



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

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January 22, 2002  
NOC-AE-02001254  
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U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

South Texas Project  
Unit 1  
Docket No. STN 50-498  
Special Report - 1RE10 Refueling Outage  
Inservice Inspection Results for Steam Generator Tubing

Enclosed are four copies of the summary report describing the complete results of the steam generator tube inservice inspection performed during refueling outage 1RE10. This Special Report satisfies the reporting requirements of ASME Section XI, Article IWA-6230, and Section 4.4.5.5.b. of the South Texas Project Technical Specifications.

If there are any questions regarding this report, please contact Jim Haning at (361) 972-8983 or me at (361) 972-7902.

A handwritten signature in black ink, appearing to read "T. J. Jordan".

T. J. Jordan  
Manager, Engineering

jtc

Enclosure: 1RE10 Inservice Inspection Summary Report for Steam Generator Tubing of the  
South Texas Project Electric Generating Station - Unit 1

A047

STI: 31398127

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U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
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**1RE10 INSERVICE INSPECTION SUMMARY REPORT**  
**FOR STEAM GENERATOR TUBING**

of the  
**SOUTH TEXAS PROJECT**  
**ELECTRIC GENERATING STATION**  
**UNIT 1**

**P.O. BOX 289**  
**WADSWORTH, TEXAS 77483**

Owner: South Texas Project Nuclear Operating Company

Commercial    August 25, 1988  
Operation:

Issue Date:    October 19, 2001

**1RE10 INSERVICE INSPECTION SUMMARY REPORT**

1RE10 INSERVICE INSPECTION SUMMARY REPORT  
FOR STEAM GENERATOR TUBING  
of the  
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION  
UNIT 1

USNRC DOCKET NO.: 50-498

OPERATING LICENSE NO.: NPF-76

COMMERCIAL OPERATION DATE: August 25, 1988

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1-22-2002  
Date

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1-22-02  
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## STEAM GENERATOR TUBE EXAMINATIONS

### 1.0 Introduction

This Summary Report describes the South Texas Project Nuclear Operating Company's (STPNOC's) Inservice Inspection (ISI) of the steam generator (S/G) tubing at the South Texas Project Electric Generating Station, Unit 1 during the 1RE10 refueling outage.

The steam generator tube ISI is required by Sections 3/4.4.5 and 4.0.5 of the Technical Specifications to be performed in accordance with the edition and addenda of the American Society of Mechanical Engineers (ASME) Section XI Code "Inservice Inspection of Nuclear Power Plant Components" prescribed by Title 10 of the Code of Federal Regulations, Part 50, Section 50.55a(g). Therefore, the ISI is required to meet the 1989 Edition of the ASME Code Section XI. The ISI summarized herein constitutes the first ISI performed on the Delta 94 replacement steam generators since they were installed during 1RE9.

The STPEGS-1 plant design contains four (4) Westinghouse recirculating design steam generators designated as model Delta 94 (D94). Each model D94 steam generator was designed and fabricated by Westinghouse Electric Company of Pensacola, Florida. Each steam generator contains 7885 tubes. The tubing material is thermally treated Inconel Alloy 690 having a nominal outer diameter (OD) of 0.688 inch and nominal wall thickness of 0.040 inch. The nominal thickness of the tubesheet is 25.43 inches.

The examination agency for the 1RE10 outage was Westinghouse Electric Company, LLC.

## 2.0 Scope of Examinations

The ISI plan (ISI Outage Plan) entitled, "2001 Outage Plan for the In-service Inspection of Steam Generator Tubing at the South Texas Project Electric Generating Station Unit 1", including Change Number 001, was prepared by Westinghouse and approved by STPNOC. The ISI Outage Plan identified the steam generator tube areas to be examined by eddy current testing (ET) and the ET procedures expected to be used during the ISI.

A Degradation Assessment (DA) was written prior to the outage. This document identified necessary examination techniques. An evaluation of these techniques was performed to ensure their qualification. Finally, a site-appropriateness review was conducted to satisfy that each technique could be used in STPNOC Unit 1 Steam Generators. All techniques were reviewed for use by the Westinghouse Level III QDA, the STP ISI engineer, and the STP QDA.

The initial scope consisted of the following planned examinations:

- Bobbin coil ET of all in-service tubing over its full length in each steam generator.
- Plus Point testing of all I-codes detected by bobbin.
- Signals of interest - with STPNOC approval (ie: PLP's).

### 3.0 Personnel, Procedures, and Equipment

#### 3.1 Personnel Qualifications

The personnel who performed the ET acquisition and analysis during the 1RE10 outage were employed by Westinghouse, NDE Technology, Core Star International and Framatome Technology (FTI). They were certified in accordance with the requirements of IWA-2300 of ASME Code Section XI and the certification practices of their respective employers. One hundred (100) percent of the ET analysts were certified as Qualified Data Analysts (QDA's) for the steam generator work performed. A QDA is a Level IIA or III who has passed rigorous testing of his ability to analyze a random selection of expertly-judged indications, from the Electric Power Research Institute's "PWR Steam Generator Examination Guidelines", Appendix G Performance Demonstration Database, for various steam generator designs and all types of known defects.

Before an ET data analyst could perform any analysis during 1RE10, they were required to successfully complete a STPEGS Site Specific Performance Demonstration (SSPD) steam generator ET data analysis-training program. The analyst-training program consisted of (1) ET data analysis course and (2) site specific practical training. The ET data analysis course consisted of Computer Based Training (CBT) on CD-ROM and the analysis procedures. The CBT course addressed the specific STPEGS steam generator design, operating history, previous ET results, the data acquisition procedure, and analysis procedures to be used for the STPEGS Unit 2 ET examinations. The site specific practical training included hands-on review of flaw indications for the damage mechanisms that have been identified at STPEGS. Successful completion of the SSPD required the passing of a written and a practical test, which could be limited to either bobbin coil, MRPC or both, depending on staffing assignments.

#### 3.2 Examination and Analysis Procedures

All ET inspections were performed in accordance with the WNSD procedure MRS 2.4.2 GEN-35, Revision 10 entitled, "Eddy Current Inspection of Preservice and Inservice Heat Exchanger Tubing", with Field Change Request Number 1 and 2. This procedure, with the change authorization, is STPEGS document no. 0120RSG--00048-AW2. In addition, the Westinghouse document no. SGO-01-057, Revision 0 entitled "South Texas 1RE10 Data Quality Guidelines" was used. The data quality guideline is STPEGS document no. 0120RSG--00049-AW2.

The bobbin coil examination technique was performed using inspection frequencies of 630, 300, 150 and 35 kHz in both the differential and absolute modes for each tube. A nominal pull speed of 40 inches per second with a digital signal-sampling rate of 1450 samples per second or greater was used during the 1RE10 ET examination. MRS 2.4.2 GEN-35 prescribes that the applicable Acquisition Technique Sheets (ACTS) will define the data sample rate and probe rotation and pull speeds. ACTS TGX-01-101, Rev. 1 listed these and other essential variables required for bobbin probe testing. Additionally, a slower test speed was used as needed to reduce probe snap in u-bend areas. This slower nominal pull speed of 24 inches per second used a digital signal sample rate of 850 samples per second or greater, and is listed on ACTS TGX-03-101, Rev. 1.

The 3C+Pt and the 1C+Pt u-bend probe was utilized for further diagnostic testing of signals of interest identified by bobbin. The three-coil +Pt RPC ET examination technique was performed using the examination frequencies of 300, 200, 100, and 10 kHz. Also, the high frequency pancake coil on the 3-



coil probe head was operated at 600 kHz, in addition to 300 kHz. The single coil +Pt u-bend examination technique was performed using the examination frequencies of 400, 300, 150 and 20 kHz. The 3-coil and single coil +Pt test specifications are defined on ACTS TGX-02-101 and TGX-06-101, respectively.

The ET data analysts performed the analysis per Westinghouse procedure MRS-SSP-1209-TGX Rev. 0, titled, "Steam Generator Eddy Current Data Analysis Guidelines for Inservice Inspections at South Texas Unit 1", STPEGS document number 0120RSG--00046-AW2. All bobbin coil and RPC ET data for each steam generator tube or tube area examined were subjected to two (2) separate independent analyses in accordance with the analysis procedure.

FTI and its subcontractors performed the secondary analysis in accordance with the FTI procedure 54-ISI-400-11 entitled "Multi-frequency Eddy Current Examination of Tubing" including Safety Document Change Notice numbers 30-5011160-00 and 30-5014571-00. This FTI Procedure is STPEGS document no. ST401280-00231-C2U.

The ET primary and secondary data analysis was performed in separate facilities. The primary analysis was performed by Westinghouse (at Waltz Mill, Pa.) utilizing ANSER Automated Data Screening (ADS), while the secondary analysis was performed by Framatome (at Lynchburg, Va.) utilizing ANSER manually. Resolutions was performed at STP and consisted of personnel representing both Framatome and Westinghouse.

Results of all of the eddy current examinations were recorded on a digital, rewritable optical disk and the final resolution data sheets, which are stored as records. Each disk contains the raw ET data, primary, secondary, and resolution results for each calibration group. The optical disks also contain the system calibration and calibration verification with the dates and times for each calibration and verification. The unique number of the digital rewritable optical disk and the calibration group number have been recorded on the data sheets and optical disks. Therefore, the system calibration and calibration verification of the raw signals for each tube examined can be easily recalled.

### 3.3 Equipment

All examinations were performed using ANSER ROSA software and the TECHRAD TC-6700 test instrument. The acquisition test instrument and software store and process the ET data in a digital format and have a significantly improved dynamic range and signal-to-noise ratio as compared to analog systems. The test system is capable of being operated at locations remote from the steam generators (e.g., in low radiation areas). All analysis was performed using Westinghouse ANSER software.

The bobbin program was performed using the Westinghouse Replaceable Probe Head (RPH) design, WA-560-RPH and WA-540-RPH. Diagnostic testing/special interest (RPC) was performed using the Zetec 1C+PtRPC (single +Pt coil) and the 3C+PtRPC (three coil) probe. The 1C+Pt RPC was used in the u-bend area and the 3C+Pt was used in the straight sections. The 3C+PtRPC probe consists of one (1) plus-point coil (interwoven axially and circumferentially oriented coils that are differentially connected), one (1) 0.115 inch diameter pancake coil and one (1) shielded high frequency 0.080 inch diameter pancake coil. These inspections took place from either leg, depending on the location requiring inspection.

### 3.4 Calibration Standards

The calibration standard design used for bobbin coil inspections was a combination in-line standard. It contained ASME Code Section XI flaws, drill holes for measuring probe wear, simulated AVB wear flaws, a small 3 mil radial dent and both a 1.12" tri-foil and donut stainless steel support rings. The calibration standard utilized for all of the 3-coil and Plus point MRPC inspections was a EP5 guide tube design containing several ID and OD, axially and circumferentially oriented, electro-discharge machined (EDM) notches in sufficient quantities to permit the sizing of indications if necessary.

#### 4.0 Summary of Examinations

Bobbin coil ET techniques were performed on one hundred (100) percent of all in-service tubes in each of Steam Generators A, B, C, and D. All of these tubes were examined over their full length (FL), from tube end to tube end. The following table summarizes the quantities of tubes that were examined:

S/G	Bobbin Coil H/L Program	Bobbin Coil C/L Program	H/L RPC SI Program	C/L RPC SI Program
A	7552	689	10	4
B	7545	690	17	7
C	7559	689	4	8
D	7576	692	22	9

The following table identifies a breakdown of the special interest programs:

Steam Generator	DNI's	NQI's	MBI's	PLP's	DNG's	PLP "Box In"
A	3	7	5	0	0	0
B	4	8	11	0	1	0
C	2	6	5	0	0	0
D	4	11	11	1	0	6
Totals	13	32	32	1	1	6

## 5.0 Examination Results

The location of the indications were recorded relative to the adjacent tube support, baffle plate and/or anti-vibration bar. The tube support plates and baffle plates were numbered consecutively from 01H to support plate. The anti-vibration bars were numbered AV1 through AV16 from the hot leg to the cold leg side, respectively. Indications in the tubesheet area were recorded relative to TEH or TSH (hot leg) or TEC or TSC (cold leg) depending on whether the indications were at the tube end (E) or secondary face (S). In addition, the vertical distances from these landmarks to flaws were recorded, with positive being upward from the reporting structure. This convention was used through out the tube bundle, except at support structures, where a plus/minus 2-inch window was used when reporting indications that were at or near the support structure.

The three letter code reflects the suspected nature of the discontinuity. Some of the codes used during IRE10 are as follows:

- DNG - ding, located in freespan only
- DNI - ding or dent containing a possible indication
- DNT - dent, located at TSP's only
- NQI - non-quantifiable indication
- MMB - multiple manufacturing buff mark
- MBM - manufacturing buff mark
- PVN - permeability variation
- BLG -bulge
- PLP - possible loose part
- NQI - non-quantifiable indication
- MBS - manufacturing buff mark signal
- DNS - ding signal
- NQS - non-quantifiable signal

The reporting requirements during IRE10 were as follows: MBMs indications greater than or equal to one (1.00) volt on 150 kHz absolute, that were found to be in the baseline bobbin data results, and having not changed, were re-identified as Manufacturing Buff Marks (MBM's). If change has occurred, the code was changed to MBI and subjected to RPC testing (+PT). MBM's less than one volt were also compared to the PSI database for change. If change has occurred, or the MBM is not in the baseline data results, the raw baseline data was reviewed for comparison. Those that could not be traced to baseline were then reported as MBI and subjected to a RPC inspection. All NQI signals reported were also compared to the baseline data. NQI signals that either changed or did not exist in the baseline data were subjected to RPC testing. DNG's and DNT's greater than 0.75 volts on the 630/150 kHz mix, were monitored for distortion and change. DNG's and DNT's that exhibited change were reported as DNI and subjected to RPC testing. MBS, NQS and DNS are bobbin three letter codes that indicates that the signal was dispositioned from an I-code by either diagnostic testing (RPC) or by historical review of the raw baseline data.

There were no axial or circumferential crack-like indication reported in any of the four steam generators. No wear of any kind was reported in any of the four steam generators

There was one ding-like signal reported in S/G-B that measured a voltage of 58.55 volts. RPC testing revealed that no degradation was present.

A PLP was reported by bobbin on tube R43 C79 in S/G-D at 6H – 1.74. This tube and surrounding tubes were tested with RPC. No degradation or additional signals of possible loose parts were detected.

