.57	104	8	10S	-0.62
124	17	0.96	67	18	07S	-0.67
124	45	1.06		14	07S	-0.71
124	48	1.25		17	07S	-0.72
124	73	0.6	63	8	07S	-0.75
124	99	0.9	66	12	10S	-0.68
125	89	0.55	62	7	07S	-0.72
125	98	0.84	71	11	10S	-0.67
125	100	1.08	72	13	10S	-0.71
126	26	0.64		9	15S	-0.79
126	53	0.99	64	13	07S	-0.73
127	58	0.83	56	11	07S	-0.70
127	96	1.46	55	19	10S	-0.66
128	38	0.78		11	09S	-0.75
128	53	0.59	66	8	13S	-0.71
128	66	0.54	64	7	07S	-0.71
128	93	0.59	105	8	10S	-0.67

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
128	94	0.71	69	10	10S	-0.53
129	2	0.99		14	11S	-0.68
129	34	0.98		13	07S	-0.76
129	40	1.19		16	07S	-0.78
129	52	0.71	69	10	07S	-0.72
129	53	0.44	59	6	09S	-0.63
129	69	0.75	75	10	07S	-0.71
129	93	0.34	58	4	10S	-0.05
		0.51	115	7	10S	-0.69
130	14	1.09		15	09S	-0.72
130	39	1.1		15	03S	-0.68
130	47	0.71		10	07S	-0.72
130	92	0.84	75	11	10S	-0.63
131	50	0.57	65	8	07S	-0.71
132	45	0.55	73	7	07S	-0.69
132	48	1.18	58	16	07S	-0.62
132	58	0.45	99	6	07S	-0.69
132	63	0.96	67	13	07S	-0.68
132	76	0.51	78	7	13S	-0.69
132	84	0.68	69	9	10S	-0.62
133	35	0.78		11	07S	-0.76
134	38	1.12		15	07S	-0.71
134	45	0.57	69	8	07S	-0.72
134	63	0.8	50	11	07S	-0.59
135	29	0.8		11	07S	-0.75
135	41	0.67		9	07S	-0.71
135	43	0.31	84	7	09S	-0.71
135	47	0.34	77	8	07S	-0.72
135	81	0.69	69	16	10S	-0.65
136	3	0.37		5	11S	-0.75
136	3	0.94		13	10S	0.83
136	13	0.79		11	15S	-0.68
136	32	0.99		14	07S	-0.71
136	45	0.43	66	10	07S	-0.71
136	49	0.34	112	7	07S	-0.76
138	1	1.07		15	10S	-0.72
138	2	0.59		8	11S	-0.68
		0.96		13	10S	-0.66
		1.45		19	10S	0.72
138	30	0.65	66	13	07S	-0.62
138	63	0.46	83	10	13S	-0.73
139	45	0.52	99	12	07S	-0.74

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
139	74	0.58		8	07S	-0.67
140	3	0.46		7	03S	-0.76
140	15	2.14		27	07S	-0.60
140	21	1.08		15	07S	-0.64
140	58	0.45	75	10	13S	-0.74
141	29	0.47		7	13S	-0.65
141	59	0.28	72	6	14S	-0.75
142	14	1.12		16	07S	-0.72
142	34	0.52	95	12	08S	-0.63
142	65	0.41	65	9	08S	-0.70
143	3	1.6		22	10S	-0.68
143	31	0.64		9	07S	-0.58
144	2	0.96		14	10S	-0.69
144	3	0.77		11	10S	-0.63
144	3	1.03		14	10S	0.62
144	16	0.88		13	07S	-0.70
144	22	0.79		11	07S	-0.64
144	49	0.61	78	14	07S	-0.69
144	57	0.35	83	8	13S	-0.71
		0.59	66	14	07S	-0.69
145	8	0.79		11	07S	-0.73
145	12	0.78		11	07S	-0.59
145	21	0.36		5	07S	-0.62
145	28	0.42	74	10	07S	-0.73
145	34	0.91	93	20	07S	-0.69
146	19	0.35		5	07S	0.66
146	19	0.6		9	07S	-0.64
146	26	0.66		9	09S	0.53
		0.97		14	09S	-0.68
		0.87		12	08S	-0.68
146	48	0.72	123	16	10S	-0.63
146	49	0.63	88	14	10S	-0.63
146	50	0.61	81	14	10S	-0.66
147	5	0.36		5	13S	-0.62
147	15	0.29		4	07S	0.58
		0.82		12	07S	-0.54
147	23	0.51		7	09S	0.05
147	24	0.44	58	10	07S	-0.68
147	43	0.43	90	10	10S	-0.64
147	45	0.54	67	12	13S	-0.68
148	17	0.73		10	07S	0.45
149	11	0.67		10	07S	-0.63

Tubes In-Service with Through-Wall Indication 1%-39%
OTSG-B

ROW	COL	VOLTS	DEG	TW	LOC	INCH1
149	15	1.04		15	10S	0.58
149	24	0.4	98	9	10S	0.64
149	26	0.69	80	16	10S	-0.62
149	27	0.59	72	13	10S	-0.64
149	28	0.39	68	9	10S	0.67
149	29	1.1	80	24	10S	-0.59
149	32	0.57	80	13	10S	0.62
149	33	0.48	71	11	10S	-0.63
150	1	0.84		12	10S	-0.63
		1.97		26	10S	0.67
150	5	0.83		12	10S	-0.65
150	10	0.52		7	10S	0.60
150	13	0.68		10	10S	-0.58
		0.79		11	10S	0.64
150	15	0.37	77	8	07S	-0.73
150	18	0.32	93	7	10S	-0.63
150	20	0.46	95	10	10S	-0.63
		0.76	71	17	10S	0.61
150	21	0.57	72	13	10S	-0.64
150	22	0.34	88	8	10S	-0.70
		0.46	110	10	10S	0.61
150	23	0.37	87	8	10S	0.63
150	24	0.76	78	17	10S	-0.62
150	25	0.59	100	13	10S	-0.65
150	27	0.25	72	5	10S	-0.62
151	1	0.73		10	10S	-0.69
151	2	0.41		6	10S	-0.63
151	3	0.64		9	10S	-0.59
151	5	0.39		6	10S	-0.69
151	10	0.27	89	6	10S	-0.67
151	12	0.47	71	11	10S	0.63
		0.72	79	16	10S	-0.61
151	13	0.69	108	16	10S	0.70
		0.71	78	16	10S	-0.62
151	15	0.37	85	8	10S	0.61
		0.46	72	10	10S	-0.70

Excludes 1st Span Pit-like IGA - see regression results

630 Indications
552 Tubes
5 Tubes plugged (6 indications) in 1999 for other reasons

ATTACHMENT 1
SPECIAL REPORT 00-01
APPENDIX 2

FIRST SPAN IGA
OTSG-B

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
4	40	0.1	125		29			0.1	22	0.00	7.00
16	22	0.11	124		28			0.11	20	0.00	8.00
24	43	0.19	134		36			0.22	33	-0.03	3.00
33	53	0.06	142		14	Yes	Yes				
37	50	0.15	129		28		Yes	0.13	21	0.02	7.00
		0.07	114		25		Yes	0.1	12	-0.03	13.00
		0.09	130		21		Yes	0.1	28	-0.01	-7.00
38	45	0.24	162		34			0.34	28	-0.10	6.00
38	64	0.17	141		35			0.17	29	0.00	6.00
39	44	0.21	162		34			0.38	28	-0.17	6.00
		0.14	163		17			0.13	9	0.01	8.00
		0.36	176		24			0.23	23	0.13	1.00
		0.12	151		33			0.21	27	-0.09	6.00
		0.13	123		35			0.07	29	0.06	6.00
		0.1	153		31			0.14	22	-0.04	9.00
40	45	0.21	45		30			0.28	31	-0.07	-1.00
		0.15	152		31			0.16	21	-0.01	10.00
41	39	0.12	76		27			0.22	27	-0.10	0.00
42	42	0.1	114		22			0.17	28	-0.07	-6.00
		0.17	55		36			0.24	31	-0.07	5.00
		0.33	152		36			0.37	30	-0.04	6.00
42	47	0.08	67		25	Yes		0.1	23	-0.02	2.00
42	63	0.15	136		30			0.15	27	0.00	3.00
		0.13	119		30			0.14	31	-0.01	-1.00
42	86	0.13	103		31	Yes	Yes				
43	48	0.14	93		31			0.13	28	0.01	3.00
		0.05	137		18			0.08	8	-0.03	10.00
43	49	0.06	124		23			0.1	15	-0.04	8.00
		0.32	174		32			0.06	32	0.26	0.00
		0.38	160		36			0.5	32	-0.12	4.00
43	82	0.07	124		26			0.12	30	-0.05	-4.00
44	60	0.21	162		31	Yes	Yes				
45	40	0.25	162		35			0.32	32	-0.07	3.00
		0.47	179		33			0.71	32	-0.24	1.00
		0.21	161		34			0.31	32	-0.10	2.00
45	48	0.12	99		34			0.2	34	-0.08	0.00
45	49	0.15	139		31	Yes		0.34	35	-0.19	-4.00
46	39	0.04	135		20		Yes	0.19	4	-0.15	16.00
		0.33	171		37		Yes	0.24	32	0.09	5.00
46	41	0.19	115		33			0.33	34	-0.14	-1.00
46	49	0.18	131		34			0.2	30	-0.02	4.00
47	50	0.17	128		36	Yes	Yes				

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
48	39	0.27	154		34	Yes	Yes				
48	43	0.26	165		29			0.34	30	-0.08	-1.00
		0.05	129		18			0.17	23	-0.12	-5.00
		0.18	99		35			0.24	32	-0.06	3.00
		0.14	143		26			0.16	30	-0.02	-4.00
		0.13	153		28			0.13	26	0.00	2.00
48	61	0.15	153		18			0.12	19	0.03	-1.00
48	72	0.11	141		31	Yes		0.11	37	0.00	-6.00
49	56	0.09	157		21			0.12	13	-0.03	8.00
		0.09	135		30			0.14	31	-0.05	-1.00
50	39	0.13	42	NQI			Yes	0.13	30	0.00	
		0.15	131		34		Yes	0.21	32	-0.06	2.00
50	41	0.3	135		36		Yes	0.27	34	0.03	2.00
		0.08	111		27		Yes	0.19	23	-0.11	4.00
51	30	0.36	144		37			0.31	30	0.05	7.00
51	55	0.23	141		30			0.31	34	-0.08	-4.00
51	79	0.19	152		35			0.24	32	-0.05	3.00
		0.26	146		33			0.29	32	-0.03	1.00
51	80	0.16	135		33			0.13	26	0.03	7.00
52	37	0.07	139		24			0.11	29	-0.04	-5.00
		0.12	71		35			0.14	29	-0.02	6.00
		0.17	158		27			0.16	23	0.01	4.00
		0.05	45		15			0.06	22	-0.01	-7.00
52	49	0.2	151		30			0.26	33	-0.06	-3.00
53	35	0.16	122		34	Yes	Yes				
		0.22	133		40	Yes	Yes				
		0.18	149		41	Yes	Yes				
		0.25	46		34	Yes	Yes				
		0.36	171		29	Yes	Yes				
		0.25	155		37	Yes	Yes				
		0.12	140		34	Yes	Yes				
		0.1	86		29	Yes	Yes				
		0.18	144		27	Yes	Yes				
		0.31	173		34	Yes	Yes				
		0.15	53		36	Yes	Yes				
53	44	0.09	121		27			0.13	23	-0.04	4.00
		0.29	133		35			0.32	33	-0.03	2.00
		0.2	124		34			0.11	34	0.09	0.00
		0.06	135		33			0.11	34	-0.05	-1.00
53	95	0.1	131		27	Yes	Yes				
		0.11	18	NQI		Yes	Yes				
		0.12	96		28	Yes	Yes				