The following table summarizes the final results for the IRE10 inspection:

	TGX - A	TGX - B	TGX - C	TGX - D
MBM's / Tubes	191 / 181	159 / 147	163 / 149	209 / 187
MBS's / Tubes	6 / 5	11 / 11	5 / 5	11 / 10
MMB's / Tubes	0 / 0	1 / 1	0 / 0	0 / 0
DNG's / Tubes	13 / 13	22 / 19	9 / 8	7 / 6
DNT's / Tubes	416 / 173	6 / 4	218 / 167	125 / 98
DNS's / Tubes	3 / 3	4 / 3	2 / 2	5 / 4
NQS's / Tubes	69 / 63	39 / 37	51 / 47	47 / 33
BLG's / Tubes	0 / 0	1 / 1	0 / 0	0 / 0
PVN's / Tubes	0 / 0	0 / 0	0 / 0	5 / 4
PLP's / Tubes	0 / 0	0 / 0	0 / 0	1 / 1

The total numbers of degraded and defective tubes detected during the bobbin coil ET and MRPC ET are as follows:

#### 5.1 Steam Generator A

There were no tubes considered degraded and defective. There were no tubes removed from service.

#### 5.2 Steam Generator B

There were no tubes considered degraded and defective. There were no tubes removed from service.

#### 5.3 Steam Generator C

There were no tubes considered degraded and defective. There were no tubes removed from service.

#### 5.4 Steam Generator D

There were no tubes considered degraded and defective. There were no tubes removed from service.

## 6.0 Certification of Inspections

A Section XI NIS-1 form "Owner's Report for In-Service Inspections", has been prepared to certify the STPEGS Unit 1 ISI examinations described in this Summary Report. The STPEGS Unit 1 ISI examinations have been certified by our ANII, Factory Mutual Insurance Company, on the NIS-1 form included in Appendix F.

# **APPENDIX A**

## **LISTING**

### **OF**

## **CERTIFIED**

## **PERSONNEL**

## Listing of Certified Personnel

<u>NAME</u>	<u>EC LEVEL</u>	<u>COMPANY</u>	<u>REP - FUNCTION</u>
<b>Site Analysis Crew</b>			
Brown, M E	III	NDE	W - Reso
Case, J M	III	NDE	FTI - Reso
Nelson, D L	III	NDE	W - Data Cop
Neyman, R L	III	FTI	FTI - Reso
Obazenu, D J	III	Anetec	Ind. QDA
Pocratsky, R J	III	WNSD	W -Senior
Richards, T A	III	FTI	FTI - Reso
Siegel, R A	III	NDE	W - Data Cop
Spence W J	III	WNSD	W - Reso
Stokke, T F	III	NDE	W - Reso
Thompson, V A	III	NDE	FTI - Reso
Wheeler, C K	III	NDE	W - Reso
<b>Primary Analysis Crew - REDAC</b>			
Akerlind, B E	III	NDE	W - Pri
Beiers, T S	III	NDE	W - Pri
Ingraham, R H	III	NDE	W - Pri
Jerina, F J	III	NDE	W - Pri
Lewis, C L	IIA	NDE	W - Pri
Popovich, R A	III	WNSD	W - Pri
Richmond, M A	III	NDE	W - Pri
Taylor, S H	III	WNSD	W - Pri
<b>Secondary Analysis Crew - Lynchburg</b>			
Anderson, D A	IIA	NDE	F - Sec
Blankinship, M B	IIA	FTI	F - Sec
Causby, G W	IIA	Corestar	F - Sec
Janet, J M	IIA	FTI	F - Sec
Kovalesky, T L	IIA	FTI	F - Sec
Lee, R E	IIA	FTI	F - Sec
Martin, A P	IIA	Corestar	F - Sec
Newman, E P	IIA	FTI	F - Sec
Schwenn, J S	IIA	FTI	F - Sec
Shelden, J T	III	NDE	F - Sec
Stach, G J	IIA	Corestar	F - Sec
Thulien, T A	IIA	Corestar	F - Sec
Turner, D G	IIA	Corestar	F - Sec
Visconti, C G	IIA	Corestar	F - Sec
Washburn, T G	IIA	FTI	F - Sec



## Listing of Certified Personnel

<u>NAME</u>	<u>EC LEVEL</u>	<u>COMPANY</u>	<u>REP - FUNCTION</u>
<b>Acquisition Crew</b>			
Atlman, T R	I	WNSD	W - Acq
Bradley, D G	II	WNSD	W - Acq
Dvorak, D J	I	Spec ATS	W - Acq
Evering, D P	II	WNSD	W - Acq
Groh, T A	II	WNSD	W - Acq
Kessler, J D	I	Spec ATS	W - Acq
Mains, P J	II	WNSD	W - Acq
Mardell, D M	II	WNSD	W - Acq
Parris, J R	II	WNSD	W - Acq
Rondeau, E A	I-T	Spec ATS	W - Acq
Scott, A W	II	WNSD	W - Acq
Smith, A O	II	WNSD	W - Acq
Tedrick, J E	I	WNSD	W - Acq
Tucker, R L	II	WNSD	W - Acq

# **APPENDIX B**

**TUBES**

**EXAMINED**

**BY RPC**

Tubes Examined  
by RPC

SG-A

ROW	COLUMN	BEGIN TEST	END TEST	PROBE
33	29	04H	05H	.560 ZPSNM
50	30	06H	07H	.560 ZPSNM
69	35	08H	08H	.560 ZPSNM
91	35	01H	02H	.560 ZPSNM
42	44	06H	07H	.560 ZPSNM
115	55	08H	09H	.560 ZPSNM
91	73	01H	02H	.560 ZPSNM
11	77	08H	09H	.560 ZPSNM
111	77	07C	07C	.560 ZPSNM
115	79	02C	03C	.560 ZPSNM
116	86	05H	06H	.560 ZPSNM
43	115	FBC	01C	.560 ZPSNM
57	125	FBH	FBH	.560 ZPSNM
89	129	09C	09C	.560 ZPSNM

Tubes Examined  
by RPC

SG-B

ROW	COLUMN	BEGIN TEST	END TEST	PROBE
19	21	08H	09H	.560 ZPSNM
19	21	08C	09C	.560 ZPSNM
46	30	06C	07C	.560 ZPSNM
44	32	06H	07H	.560 ZPSNM
3	33	09H	09H	.520 ZRUNM
61	35	TSC	TSC	.560 ZPSNM
12	38	07H	08H	.560 ZPSNM
14	38	07H	08H	.560 ZPSNM
16	38	07H	08H	.560 ZPSNM
104	38	09H	09H	.520 ZRUNM
98	40	08H	09H	.560 ZPSNM
3	43	09H	09H	.520 ZRUNM
127	79	TSC	TSC	.520 ZPUMB
19	85	06H	07H	.560 ZPSNM
25	93	03H	04H	.560 ZPSNM
122	98	TSC	FBC	.560 ZPSNM
3	99	09H	09H	.520 ZRUNM
109	99	07H	08H	.560 ZPSNM
90	102	02C	03C	.560 ZPSNM
102	110	02H	03H	.560 ZPSNM
76	114	08H	09H	.560 ZPSNM
103	115	08H	09H	.560 ZPSNM
80	122	06H	07H	.560 ZPSNM
88	122	TSC	FBC	.560 ZPSNM

Tubes Examined  
by RPC

SG-C

ROW	COLUMN	BEGIN TEST	END TEST	PROBE
99	31	09H	09H	.560 ZPSNM
38	50	06H	07H	.560 ZPSNM
77	51	02C	03C	.560 ZPSNM
116	56	07C	07C	.560 ZPSNM
22	92	TSC	01C	.560 ZPSNM
79	99	08H	09H	.560 ZPSNM
65	101	01C	01C	.560 ZPSNM
65	101	01C	01C	.560 ZPSNM
10	122	08C	09C	.560 ZPSNM
38	126	01C	02C	.560 ZPSNM
33	127	05H	06H	.560 ZPSNM
40	128	05C	06C	.560 ZPSNM
42	128	06C	07C	.560 ZPSNM

Tubes Examined  
by RPC

SG-D

ROW	COLUMN	BEGIN TEST	END TEST	PROBE
2	14	09C	09H	.520 ZPUMB
17	31	07C	07C	.560 ZPSNM
17	31	07C	08C	.560 ZPSNM
96	44	02C	03C	.560 ZPSNM
81	49	08H	09H	.560 ZPSMB
98	50	A1	08H	.520 ZPUMB
118	56	08H	08H	.560 ZPSMB
23	63	TSC	01C	.560 ZPSNM
84	66	02H	02H	.560 ZPSMB
119	67	07C	07C	.560 ZPSNM
122	68	07C	07C	.560 ZPSNM
80	70	05H	06H	.560 ZPSMB
116	70	06C	07C	.560 ZPSNM
42	78	06H	06H	.560 ZPSMB
44	78	06H	06H	.560 ZPSMB
41	79	06H	06H	.560 ZPSMB
43	79	06H	06H	.560 ZPSMB
45	79	06H	06H	.560 ZPSMB
42	80	06H	06H	.560 ZPSMB
44	80	06H	06H	.560 ZPSMB
54	92	08H	08H	.560 ZPSMB
54	92	04H	05H	.560 ZPSMB
54	92	06H	07H	.560 ZPSMB
39	105	01C	02C	.560 ZPSNM
57	107	TSC	FBC	.560 ZPSNM
106	114	08H	09H	.560 ZPSMB
46	116	05H	06H	.560 ZPSMB
89	121	06H	07H	.560 ZPSMB
86	122	07H	08H	.560 ZPSMB
26	126	06H	07H	.560 ZPSMB
28	126	06H	06H	.560 ZPSMB

# **APPENDIX C**

**DENTS**

**AND**

**DINGS**

## Dents and Dings

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
26	6	DNG	A16 2.72	7
43	13	DNG	03H 17.72	1
86	22	DNG	A12 18.62	19
93	31	DNG	05H 10.97	27
91	35	DNS	01H 13.03	37
45	43	DNG	08H 30.60	41
6	44	DNT	A16 .00	129
6	46	DNT	A1 .00	137
13	47	DNG	05C 12.30	83
6	50	DNT	A16 .00	129
122	56	DNT	09C -.32	81
123	61	DNT	09C -.37	79
122	62	DNT	09H -.52	81
124	62	DNT	09C -.31	81
125	63	DNT	09C -.37	81
124	64	DNT	09C -.40	75
86	66	DNT	04H .64	51
23	67	DNG	A3 .88	89
47	67	DNG	05H 8.48	53
108	68	DNT	08C .06	53
111	77	DNS	07C 2.69	69
127	85	DNT	09C .65	75
68	86	DNG	08H 36.31	73
127	87	DNT	09C .65	77
126	88	DNT	09C .70	75
126	88	DNT	09H .56	75
126	88	DNT	09H -.58	75
123	89	DNT	09H .53	75
123	89	DNT	09H -.53	75
126	90	DNT	09C .69	77
126	90	DNT	09H -.50	77
126	90	DNT	09H .58	77
123	91	DNT	09H -.39	75
123	91	DNT	09H .64	75
125	91	DNT	09C -.34	77
125	91	DNT	09C .69	77
125	91	DNT	09H -.41	77
125	91	DNT	09H .64	77
122	92	DNT	09C -.43	75
122	92	DNT	09H .50	75
122	92	DNT	09H -.39	75
124	92	DNT	09C .67	75
124	92	DNT	09C -.37	75
124	92	DNT	09H -.36	75
124	92	DNT	09H .64	75



## Dents and Dings

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
121	93	DNT	09H .55	77
121	93	DNT	09H -.53	77
123	93	DNT	09C .70	77
123	93	DNT	09C -.37	77
123	93	DNT	09H .58	77
123	93	DNT	09H -.50	77
125	93	DNT	09C .65	77
125	93	DNT	09C -.31	77
125	93	DNT	09H -.50	77
125	93	DNT	09H .61	77
120	94	DNT	09H -.53	75
122	94	DNT	09C -.40	75
122	94	DNT	09H -.45	75
122	94	DNT	09H .61	75
124	94	DNT	09C -.37	77
124	94	DNT	09C .62	77
124	94	DNT	09H -.52	77
124	94	DNT	09H .58	77
121	95	DNT	09C -.34	75
121	95	DNT	09C .66	75
121	95	DNT	09H -.53	75
121	95	DNT	09H .56	75
123	95	DNT	09C .69	75
123	95	DNT	09C -.31	75
123	95	DNT	09H -.53	75
123	95	DNT	09H .58	75
120	96	DNT	09H -.53	75
122	96	DNT	09C .69	77
122	96	DNT	09C -.37	77
122	96	DNT	09H .55	77
122	96	DNT	09H -.52	77
124	96	DNT	09C -.37	77
124	96	DNT	09C .68	77
124	96	DNT	09H -.47	77
124	96	DNT	09H .64	77
121	97	DNT	09C .60	77
121	97	DNT	09H -.53	77
121	97	DNT	09H .53	77
123	97	DNT	09C .66	77
123	97	DNT	09C -.37	77
123	97	DNT	09H .66	77
123	97	DNT	09H -.41	77
120	98	DNT	09H -.52	77
120	98	DNT	09H .55	77
122	98	DNT	09C -.37	77

## Dents and Dings

## SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
122	98	DNT	09C .68	77
122	98	DNT	09H -.52	77
122	98	DNT	09H .55	77
119	99	DNT	09C .61	153
119	99	DNT	09H .55	153
121	99	DNT	09C .66	153
121	99	DNT	09C -.35	153
121	99	DNT	09H .58	153
121	99	DNT	09H -.58	153
120	100	DNT	09C .60	153
122	100	DNT	09C .69	153
122	100	DNT	09C -.40	153
122	100	DNT	09H -.52	153
122	100	DNT	09H .58	153
119	101	DNT	09C .63	155
119	101	DNT	09C -.46	155
119	101	DNT	09H -.52	155
119	101	DNT	09H .52	155
121	101	DNT	09C -.40	153
121	101	DNT	09C .69	153
121	101	DNT	09H .55	153
121	101	DNT	09H -.58	153
118	102	DNT	09H .55	153
120	102	DNT	09C .66	155
120	102	DNT	09C -.40	155
120	102	DNT	09H -.55	155
120	102	DNT	09H .55	155
119	103	DNT	09C .69	155
119	103	DNT	09C -.40	155
119	103	DNT	09H -.55	155
119	103	DNT	09H .52	155
116	104	DNT	09H .49	153
118	104	DNT	09H .55	153
118	104	DNT	09H -.57	153
120	104	DNT	09C -.32	153
120	104	DNT	09C .69	153
120	104	DNT	09H .55	153
117	105	DNT	09C .64	153
117	105	DNT	09H .55	153
119	105	DNT	09C -.35	153
119	105	DNT	09C .55	153
119	105	DNT	09H .58	153
116	106	DNT	09C .62	155
116	106	DNT	09H .55	155
118	106	DNT	09C .64	155

## Dents and Dings

## SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
118	106	DNT	09C -.44	155
118	106	DNT	09H .52	155
115	107	DNT	09H .52	155
117	107	DNT	09C .70	155
117	107	DNT	09H .55	155
16	108	DNG	09H 4.05	199
64	108	DNG	03H 27.57	157
116	108	DNT	09C .61	153
116	108	DNT	09C -.44	153
116	108	DNT	09H .52	153
116	108	DNT	09H -.55	153
113	109	DNT	09C .61	153
113	109	DNT	09H .61	153
115	109	DNT	09C -.43	153
115	109	DNT	09C .66	153
115	109	DNT	09H -.44	153
115	109	DNT	09H .61	153
112	110	DNT	09C .69	155
112	110	DNT	09H .52	155
114	110	DNT	09C -.45	155
114	110	DNT	09C .66	155
114	110	DNT	09H .57	155
114	110	DNT	09H -.55	155
116	110	DNT	09C -.38	153
116	110	DNT	09C .61	153
116	110	DNT	09H -.52	153
116	110	DNT	09H .55	153
111	111	DNT	09C .69	155
111	111	DNT	09H .58	155
113	111	DNT	09C -.34	155
113	111	DNT	09C .69	155
113	111	DNT	09H .55	155
113	111	DNT	09H -.52	155
115	111	DNT	09C -.37	153
115	111	DNT	09C .63	153
115	111	DNT	09H .58	153
115	111	DNT	09H -.47	153
46	112	DNG	08H 9.47	157
110	112	DNT	09C .62	153
110	112	DNT	09H .58	153
112	112	DNT	09C .69	153
112	112	DNT	09C -.40	153
112	112	DNT	09H -.55	153
112	112	DNT	09H .60	153
114	112	DNT	09C -.43	155

## Dents and Dings

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
114	112	DNT	09C .67	155
114	112	DNT	09H -.52	155
114	112	DNT	09H .60	155
109	113	DNT	09C .59	153
109	113	DNT	09H .55	153
111	113	DNT	09C -.41	153
111	113	DNT	09C .64	153
111	113	DNT	09C -.47	153
111	113	DNT	09H -.39	153
111	113	DNT	09H -.44	153
111	113	DNT	09H .63	153
113	113	DNT	09C .69	155
113	113	DNT	09C -.40	155
113	113	DNT	09H -.49	155
113	113	DNT	09H .58	155
108	114	DNT	09C .60	155
108	114	DNT	09H .55	155
110	114	DNT	09C .68	155
110	114	DNT	09C -.43	155
110	114	DNT	09H -.52	155
110	114	DNT	09H .55	155
112	114	DNT	09C .69	155
112	114	DNT	09C -.40	155
112	114	DNT	09H .55	155
112	114	DNT	09H -.52	155
109	115	DNT	09C .65	155
109	115	DNT	09C -.43	155
109	115	DNT	09H -.52	155
109	115	DNT	09H .55	155
111	115	DNT	09C -.40	155
111	115	DNT	09C .65	155
111	115	DNT	09H .55	155
111	115	DNT	09H -.52	155
106	116	DNT	09C .69	161
108	116	DNT	09C .66	161
108	116	DNT	09C -.35	161
108	116	DNT	09H -.55	161
108	116	DNT	09H .58	161
110	116	DNT	09C .69	161
110	116	DNT	09C -.37	161
110	116	DNT	09H -.55	161
110	116	DNT	09H .58	161
105	117	DNT	09C .66	163
107	117	DNT	09C .67	161
107	117	DNT	09C -.43	161

## Dents and Dings

## SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
107	117	DNT	09H .55	161
107	117	DNT	09H -.52	161
109	117	DNT	09C .69	161
109	117	DNT	09C -.34	161
109	117	DNT	09H .55	161
109	117	DNT	09H -.52	161
106	118	DNT	09C .64	161
106	118	DNT	09C -.44	161
106	118	DNT	09H -.55	161
106	118	DNT	09H .58	161
108	118	DNT	09C .68	163
108	118	DNT	09C -.40	163
108	118	DNT	09H .66	163
108	118	DNT	09H -.47	163
105	119	DNT	09C .69	161
105	119	DNT	09H .55	161
107	119	DNT	09C .69	161
107	119	DNT	09C -.34	161
107	119	DNT	09H .63	161
107	119	DNT	09H -.39	161
104	120	DNT	09H .61	161
106	120	DNT	09C .69	161
106	120	DNT	09C -.34	161
106	120	DNT	09H .55	161
106	120	DNT	09H -.52	161
103	121	DNT	09C .67	163
103	121	DNT	09H .57	163
105	121	DNT	09C -.46	163
105	121	DNT	09C .61	163
105	121	DNT	09H .55	163
105	121	DNT	09H -.55	163
102	122	DNT	09C .64	163
102	122	DNT	09H .69	163
104	122	DNT	09C .61	163
104	122	DNT	09H .58	163
99	123	DNT	09H .55	161
101	123	DNT	09C .67	161
101	123	DNT	09H .55	161
100	124	DNT	09C .69	161
100	124	DNT	09H .58	161
97	125	DNT	09C .61	163
97	125	DNT	09H .55	163
99	125	DNT	09C .58	163
99	125	DNT	09H .55	163
96	126	DNT	09C .62	163

## Dents and Dings

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
98	126	DNT	09C .67	163
98	126	DNT	09H .58	163
93	127	DNT	09C .62	163
93	127	DNT	09H .52	163
95	127	DNT	09C .64	161
95	127	DNT	09H .58	161
97	127	DNT	09C .61	161
97	127	DNT	09H .64	161
6	128	DNG	04H 32.17	203
90	128	DNT	09C .64	179
92	128	DNT	09C .64	161
92	128	DNT	09H .55	161
94	128	DNT	09C .67	161
94	128	DNT	09H .55	161
96	128	DNT	09C -.35	161
96	128	DNT	09C .66	161
96	128	DNT	09H .58	161
89	129	DNS	09C -.39	177
89	129	DNT	09H .69	177
91	129	DNT	09C .68	161
91	129	DNT	09H .55	161
93	129	DNT	09C .62	163
93	129	DNT	09H .60	163
84	130	DNT	09H .63	179
86	130	DNT	09C .56	161
86	130	DNT	09H .55	161
88	130	DNT	09C .67	161
88	130	DNT	09H .55	161
90	130	DNT	09C .61	163
90	130	DNT	09H .58	163
92	130	DNT	09C .61	163
92	130	DNT	09C -.35	163
92	130	DNT	09H .61	163
92	130	DNT	09H -.52	163
83	131	DNT	09H .50	181
85	131	DNT	09C .65	161
85	131	DNT	09H .55	161
87	131	DNT	09C .68	161
87	131	DNT	09H .61	161
89	131	DNT	09C -.41	163
89	131	DNT	09C .68	163
89	131	DNT	09H .60	163
89	131	DNT	09H -.52	163
91	131	DNT	09C .69	163
91	131	DNT	09C -.36	163

## Dents and Dings

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
91	131	DNT	09H -.52	163
91	131	DNT	09H .60	163
84	132	DNT	09C .62	163
84	132	DNT	09H .60	163
86	132	DNT	09C -.47	163
86	132	DNT	09C .62	163
86	132	DNT	09H .60	163
86	132	DNT	09H -.55	163
88	132	DNT	09C -.35	161
88	132	DNT	09C .61	161
88	132	DNT	09H -.44	161
88	132	DNT	09H .63	161
81	133	DNT	09H .44	181
83	133	DNT	09C .65	163
83	133	DNT	09H .63	163
85	133	DNT	09C -.39	163
85	133	DNT	09C .69	163
85	133	DNT	09H .60	163
87	133	DNT	09C -.35	161
87	133	DNT	09C .67	161
87	133	DNT	09H -.41	161
87	133	DNT	09H .64	161
80	134	DNT	09C .65	161
80	134	DNT	09H .52	161
82	134	DNT	09C .68	161
82	134	DNT	09H .61	161
84	134	DNT	09C -.35	161
84	134	DNT	09C .67	161
84	134	DNT	09H -.52	161
84	134	DNT	09H .55	161
86	134	DNT	09C -.41	163
86	134	DNT	09C .68	163
86	134	DNT	09H -.49	163
86	134	DNT	09H .63	163
81	135	DNT	09C .62	161
81	135	DNT	09H .55	161
83	135	DNT	09C .61	161
83	135	DNT	09C -.32	161
83	135	DNT	09H -.52	161
83	135	DNT	09H .55	161
78	136	DNT	09C .65	163
78	136	DNT	09H .60	163
80	136	DNT	09C .65	163
80	136	DNT	09H .58	163
82	136	DNT	09C .69	163

## Dents and Dings

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
82	136	DNT	09C -.35	163
82	136	DNT	09H -.52	163
82	136	DNT	09H .60	163
75	137	DNT	09C .67	161
77	137	DNT	09C .61	161
77	137	DNT	09H .61	161
79	137	DNT	09C .67	163
79	137	DNT	09H .60	163
72	138	DNT	09C .66	187
74	138	DNT	09C .61	161
74	138	DNT	09H .58	161
76	138	DNT	09C .68	163
76	138	DNT	09H .54	163
78	138	DNT	09C .59	163
78	138	DNT	09H -.52	163
78	138	DNT	09H .60	163
71	139	DNT	09C .66	161
73	139	DNT	09C .69	163
73	139	DNT	09H .69	163
75	139	DNT	09C .65	163
75	139	DNT	09C -.42	163
75	139	DNT	09H .60	163
70	140	DNT	09C .66	161
72	140	DNT	09C .68	163
72	140	DNT	09H .57	163
65	141	DNT	09C .61	189
67	141	DNT	09C .64	189
67	141	DNT	09H .64	189
69	141	DNT	09C .59	163
69	141	DNT	09H .63	163
71	141	DNT	09C .68	163
71	141	DNT	09H .58	163
64	142	DNT	09C .64	189
64	142	DNT	09H .67	189
66	142	DNT	09C .61	189
66	142	DNT	09H .64	189
68	142	DNT	09C .61	163
68	142	DNT	09H .60	163
59	143	DNT	09C .67	191
61	143	DNT	09C .67	191
61	143	DNT	09H .66	191
63	143	DNT	09C .64	189
63	143	DNT	09H .53	189
65	143	DNT	09C .66	189
65	143	DNT	09H .70	189



## Dents and Dings

## SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
54	144	DNT	09C .67	189
56	144	DNT	09C .65	191
58	144	DNT	09C .64	191
58	144	DNT	09H .64	191
60	144	DNT	09C .61	189
60	144	DNT	09H .67	189
62	144	DNT	09C .63	189
62	144	DNT	09H .67	189
55	145	DNT	09H .69	191
57	145	DNT	09C .69	189
57	145	DNT	09H .67	189
59	145	DNT	09C .60	189
59	145	DNT	09H .67	189
52	146	DNT	09C .63	189
52	146	DNT	09H .67	189
54	146	DNT	09C .63	189
54	146	DNT	09H .64	189
56	146	DNT	09C .66	189
56	146	DNT	09H .66	189
49	147	DNT	09C .61	191
51	147	DNT	09C .66	189
53	147	DNT	09C .63	189
53	147	DNT	09H .66	189
48	148	DNT	09C .63	189
50	148	DNT	09C .65	189
43	149	DNT	09C .62	189
42	150	DNT	09C .59	189

## Dents and Dings

## SG-B

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
19	21	DNG	08C 15.57	23
19	21	DNS	08C 11.78	23
19	21	DNG	08C 19.75	23
19	21	DNS	08H 23.26	23
19	21	DNG	08H 22.26	23
12	22	DNG	09H 3.68	25
16	22	DNG	09H 3.80	23
16	24	DNG	09H 3.66	23
12	26	DNG	09H 3.71	23
16	26	DNG	09H 3.68	35
12	30	DNG	09H 2.82	23
14	30	DNG	09H 3.15	35
16	30	DNG	09H 3.31	31
12	32	DNG	09H 3.33	31
13	33	DNG	09H 3.40	35
15	33	DNG	09H 3.64	35
17	33	DNG	09H 3.50	31
61	35	DNS	TSC .82	25
98	40	DNS	08H 9.48	37
119	51	DNT	09C .56	73
95	53	DNT	09C .56	61
95	53	DNT	09H .58	61
16	62	DNG	A16 6.00	99
16	62	DNG	A16 6.30	97
59	63	DNG	04H 14.81	69
127	79	DNG	TSC 3.21	181
14	86	DNG	TSC 12.85	171
119	105	DNT	09C .64	139
119	105	DNT	A6 .00	139
1	123	DNG	09C -.83	14
78	138	DNT	09H .55	165
53	147	DNG	A2 12.36	171

## Dents and Dings

SG-C

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
16	4	DNG	09H 4.12	11
48	8	DNT	09C .67	5
50	8	DNT	09C .70	5
47	9	DNT	09C .67	5
49	9	DNT	09C .67	5
51	9	DNT	09C .69	5
53	9	DNT	09C .67	5
52	10	DNT	09C .62	7
54	10	DNT	09C .45	7
56	10	DNT	09C .66	7
53	11	DNT	09C .39	7
55	11	DNT	09C .56	7
57	11	DNT	09C .66	11
59	11	DNT	09C .60	11
16	12	DNG	09H 3.59	11
52	12	DNT	09C .57	11
54	12	DNT	09C .69	11
56	12	DNT	09C .67	9
58	12	DNT	09C .58	9
60	12	DNT	09C .57	11
62	12	DNT	09C .60	11
55	13	DNT	09C .57	11
57	13	DNT	09C .64	9
59	13	DNT	09C .61	9
61	13	DNT	09C .57	11
63	13	DNT	09C .66	11
65	13	DNT	09C .66	9
58	14	DNT	09C .66	9
60	14	DNT	09C .65	9
62	14	DNT	09C .66	11
64	14	DNT	09C .60	11
66	14	DNT	09C .60	11
68	14	DNT	09C .60	11
65	15	DNT	09C .65	9
67	15	DNT	09C .63	9
69	15	DNT	09C .52	11
71	15	DNT	09C .65	11
68	16	DNT	09C .67	11
70	16	DNT	09C .66	11
73	17	DNT	09C .66	13
76	18	DNT	09C .69	13
78	18	DNT	09C .67	15
79	19	DNT	09C .70	5
81	21	DNT	09C .61	15
83	21	DNT	09C .69	15
84	22	DNT	09C .69	19
86	22	DNT	09C .69	19