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
		0.21	147		28	Yes	Yes				
54	44	0.15	128		41	Yes	Yes				
54	82	0.06	62		22			0.09	24	-0.03	-2.00
		0.12	143		38			0.31	31	-0.19	7.00
		0.23	126		38			0.26	32	-0.03	6.00
55	36	0.19	154		40	Yes	Yes				
55	43	0.23	154		32	Yes	Yes				
		0.21	114		40	Yes	Yes				
56	37	0.3	151		33	Yes		0.29	30		
		0.11	112		33	Yes		0.19	33		
56	53	0.26	162		36			0.26	32	0.00	4.00
		0.24	150		26			0.18	31	0.06	-5.00
		0.15	171		19			0.08	22	0.07	-3.00
		0.14	161		29			0.17	20	-0.03	9.00
57	33	0.25	149		28			0.29	32	-0.04	-4.00
		0.22	151		34			0.26	30	-0.04	4.00
57	89	0.16	132		31			0.19	29	-0.03	2.00
		0.09	124		27			0.09	22	0.00	5.00
		0.07	135		28			0.09	22	-0.02	6.00
		0.11	120		29			0.14	25	-0.03	4.00
58	25	0.1	64		29		Yes	0.18	32	-0.08	-3.00
		0.17	171		35		Yes	0.25	27	-0.08	8.00
		0.08	142		26		Yes	0.25	27	-0.17	-1.00
		0.18	164		36		Yes	0.19	21	-0.01	15.00
58	33	0.12	100		28			0.21	31	-0.09	-3.00
		0.04	48		19			0.08	25	-0.04	-6.00
		0.12	61		28			0.18	27	-0.06	1.00
58	89	0.2	132		37			0.24	32	-0.04	5.00
59	30	0.25	175		23			0.23	27	0.02	-4.00
59	40	0.14	128		30			0.16	32	-0.02	-2.00
59	80	0.13	127		31			0.16	26	-0.03	5.00
60	34	0.15	60		32			0.2	29	-0.05	3.00
60	44	0.11	159		27			0.16	32	-0.05	-5.00
61	25	0.21	138		35			0.28	32	-0.07	3.00
		0.32	159		32			0.28	32	0.04	0.00
61	82	0.2	113		31			0.23	30	-0.03	1.00
		0.1	156		26			0.1	21	0.00	5.00
61	88	0.16	139		34			0.18	29	-0.02	5.00
62	28	0.23	129		37			0.33	34	-0.10	3.00
		0.17	150		31			0.17	24	0.00	7.00
		0.4	150		35			0.52	34	-0.12	1.00
		0.05	82		31			0.1	30	-0.05	1.00

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
62	37	0.47	112		43	Yes	Yes				
		0.25	116		40	Yes	Yes				
		0.38	145		37	Yes	Yes				
		0.07	100		33	Yes	Yes				
62	43	0.22	158		32	Yes	Yes				
62	44	0.14	137		31			0.15	27	-0.01	4.00
		0.09	120		35			0.22	27	-0.13	8.00
62	99	0.2	140		34			0.13	29	0.07	5.00
		0.16	140		36			0.21	34	-0.05	2.00
63	26	0.14	132		33			0.13	31	0.01	2.00
		0.3	173		27			0.33	31	-0.03	-4.00
63	41	0.25	149		38			0.36	34	-0.11	4.00
		0.22	157		37			0.25	29	-0.03	8.00
64	36	0.14	73		36	Yes	Yes				
64	37	0.27	153		36	Yes	Yes				
		0.2	54		36	Yes	Yes				
		0.04	100		32	Yes	Yes				
		0.34	160		38	Yes	Yes				
64	99	0.24	142		33	Yes	Yes				
65	37	0.05	75		17			0.07	8	-0.02	9.00
		0.16	96		35			0.21	29	-0.05	6.00
		0.16	111		37			0.22	30	-0.06	7.00
		0.13	102		30			0.18	29	-0.05	1.00
		0.14	140		32			0.24	34	-0.10	-2.00
		0.13	72		31			0.18	30	-0.05	1.00
		0.24	134		31			0.29	32	-0.05	-1.00
65	41	0.11	82		33	Yes	Yes				
65	42	0.1	74		22			0.15	31	-0.05	-9.00
65	44	0.19	151		38			0.3	34	-0.11	4.00
		0.16	66		31			0.19	33	-0.03	-2.00
65	48	0.2	139		28			0.23	26	-0.03	2.00
		0.4	164		36			0.4	31	0.00	5.00
		0.1	131		34			0.17	29	-0.07	5.00
		0.13	81		30			0.14	25	-0.01	5.00
		0.08	59		18			0.11	22	-0.03	-4.00
		0.15	159		26			0.25	33	-0.10	-7.00
		0.07	147		20			0.07	27	0.00	-7.00
65	50	0.09	86		33			0.13	30	-0.04	3.00
		0.14	126		29			0.14	27	0.00	2.00
66	34	0.05	82		19			0.07	23	-0.02	-4.00
		0.17	155		29			0.14	24	0.03	5.00
67	50	0.22	67		35			0.24	32	-0.02	3.00

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
67	95	0.14	123		38	Yes	Yes				
68	38	0.17	151		30			0.25	30	-0.08	0.00
		0.18	72		33			0.25	34	-0.07	-1.00
		0.07	139		27			0.11	20	-0.04	7.00
		0.2	146		30			0.26	29	-0.06	1.00
		0.16	168		23			0.09	26	0.07	-3.00
68	99	0.3	67		37			0.27	32	0.03	5.00
69	42	0.24	140		30			0.28	28	-0.04	2.00
70	38	0.22	145		33			0.35	31	-0.13	2.00
70	58	0.12	113		30			0.17	29	-0.05	1.00
71	95	0.14	120		29	Yes		0.16	29	-0.02	0.00
73	44	0.15	56		34			0.19	28	-0.04	6.00
74	110	0.1	83		29		Yes	0.11	18	-0.01	11.00
77	86	0.1	141		27			0.15	23	-0.05	4.00
78	41	0.08	122		31			0.1	32	-0.02	-1.00
78	45	0.18	109		36			0.35	34	-0.17	2.00
79	22	0.17	125		34		Yes	0.28	34	-0.11	0.00
		0.18	147		29		Yes	0.19	25	-0.01	4.00
79	97	0.32	135		38			0.43	33	-0.11	5.00
		0.25	162		33			0.21	27	0.04	6.00
80	94	0.17	154		30	Yes	Yes				
		0.1	134		29	Yes	Yes				
		0.06	99		23	Yes	Yes				
		0.2	53		35	Yes	Yes				
		0.29	162		36	Yes	Yes				
		0.27	153		35	Yes	Yes				
80	97	0.19	125		40	Yes	Yes				
80	99	0.16	59		33			0.19	28	-0.03	5.00
		0.34	158		34			0.38	34	-0.04	0.00
		0.32	166		32			0.25	32	0.07	0.00
		0.15	112		34			0.16	29	-0.01	5.00
		0.2	122		34			0.24	29	-0.04	5.00
81	104	0.02	113		14			0.05	26	-0.03	-12.00
		0.12	115		31			0.13	28	-0.01	3.00
82	96	0.29	63		38	Yes	Yes				
83	91	0.12	138		30	Yes	Yes				
83	93	0.1	158		34	Yes	Yes				
83	100	0.1	70		21			0.09	11	0.01	10.00
		0.34	154		33			0.21	29	0.13	4.00
		0.27	156		31			0.21	24	0.06	7.00
84	31	0.25	137		36			0.29	34	-0.04	2.00
84	93	0.1	130		33			0.12	28	-0.02	5.00

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
84	94	0.25	129		37	Yes	Yes				
		0.27	119		39	Yes	Yes				
		0.27	110		41	Yes	Yes				
		0.16	126		30	Yes	Yes				
84	96	0.22	118		35			0.24	34	-0.02	1.00
		0.17	150		34			0.24	28	-0.07	6.00
		0.05	79		15			0.12	13	-0.07	2.00
84	98	0.1	96		27			0.16	30	-0.06	-3.00
		0.05	166		11			0.12	14	-0.07	-3.00
		0.4	165		33			0.51	32	-0.11	1.00
		0.28	150		37			0.45	34	-0.17	3.00
		0.1	86		25			0.11	33	-0.01	-8.00
		0.07	79		27			0.15	29	-0.08	-2.00
84	100	0.27	169		32			0.29	27	-0.02	5.00
		0.18	129		35			0.28	31	-0.10	4.00
		0.1	154		26			0.09	28	0.01	-2.00
85	43	0.21	141		34	Yes		0.33	38	-0.12	-4.00
85	92	0.1	135		30			0.15	24	-0.05	6.00
85	96	0.23	96		37			0.28	34	-0.05	3.00
85	98	0.25	144		34			0.21	29	0.04	5.00
85	99	0.17	160		37		Yes	0.2	33	-0.03	4.00
		0.33	162		36		Yes	0.4	31	-0.07	5.00
		0.23	90		37		Yes	0.33	33	-0.10	4.00
		0.21	145		32		Yes	0.23	32	-0.02	0.00
		0.42	136		41		Yes	0.44	34	-0.02	7.00
		0.16	162		24		Yes	0.19	27	-0.03	-3.00
		0.16	120		36		Yes	0.2	29	-0.04	7.00
		0.1	81		28		Yes	0.13	19	-0.03	9.00
86	24	0.28	156		36			0.4	34	-0.12	2.00
		0.25	110		36			0.26	34	-0.01	2.00
87	34	0.38	159		34	Yes	Yes				
87	98	0.08	155		37		Yes	0.14	27	-0.06	10.00
		0.31	39	NQI			Yes	0.28	33	0.03	
		0.2	115		40		Yes	0.19	34	0.01	6.00
		0.28	149		37		Yes	0.31	34	-0.03	3.00
88	34	0.21	59		37	Yes		0.25	33	-0.04	4.00
		0.11	128		33	Yes		0.16	32	-0.05	1.00
88	96	0.15	115		31	Yes	Yes				
		0.16	103		33	Yes	Yes				
88	97	0.21	143		34	Yes	Yes				
89	33	0.21	142		35	Yes		0.32	37	-0.11	-2.00
89	89	0.14	138		24			0.13	24	0.01	0.00