## Dents and Dings

SG-C

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
83	23	DNT	09C .62	19
85	23	DNT	09C .66	5
87	23	DNT	09C .68	5
87	23	DNT	09C -.39	5
16	24	DNG	09H 3.25	25
86	24	DNT	09C .66	5
88	24	DNT	09C .61	15
88	24	DNT	09C -.50	15
87	25	DNT	09C .69	1
89	25	DNT	09C .68	1
91	25	DNT	09C -.44	15
91	25	DNT	09C .61	15
90	26	DNT	09C .66	97
92	26	DNT	09C .61	15
89	27	DNT	09C .61	21
91	27	DNT	09C .60	19
91	27	DNT	09C .67	97
93	27	DNT	09C .61	19
90	28	DNT	09C .64	95
94	28	DNT	09C .60	19
96	28	DNT	09C .63	19
97	29	DNT	09C .57	19
96	30	DNT	09C .61	25
98	30	DNT	09C .67	25
99	31	DNT	09C .67	33
99	31	DNS	09H -.62	33
99	31	DNT	09H .51	33
100	32	DNT	09C .66	31
101	33	DNT	09C .62	33
104	34	DNT	09H .50	33
103	35	DNT	09C .59	33
107	37	DNT	09C .62	37
108	38	DNT	09C .69	37
112	42	DNT	09C .59	43
113	43	DNT	09C .58	43
114	44	DNT	09C .67	43
116	48	DNT	07C .22	47
113	49	DNT	07C .42	45
117	49	DNT	07C .22	47
116	50	DNT	07C .40	51
118	50	DNT	07C .31	51
115	51	DNT	07C .28	51
117	51	DNT	07C .34	51
119	51	DNT	07C .20	51
119	51	DNT	09C .65	51
116	52	DNT	07C .36	55
118	52	DNT	07C .34	55

## Dents and Dings

SG-C

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
120	52	DNT	07C .22	55
117	53	DNT	07C .25	55
119	53	DNT	07C .25	55
116	54	DNT	07C .28	55
118	54	DNT	07C .26	57
120	54	DNT	07C .26	57
117	55	DNT	07C .37	55
119	55	DNT	07C .29	57
121	55	DNT	07C -.69	57
121	55	DNT	07C .26	57
121	55	DNT	08C .23	57
121	55	DNT	09C .58	57
116	56	DNS	07C -.64	59
118	56	DNT	07C .41	59
120	56	DNT	07C .34	57
122	56	DNT	07C .23	57
122	56	DNT	08C .29	57
122	56	DNT	09C .70	57
117	57	DNT	07C .30	59
119	57	DNT	07C .28	59
121	57	DNT	07C .26	57
121	57	DNT	08C .29	57
118	58	DNT	07C .41	57
122	58	DNT	07C .31	95
122	58	DNT	08C .20	95
122	58	DNT	09C -.43	95
122	58	DNT	09C .57	95
115	59	DNT	07C .29	95
119	59	DNT	07C .28	59
121	59	DNT	07C .37	95
121	59	DNT	08C .37	95
123	59	DNT	07C .23	95
123	59	DNT	08C .20	95
120	60	DNT	07C .26	95
120	60	DNT	08C .20	95
122	60	DNT	07C .26	95
122	60	DNT	08C .29	95
124	60	DNT	07C .31	95
124	60	DNT	08C .32	95
117	61	DNT	07C .28	63
119	61	DNT	07C .25	63
121	61	DNT	07C .25	63
121	61	DNT	08C .23	63
123	61	DNT	07C .34	63
123	61	DNT	08C .22	63
120	62	DNT	07C .25	63
122	62	DNT	07C .39	63

## Dents and Dings

## SG-C

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
122	62	DNT	08C .22	63
124	62	DNT	07C .22	63
124	62	DNT	08C .28	63
119	63	DNT	07C .29	65
121	63	DNT	07C .26	65
121	63	DNT	08C .32	65
123	63	DNT	07C .34	65
123	63	DNT	08C .23	65
125	63	DNT	07C .31	65
125	63	DNT	08C .17	65
125	63	DNT	09C .69	65
120	64	DNT	07C .26	65
122	64	DNT	07C .25	63
122	64	DNT	08C .28	63
124	64	DNT	07C .34	63
124	64	DNT	08C .20	63
119	65	DNT	07C .25	63
121	65	DNT	07C .25	63
123	65	DNT	07C .25	63
123	65	DNT	08C .23	63
125	65	DNT	07C .31	63
125	65	DNT	08C .17	63
120	66	DNT	07C .34	63
122	66	DNT	07C .25	63
124	66	DNT	07C .23	63
124	66	DNT	08C .31	63
126	66	DNT	07C .22	63
126	66	DNT	08C .28	63
123	67	DNT	07C .25	69
123	67	DNT	08C .31	69
125	67	DNT	07C .23	69
125	67	DNT	08C .17	69
122	68	DNT	07C .35	67
124	68	DNT	07C .35	67
124	68	DNT	08C .29	67
126	68	DNT	07C .25	69
126	68	DNT	08C .17	69
126	68	DNT	09C -.45	69
126	68	DNT	09C .59	69
121	69	DNT	07C .29	67
123	69	DNT	07C .41	67
125	69	DNT	07C .35	67
125	69	DNT	08C .29	67
127	69	DNT	07C .20	69
127	69	DNT	09C .62	69
124	70	DNT	07C .25	69
126	70	DNT	07C .22	69

## Dents and Dings

## SG-C

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
126	70	DNT	08C .17	69
126	70	DNT	09C .69	69
125	71	DNT	07C .25	69
125	71	DNT	08C .26	69
127	71	DNT	07C .23	69
127	71	DNT	09C .56	69
124	72	DNT	07C .37	79
126	72	DNT	07C .26	79
126	72	DNT	08C .29	79
55	73	DNG	07C 24.83	77
125	73	DNT	07C .26	79
127	73	DNT	07C .26	79
127	73	DNT	08C .17	79
126	74	DNT	07C .34	81
126	74	DNT	08C .20	81
125	75	DNT	07C .25	81
127	75	DNT	07C .31	81
72	76	DNG	01H 33.51	77
126	76	DNT	08C .29	79
127	81	DNT	09C -.43	87
127	81	DNT	09C .57	87
125	85	DNT	09C .66	87
127	85	DNT	09C .57	87
125	87	DNT	09C .56	89
127	87	DNT	09C -.39	89
127	87	DNT	09C .62	89
124	88	DNT	09C .66	87
126	88	DNT	09C .57	87
125	89	DNT	09C .57	91
124	90	DNT	09C .60	89
126	90	DNT	09C .63	89
123	91	DNT	09C .56	93
82	94	DNG	06H -.92	89
16	96	DNG	09H 4.34	165
124	96	DNT	09C .69	111
113	97	DNT	09H .23	111
123	97	DNT	09C .67	111
119	105	DNT	09C -.23	115
98	126	DNT	09C .61	117
62	144	DNG	TSH 2.13	123
62	144	DNG	TSH 1.02	123

## Dents and Dings

## SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
16	6	DNG	09H 3.65	21
61	21	DNG	08H 35.25	5
61	21	DNG	08H 34.13	5
100	32	DNT	07C -.63	15
102	34	DNT	07C -.59	13
102	34	DNT	08C -.63	13
104	34	DNT	07C -.58	13
104	34	DNT	08C -.69	13
101	35	DNT	08C -.60	13
105	35	DNT	07C -.61	13
102	36	DNT	08C -.63	15
104	36	DNT	08C -.66	13
106	36	DNT	07C -.61	13
105	37	DNT	08C -.66	15
107	37	DNT	07C -.56	13
106	38	DNT	08C -.60	13
108	38	DNT	07C -.56	13
108	38	DNT	08C -.65	13
107	39	DNT	08C -.66	13
109	39	DNT	07C -.61	13
109	39	DNT	08C -.62	13
16	40	DNG	09H 3.68	25
108	40	DNT	08C -.63	13
110	40	DNT	07C -.56	13
110	40	DNT	08C -.63	13
107	41	DNT	08C -.66	19
109	41	DNT	08C -.67	17
111	41	DNT	07C -.68	17
111	41	DNT	08C -.64	17
110	42	DNT	08C -.68	17
112	42	DNT	07C -.67	17
112	42	DNT	08C -.68	17
111	43	DNT	08C -.69	17
113	43	DNT	08C -.65	17
112	44	DNT	08C -.67	17
114	44	DNT	08C -.64	17
113	45	DNT	08C -.68	17
112	46	DNT	08C -.65	17
114	46	DNT	08C -.69	17
116	46	DNT	08C -.65	53
116	48	DNT	08C -.69	55
117	49	DNT	08C -.65	53
118	50	DNT	08C -.60	53
118	56	DNS	08H -.89	41
8	62	DNG	A16 1.10	91
23	63	DNS	TSC 33.92	85
23	63	DNS	TSC 33.77	51



## Dents and Dings

## SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
125	65	DNT	07C .38	57
124	66	DNT	07C .41	57
126	66	DNT	07C .37	59
126	66	DNT	07C .36	79
119	67	DNS	07C -.65	59
125	67	DNT	07C .37	59
122	68	DNS	07C -.60	57
124	68	DNT	07C .38	57
126	68	DNT	07C .33	57
127	69	DNT	07C .35	57
126	70	DNT	07C .37	59
127	71	DNT	07C .35	57
127	73	DNT	07C .38	61
127	75	DNT	08C .33	61
126	78	DNT	08C .37	65
127	79	DNT	07C .37	67
127	81	DNT	07C .36	65
126	82	DNT	07C .35	71
127	83	DNT	07C .37	71
124	84	DNT	07C .50	69
126	84	DNT	04C .28	69
126	84	DNT	07C .52	69
123	85	DNT	07C .47	69
125	85	DNT	07C .50	69
127	85	DNT	04C .55	69
127	85	DNT	07C .47	69
127	85	DNT	08C .37	69
122	86	DNT	07C .42	79
124	86	DNT	07C .36	79
126	86	DNT	04C .41	79
126	86	DNT	07C -.60	79
126	86	DNT	07C .36	79
121	87	DNT	07C .38	79
123	87	DNT	07C .38	79
125	87	DNT	04C .43	79
125	87	DNT	07C .36	79
127	87	DNT	04C .41	79
127	87	DNT	07C .33	79
122	88	DNT	07C .40	83
124	88	DNT	07C .37	83
126	88	DNT	04C .45	83
126	88	DNT	07C .37	83
123	89	DNT	07C .37	83
125	89	DNT	07C .37	83
120	90	DNT	07C .39	85
124	90	DNT	04C .44	81
124	90	DNT	07C .36	81

## Dents and Dings

## SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
126	90	DNT	04C .41	81
126	90	DNT	07C .33	81
117	91	DNT	07C .39	81
123	91	DNT	07C .36	81
125	91	DNT	04C .41	81
125	91	DNT	07C .33	81
124	94	DNT	04C .41	105
124	94	DNT	07C .34	105
124	94	DNT	08C .38	105
123	95	DNT	07C .33	105
124	96	DNT	07C .33	105
119	97	DNT	07C .37	111
123	97	DNT	07C .32	111
118	98	DNT	07C .36	105
117	101	DNT	07C .35	111
112	114	DNT	08C -.70	113
13	117	DNT	A1 .00	153
98	126	DNT	07C -.59	127
78	138	DNT	07C -.64	131
67	139	DNT	07C -.69	133
67	139	DNT	08C -.69	133
73	139	DNT	07C -.69	133
73	139	DNT	08C -.69	133
75	139	DNG	07C -.78	131
70	140	DNT	07C -.61	141
72	140	DNT	07C -.53	141
67	141	DNT	07C -.54	141
69	141	DNT	07C -.57	141
71	141	DNT	07C -.50	141
64	142	DNT	07C -.59	137
66	142	DNT	07C -.54	137
66	142	DNT	07C -.66	157
68	142	DNT	07C -.54	137
61	143	DNT	07C -.45	137
61	143	DNT	08C -.66	137
63	143	DNT	07C -.62	137
65	143	DNT	07C .30	157
65	143	DNT	07C -.69	157
65	143	DNT	07C -.67	137
60	144	DNT	07C -.64	141
62	144	DNT	07C -.64	141
59	145	DNT	07C -.57	141
42	146	DNG	A3 -1.86	137

# **APPENDIX D**

**TUBES WITH**

**OTHER**

**ANOMALOUS**

**SIGNALS**

Tubes with Other  
Anomalous Signals

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
36	6	MBM	01C 3.72	7
31	7	MBM	01C 2.68	7
10	8	MBM	07C 33.68	105
20	8	MBM	06C 25.82	7
34	8	NQS	A15 -1.70	7
13	9	MBM	07C 37.15	79
15	9	PVN	08C 37.08	81
6	10	MBM	04H 27.36	107
32	10	MBM	07H 21.11	1
40	10	MBM	02C 15.25	1
15	11	MBM	03H 11.64	81
53	11	MBM	08H 19.69	1
59	11	NQS	A16 5.29	1
12	12	MBM	03H 16.34	79
23	13	MBM	05H 12.20	1
8	14	MBM	01C 35.20	8
64	16	MBM	08C 27.18	7
68	16	MBM	07H 21.34	7
57	17	MBM	02H 5.41	99
9	19	MBM	04H 31.79	105
57	19	MBM	06C 17.09	101
20	20	MBM	07H 2.18	15
12	22	MBM	07C 37.63	83
14	22	MBM	FBH 6.73	103
78	22	MBM	08C 20.21	17
11	23	MBM	03C 12.30	83
34	24	NQS	06H 3.40	103
48	24	MBM	08C 38.27	103
15	25	PVN	08C 37.22	87
17	25	PVN	08C 37.26	87
6	26	MBM	06C 23.87	12
20	26	MBM	03H 29.32	103
20	26	MBM	04H 4.50	103
70	26	MBM	01H -1.49	29
70	26	NQS	01H 3.77	29
9	27	MBM	03H 36.48	105
83	27	MBM	08H 37.02	29
33	29	MBS	04H 24.33	29
6	30	MBM	03C 30.76	12
16	30	PVN	FBC 15.24	87
50	30	MBS	06H 22.97	29
58	30	NQS	05H 9.30	29
58	30	MBM	05H 11.78	29
92	30	MBM	01H 3.81	103

Tubes with Other  
Anomalous Signals

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
34	32	MBM	A14 -1.19	29
13	33	MBM	07C 33.81	83
57	33	NQS	04C 16.80	29
26	34	MBM	07H 31.93	29
26	34	MBM	06H 22.87	29
26	34	NQS	08H -1.52	29
53	35	NQS	A16 .71	31
61	35	MBM	A11 1.70	31
69	35	MBS	07H 37.62	31
69	35	MBS	07H 37.49	101
89	35	MBM	07H 18.13	37
22	36	NQS	03C 15.44	31
28	36	MBM	03H 22.82	33
62	36	MBM	A16 13.71	31
45	37	MBM	04H 30.02	31
87	37	MBM	A16 12.61	33
10	38	NQS	06C 7.60	83
40	38	MBM	FBC 14.04	31
40	38	MBM	07H 36.68	31
46	38	MBM	TSC 8.95	31
70	38	MBM	02H 16.72	31
37	39	MBM	A4 1.58	31
83	39	NQS	01C 13.05	31
104	40	MBM	FBH 12.40	35
104	40	MBM	08H -1.47	35
95	41	MBM	A15 -.58	35
66	42	NQS	07H -1.86	97
70	42	MBM	03C 38.01	41
84	42	MBM	03C -1.01	39
88	42	MBM	02C 11.01	41
31	43	MBM	05H 24.04	39
69	43	NQS	05C 24.16	41
99	43	NQS	07H 17.90	39
103	43	MBM	07C 34.12	41
109	43	NQS	08H 23.82	37
42	44	MBS	06H 26.00	99
73	45	MBM	05H 13.32	43
20	46	MBM	08C 24.46	43
96	46	PVN	06H 16.86	45
116	46	MBM	07H 12.14	79
15	47	NQS	08H 18.72	87
57	47	MBM	TSH 12.94	43
57	47	MBM	07H 12.96	43
109	47	NQS	05H 18.03	45

Tubes with Other  
Anomalous Signals

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
18	48	MBM	02H 4.85	87
94	48	MBM	A6 9.48	43
115	49	NQS	02H 20.04	45
22	50	MBM	FBC 1.41	43
32	50	MBM	07H 12.94	43
75	51	MBM	03H 30.18	45
81	51	MBM	01H 32.48	43
87	51	NQS	07H 37.83	43
118	52	MBM	02C 16.40	81
35	53	MBM	01H 37.07	97
56	54	MBM	01H 7.50	47
66	54	MBM	A2 5.67	47
70	54	NQS	07C 4.15	49
63	55	MBM	A16 1.25	47
81	55	MBM	A15 -1.18	47
115	55	NQS	08H 20.59	49
115	55	NQS	08H 19.43	49
24	56	MBM	04C 2.37	47
24	56	MBM	04C 6.01	47
74	56	MBM	TSH 1.91	47
23	57	MBM	FBC 1.55	47
116	58	NQS	03H 33.70	49
81	59	MBM	08C 14.80	47
101	59	MBM	08H 12.46	49
6	60	MBM	07H 20.28	129
68	62	MBM	06C 1.93	51
124	62	MBM	01C 26.42	81
94	64	MBM	02H 14.07	51
77	65	NQS	08H 30.21	53
104	66	MBM	02H 32.09	51
41	67	NQS	04H 17.77	51
38	68	MBM	08H 30.27	55
27	69	MBM	01C 2.79	95
41	69	MBM	07H 5.90	55
65	69	MBM	02H 17.85	55
73	69	MBM	08C 18.69	55
103	69	MBM	A10 2.52	57
8	70	MBM	07C 35.03	24
3	71	MBM	02C 23.49	26
3	71	MBM	06H 28.42	133
2	72	MBM	07C 15.22	24
24	72	MBM	01H 10.03	93
26	72	MBM	A2 6.37	93
86	72	MBM	08C 17.38	63

Tubes with Other  
Anomalous Signals

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
27	73	MBM	07C 20.17	95
91	73	NQS	01H 34.25	63
127	73	NQS	A10 3.42	77
33	75	MBM	06C 36.50	63
39	75	MBM	04C 7.85	65
57	75	MBM	08H 25.05	63
65	75	MBM	08H 11.23	63
65	75	NQS	06C 21.91	63
99	75	NQS	TSC 4.59	63
6	76	MBM	06C 18.11	26
34	76	MBM	01C 15.25	69
52	76	NQS	02H 28.80	67
54	76	MBM	05C 16.95	67
68	76	MBM	08H 10.80	67
94	76	NQS	TSC 13.35	97
120	76	MBM	01H 17.23	75
7	77	MBM	06C 10.64	22
11	77	MBS	08H 18.53	93
55	77	NQS	07C 5.21	69
67	77	MBM	07C 20.98	67
75	77	MBM	05H 7.16	67
81	77	MBM	A2 4.63	67
108	78	MBM	08C 24.17	69
51	79	MBM	07H 33.18	71
61	79	MBM	02C 15.43	73
115	79	NQS	02C 32.12	75
60	80	PVN	02H 30.80	73
47	81	NQS	03H 6.91	73
47	81	NQS	01H 15.07	73
47	81	NQS	04H 37.27	73
47	81	NQS	03H 5.06	73
30	82	MBM	03H 25.86	223
117	83	MBM	08C 24.04	77
12	84	MBM	A16 6.98	221
90	84	MBM	03H 15.26	73
90	84	MBM	03H 11.43	73
25	85	NQS	06H 8.23	221
39	85	NQS	FBH 10.45	151
123	85	MBM	04C 34.18	75
116	86	NQS	05H 31.68	77
16	88	MBM	01C 25.17	221
18	88	NQS	04H 36.16	221
38	88	MBM	03C 5.98	151
13	89	MBM	TSC 26.69	221

Tubes with Other  
Anomalous Signals

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
23	89	NQS	04H 29.07	221
101	89	MBM	04H 21.95	75
10	90	MBM	TSH 17.05	221
40	90	MBM	08C 26.23	149
68	90	MBM	08C 9.96	77
110	90	NQS	04C 14.53	77
29	91	NQS	07H 21.33	221
10	92	MBM	05C 26.65	221
120	92	MBM	07H 29.85	75
45	93	MBM	04H 29.86	151
63	93	MBM	04H 30.78	153
77	93	MBM	A2 7.61	77
65	95	MBM	A10 11.29	75
115	95	MBM	A2 24.75	75
64	96	MBM	04H 23.30	153
98	96	NQS	A8 3.35	1
31	97	MBM	01C 31.33	149
61	97	MBM	TSC 8.90	151
75	97	MBM	08C 19.03	155
91	97	MBM	05H 37.94	155
4	98	MBM	04C 20.60	16
72	98	NQS	TSH 13.41	151
122	98	NQS	07H 28.35	77
23	99	MBM	08H 36.25	197
50	100	NQS	08H 28.78	151
64	100	MBM	02C 32.92	153
66	100	MBM	A2 11.33	151
98	100	MBM	A2 .83	155
43	101	NQS	08H 32.84	149
10	102	MBM	FBC -.95	201
7	103	MBM	05H 20.69	203
23	103	NQS	02H 34.00	1
18	104	MBM	FBH 3.91	199
18	104	MBM	FBH -1.81	199
76	104	NQS	08H 2.04	153
67	105	MBM	07H 29.60	153
3	107	MBM	TSC 7.21	20
35	109	MBM	05C 29.98	159
4	110	MBM	02C 11.03	20
66	110	MBM	07H 23.60	159
68	110	MBM	07H 27.16	159
90	110	NQS	04H -1.82	159
17	111	NQS	08H 5.90	159
69	111	MBM	06H 16.02	157



Tubes with Other  
Anomalous Signals

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
68	112	MBM	02C 7.43	157
19	113	MBM	03H 34.10	159
107	113	NQS	A8 8.52	1
80	114	NQS	A12 6.93	1
43	115	NQS	FBC 8.65	163
109	115	MBM	01C 9.40	155
109	115	MBM	01C 8.62	155
32	116	MBM	A2 7.12	163
74	116	MBM	04C 27.25	161
82	116	MBM	04H -1.76	161
21	117	MBM	06H 20.10	161
64	118	MBM	07H 37.58	161
2	120	MBM	03C 27.98	18
21	121	NQS	05H 33.54	171
35	121	MBM	04H 37.48	171
79	121	MBM	03H 8.14	169
38	122	MBM	06C 38.33	201
58	122	MBM	06C 19.89	175
84	122	MBM	04C 33.36	175
33	123	MBM	08H 14.28	177
78	124	MBM	05H 2.10	179
88	124	MBM	01H 14.41	179
21	125	NQS	07H 18.22	177
31	125	MBM	02H 12.46	179
57	125	NQS	TSH 16.85	179
38	126	MBM	01H 18.44	179
25	127	NQS	02H 9.24	1
25	127	NQS	07H 19.25	1
25	127	NQS	07H 14.08	1
23	129	MBM	02H 9.95	179
61	129	NQS	08C 2.84	179
69	129	MBM	01C 35.64	179
75	129	NQS	A16 11.31	179
25	131	MBM	06H 6.56	177
4	132	MBM	05H 2.51	209
79	133	NQS	01C 13.00	181
40	134	MBM	05C 19.30	183
24	136	NQS	08H 24.16	1
60	136	NQS	A4 4.00	1
2	138	MBM	05H 7.56	207
56	138	NQS	06H 2.17	187
16	140	MBM	07C 6.74	209
42	142	MBM	06C 7.37	193
3	143	MBM	08C 18.06	20

Tubes with Other  
Anomalous Signals

SG-A

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
16	144	MBM	07C 9.40	193
19	147	MBM	07C 15.97	193
6	150	NQS	07H 20.55	203
21	151	MBM	07C 16.40	189
27	151	MBM	06H 33.89	189
20	152	MBM	07H 37.00	191
7	153	MBM	08C 10.29	18
13	153	MBM	01H 28.87	191

Tubes with Other  
Anomalous Signals

SG-B

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
3	3	MBM	05C 9.20	6
21	3	NQS	TSH 1.85	15
30	6	MBM	05C 26.70	103
22	8	MBM	04H 9.20	19
22	12	MBM	09H -1.22	15
28	12	MBM	03H 26.20	19
54	12	MBM	A16 10.94	37
22	14	MBM	05H 3.93	15
54	14	MBM	08H 3.88	15
62	14	MBM	A6 6.68	101
9	15	MBM	TSH 12.22	105
9	15	MBM	TSH 12.36	107
32	16	MBM	03C 10.98	11
54	16	MBM	04H 21.71	11
63	17	MBM	06C 26.40	9
38	18	MBM	06C 25.78	11
54	18	MBM	02C 3.60	11
51	19	MBM	03C 34.41	9
69	19	MBM	08H 17.17	9
69	19	MBM	08H 13.61	9
80	22	MBM	07H 17.25	9
81	23	MBM	01H 10.30	11
54	26	MBM	TSC 16.13	31
9	27	MBM	04C 36.16	12
47	27	MBM	07C 11.85	103
47	27	MBM	07C 10.24	31
60	28	MBM	06H 15.72	31
92	28	NQS	TSC 3.12	7
46	30	MBS	06C 19.70	35
2	32	MBM	03C 7.68	12
2	32	MBM	03C 6.54	12
44	32	MBS	06H 20.82	31
3	33	NQS	09H 2.76	121
84	34	MBM	03C 11.43	7
100	34	MBM	A12 16.62	7
27	35	MBM	01C 29.20	23
101	37	MBM	08H 15.10	99
12	38	MBS	07H 35.87	35
14	38	MBS	07H 34.61	35
16	38	MBS	07H 34.59	31
64	38	MBM	A15 -1.96	33
104	38	MBS	09H 4.59	33
92	40	MBM	A15 -1.91	39
51	41	NQS	02H 9.59	39

Tubes with Other  
Anomalous Signals

SG-B

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
97	41	MBM	08H 29.29	39
42	42	MBM	08C 4.32	37
50	42	MBM	06H 4.55	37
72	42	MBM	08C 32.27	37
3	43	NQS	09H 2.09	117
44	44	MBM	08H 33.43	41
80	44	MBM	08H 30.51	43
65	45	MBM	06H 14.95	41
87	45	MBM	01C 28.15	43
111	45	MBM	A2 8.13	41
111	45	MBM	04H 8.21	41
65	47	MBM	04H 24.89	99
65	47	MBM	04H 24.76	41
67	47	MBM	08H 6.81	43
91	47	MBM	09H 14.82	43
62	48	MBM	08H 35.41	47
62	48	MBM	06C 19.16	47
90	48	MBM	04C 1.99	45
35	49	MBM	07C 15.13	49
57	49	MBM	02H 38.01	47
12	50	MBM	02C 13.57	47
61	51	MBM	06C 11.12	47
59	53	MBM	08C 7.72	59
40	56	NQS	06H 6.52	59
9	57	MBM	08C 4.40	10
59	57	MBM	07C 8.93	65
79	57	MBM	02H 26.35	63
10	58	NQS	02C 3.69	97
16	58	MBM	07C 8.64	97
36	58	MBM	TSH 5.53	65
80	60	NQS	01C 4.85	65
95	61	NQS	07C 10.43	65
97	61	MBM	04H 25.31	65
22	62	MBM	TSC 29.45	69
110	62	MBM	A12 18.26	69
11	63	MBM	04C 4.77	69
11	63	MBM	04C 6.66	69
23	63	MBM	07C 18.60	71
95	63	MBM	07C 21.33	71
107	63	MBM	05H 3.77	69
90	64	MBM	A10 3.29	71
92	64	MBM	05C 35.68	69
92	64	MBM	06C 4.82	69
30	66	NQS	08H 30.77	71

Tubes with Other  
Anomalous Signals

SG-B

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
82	66	MBM	02C 36.56	69
92	66	MBM	05H 34.62	69
92	68	MBM	05C 18.21	71
97	69	MBM	02H 21.87	73
127	69	MBM	07C 18.29	97
116	70	MBM	03H 12.12	75
7	71	MBM	02C 35.33	20
29	71	MBM	06H 29.46	89
51	71	NQS	06C 38.33	73
119	71	NQS	02C 13.63	77
20	72	NQS	07C 21.73	91
46	72	MBM	03C 16.05	75
125	73	MBM	07C 34.03	79
86	74	NQS	08C 33.58	77
114	74	MBM	01H 35.47	79
29	75	MBM	06H 18.70	89
49	75	MBM	08C 1.92	77
97	75	MBM	06C 25.94	77
119	75	MBM	02C 7.22	97
127	77	MBM	07C 21.17	77
66	78	MBM	07H 28.82	81
68	78	MBM	07H 27.54	81
96	78	MBM	05C 24.66	77
40	80	MBM	08H 20.03	81
48	80	MBM	FBC 5.29	81
19	81	NQS	01C 32.90	171
55	81	NQS	A2 11.90	85
63	81	MBM	06H 16.73	85
10	82	NQS	01C 7.49	171
28	82	MBM	01H 10.77	89
85	83	MBM	A8 2.07	87
115	83	MBM	03C 23.81	99
115	83	MBM	A16 6.50	99
13	85	MBM	09C -1.52	171
19	85	MBS	06H 13.27	171
10	86	MBM	03H 38.45	171
48	86	MBM	03H 18.47	89
68	86	MBM	07H 24.06	85
122	86	MBM	07C 35.81	97
101	87	MBM	07C 29.48	87
73	89	MBM	05H 37.10	95
120	90	MBM	07C 34.76	99
21	91	MBM	07H 17.27	171
25	91	MBM	06H -1.58	169