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
		0.17	137		32			0.2	25	-0.03	7.00
		0.16	168		17			0.22	16	-0.06	1.00
89	97	0.12	72		30	Yes	Yes				
		0.21	148		33	Yes	Yes				
90	40	0.28	144		38			0.42	33	-0.14	5.00
		0.07	146		28			0.06	27	0.01	1.00
		0.24	141		36			0.12	29	0.12	7.00
		0.1	65		26			0.12	29	-0.02	-3.00
		0.1	104		28			0.12	28	-0.02	0.00
		0.15	90		33			0.2	29	-0.05	4.00
		0.1	104		30			0.17	26	-0.07	4.00
		0.04	81		20			0.07	19	-0.03	1.00
90	88	0.18	136		33			0.27	32	-0.09	1.00
91	93	0.11	72		31			0.15	27	-0.04	4.00
91	94	0.16	120		33	Yes		0.26	31	-0.10	2.00
91	98	0.21	116		39	Yes		0.19	34	0.02	5.00
92	26	0.08	110		26			0.09	27	-0.01	-1.00
		0.15	140		30			0.21	29	-0.06	1.00
		0.25	163		34			0.25	31	0.00	3.00
		0.28	117		37			0.24	31	0.04	6.00
92	34	0.25	176		30		Yes	0.32	25	-0.07	5.00
		0.26	141		34		Yes	0.18	24	0.08	10.00
92	39	0.19	128		35			0.21	30	-0.02	5.00
92	43	0.37	145		38	Yes		0.45	30	-0.08	8.00
93	31	0.19	70		30	Yes		0.25	30	-0.06	0.00
		0.22	88		36	Yes		0.3	33	-0.08	3.00
93	39	0.15	131		40		Yes	0.21	29	-0.06	11.00
93	46	0.12	158		20			0.13	15	-0.01	5.00
		0.28	160		29			0.31	25	-0.03	4.00
		0.1	138		24			0.15	29	-0.05	-5.00
		0.15	166		26			0.15	23	0.00	3.00
93	79	0.16	133		33			0.15	32	0.01	1.00
93	87	0.11	158		22			0.15	17	-0.04	5.00
93	94	0.44	168		35			0.67	34	-0.23	1.00
		0.23	129		36			0.3	33	-0.07	3.00
95	36	0.19	105		37			0.19	31	0.00	6.00
		0.15	128		35			0.22	32	-0.07	3.00
		0.3	165		33			0.22	25	0.08	8.00
95	45	0.2	173		24			0.23	14	-0.03	10.00
		0.12	88		34			0.16	30	-0.04	4.00
		0.24	142		35			0.27	31	-0.03	4.00
		0.06	133		24			0.1	25	-0.04	-1.00

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
95	47	0.08	95		27			0.13	24	-0.05	3.00
96	40	0.29	157		38			0.29	32	0.00	6.00
96	41	0.36	148		36			0.32	33	0.04	3.00
		0.15	143		27			0.17	22	-0.02	5.00
96	42	0.16	133		30			0.32	30	-0.16	0.00
		0.29	151		37			0.42	34	-0.13	3.00
		0.28	159		34			0.24	26	0.04	8.00
96	44	0.12	109		25			0.17	25	-0.05	0.00
		0.15	51		30			0.12	24	0.03	6.00
96	45	0.13	110		31			0.16	28	-0.03	3.00
96	91	0.08	144		22			0.1	16	-0.02	6.00
97	37	0.1	123		30		Yes	0.09	17	0.01	13.00
97	41	0.25	166		28			0.3	30	-0.05	-2.00
		0.23	58		35			0.24	31	-0.01	4.00
97	49	0.15	132		32			0.23	31	-0.08	1.00
		0.12	153		30			0.26	22	-0.14	8.00
98	39	0.11	75		31			0.17	30	-0.06	1.00
		0.17	121		37			0.25	33	-0.08	4.00
		0.16	129		35			0.24	31	-0.08	4.00
		0.2	138		37			0.15	28	0.05	9.00
		0.13	106		25			0.17	24	-0.04	1.00
98	45	0.09	116		30			0.15	27	-0.06	3.00
98	47	0.07	85		23			0.09	26	-0.02	-3.00
		0.12	72		32			0.17	30	-0.05	2.00
99	41	0.18	90		31			0.2	30	-0.02	1.00
100	33	0.22	107		36			0.22	30	0.00	6.00
		0.18	87		35			0.24	31	-0.06	4.00
100	36	0.28	147		37			0.41	34	-0.13	3.00
		0.24	69		34			0.3	33	-0.06	1.00
100	38	0.09	90		30			0.43	33	-0.34	-3.00
		0.37	175		36			0.43	33	-0.06	3.00
		0.15	127		35			0.23	32	-0.08	3.00
100	41	0.36	160		38			0.53	32	-0.17	6.00
		0.31	150		34			0.24	29	0.07	5.00
100	45	0.12	107		28			0.17	30	-0.05	-2.00
100	66	0.09	126		25			0.11	21	-0.02	4.00
100	92	0.15	100		32			0.15	33	0.00	-1.00
		0.19	164		28			0.29	23	-0.10	5.00
101	43	0.17	62		32			0.22	29	-0.05	3.00
101	47	0.1	125		30			0.14	23	-0.04	7.00
		0.19	176		22			0.13	27	0.06	-5.00
		0.1	72		28			0.14	22	-0.04	6.00

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
101	90	0.16	132		30		Yes	0.15	29	0.01	1.00
		0.23	143		35		Yes	0.25	27	-0.02	8.00
101	98	0.13	133		30			0.2	32	-0.07	-2.00
		0.1	92		26			0.18	24	-0.08	2.00
102	41	0.25	152		34			0.28	34	-0.03	0.00
102	43	0.29	166		32			0.29	29	0.00	3.00
		0.22	57		36			0.25	33	-0.03	3.00
		0.12	120		27			0.21	28	-0.09	-1.00
103	37	0.24	120		38			0.3	31	-0.06	7.00
		0.25	135		33			0.33	34	-0.08	-1.00
		0.07	105		27			0.1	20	-0.03	7.00
103	41	0.13	65		32			0.16	28	-0.03	4.00
104	40	0.08	94		25			0.08	20	0.00	5.00
		0.18	160		32			0.21	31	-0.03	1.00
104	44	0.11	61		28			0.07	18	0.04	10.00
		0.16	160		27			0.16	23	0.00	4.00
		0.13	58		27			0.19	27	-0.06	0.00
104	90	0.24	166		34			0.23	29	0.01	5.00
		0.15	107		32			0.14	26	0.01	6.00
		0.09	123		34			0.15	32	-0.06	2.00
105	37	0.24	154		32	Yes	Yes				
106	30	0.17	47		31	Yes	Yes				
106	42	0.11	129		32			0.11	31	0.00	1.00
		0.19	144		32			0.19	30	0.00	2.00
		0.1	92		31			0.15	25	-0.05	6.00
		0.29	125		37			0.34	31	-0.05	6.00
106	48	0.3	150		35			0.28	32	0.02	3.00
106	50	0.1	86		28			0.12	25	-0.02	3.00
		0.19	58		30			0.24	29	-0.05	1.00
106	72	0.12	128		33		Yes	0.2	28	-0.08	5.00
		0.04	142		27		Yes	0.05	15	-0.01	12.00
106	74	0.12	125		31			0.14	28	-0.02	3.00
		0.02	121		12			0.05	15	-0.03	-3.00
107	47	0.23	153		34			0.3	34	-0.07	0.00
		0.15	106		31			0.23	31	-0.08	0.00
		0.12	137		31			0.12	32	0.00	-1.00
		0.15	87		34			0.21	31	-0.06	3.00
107	66	0.09	141		23			0.09	17	0.00	6.00
		0.13	145		26			0.14	27	-0.01	-1.00
		0.08	131		29			0.08	19	0.00	10.00
		0.08	137		31			0.09	23	-0.01	8.00
108	34	0.21	54		35			0.22	32	-0.01	3.00

First Span IGA in OTSG-B
Regression Analysis

ROW	COL	VOLTS	DEG	IND	TW (%)	ID'd IN 1999	PLUGGED IN 1999	PREVIOUS VOLTS	PREVIOUS TW (%)	VOLT GROWTH	TW GROWTH (%)
108	74	0.16	142		30			0.2	24	-0.04	6.00
109	46	0.23	154		31			0.26	25	-0.03	6.00
		0.17	147		27			0.18	27	-0.01	0.00
		0.15	149		24			0.19	28	-0.04	-4.00
110	40	0.25	160		26			0.27	23	-0.02	3.00
110	43	0.14	132		32			0.17	29	-0.03	3.00
110	46	0.14	81		31			0.18	30	-0.04	1.00
110	52	0.18	131		32			0.22	31	-0.04	1.00
		0.17	135		29			0.22	30	-0.05	-1.00
		0.1	134		24			0.12	24	-0.02	0.00
		0.13	115		34			0.18	28	-0.05	6.00
111	42	0.26	153		31			0.3	31	-0.04	0.00
		0.16	171		35			0.26	31	-0.10	4.00
111	51	0.15	132		35			0.25	30	-0.10	5.00
113	44	0.09	114		26			0.07	22	0.02	4.00
		0.28	150		30			0.27	33	0.01	-3.00
		0.2	170		27			0.34	26	-0.14	1.00
113	45	0.16	51		35			0.2	29	-0.04	6.00
114	42	0.07	117		31			0.04	25	0.03	6.00
		0.16	168		30			0.26	24	-0.10	6.00
		0.16	170		34			0.26	30	-0.10	4.00
		0.33	158		37			0.4	32	-0.07	5.00
		0.09	106		23			0.09	24	0.00	-1.00
114	43	0.11	70		29			0.11	25	0.00	4.00
		0.24	175		30			0.22	25	0.02	5.00
		0.24	168		33			0.39	28	-0.15	5.00
		0.23	164		28			0.26	30	-0.03	-2.00
		0.15	61		33			0.13	24	0.02	9.00
		0.04	151		26			0.04	32	0.00	-6.00
114	46	0.12	127		25			0.13	18	-0.01	7.00
116	43	0.09	117		28			0.11	25	-0.02	3.00
		0.22	137		35			0.24	29	-0.02	6.00
		0.05	60		25			0.08	24	-0.03	1.00
		0.15	153		30			0.15	26	0.00	4.00
118	41	0.21	142		34			0.21	29	0.00	5.00
		0.18	63		32			0.2	34	-0.02	-2.00
		0.12	77		28			0.16	29	-0.04	-1.00
123	77	0.1	135		30			0.14	24	-0.04	6.00
129	41	0.16	104		33			0.2	29	-0.04	4.00
131	3	0.13	126		26			0.14	21	-0.01	5.00