Tubes with Other  
Anomalous Signals

SG-B

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
57	91	MBM	08H 7.59	93
48	92	MBM	04H 17.43	93
17	93	MBM	01H 22.70	171
25	93	MBS	03H 35.25	171
55	93	NQS	06C 32.66	93
112	96	MBM	08C 17.82	93
97	97	MBM	A12 20.67	143
123	97	MBM	06C 31.86	141
122	98	NQS	TSC 4.68	143
3	99	NQS	09H 2.74	121
109	99	MBS	07H 13.19	139
8	102	MBM	08H 20.30	119
90	102	NQS	02C 35.49	143
27	103	NQS	FBH 15.21	151
85	103	MBM	06C 4.59	139
16	104	MBM	07H 24.37	149
42	104	MBM	04C 9.66	153
45	105	NQS	03H 31.93	147
81	105	NQS	TSC 11.19	147
83	105	MBM	06C 19.83	147
6	106	MBM	05H 37.84	123
36	106	MBM	04C 28.55	155
109	107	MBM	07C 30.27	139
93	109	MBM	06C 17.85	177
32	110	MBM	03H 7.03	177
32	110	MBM	01H 32.44	177
102	110	NQS	02H 12.29	147
103	113	NQS	02C 32.65	147
111	113	MBM	A6 6.67	147
12	114	MBM	07H 22.41	155
32	114	MBM	08C 29.42	155
76	114	MBS	08H 34.17	147
29	115	MMB	07C 26.58	155
63	115	MBM	07C 4.68	145
103	115	NQS	08H 5.17	145
2	116	MBM	05C 4.54	14
29	117	MBM	04H 35.99	153
35	117	MBM	02C 4.86	153
65	119	MBM	04C 26.26	149
38	122	MBM	06C 11.41	155
38	122	MBM	07C 6.90	155
76	122	MBM	06C 29.63	151
80	122	MBS	06H 26.52	151
88	122	NQS	TSC 14.47	151

Tubes with Other  
Anomalous Signals

SG-B

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
9	123	MBM	FBC 17.46	14
27	123	MBM	01C 24.76	155
32	124	MBM	07H 22.30	155
17	125	MBM	05H 10.77	155
86	126	NQS	06H 13.14	155
33	127	MBM	01H 11.63	155
45	127	MBM	08C 6.12	153
47	127	MBM	03C 7.95	157
89	127	MBM	08C 25.66	159
66	128	MBM	07C 1.73	157
23	129	MBM	06H 14.76	157
41	129	NQS	08H 26.62	159
30	132	MBM	05H -1.67	159
26	134	NQS	06C 19.13	159
74	134	MBM	06C 3.31	159
3	135	BLG	09H -1.94	131
37	135	MBM	02C 3.04	161
63	135	MBM	A12 2.21	161
73	137	NQS	07H 33.20	167
73	137	NQS	03H 27.92	167
2	138	MBM	FBH 11.70	131
27	139	MBM	05H 33.64	167
57	139	MBM	08C 11.43	167
17	141	MBM	09H 2.64	167
20	142	NQS	08C 20.26	165
30	142	MBM	08H 4.01	165
7	143	NQS	08C 16.11	14
7	143	NQS	08C 23.32	14
9	143	MBM	06H 8.00	133
33	143	NQS	08H 11.94	167
9	147	NQS	08H 37.32	131
33	147	NQS	03C 3.19	169
47	147	MBM	05H 29.32	169
15	153	MBM	03H 21.78	167
2	154	MBM	07C 29.33	18

Tubes with Other  
Anomalous Signals

SG-C

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
45	7	NQS	A12 4.85	7
6	8	MBM	05H 34.25	107
8	8	MBM	05C 19.43	4
34	8	MBM	TSC 14.92	11
44	8	MBM	02C 16.93	5
9	9	MBM	05C 3.72	4
9	9	MBM	04C 36.00	4
36	10	NQS	05H 9.89	11
49	11	NQS	07H 27.92	7
55	11	NQS	08H 13.05	7
65	13	MBM	A15 7.09	9
18	14	MBM	02C 11.80	9
65	15	MBM	08C 29.37	9
65	15	MBM	A11 2.03	9
51	17	NQS	05H 9.23	15
18	20	MBM	02C 15.72	13
30	20	NQS	08C 27.10	15
31	21	MBM	05H 10.07	15
58	22	MBM	TSC 14.04	15
9	23	MBM	04C 4.10	2
9	23	MBM	08C 36.15	2
27	23	MBM	08C 3.00	19
47	25	MBM	08C 9.30	25
88	26	MBM	08H 37.38	7
14	30	MBM	06C 26.29	31
21	31	MBM	03H 11.45	31
21	31	MBM	03H 13.98	31
71	31	MBM	A10 6.26	31
62	32	NQS	09H 10.01	31
99	33	MBM	03C 25.76	33
20	34	MBM	02H 36.61	35
7	35	MBM	04H 9.95	105
77	35	MBM	08C 8.89	35
97	35	MBM	A6 14.94	33
101	35	NQS	08H 17.05	35
6	36	MBM	06C 22.22	4
12	36	MBM	09H 2.10	35
50	36	NQS	03C 11.92	35
98	36	MBM	08H 30.69	35
20	38	MBM	05C 25.60	37
82	40	MBM	03H 13.98	35
75	41	MBM	02C 12.04	39
18	42	MBM	02C 31.21	41
34	42	MBM	03H 23.93	41
34	42	MBM	05C 10.98	41
36	42	MBM	FBC 4.97	41



Tubes with Other  
Anomalous Signals

SG-C

102	42	MBM	06C	21.73	43
95	43	MBM	01H	19.71	43
12	44	MBM	05H	7.07	41
106	44	MBM	08H	25.50	43
19	45	MBM	03C	5.46	49
6	46	MBM	06C	36.16	6
18	46	MBM	03C	3.80	51
18	46	MBM	01H	5.01	51
62	46	NQS	05C	17.80	49
15	47	NQS	04C	7.65	49
15	47	NQS	04C	7.84	51
65	47	MBM	08C	33.29	47
65	49	MBM	07C	26.94	49
22	50	MBM	06H	7.40	51
38	50	MBS	06H	16.09	51
56	50	MBM	04C	14.82	49
77	51	NQS	02C	21.60	53
77	51	MBM	02C	20.89	53
6	52	MBM	FBC	2.25	8
56	52	MBM	07H	2.78	55
31	53	MBM	03H	37.75	55
31	53	MBM	04H	3.61	55
88	54	MBM	03H	2.84	55
92	54	NQS	07H	25.16	53
79	55	MBM	08C	10.63	53
44	56	MBM	07C	-1.59	53
39	57	MBM	01H	16.04	57
53	57	MBM	05C	31.45	57
51	61	MBM	A2	7.12	65
71	61	MBM	A16	9.40	65
117	61	NQS	07C	19.62	63
6	62	NQS	07C	32.30	6
74	62	MBM	04H	-1.70	63
118	62	NQS	05C	1.81	63
122	62	MBM	03C	2.47	63
23	63	NQS	04H	21.89	73
51	63	MBM	08H	23.74	63
69	63	MBM	05C	1.76	63
105	63	MBM	05H	35.43	65
4	64	MBM	02C	33.80	8
12	64	MBM	01H	3.80	71
54	64	MBM	04C	23.79	67
9	65	MBM	05H	2.30	105
33	65	MBM	04H	29.49	67
28	66	MBM	04H	25.79	69
124	66	MBM	A16	5.81	63
37	67	MBM	01C	10.66	69

Tubes with Other  
Anomalous Signals

SG-C

51	67	NQS	A11	3.25	69
117	67	MBM	08H	34.66	69
64	68	MBM	04C	5.14	67
2	70	MBM	01C	-1.72	6
102	70	MBM	07H	14.87	69
121	71	MBM	01H	8.65	69
100	72	MBM	A8	11.51	77
102	72	MBM	07H	36.29	79
10	74	MBM	07H	26.59	71
106	74	MBM	05C	13.56	81
106	74	MBM	07H	32.55	81
15	75	MBM	TSH	25.76	75
45	75	MBM	03H	9.63	75
51	75	MBM	05C	36.79	75
20	76	MBM	01C	29.23	77
106	76	NQS	A16	7.20	95
25	77	MBM	01H	10.29	77
41	79	MBM	08H	35.42	75
20	80	NQS	06C	8.80	169
80	80	NQS	04H	23.08	77
80	80	NQS	04H	31.76	77
126	80	MBM	04C	33.82	83
37	81	MBM	01C	5.08	93
3	83	MBM	08H	12.21	157
123	83	NQS	06H	24.55	89
50	84	MBM	06C	16.67	93
50	84	MBM	06C	5.76	93
66	84	MBM	03C	7.76	93
76	84	MBM	04H	33.29	87
86	84	NQS	05H	24.78	87
113	87	MBM	02H	12.44	89
127	87	MBM	01C	29.94	89
127	87	MBM	06C	35.61	89
127	87	MBM	07C	25.55	89
22	88	NQS	03H	32.17	169
13	89	MBM	02C	12.12	169
15	89	MBM	07C	20.94	169
83	89	NQS	02H	36.81	87
20	90	MBM	TSH	28.77	165
54	90	NQS	07C	3.78	91
58	90	MBM	05C	35.68	91
75	91	MBM	05H	29.89	89
109	91	MBM	A12	15.26	93
117	91	MBM	07C	32.48	93
22	92	MBS	TSC	16.87	165
26	92	MBM	05H	25.08	165
3	93	MBM	07H	24.18	157

Tubes with Other  
Anomalous Signals

SG-C

37	93	MBM	05H	21.92	139
85	93	NQS	08H	4.23	91
99	93	MBM	02C	36.66	91
32	94	MBM	03H	14.30	139
50	94	MBM	08C	14.99	91
21	95	MBM	05C	36.32	165
25	95	MBM	01C	36.05	165
81	95	MBM	01C	35.15	93
85	95	NQS	06H	14.79	93
99	95	MBM	01H	9.65	93
99	95	MBM	02H	26.35	93
101	95	NQS	06C	37.07	93
107	95	MBM	FBH	12.86	93
6	96	MBM	06C	3.18	12
14	96	MBM	02C	16.71	165
18	96	MBM	06H	20.77	165
51	97	MBM	08H	34.15	141
51	97	MBM	A12	1.05	141
67	97	MBM	02C	21.76	141
50	98	NQS	FBH	10.60	139
108	98	MBM	A2	10.26	113
11	99	NQS	08H	13.41	135
79	99	NQS	08H	28.26	139
101	99	MBM	04C	13.12	113
107	99	MBM	A2	2.00	113
2	100	MBM	08H	35.59	147
14	100	NQS	04C	33.77	135
63	101	NQS	01H	12.17	137
63	101	NQS	01H	14.74	137
65	101	NQS	FBC	15.11	137
65	101	NQS	FBC	15.96	137
91	101	MBM	A6	9.98	111
107	101	MBM	03C	7.77	111
117	101	NQS	06H	21.85	111
121	101	NQS	A10	4.98	111
9	103	MBM	07C	19.59	8
20	104	NQS	07C	32.90	135
93	105	MBM	04C	2.09	113
10	106	MBM	07C	9.56	135
58	106	NQS	04H	12.66	137
118	106	MBM	A16	20.39	113
18	108	MBM	06C	6.49	135
64	108	MBM	05C	7.13	135
64	108	MBM	08C	9.32	135
49	109	MBM	03H	35.13	133
4	110	MBM	03C	11.21	8
19	111	MBM	08C	5.52	131

Tubes with Other  
Anomalous Signals

SG-C

78	112	MBM	07C	25.89	115
25	113	MBM	06C	18.18	133
4	114	MBM	04C	18.68	8
38	114	NQS	04H	29.57	131
74	114	MBM	A7	2.41	117
98	118	MBM	08C	16.06	117
86	120	MBM	09H	6.03	115
90	120	MBM	02H	36.24	115
65	121	MBM	05H	8.98	115
10	122	MBS	08C	32.58	127
88	122	MBM	A4	5.54	117
92	122	MBM	09H	17.52	117
39	123	NQS	08C	9.38	127
33	125	NQS	08H	14.86	129
35	125	MBM	02C	32.12	129
6	126	NQS	04C	34.04	8
38	126	NQS	01C	18.45	127
33	127	NQS	05H	23.08	127
40	128	MBS	05C	28.16	129
42	128	MBS	06C	16.22	129
68	130	NQS	02C	32.02	121
41	131	MBM	TSH	10.71	127
55	135	MBM	02C	2.25	125
71	137	MBM	FBC	17.02	123
26	138	MBM	06H	1.84	123
47	141	MBM	A5	4.81	123
35	145	NQS	A13	1.39	123
2	150	MBM	02C	36.31	6
24	150	MBM	TSH	12.51	123
6	152	MBM	08H	34.01	147
8	152	MBM	08H	18.42	147
6	154	MBM	08C	-1.73	6

Tubes with Other  
Anomalous Signals

SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
10	4	MBM	06C 8.42	21
12	4	MBM	02C 26.14	21
30	6	MBM	01C 16.93	21
7	7	MBM	08C 15.89	4
27	7	MBM	03C 14.36	21
27	7	MBM	01C 28.85	21
24	8	MBM	03H 18.79	21
21	11	MBM	FBH 6.28	3
43	11	MBM	07H 31.76	5
43	11	MBM	01H 27.29	5
4	12	MBM	06H 17.69	87
6	12	MBM	07H 34.49	89
44	12	NQS	07C 15.51	5
46	12	MBM	08C 30.94	7
37	13	MBM	01C 26.60	5
37	13	MBM	01C 29.76	5
2	14	NQS	09H 2.37	89
38	14	MBM	06C 9.11	5
42	14	MBM	02C 34.02	7
37	15	MBM	01C 22.21	5
22	16	MBM	07C 19.97	7
9	17	MBM	07C 18.21	2
13	17	NQS	07H 36.92	23
12	18	NQS	TSC 14.03	23
46	18	MBM	FBC 16.64	7
71	19	MBM	02H 33.96	7
74	20	MBM	06C 32.45	7
69	21	MBM	06H 21.68	5
26	22	MBM	08H 20.17	5
62	22	MBM	08H 10.94	7
64	22	MBM	05C 14.58	7
72	22	MBM	08C 36.54	7
22	24	MBM	05H 14.96	11
30	24	NQS	02H 11.26	9
5	25	MBM	04C -1.50	2
55	25	NQS	A14 3.95	11
45	27	MBM	02C 11.08	11
53	27	MBM	01H 30.22	11
59	27	MBM	01C 22.40	11
59	27	MBM	FBC 8.05	11
59	27	MBM	TSC 2.93	11
77	27	MBM	06H 35.74	11
12	28	NQS	04H 33.55	21
23	29	MBM	02H 26.89	11
93	29	MBM	02C 15.79	9
36	30	MBM	08C 2.68	85

Tubes with Other  
Anomalous Signals

SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
88	30	MBM	03C 4.51	9
17	31	MBS	07C 32.02	21
17	31	MBS	07C 4.98	21
83	31	MBM	07H 37.54	13
53	33	MBM	08C 5.16	13
53	33	MBM	08C 8.94	13
75	33	MBM	06H 6.78	13
75	33	MBM	03C 19.13	13
76	34	MBM	08C 22.99	15
7	35	MBM	05C 28.08	4
87	35	MBM	08H 36.74	13
66	36	MBM	06H 9.89	13
78	36	MBM	A12 5.35	15
27	37	MBM	05C 35.24	13
51	37	MBM	02H 13.96	13
54	38	NQS	03C 30.49	15
44	40	MBM	05C 22.67	13
58	40	MBM	05C 22.61	15
78	40	MBM	07C 10.48	13
19	41	MBM	01C 12.71	27
77	41	MBM	04C 20.59	17
24	42	MBM	07C 21.05	17
32	42	MBM	03C 16.53	17
66	42	MBM	01H 17.96	19
102	42	MBM	03H 21.98	17
69	43	MBM	08C 3.86	17
96	44	MBS	02C 21.90	17
27	45	MBM	02C 21.96	17
73	45	MBM	02C 19.04	19
113	45	MBM	A16 3.64	17
64	46	MBM	05H 28.40	17
46	48	MBM	03C 36.78	27
15	49	MBM	02H 31.38	33
23	49	MBM	02C 13.02	85
81	49	NQS	08H 16.46	29
81	49	NQS	05C 15.65	29
46	50	MBM	08H 19.68	29
70	50	MBM	08C 32.32	31
98	50	MBS	09H 5.35	29
11	51	MBM	06H 30.87	35
114	54	MBM	02H 23.09	79
118	54	MBM	08C 14.74	37
13	55	MBM	04H 9.01	57
37	55	MBM	07H 26.74	41
45	55	MBM	05H 20.60	41
71	57	MBM	07H 26.67	41

Tubes with Other  
Anomalous Signals

SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
2	58	MBM	07H 28.91	93
21	59	MBM	06C 12.00	41
79	59	MBM	01C 23.07	45
56	60	NQS	TSC 13.98	45
1	61	MBM	02H 32.10	95
40	62	MBM	08H 25.99	49
83	63	MBM	03C 36.05	49
97	63	MBM	07H 35.28	51
113	63	MBM	04C 9.94	51
54	64	MBM	05C 17.73	49
55	65	NQS	TSC 2.08	51
84	66	MBS	02H 3.57	49
84	66	MBM	02H 3.57	207
12	68	MBM	07C 14.40	63
106	68	MBM	A3 1.50	57
21	69	MBM	07H 29.06	63
30	70	MBM	TSH 2.09	59
80	70	MBS	05H 24.78	57
116	70	NQS	06C 34.66	57
79	71	MBM	05H 37.79	63
124	72	NQS	08C 26.86	61
69	75	MBM	07H 27.61	63
76	76	MBM	07H 5.56	65
109	77	NQS	A4 2.78	61
109	77	MBM	A4 4.42	61
117	77	MBM	A5 -1.75	61
23	79	MBM	08H 21.08	67
23	79	MBM	04H 26.23	67
23	79	MBM	04H 24.49	67
28	80	NQS	07H 2.07	73
14	82	MBM	TSH 21.19	191
50	82	NQS	04H 8.99	67
70	82	MBM	01H 10.54	69
70	82	MBM	07H 10.36	69
96	84	MBM	04H 35.62	69
114	84	MBM	06C 37.34	69
45	85	NQS	06C 19.07	75
87	85	MBM	08C 20.10	69
103	85	MBM	08H 16.49	69
51	87	MBM	FBH 16.63	73
67	87	MBM	05H 9.35	73
117	87	MBM	03H 30.91	79
117	87	MBM	03H 34.54	79
89	89	MBM	06H 23.22	83
95	89	MBM	08C 14.10	83
4	90	MBM	03C 23.26	18

Tubes with Other  
Anomalous Signals

SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
8	90	MBM	08C 1.40	18
42	90	NQS	04H 11.81	75
90	90	MBM	FBH 16.07	85
21	91	MBM	03C 2.49	191
29	91	MBM	03H 37.77	155
97	91	NQS	01C 26.34	81
109	91	NQS	07H 33.66	81
4	92	MBM	07C 38.25	18
4	92	MBM	TSH 18.96	193
4	92	MBM	TSH 18.28	197
8	92	MBM	08H 22.71	193
8	92	MBM	08H 22.73	197
54	92	NQS	07H 37.67	107
54	92	NQS	04H 18.05	107
54	92	NQS	06H 7.18	107
64	92	MBM	07H 15.82	107
98	92	MBM	06H 25.35	107
6	94	MBM	01C 19.90	18
84	94	MBM	02C 28.67	105
112	94	MBM	02C 24.05	105
5	95	MBM	TSC 5.11	18
19	95	MBM	01C 8.56	191
28	96	MBM	04C 18.39	153
52	96	MBM	07C 23.31	111
52	96	MBM	02H 12.06	111
99	97	MBM	A12 5.26	111
14	98	MBM	08C -1.99	153
18	98	MBM	07H 10.08	153
38	98	NQS	TSC 17.44	155
38	98	NQS	A16 3.86	155
38	98	NQS	01C 15.98	155
38	98	NQS	TSC 11.09	155
38	98	NQS	TSC 14.78	155
38	98	NQS	TSC 9.42	155
38	98	NQS	FBC 8.80	155
38	98	NQS	01C 6.67	155
38	98	NQS	TSC 15.52	155
94	98	MBM	A12 11.97	105
63	99	MBM	04H 27.95	109
67	101	MBM	TSC 18.36	111
67	101	MBM	08H 12.07	111
93	101	MBM	01H 5.08	111
96	102	NQS	07H 22.36	109
114	102	MBM	05C 4.39	109
118	102	MBM	07H 8.83	109
4	104	MBM	04C 6.15	6



Tubes with Other  
Anomalous Signals

SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
38	104	MBM	03C 4.59	111
39	105	NQS	01C 13.07	115
57	107	NQS	07C 9.03	113
57	107	NQS	TSC 10.12	113
45	109	MBM	02H 5.32	115
4	110	MBM	03C 30.53	8
61	111	MBM	01H 11.94	113
28	112	MBM	04C 18.53	119
54	112	MBM	07H 22.43	115
54	112	MBM	04H 26.69	115
76	112	MBM	TSH 5.28	115
9	113	MBM	06H 18.46	187
9	113	MBM	06H 18.39	163
25	113	MBM	FBC 17.26	119
55	113	MBM	07H 27.50	119
32	114	MBM	09H 6.83	117
64	114	NQS	07H 12.95	113
106	114	NQS	08H 35.27	113
25	115	MBM	FBH 15.34	117
41	115	MBM	03C 24.57	117
65	115	MBM	01C 24.13	117
34	116	MBM	05C 36.06	157
40	116	MBM	A4 1.76	157
46	116	MBS	05H 32.78	123
62	116	MBM	02H 8.26	123
21	117	MBM	05C 22.80	145
32	118	NQS	08C 7.09	157
95	119	MBM	04C 20.05	123
30	120	MBM	03H 6.16	123
40	120	MBM	A16 7.23	123
21	121	MBM	FBH 3.79	145
89	121	MBS	06H 32.31	123
86	122	MBS	07H 11.52	127
75	123	MBM	04C 19.41	127
66	124	NQS	05C 29.49	129
29	125	MBM	01C 9.90	129
45	125	MBM	08H 6.23	129
2	126	MBM	08H 18.95	179
2	126	MBM	08H 18.96	173
22	126	NQS	06H 25.62	145
26	126	MBS	06H 11.75	127
26	126	MBM	06H 11.75	207
28	126	MBS	06H 3.06	127
29	127	MBM	05H 23.82	127
37	127	MBM	07C 32.14	127
95	127	MBM	03C 9.56	127

Tubes with Other  
Anomalous Signals

SG-D

ROW	COLUMN	INDICATION	LOCATION	CAL NUMBER
96	128	MBM	08C 24.65	129
87	129	MBM	08H 8.94	129
14	130	MBM	FBH 9.39	145
36	130	MBM	01C 25.97	127
38	130	MBM	08C 17.17	127
46	130	MBM	08H 11.59	127
74	130	MBM	05C 34.97	127
76	130	MBM	02H 14.47	127
9	131	MBM	05H 6.73	165
22	132	MBM	07H 24.98	145
48	132	MBM	A16 6.28	129
48	132	MBM	02C 38.09	129
35	133	MBM	FBH 15.86	129
48	134	MBM	02C 38.11	127
61	135	MBM	08C 4.47	127
32	136	MBM	02C 27.73	129
48	136	MBM	02H 1.63	129
3	137	MBM	FBH 7.53	165
30	138	NQS	06C 18.10	131
30	138	NQS	06H 14.27	131
30	138	NQS	05H 35.82	131
46	138	MBM	05C 25.32	131
46	138	MBM	06C 7.98	131
48	138	MBM	01H 29.54	131
11	139	NQS	06C 3.16	155
11	139	MBM	05C 38.04	155
13	139	MBM	01H 11.16	155
47	139	MBM	06H 7.06	133
72	140	MBM	01H 30.07	141
3	141	MBM	01H 19.67	165
20	142	MBM	03H 13.99	145
49	145	MBM	04C 36.01	145
49	145	MBM	08H 32.89	145
8	148	MBM	08C 21.71	10
50	148	MBM	03H 22.29	145
40	150	NQS	03C 23.08	143
7	151	MBM	TSC 17.64	12