ATTACHMENT 1
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APPENDIX 3

TUBES PLUGGED

Tubes Plugged in OTSG-A

ROW	COL	VOLTS	DEG	IND	TW	LOC	INCH1	PROBE	TYPE	PLUGGED
8	56			Exceeded Max Torque						Yes
9	1			Bubble						Yes
43	63	0.14	78	SCI		LTS	-0.27	5202C	RPC	Yes
44	64	0.28	105	MCI		LTS	-0.20	5202C	RPC	Yes
45	55	0.18	90	SCI		LTS	-0.17	5202C	RPC	Yes
45	54	0.29	121	SCI		LTS	-0.20	5202C	RPC	Yes
46	62	0.19	82	SCI		LTS	-0.18	5202C	RPC	Yes
47	69	0.29	86	SVI		LTS	42.67	5202C	RPC	Yes
48	54	0.24	97	SCI		LTS	-0.29	5202C	RPC	Yes
49	62	0.29	113	SCI		LTS	-0.25	5202C	RPC	Yes
52	26			Bubble						Yes
54	89	0.25	116	SCI		LTS	-0.42	5202C	RPC	Yes
55	89	0.21	118	SCI		LTS	-0.58	5202C	RPC	Yes
56	89	0.39	104	SCI		LTS	-0.43	5202C	RPC	Yes
58	92	0.46	102	SCI		LTS	-0.47	5202C	RPC	Yes
58	90	0.26	104	SCI		LTS	-0.31	5202C	RPC	Yes
59	89	0.17	115	SVI		LTS	1.66	5202C	RPC	Yes
		0.2	71	SVI		LTS	5.33	5202C	RPC	Yes
61	125			Bubble						Yes
79	7	0.15	75	SVI		UTS	0.25	5202C	RPC	Yes
84	34	0.25	145	SVI		02S	-0.32	5202C	RPC	Yes
85	19	0.27	71	SAI		UTS	-7.36	5202C	RPC	Yes
91	2			Bubble						Yes
96	1	1	45	SAI		10S	-0.22	5202C	RPC	Yes
101	58			OBS		UTS	11.43	480UL	BOB	Yes
103	95	0.41	5	SAI		13S	-8.97	5202C	RPC	Yes
103	49	0.24	91	SCI		LTS	-0.26	5202C	RPC	Yes
104	52	1.37	86	SCI		LTS	-0.58	5202C	RPC	Yes
104	46	0.53	118	MCI		LTS	-0.37	5202C	RPC	Yes
105	51	0.26	99	MCI		LTS	-0.21	5202C	RPC	Yes
105	48	0.33	101	SCI		LTS	-0.28	5202C	RPC	Yes
105	47	0.1	94	SCI		LTS	-0.23	5202C	RPC	Yes
106	52	1.07	108	SCI		LTS	-0.25	5202C	RPC	Yes
106	51	0.6	106	SCI		LTS	-0.26	5202C	RPC	Yes
107	68			Bubble						Yes
107	60	0.12	85	SCI		LTS	-0.16	5202C	RPC	Yes
107	55	0.13	104	SCI		LTS	-0.28	5202C	RPC	Yes
107	53	0.5	121	SCI		LTS	-0.22	5202C	RPC	Yes
108	55	0.27	106	SCI		LTS	-0.20	5202C	RPC	Yes
108	54	0.23	106	MCI		LTS	-0.31	5202C	RPC	Yes
108	49	0.81	87	SCI		LTS	-0.20	5202C	RPC	Yes
109	58	0.28	79	SCI		LTS	-0.25	5202C	RPC	Yes

Tubes Plugged in OTSG-A

ROW	COL	VOLTS	DEG	IND	TW	LOC	INCH1	PROBE	TYPE	PLUGGED
109	54	0.18	89	MCI		LTS	-0.29	5202C	RPC	Yes
109	52	0.3	115	SCI		LTS	-0.23	5202C	RPC	Yes
109	51	0.37	107	SCI		LTS	-0.25	5202C	RPC	Yes
109	48	0.39	92	SCI		LTS	-0.25	5202C	RPC	Yes
110	57	0.2	83	SCI		LTS	-0.39	5202C	RPC	Yes
111	54	0.3	101	SCI		LTS	-0.20	5202C	RPC	Yes
112	66	0.35	89	SCI		LTS	-0.39	5202C	RPC	Yes
113	66	0.46	100	SCI		LTS	-0.55	5202C	RPC	Yes
121	28	1.16	17	SVI		08S	12.46	5202C	RPC	Yes
130	92	0.23	88	SAI		15S	1.11	5202C	RPC	Yes
137	78			Bubble						Yes

Tubes Plugged in OTSG-B

ROW	COL	VOLTS	DEG	IND	TW	LOC	INCH1	PROBE	TYPE	PLUGGED	COMMENT
31	51			Bubble						Yes	
33	53	0.06	142		14	LTS	3.12	510HF	BOB	Yes	No History
		0.14	69	VOL		LTS	3.23	5202C	RPC	Yes	No History
37	50	0.07	114		25	LTS	10.73	510HF	BOB	Yes	Growth >10
		0.11	73	VOL		LTS	10.84	520MR	RPC	Yes	Growth >10
39	54			Bubble						Yes	
42	86	0.13	103		31	LTS	2.01	510HF	BOB	Yes	No History
		0.27	64	VOL		LTS	2.14	5202C	RPC	Yes	No History
44	60	0.21	162		31	LTS	8.46	510HF	BOB	Yes	No History
		0.06	84	VOL		LTS	8.48	5202C	RPC	Yes	No History
46	39	0.04	135		20	LTS	9.27	510HF	BOB	Yes	Growth >10
		0.1	86	VOL		LTS	8.80	520MR	RPC	Yes	Growth >10
47	50	0.17	128		36	LTS	9.55	510HF	BOB	Yes	No History
		0.16	75	VOL		LTS	9.70	5202C	RPC	Yes	No History
48	39	0.27	154		34	LTS	11.94	510HF	BOB	Yes	No History
		0.17	59	VOL		LTS	12.27	5202C	RPC	Yes	No History
50	39	0.13	42	NQI		LTS	8.47	510HF	BOB	Yes	Reg NQI
50	41	0.21	71	MVI		LTS	8.63	520MR	RPC	Yes	
		0.23	77	MVI		LTS	8.63	520MR	RPC	Yes	
53	34	0.21	37	NQI		LTS	8.80	510HF	BOB	Yes	Reg NQI
53	35	0.18	149		41	LTS	8.06	510HF	BOB	Yes	
		0.22	133		40	LTS	7.87	510HF	BOB	Yes	
53	95	0.11	18	NQI		LTS	5.80	510HF	BOB	Yes	Reg NQI
54	44	0.15	128		41	LTS	9.11	510HF	BOB	Yes	
55	36	0.19	154		40	LTS	11.02	510HF	BOB	Yes	
55	43	0.21	114		40	LTS	11.68	510HF	BOB	Yes	
58	25	0.18	164		36	LTS	15.54	510HF	BOB	Yes	Growth >10
		0.12	63	VOL		LTS	15.84	520MR	RPC	Yes	Growth >10
62	37	0.25	116		40	LTS	11.61	510HF	BOB	Yes	
		0.47	112		43	LTS	7.78	510HF	BOB	Yes	
62	43	0.22	158		32	LTS	5.69	510HF	BOB	Yes	No History
		0.16	59	VOL		LTS	6.17	5202C	RPC	Yes	No History
64	36	0.14	73		36	LTS	13.83	510HF	BOB	Yes	No History
		0.15	73	VOL		LTS	14.33	5202C	RPC	Yes	No History
64	37	0.04	100		32	LTS	17.30	510HF	BOB	Yes	No History
		0.2	54		36	LTS	15.92	510HF	BOB	Yes	No History
		0.27	153		36	LTS	8.63	510HF	BOB	Yes	No History
		0.34	160		38	LTS	17.51	510HF	BOB	Yes	No History
		0.12	83	VOL		LTS	16.48	5202C	RPC	Yes	No History
		0.15	68	VOL		LTS	17.63	5202C	RPC	Yes	No History
		0.25	63	VOL		LTS	8.85	5202C	RPC	Yes	No History
		0.25	66	VOL		LTS	17.80	5202C	RPC	Yes	No History
64	99	0.24	142		33	LTS	10.10	510HF	BOB	Yes	No History
		0.13	66	VOL		LTS	10.37	5202C	RPC	Yes	No History
65	41	0.11	82		33	LTS	15.50	510HF	BOB	Yes	No History

Tubes Plugged in OTSG-B

ROW	COL	VOLTS	DEG	IND	TW	LOC	INCH1	PROBE	TYPE	PLUGGED	COMMENT
		0.12	91	VOL		LTS	15.76	5202C	RPC	Yes	No History
66	35			Bubble						Yes	
67	95	0.14	123		38	LTS	5.81	510HF	BOB	Yes	No History
		0.07	80	VOL		LTS	6.19	5202C	RPC	Yes	No History
		0.08	68	VOL		LTS	6.21	5202C	RPC	Yes	No History
70	77			Bubble						Yes	
71	131	0.27	77	SAI		15S	-6.95	5202C	RPC	Yes	
72	108			Torque Not Achieved							
74	110	0.1	83		29	LTS	30.29	510HF	BOB	Yes	Growth >10
		0.14	55	VOL		LTS	30.53	520MR	RPC	Yes	Growth >10
75	14	1.92	111	SCI		15S	-2.76	400SP	RPC	Yes	Sleeve
75	107			Bubble						Yes	
77	20	0.87	46	SAI		UTE	-0.73	400SP	RPC	Yes	Sleeve
78	31			SVI		UTE	-3.51				
79	22	0.19	62	MVI		LTS	28.12	520MR	RPC	Yes	
80	4	8.54	69	SCI		UTE	-0.18	400SP	RPC	Yes	Sleeve
80	94	0.06	99		23	LTS	12.04	510HF	BOB	Yes	No History
		0.1	134		29	LTS	11.37	510HF	BOB	Yes	No History
		0.17	154		30	LTS	6.76	510HF	BOB	Yes	No History
		0.2	53		35	LTS	13.36	510HF	BOB	Yes	No History
		0.27	153		35	LTS	15.32	510HF	BOB	Yes	No History
		0.29	162		36	LTS	13.66	510HF	BOB	Yes	No History
		0.06	97	VOL		LTS	11.92	5202C	RPC	Yes	No History
		0.1	58	VOL		LTS	11.26	5202C	RPC	Yes	No History
		0.12	81	VOL		LTS	6.73	5202C	RPC	Yes	No History
		0.13	66	VOL		LTS	13.29	5202C	RPC	Yes	No History
		0.14	66	VOL		LTS	13.58	5202C	RPC	Yes	No History
		0.15	73	VOL		LTS	15.30	5202C	RPC	Yes	No History
80	97	0.19	125		40	LTS	8.95	510HF	BOB	Yes	
81	97	0.2	33	NQI		LTS	11.33	510HF	BOB	Yes	Reg NQI
		0.22	44	NQI		LTS	9.43	510HF	BOB	Yes	Reg NQI
82	96	0.29	63		38	LTS	12.31	510HF	BOB	Yes	No History
		0.19	77	VOL		LTS	12.50	5202C	RPC	Yes	No History
83	91	0.12	138		30	LTS	9.94	510HF	BOB	Yes	No History
		0.05	81	VOL		LTS	10.15	5202C	RPC	Yes	No History
83	93	0.1	158		34	LTS	10.57	510HF	BOB	Yes	No History
		0.07	64	VOL		LTS	10.92	5202C	RPC	Yes	No History
84	94	0.27	110		41	LTS	13.54	510HF	BOB	Yes	
85	99	0.42	136		41	LTS	10.98	510HF	BOB	Yes	
87	34	0.38	159		34	LTS	11.11	510HF	BOB	Yes	No History
		0.2	76	VOL		LTS	11.29	5202C	RPC	Yes	No History
87	98	0.2	115		40	LTS	8.77	510HF	BOB	Yes	
88	96	0.15	115		31	LTS	10.84	510HF	BOB	Yes	No History

Tubes Plugged in OTSG-B

ROW	COL	VOLTS	DEG	IND	TW	LOC	INCH1	PROBE	TYPE	PLUGGED	COMMENT
		0.16	103		33	LTS	13.21	510HF	BOB	Yes	No History
		0.12	89	VOL		LTS	13.43	5202C	RPC	Yes	No History
		0.13	61	VOL		LTS	10.08	5202C	RPC	Yes	No History
88	97	0.21	143		34	LTS	12.56	510HF	BOB	Yes	No History
		0.14	74	VOL		LTS	12.73	5202C	RPC	Yes	No History
89	70			Bubble						Yes	
89	97	0.12	72		30	LTS	5.64	510HF	BOB	Yes	No History
		0.21	148		33	LTS	8.94	510HF	BOB	Yes	No History
		0.13	76	VOL		LTS	5.91	5202C	RPC	Yes	No History
		0.2	75	VOL		LTS	9.12	5202C	RPC	Yes	No History
92	34	0.17	62	MVI		LTS	15.16	520MR	RPC	Yes	
92	122	0.22	60	SVI		06S	-16.05	5202C	RPC	Yes	
93	39	0.15	131		40	LTS	10.04	510HF	BOB	Yes	Growth >10
		0.1	62	VOL		LTS	10.03	520MR	RPC	Yes	Growth >10
94	1			Torque Not Achieved							
94	129	0.62	79	SVI		07S	0.97	5202C	RPC	Yes	
97	37	0.1	123		30	LTS	15.93	510HF	BOB	Yes	Growth >10
		0.19	56	VOL		LTS	15.83	520MR	RPC	Yes	Growth >10
99	88	0.24	96	SAI		06S	6.93	5202C	RPC	Yes	
101	90	0.11	75	MVI		LTS	8.11	520MR	RPC	Yes	
105	37	0.24	154		32	LTS	15.93	510HF	BOB	Yes	No History
		0.12	80	VOL		LTS	16.30	5202C	RPC	Yes	No History
106	30	0.17	47		31	LTS	9.90	510HF	BOB	Yes	Growth >10
		0.18	77	VOL		LTS	10.18	5202C	RPC	Yes	Growth >10
106	72	0.04	142		27	LTS	7.94	510HF	BOB	Yes	Growth >10
		0.07	80	VOL		LTS	7.79	520MR	RPC	Yes	Growth >10
128	43	0.25	69	SVI		15S	-9.64	5202C	RPC	Yes	
144	10			Torque Not Achieved							
146	3			Torque Not Achieved							
146	51	0.47	81	SVI		07S	0.92	5202C	RPC	Yes	
148	38	0.52	80	SVI		07S	0.99	5202C	RPC	Yes	
151	1			Exceeded Max Torque							
151	13			Torque Not Achieved							
151	16	0.24	108	SVI		10S	10.04	5202C	RPC	Yes	

ATTACHMENT 1
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APPENDIX 4

TUBES REPAIRED
(RE-ROLLED)

Tubes Repaired in OTSG-A

ROW	COL
1	1
1	5
1	6
1	10
1	11
1	12
1	13
1	15
2	6
2	22
2	23
2	24
2	25
2	26
2	27
3	1
3	3
3	4
3	33
3	34
4	23
4	38
4	41
5	45
5	46
6	50
7	54
8	1
8	56
9	1
9	2
9	60
9	61
9	62
10	36
10	39
10	64
10	65

ROW	COL
11	2
11	40
11	43
11	45
11	55
11	67
11	68
12	2
12	50
12	57
12	70
12	71
13	2
13	73
13	74
14	48
14	75
15	1
15	15
15	77
15	78
16	1
16	80
16	81
17	1
17	82
18	2
18	84
18	85
19	1
19	81
19	83
19	86
20	1
20	2
20	55
20	70
20	82

ROW	COL
20	84
20	85
21	5
21	60
21	90
22	64
22	87
22	92
22	93
23	66
23	94
24	95
25	4
25	97
25	98
27	1
27	95
27	100
28	1
29	1
29	77
29	104
30	36
31	76
31	104
32	76
33	45
33	98
33	108
34	107
35	69
35	85
35	108
36	1
36	43
36	53
36	54
36	112

ROW	COL
36	113
37	102
37	114
38	4
38	72
38	115
39	1
39	75
39	77
39	83
39	108
39	115
40	1
40	75
41	78
41	116
42	78
42	117
43	71
43	89
43	97
44	88
44	119
45	79
45	120
46	119
47	89
47	102
47	122
48	78
48	96
48	123
49	24
49	94
49	108
49	124
50	45
50	92

Tubes Repaired in OTSG-A

ROW	COL
50	117
50	123
51	124
52	26
52	41
52	73
52	75
52	109
52	125
53	91
53	126
54	77
54	103
55	1
55	88
55	126
56	92
56	96
56	97
56	101
56	127
57	37
57	98
57	105
57	128
58	1
58	103
58	115
58	116
59	37
59	75
59	124
60	88
60	128
60	129
61	1
61	125
62	81

ROW	COL
62	101
62	129
64	57
64	90
64	101
64	102
66	87
66	93
66	96
66	101
66	131
67	32
67	100
67	108
68	102
68	131
69	1
69	125
70	131
71	32
71	96
71	101
72	34
72	53
72	91
72	97
72	130
73	41
73	49
73	117
73	125
74	41
74	125
75	92
75	95
75	96
77	99
78	34

ROW	COL
79	41
80	97
80	131
81	34
81	83
82	27
82	33
82	34
82	40
82	130
83	27
83	41
83	111
84	27
84	29
84	41
84	94
85	30
85	40
85	110
86	23
86	29
86	33
86	43
86	55
86	97
86	99
86	131
87	1
87	40
88	23
88	25
88	27
88	33
88	35
88	41
88	43
88	80

ROW	COL
88	92
88	129
89	1
89	26
89	85
89	93
90	87
90	93
90	129
91	1
91	2
91	32
91	33
91	41
91	92
92	88
93	41
93	100
94	43
94	129
95	32
95	51
95	97
95	111
95	128
96	45
96	127
97	34
97	38
97	103
97	105
98	25
98	27
98	127
99	10
99	126
100	31
100	32

Tubes Repaired in OTSG-A

ROW	COL
100	47
100	125
101	124
102	29
102	96
102	123
103	1
103	21
103	65
103	124
104	7
104	26
104	31
104	93
105	42
105	44
105	46
105	50
106	16
106	20
106	22
106	24
106	26
106	28
106	30
106	55
106	77
106	79
106	81
106	82
106	83
106	88
106	104
107	1
107	19
107	21
107	25
107	27

ROW	COL
107	31
107	39
107	68
107	73
107	97
108	21
108	27
108	29
108	31
108	37
108	39
108	47
108	119
109	18
109	24
109	26
109	32
109	38
109	40
109	42
109	75
109	118
110	28
110	30
110	31
110	40
110	43
110	44
110	46
110	116
111	19
111	25
111	30
111	58
111	116
112	1
112	28
112	35

ROW	COL
112	117
113	74
113	86
113	94
113	116
114	76
114	78
114	80
114	82
114	115
115	21
115	36
115	37
115	42
115	47
115	70
115	73
115	93
115	96
115	99
115	114
116	2
116	23
116	25
116	34
116	40
116	61
116	112
116	113
117	34
117	43
117	70
117	79
117	92
117	108
118	35
118	41
118	77

ROW	COL
118	107
119	1
119	87
119	108
120	59
120	63
120	69
120	107
121	47
121	58
121	60
121	62
121	75
121	106
122	5
122	34
122	37
122	44
122	46
122	47
122	57
122	76
122	105
123	30
123	37
123	39
123	40
123	45
123	46
123	53
123	54
123	69
123	71
123	103
123	104
124	1
124	25
124	37

Tubes Repaired in OTSG-A

ROW	COL
124	39
124	43
124	47
124	58
124	62
124	75
124	83
124	101
125	38
125	40
125	41
125	46
125	50
125	53
125	100
126	33
126	36
126	37
126	41
126	43
126	57
126	65
126	99
127	39
127	42
127	45
127	49
127	53
127	65
127	69
127	82
127	97
127	98
128	1
128	31
128	34
128	41
128	45

ROW	COL
128	62
128	95
129	1
129	17
129	20
129	22
129	37
129	57
129	63
129	86
129	94
130	36
130	38
130	46
130	48
130	78
130	93
131	38
131	60
132	19
132	50
132	84
132	85
133	13
133	36
133	46
133	57
133	58
133	63
133	73
134	2
134	35
134	58
134	75
134	85
135	31
135	34
135	37

ROW	COL
135	47
135	55
135	73
135	82
136	30
136	33
136	44
136	80
136	81
137	2
137	12
137	29
137	33
137	35
137	37
137	39
137	46
137	78
138	1
138	25
138	42
139	1
139	33
139	71
139	73
139	74
140	1
140	2
140	23
140	27
140	29
140	71
141	1
141	2
141	18
141	40
141	67
141	68

ROW	COL
142	1
142	2
142	17
142	19
142	21
142	23
142	24
142	27
142	31
142	33
142	64
142	65
143	1
143	3
143	21
143	29
143	50
143	61
143	62
144	1
144	2
144	13
144	14
144	15
144	16
144	32
144	56
144	57
145	17
145	18
145	23
145	29
145	53
145	54
146	2
146	11
146	14
147	11

Tubes Repaired in OTSG-A

ROW	COL
147	15
147	46
148	38
148	40
148	41
149	1
149	31
149	32
149	33
149	34
150	1
150	2
150	4
150	22
150	23
150	24
150	25
150	26
150	27
151	2
151	3
151	4
151	5
151	6
151	7
151	8
151	9
151	10
151	12
151	14

Tubes Repaired in OTSG-B

ROW	COL
1	1
1	2
1	7
1	8
1	9
1	10
1	13
2	1
3	1
3	2
3	34
4	3
4	4
4	5
4	7
4	40
5	3
7	2
7	3
7	16
8	57
9	1
9	2
9	3
9	13
9	36
11	14
11	30
11	46
11	68
12	1
12	42
13	73
14	50
16	59
17	65
18	1
18	44

ROW	COL
18	50
18	85
19	63
19	86
20	64
20	84
20	85
21	1
21	49
21	60
21	89
21	90
22	1
22	50
22	54
22	70
22	93
23	41
23	51
23	59
24	25
24	62
24	72
24	74
25	21
25	59
25	71
25	98
26	1
26	49
26	99
27	53
27	61
27	66
27	69
27	81
27	100
28	1

ROW	COL
28	56
28	87
28	101
29	19
29	21
29	56
29	66
29	68
29	71
29	103
29	104
30	32
30	70
30	71
30	73
30	76
30	80
30	89
30	101
30	105
31	32
31	51
31	56
31	75
31	77
31	79
31	81
31	106
32	7
32	25
32	107
33	10
33	70
33	73
33	75
34	16
34	78
35	27

ROW	COL
35	74
35	81
35	88
35	92
35	108
36	51
36	76
36	91
36	112
37	55
37	58
37	68
37	70
37	92
37	109
37	114
38	14
38	71
38	72
38	82
38	94
38	115
39	54
39	95
39	103
39	116
40	1
40	34
40	52
40	68
40	101
40	117
41	33
41	116
42	15
42	18
42	66
42	117