**APPENDIX E**

**TUBES REMOVED**

**FROM SERVICE**

**PRIOR TO**

**AND DURING**

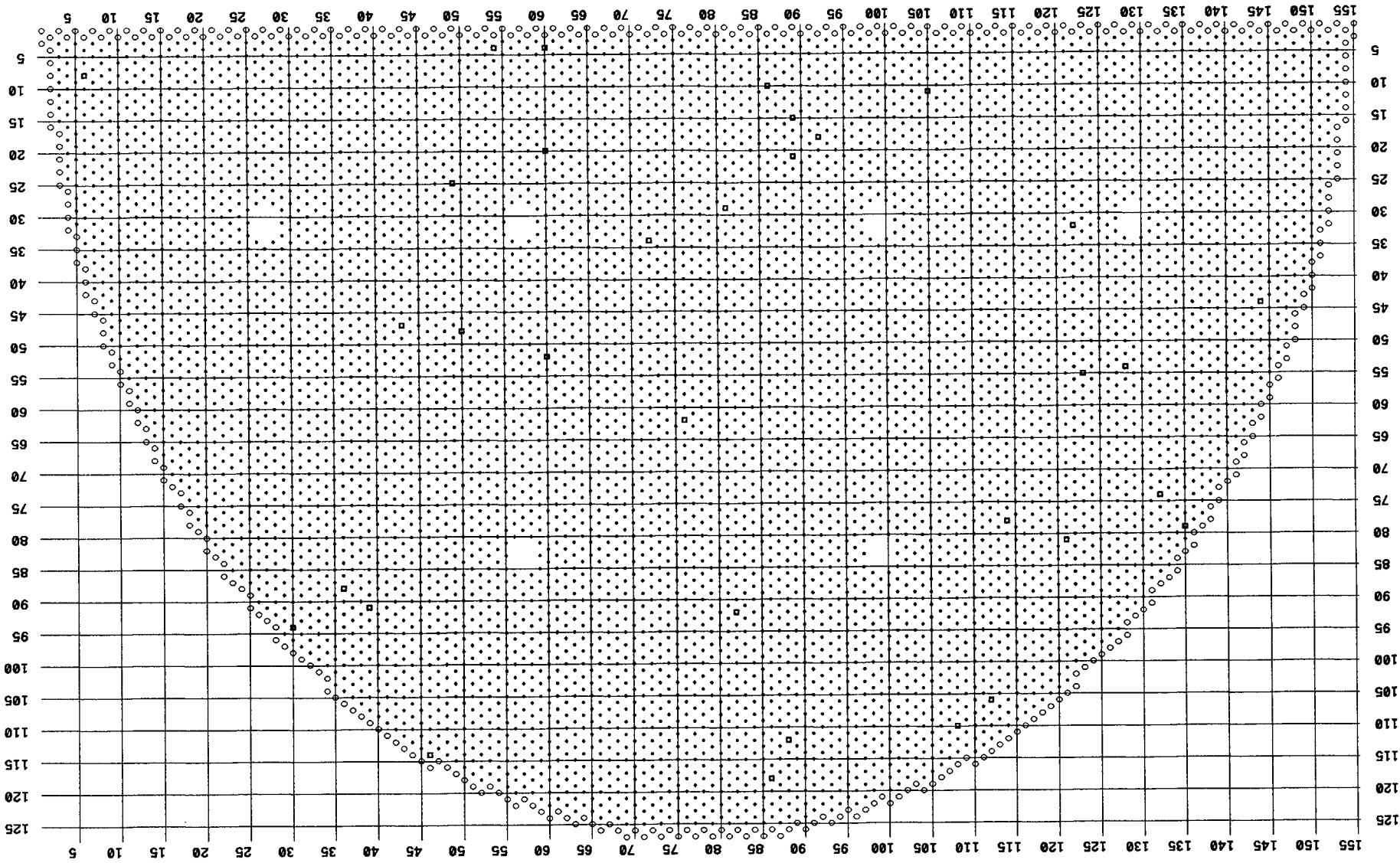
**1RE10**

# TGX-A PLUGGED TUBES

South Texas 1RE10 TGX D94

■ 33 PLUGGED TUBE

NO TUBES PLUGGED DURING 1RE10

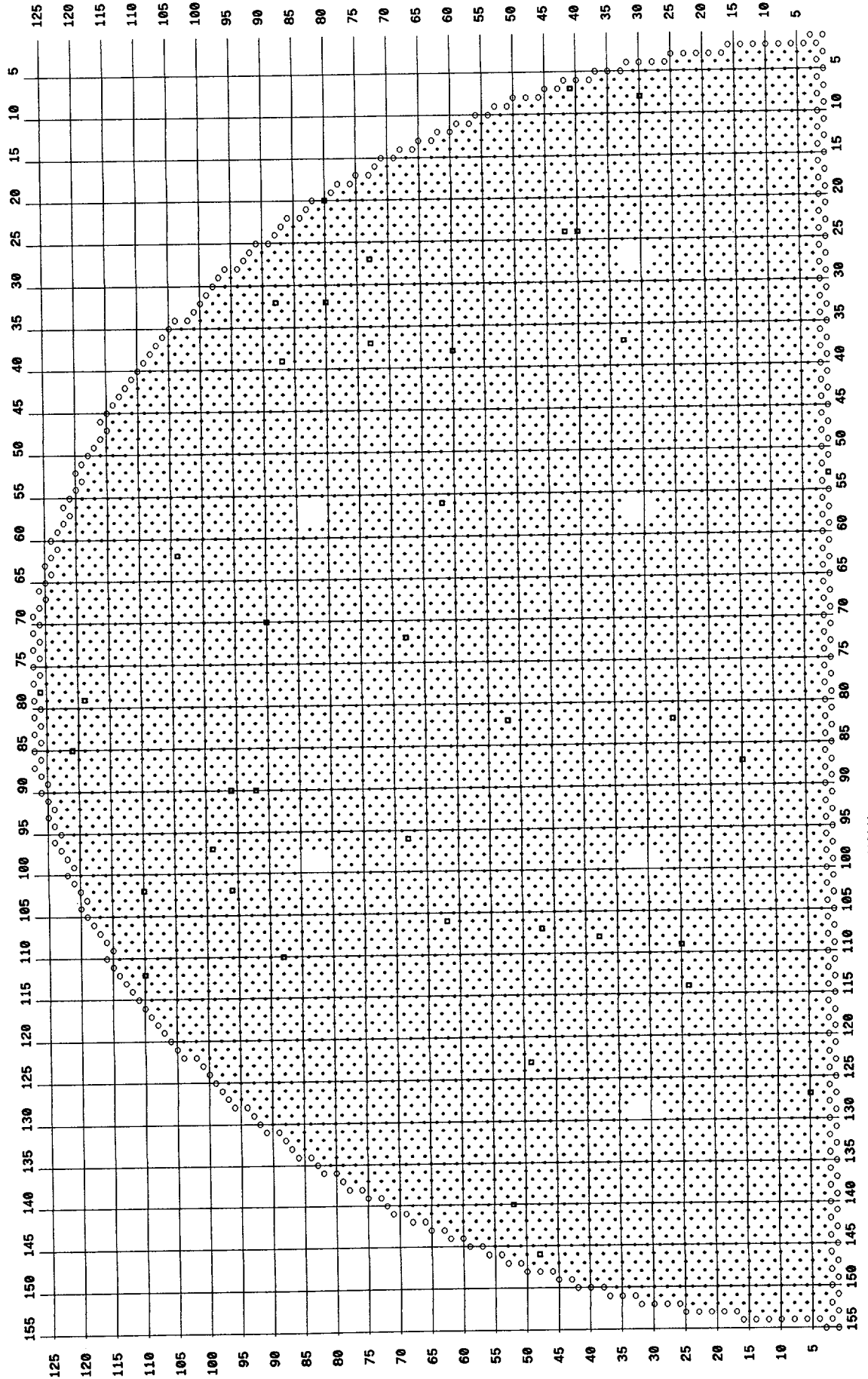


# TGX-B PLUGGED TUBES

South Texas 1RE10 TGX D94

□ 40 PLUGGED TUBE

NO TUBES PLUGGED DURING 1RE10

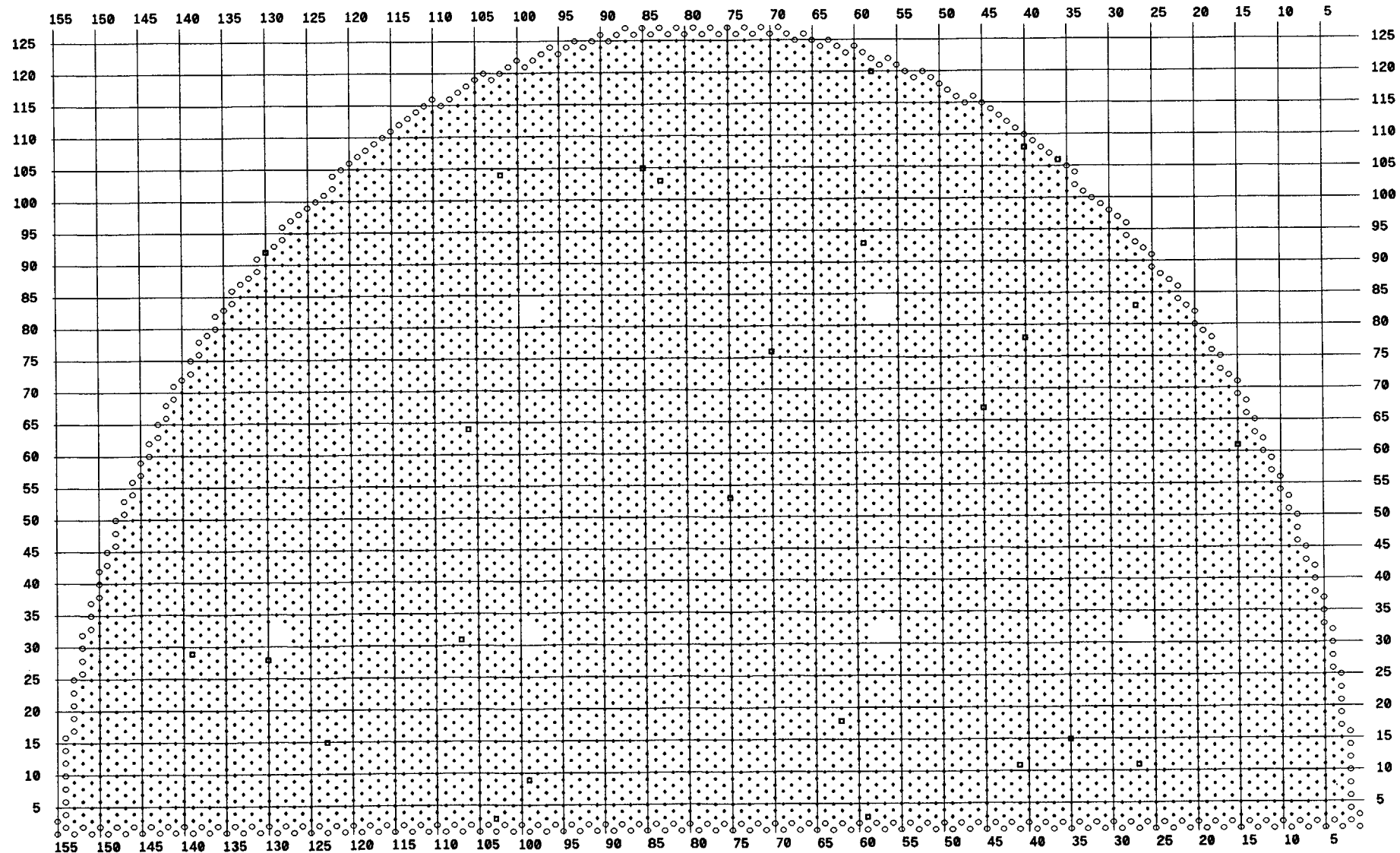


# TGX-C PLUGGED TUBES

South Texas 1RE10 TGX D94

■ 26 PLUGGED TUBE

NO TUBES PLUGGED DURING 1RE10

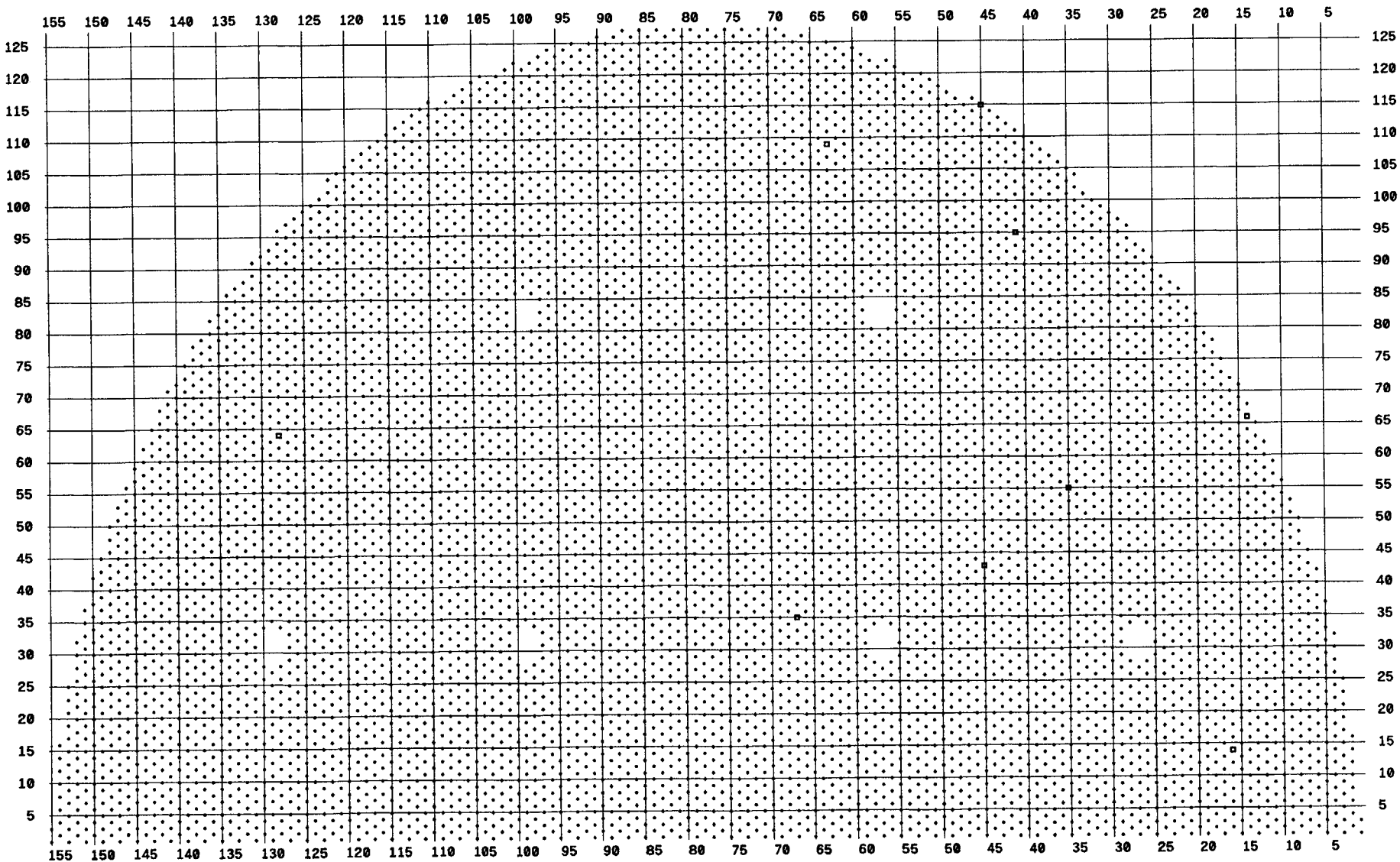


# TGX-D PLUGGED TUBES

South Texas 1RE10 TGX D94

▣ 9 PLUGGED TUBE

NO TUBES PLUGGED DURING 1RE10



**APPENDIX F**

**OWNER'S REPORT**

**FOR**

**INSERVICE INSPECTIONS**

**NIS-1 FORM**



**FORM NIS-1 OWNER'S REPORT FOR INSERVICE INSPECTIONS**  
**As required by the Provisions of the ASME Code Rules**

1. Owner South Texas Project Nuclear Operating Company\*; P.O. Box 289; Wadsworth, Texas 77483  
 (Name and Address of Owner)
2. Plant South Texas Project Electric Generating Station; P.O. Box 289; Wadsworth, Texas 77483  
 (Name and Address of Plant)
3. Plant Unit 1 4. Owner and Certificate of Authorization (if required) N.A.
5. Commercial Service Date 08/25/88 6. National Board Number for Unit N.A.
7. Components Inspected **ASME Code Class 1 (IWB) Items - Steam Generator Tubes**

Component or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Steam Generator 1A	Westinghouse (M)	SG4L 12269	N. A.	66
Steam Generator 1B	Westinghouse (M)	SG4L 12270	N. A.	67
Steam Generator 1C	Westinghouse (M)	SG4L 12271	N. A.	68
Steam Generator 1D	Westinghouse (M)	SG4L 12272	N. A.	69

\* South Texas Project Nuclear Operating Company (STPNOC) is the licensed operator of the South Texas Project Electric Generating Station

STPNOC by *M.E. Kanavos* Date 1/22/02 Factory Mutual by *B.R. Russell* Date 1-22-02  
 M.E. Kanavos Insurance Co. B.R. Russell, ANII

## FORM NIS-1 (Back)

8. Examination Dates 10-7-01 to 10-24-01 9. Inspection Interval from 9-25-00 to 9-25-10
10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current interval. (ASME Code Class 1 (IWB) Items - Steam Generator Tubes)  
**See Section 4.0 of the 1RE10 Inservice Inspection Summary Report for Steam Generator Tubing.**
11. Abstract of Conditions Noted.  
**See Section 5.0 of the 1RE10 Inservice Inspection Summary Report for Steam Generator Tubing.**
12. Abstract of Corrective Measures Recommended and Taken.  
**See Section 5.0 of the 1RE10 Inservice Inspection Summary Report for Steam Generator Tubing.**

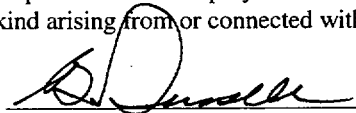
We certify that the statements made in this report are correct and the examinations and corrective measures taken conform to the rules of ASME Code, Section XI.

Certificate of Authorization No.(if applicable) N.A. Expiration Date N.A.  
 Date 1/22 20 02 Signed South Texas Project Nuclear  
Operating Company By M. E. Kanavos for M. E. Kanavos  
 Owner

### CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State or Province of Texas and employed by Factory Mutual Insurance Co. of Johnston, RI have inspected the components described in this Owner's Report during the period 10-7-01 to 10-24-01, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owner's Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owner's Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.



Inspector's Signature  
 B. R. Russell

Commissions

Tex 826

National Board, State, Province, and Endorsements

Date 1-22- 20 02