Tubes Repaired in OTSG-B

ROW	COL
43	1
43	74
43	79
43	83
43	100
43	101
43	106
43	118
44	1
44	13
44	25
44	69
44	89
44	119
45	11
45	53
45	77
45	81
45	95
45	120
46	10
46	30
46	56
46	84
46	103
46	118
46	119
47	36
47	77
47	78
47	79
47	96
47	111
47	122
48	13
48	21
48	76
48	81

ROW	COL
48	84
49	21
49	76
49	79
49	114
50	21
50	75
50	77
50	80
50	82
50	91
51	16
51	37
51	52
51	82
51	103
51	122
51	124
52	1
52	24
52	63
52	102
52	117
52	118
52	120
52	125
53	29
53	54
53	82
53	84
53	125
53	126
54	90
54	104
54	116
54	127
55	27
55	35

ROW	COL
55	39
55	42
55	88
55	93
55	100
56	1
56	29
56	46
56	77
56	86
56	99
56	127
57	20
57	128
58	129
59	29
59	43
59	110
59	119
60	77
60	110
60	114
61	13
61	41
61	78
61	126
62	22
62	52
62	54
62	78
62	119
62	124
63	20
63	23
63	25
63	43
63	82
63	119

ROW	COL
64	35
64	42
64	103
65	18
65	20
65	35
65	39
65	79
65	91
65	113
65	123
66	2
66	26
66	31
66	35
66	39
66	46
66	80
67	20
67	40
67	51
67	85
67	124
68	36
68	37
68	41
68	123
68	129
69	32
69	42
69	46
69	50
69	52
69	87
69	95
69	102
69	105
69	111

Tubes Repaired in OTSG-B

ROW	COL
69	119
69	123
70	18
70	27
70	33
70	35
70	44
70	49
70	51
70	53
70	55
70	77
70	82
70	94
70	95
71	5
71	18
71	41
71	48
71	99
71	108
71	123
72	15
72	22
72	24
72	31
72	34
72	36
72	44
72	46
72	48
72	68
72	90
72	94
72	99
72	107
72	108
73	31

ROW	COL
73	32
73	88
73	94
74	36
74	39
74	54
74	103
74	105
75	49
75	50
75	56
75	91
75	95
75	104
75	107
75	108
76	76
76	92
77	41
77	83
77	90
77	97
77	112
77	113
78	31
78	33
78	41
78	48
78	74
78	84
78	112
79	34
79	86
79	109
79	130
80	24
80	33
80	41

ROW	COL
80	73
80	100
80	108
81	18
81	32
81	47
81	51
81	79
81	82
81	84
81	102
81	107
81	111
81	120
82	18
82	22
82	31
82	33
82	44
82	48
82	86
82	97
82	101
82	102
82	118
82	122
82	130
83	18
83	19
83	29
83	37
83	45
83	49
83	50
83	84
83	94
83	119
83	128

ROW	COL
84	16
84	22
84	40
84	44
84	47
84	81
84	82
84	84
84	91
85	25
85	27
85	52
85	90
86	19
86	26
86	40
86	43
86	59
86	82
86	87
86	100
86	111
87	25
87	28
87	46
87	52
87	85
87	102
87	103
87	106
87	126
88	19
88	27
88	38
88	54
88	104
88	129
89	1

Tubes Repaired in OTSG-B

ROW	COL
89	16
89	24
89	33
89	45
89	54
89	68
89	70
89	73
89	79
89	82
89	88
89	89
89	90
89	93
89	94
89	108
89	110
89	119
89	121
89	130
90	1
90	16
90	55
90	56
90	113
90	129
91	1
91	25
91	80
91	82
91	86
91	91
91	94
91	104
91	117
91	126
92	1
92	14

ROW	COL
92	19
92	43
92	48
92	55
92	56
92	58
92	77
92	84
92	98
92	111
92	114
92	129
93	14
93	28
93	33
93	35
93	49
93	51
93	53
93	75
93	76
93	82
93	84
93	85
93	92
93	102
93	124
94	1
94	18
94	20
94	22
94	24
94	55
94	56
94	81
94	84
94	99
94	105

ROW	COL
94	107
94	111
94	113
94	128
95	1
95	17
95	34
95	47
95	51
95	53
95	55
95	98
95	99
95	102
95	128
96	1
96	19
96	42
96	51
96	101
96	102
96	103
96	106
96	108
96	109
96	127
97	6
97	30
97	31
97	38
97	46
97	53
97	76
97	84
97	97
97	102
97	104
97	106

ROW	COL
97	120
98	1
98	40
98	42
98	49
98	55
98	83
98	86
98	87
98	88
98	91
98	96
98	101
98	127
99	32
99	55
99	79
99	80
99	93
99	97
99	116
99	126
100	1
100	39
100	52
100	76
100	78
100	84
100	93
100	110
101	5
101	49
101	50
101	76
101	80
101	85
101	88
101	89

Tubes Repaired in OTSG-B

ROW	COL
101	94
101	97
101	105
102	5
102	34
102	39
102	45
102	76
102	77
102	101
102	102
102	105
103	1
103	37
103	38
103	42
103	74
103	75
103	76
103	78
103	86
103	104
103	124
104	1
104	34
104	76
104	94
104	100
105	39
105	50
105	74
105	75
105	81
105	89
105	122
106	1
106	73
106	75

ROW	COL
106	79
106	96
107	1
107	11
107	24
107	25
107	57
107	95
107	120
108	18
108	26
108	32
108	66
108	68
108	88
108	89
108	119
109	1
109	18
109	35
109	43
109	66
109	72
109	73
109	94
109	118
110	1
110	19
110	39
110	40
110	63
110	66
110	72
110	79
110	86
110	89
111	20
111	26

ROW	COL
111	28
111	62
111	63
111	65
111	71
111	95
111	97
111	100
111	101
111	106
112	1
112	48
112	71
112	77
112	79
112	85
112	87
112	89
112	93
112	94
112	96
112	117
113	1
113	2
113	52
113	79
113	81
113	85
113	91
113	95
113	115
113	116
114	1
114	22
114	40
114	48
114	52
114	70

ROW	COL
114	77
114	115
115	1
115	49
115	76
115	79
115	81
115	114
116	43
116	66
116	72
116	77
116	85
116	88
116	113
117	39
117	66
117	67
117	80
118	35
118	64
118	68
118	77
118	82
118	83
118	87
118	107
119	49
119	62
119	69
119	78
119	91
119	108
120	13
120	40
120	60
120	68
121	15

Tubes Repaired in OTSG-B

ROW	COL
121	27
121	34
121	61
121	62
121	72
121	82
121	106
122	25
122	42
122	44
122	50
122	105
123	1
123	20
123	24
123	54
123	60
123	61
123	62
123	65
123	75
123	96
123	103
124	28
124	33
124	40
124	54
124	55
124	56
124	57
124	58
124	61
124	65
124	67
124	71
124	77
124	89
124	101

ROW	COL
125	10
125	28
125	31
125	33
125	34
125	40
125	52
125	68
125	72
125	87
125	100
126	1
126	24
126	38
126	39
126	43
126	49
126	53
126	60
126	94
126	99
127	8
127	27
127	33
127	39
127	51
127	71
127	86
127	90
127	98
128	59
129	26
129	31
129	94
130	1
130	12
130	18
130	25

ROW	COL
130	29
130	48
130	69
130	92
130	93
131	24
131	27
131	72
131	75
132	1
132	2
132	85
133	22
133	54
134	27
134	48
135	1
135	52
135	64
135	82
136	1
136	20
136	77
137	2
137	16
137	18
138	16
138	66
139	17
139	74
140	1
140	2
140	70
140	71
141	38
141	66
141	68
142	1

ROW	COL
142	2
142	18
142	64
142	65
143	1
143	2
143	3
143	60
143	61
143	62
144	1
144	2
144	10
144	56
145	1
145	2
145	53
145	54
146	1
146	3
146	49
147	46
148	4
148	39
148	41
149	1
149	31
149	33
150	2
150	4
151	1
151	4
151	5
151	9
151	13

ATTACHMENT 1
SPECIAL REPORT 00-01

TUBES WITH
TUBE END CRACKS
(TEC)
REMAINING IN-SERVICE

APPENDIX 5

Tubes with TEC Remaining In-Service for OTSG-A

ROW	COL
3	31
4	26
5	33
5	40
6	43
6	49
7	43
8	2
9	3
9	54
10	30
10	49
10	50
10	56
11	57
11	63
12	45
12	53
12	67
13	37
13	48
13	68
14	46
14	54
14	55
14	67
14	69
14	71
15	2
15	68
15	70
15	71
15	72
16	40
16	58
16	73
16	74
16	77
17	57
17	70
17	71
17	72
17	74
17	75
18	59

ROW	COL
18	60
18	72
18	74
18	75
18	76
18	78
18	79
18	82
19	62
19	69
19	72
19	73
19	74
19	76
19	77
19	79
19	84
20	39
20	68
20	73
20	75
20	76
20	77
20	80
21	61
21	62
21	64
21	74
21	75
21	76
21	77
21	81
21	83
21	84
21	85
22	52
22	63
22	65
22	76
22	78
22	82
22	85
22	86
22	91
23	69

ROW	COL
23	76
23	77
23	78
23	79
23	80
23	85
23	86
23	93
24	53
24	77
24	79
24	80
24	82
24	86
24	91
25	13
25	59
25	67
25	79
25	80
25	81
25	88
26	68
26	79
26	82
26	85
26	90
26	92
27	60
27	79
27	82
27	97
28	47
28	59
28	75
28	79
28	80
28	83
28	89
28	91
28	94
28	100
29	58
29	83
29	93

ROW	COL
29	94
29	95
30	49
30	70
30	84
30	96
31	69
31	71
32	58
32	83
32	90
32	96
32	97
32	101
32	102
32	104
34	95
34	96
34	98
34	99
35	61
35	90
36	86
36	95
36	97
36	98
36	99
36	100
36	103
36	105
36	106
36	109
36	110
37	94
37	97
37	98
37	99
37	100
37	103
37	106
37	109
37	110
38	77
38	87
38	95

Tubes with TEC Remaining In-Service for OTSG-A

ROW	COL
38	96
38	98
38	99
38	101
38	104
38	114
39	64
39	71
39	76
39	78
39	91
39	99
39	100
39	101
39	111
40	77
40	94
40	100
40	101
40	113
41	60
41	89
41	90
41	91
41	95
41	98
41	99
41	109
41	111
41	112
41	114
41	115
42	105
42	107
42	111
42	115
42	116
43	56
43	62
43	83
43	88
43	90
43	91
43	92
43	96

ROW	COL
43	100
43	107
43	112
44	60
44	89
44	97
44	100
44	106
44	107
44	109
44	110
45	88
45	91
45	93
45	97
45	98
45	103
45	112
45	114
46	60
46	86
46	87
46	88
46	117
47	12
47	88
47	92
47	93
47	94
47	101
47	105
47	107
47	117
47	121
48	90
48	91
48	110
48	114
48	118
49	95
49	104
49	111
50	8
50	58
50	110

ROW	COL
50	122
51	93
51	94
51	95
51	108
51	111
51	116
51	118
51	120
51	122
52	91
52	101
52	117
52	120
53	107
53	115
53	121
53	122
54	92
54	101
55	10
55	83
55	96
56	80
56	85
57	5
57	85
57	87
57	96
57	112
57	113
58	50
58	111
58	123
58	128
59	87
59	94
59	97
59	105
59	109
59	120
60	73
60	97
60	115
61	16

ROW	COL
63	100
64	103
65	8
65	101
66	62
66	63
66	103
67	50
67	69
67	97
67	101
67	102
67	103
68	97
69	62
69	71
69	93
72	51
72	94
78	30
81	38
84	52
85	45
86	90
87	49
88	36
88	46
90	24
91	78
91	82
91	85
91	109
92	121
93	117
94	118
95	38
95	69
95	82
95	88
95	110
97	99
97	114
97	117
97	122
98	115

Tubes with TEC Remaining In-Service for OTSG-A

ROW	COL
98	123
99	78
99	115
99	123
100	75
100	78
100	108
101	96
101	114
101	120
102	104
102	109
102	115
102	121
103	102
104	105
105	36
105	114
105	121
106	53
106	91
107	103
107	107
107	108
107	109
108	93
110	102
111	99
111	101
114	99
114	109
114	111
114	112
114	113
115	100
115	102
115	109
115	111
116	37
116	92
116	101
116	106
116	108
118	96
120	79

ROW	COL
122	79
122	80
122	85
122	99
123	102
125	56
126	87
126	94
127	91
128	89
129	69
129	80
130	2
130	68
130	90
131	19
132	17
132	73
133	5
133	42
134	11
134	84
135	81
137	11
139	56
141	56
142	52
143	53
144	46
146	43
151	1

Tubes with TEC Remaining In-Service for OTSG-B

ROW	COL
1	15
2	25
3	3
3	4
4	37
5	7
6	10
6	34
7	20
7	34
7	54
8	2
9	4
9	5
9	60
11	2
11	11
11	12
11	20
11	21
12	2
13	20
13	56
15	8
15	21
15	42
16	24
17	10
17	22
17	76
17	82
18	12
18	14
19	1
19	18
19	47
20	2
20	31
21	14
21	20
21	27
21	50
22	12
22	16
22	28

ROW	COL
22	90
23	16
23	21
23	23
23	44
23	92
23	94
24	1
24	19
24	24
25	28
25	58
25	93
25	97
26	4
26	94
27	10
27	95
27	98
27	99
28	6
28	30
28	66
28	95
28	97
29	2
29	6
29	94
29	97
30	8
30	9
30	12
30	97
31	11
31	18
32	9
32	53
32	102
34	23
34	27
34	28
34	39
34	107
35	11
35	106

ROW	COL
37	12
37	103
38	13
38	114
39	27
39	31
40	15
42	31
42	63
42	106
42	111
43	12
44	7
44	12
45	1
45	8
45	29
45	85
45	119
46	14
46	15
46	16
47	3
47	14
47	25
47	33
48	3
48	31
48	50
49	17
49	23
49	58
50	123
51	1
51	112
51	116
51	119
52	7
52	30
52	116
53	5
53	119
55	122
55	123
56	5

ROW	COL
56	17
57	13
58	3
58	114
58	119
58	120
58	126
59	117
59	121
59	124
60	26
60	116
60	126
61	121
62	34
62	123
66	16
66	21
66	50
66	111
66	120
67	9
67	11
71	42
71	51
71	67
72	122
72	130
73	55
74	40
74	55
74	108
75	53
75	57
78	34
78	50
78	57
78	126
80	110
80	111
81	85
81	130
82	50
83	126
84	9

Tubes with TEC Remaining In-Service for OTSG-B

ROW	COL
84	37
84	59
85	41
85	58
85	86
86	8
86	41
86	60
87	107
88	9
88	118
89	7
89	8
93	6
93	7
94	7
94	126
97	8
99	5
99	6
100	28
100	31
101	1
102	106
104	18
105	4
106	9
109	2
110	34
111	64
111	116
112	13
115	27
116	30
117	25
117	88
117	89
117	108
118	17
119	26
119	40
119	88
120	26
120	30
120	65

ROW	COL
121	18
121	23
121	25
121	26
121	31
121	38
121	100
122	12
122	26
122	29
122	57
122	61
122	87
122	89
123	2
123	6
123	10
123	17
123	18
123	22
123	28
123	30
124	1
124	16
124	29
125	11
125	29
125	69
125	73
125	81
125	82
126	10
126	25
126	30
126	31
126	71
126	79
126	83
127	2
127	5
127	10
127	37
127	75
127	79
127	80

ROW	COL
127	85
127	89
128	8
128	12
128	17
128	19
128	23
128	24
128	37
128	78
128	81
129	10
129	23
129	27
129	76
129	79
130	2
130	10
130	22
130	27
130	28
130	77
130	78
131	7
131	11
131	14
131	16
131	18
131	22
131	23
131	25
131	30
131	35
131	63
131	68
131	70
131	74
131	77
131	78
132	21
132	23
132	26
132	29
132	30
132	55

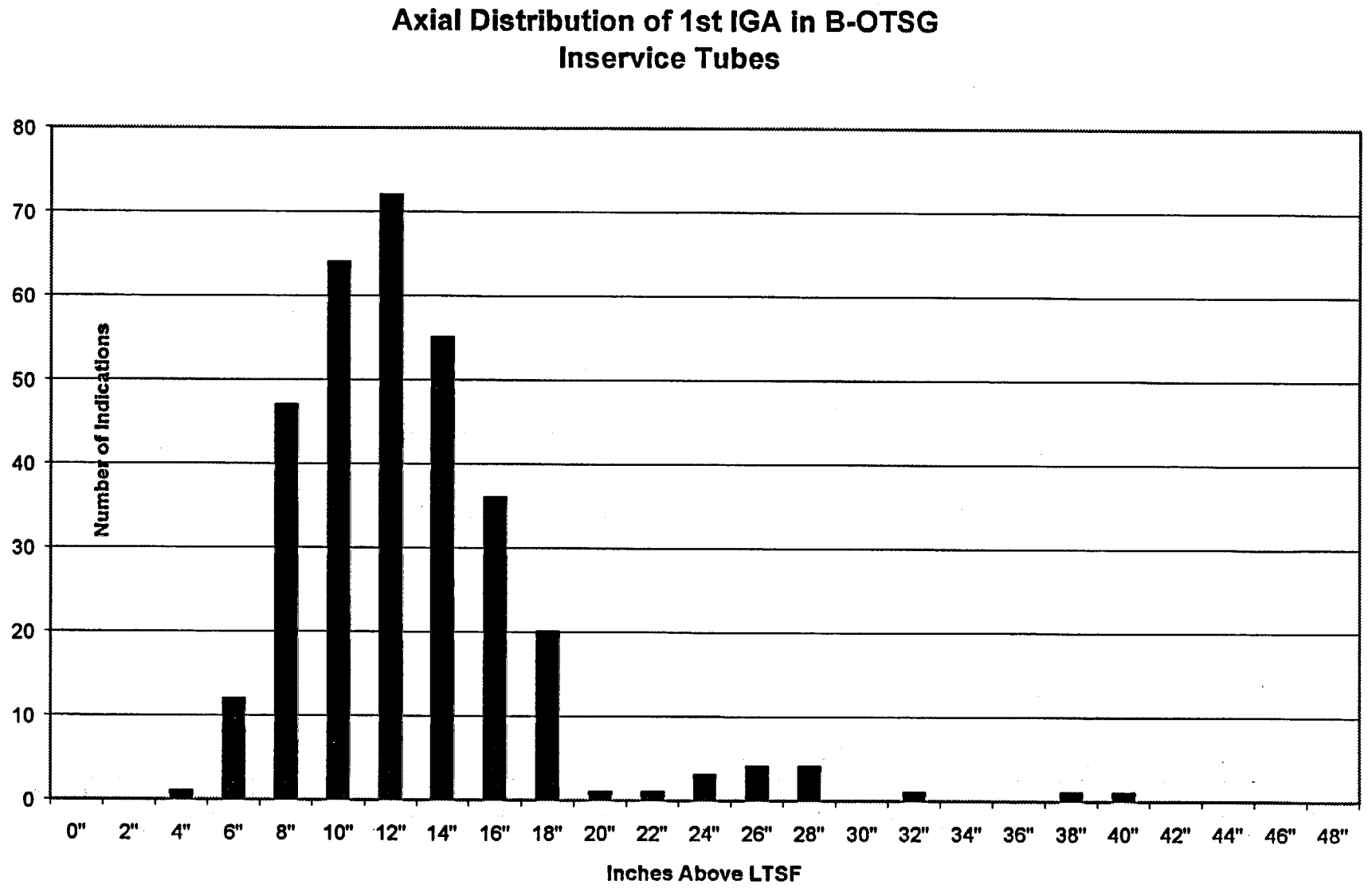
ROW	COL
132	71
132	84
133	1
133	8
133	12
133	14
133	44
133	66
133	72
133	74
133	75
133	76
134	7
134	16
134	22
134	40
134	65
134	72
134	73
134	74
135	12
135	14
135	23
135	26
135	27
135	70
135	72
135	76
136	14
136	51
136	59
136	70
136	71
136	72
136	74
136	75
137	8
137	9
137	10
137	11
137	14
137	17
137	29
137	39
137	53

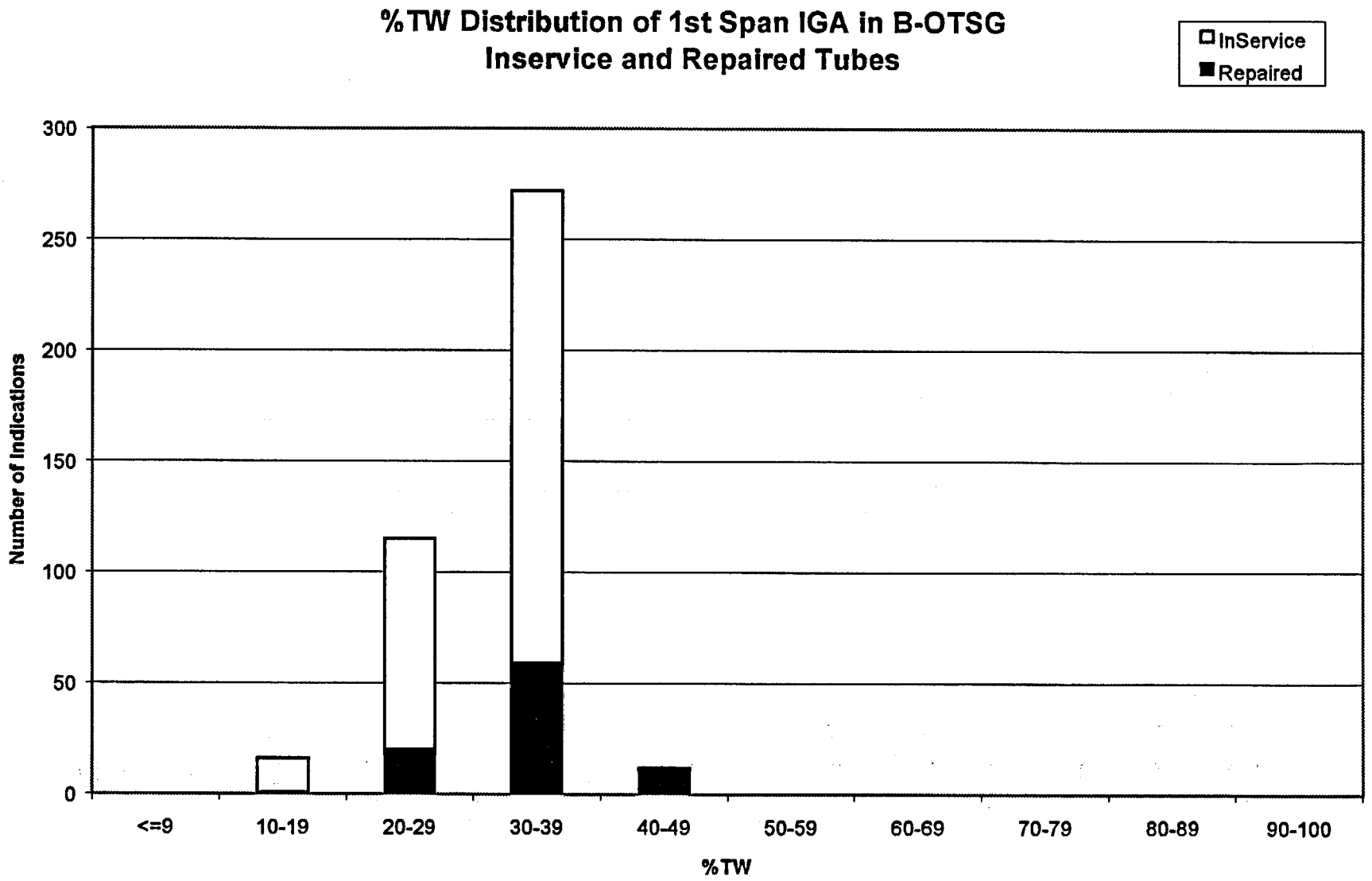
Tubes with TEC Remaining In-Service for OTSG-B

ROW	COL
137	68
137	77
138	14
138	17
138	31
138	70
139	13
139	18
139	27
139	37
139	48
139	50
140	5
140	7
140	9
140	15
140	16
140	19
140	20
140	21
140	22
140	23
140	24
140	36
140	56
141	2
141	5
141	7
141	14
141	17
141	18
141	33
141	36
141	63
141	67
142	16
142	17
142	26
142	27
142	32
142	34
142	47
142	63
143	11
143	12

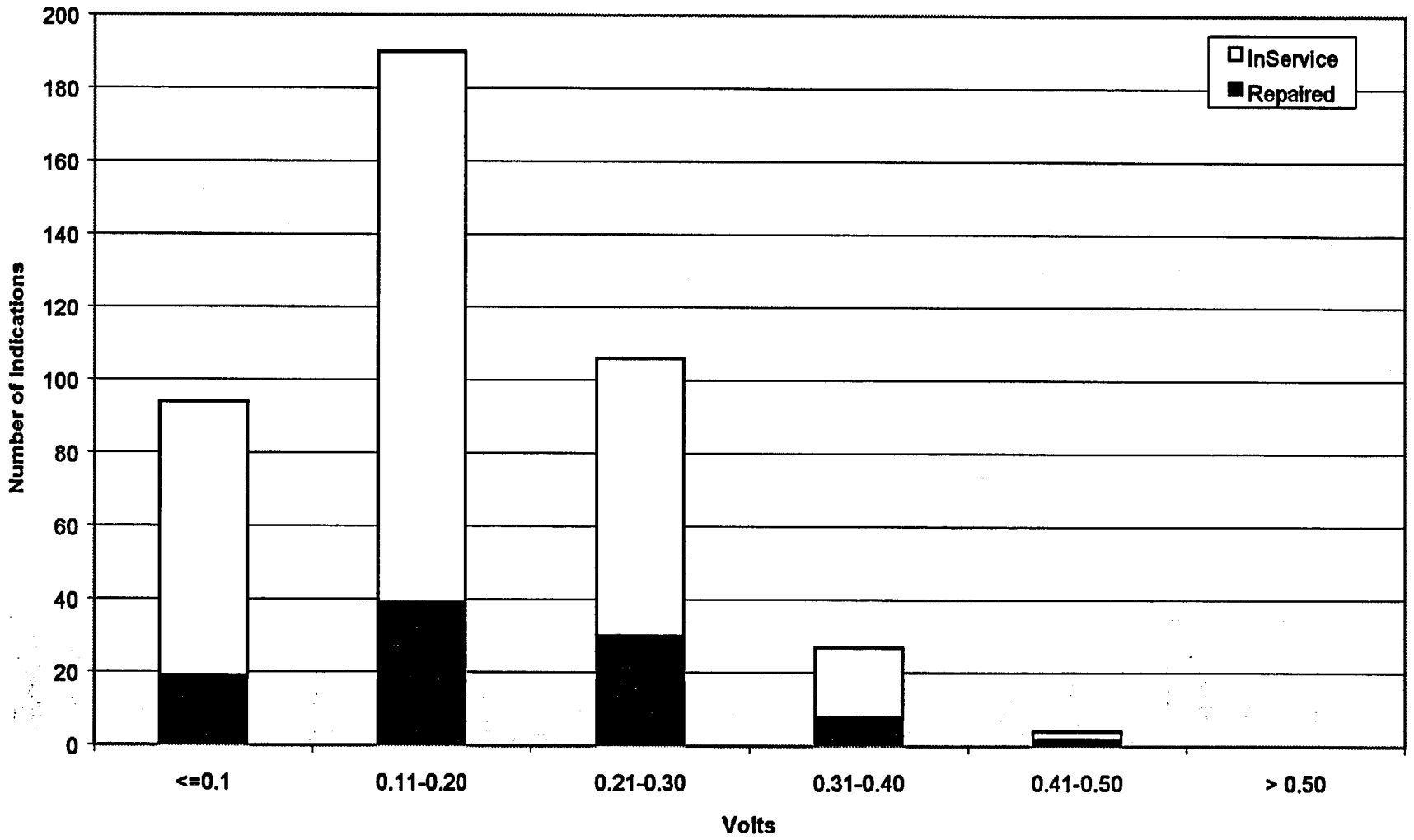
ROW	COL
143	15
143	21
143	30
144	11
144	12
144	13
144	15
144	18
144	22
144	23
144	26
144	42
144	43
145	10
145	12
145	17
145	26
145	28
147	4
147	15
147	23
147	39
147	40
147	45
148	10
148	15
148	17
148	18
149	32
149	34
151	2
151	3

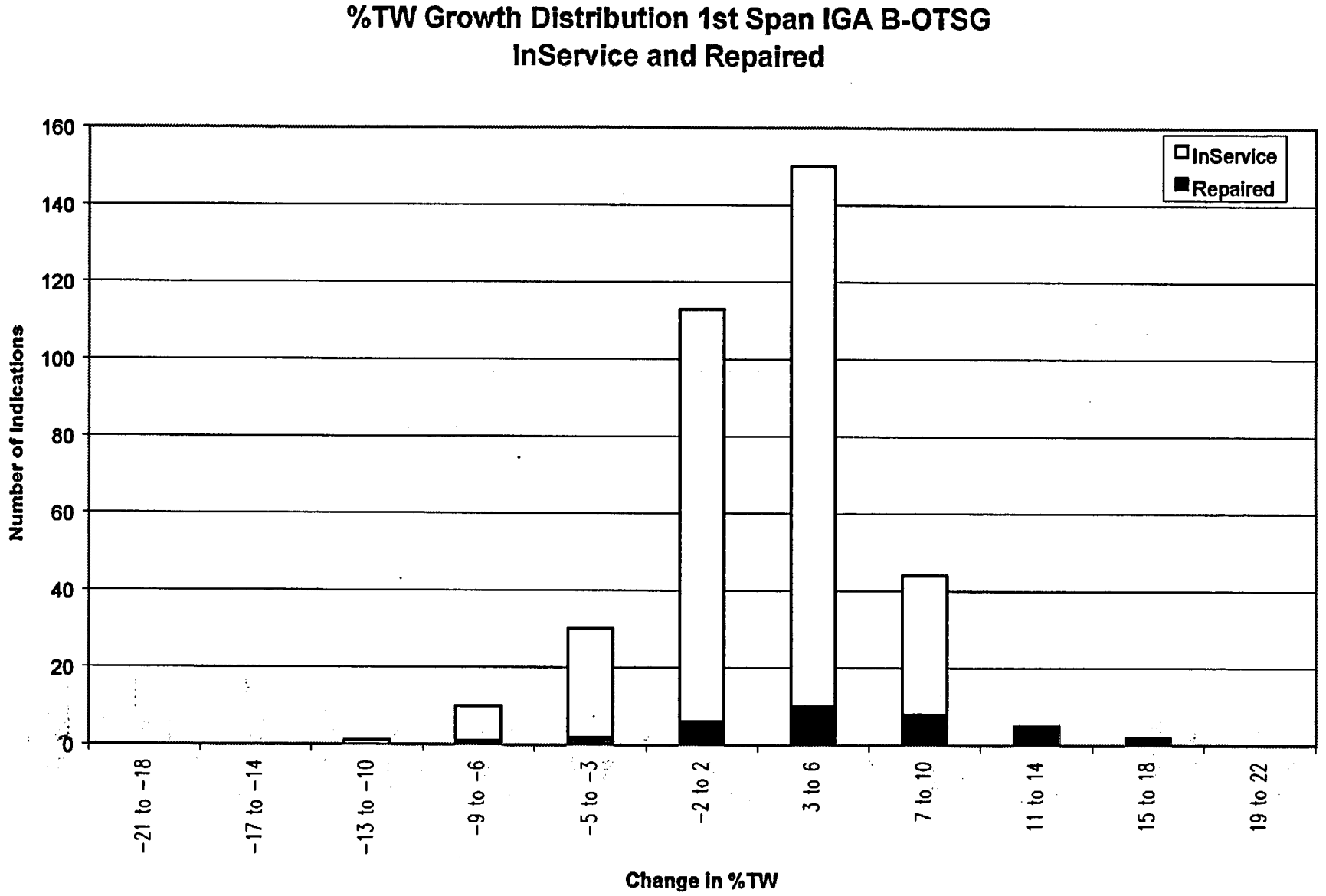
ATTACHMENT 2
SPECIAL REPORT 00-01


Axial Distribution of 1st IGA in B-OTSG
Inservice Tubes
Number of Indications
80
70
60
50
40
30
20
10
0
0"
2"
4"
6"
8"
10"
12"
14"
16"
18"
20"
22"
24"
26"
28"
30"
32"
34"
36"
38"
40"
42"
44"
46"
48"
Inches Above LTSF


%TW Distribution of 1st Span IGA in B-OTSG
Inservice and Repaired Tubes
InService
Repaired
Number of Indications
300
250
200
150
100
50
0
<=9
10-19
20-29
30-39
40-49
50-59
60-69
70-79
80-89
90-100
%TW

Voltage Distribution of 1st Span IGA Inservice and Repaired




%TW Growth Distribution 1st Span IGA B-OTSG
InService and Repaired
InService
Repaired
Number of Indications
160
140
120
100
80
60
40
20
0
-21 to -18
-17 to -14
-13 to -10
-9 to -6
-5 to -3
-2 to 2
3 to 6
7 to 10
11 to 14
15 to 18
19 to 22
Change in %TW