Technical Specification 5.6.8

APS
A subsidiary of Pinnacle West Capital Corporation

Palo Verde Nuclear
Generating Station

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102-05698-JHH/DFH
May 03, 2007

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

Subject: Palo Verde Nuclear Generating Station (PVNGS) Unit 2
Docket No. STN 50-529,
License No. NPF-51,
Steam Generator Tube Inspection Report

Attached please find Special Report 2-SR-2006-001-00 prepared and submitted pursuant to Technical Specifications (TS) Reporting Requirement 5.6.8. This report discusses steam generator tube plugging in Unit 2 during its 13th refueling outage.

By copy of this letter and the enclosure, this Special Report is being provided to the NRC Region IV Administrator and the PVNGS Resident Inspector.

No commitments are being made to the NRC by this letter.

If you have any questions, please contact Ray E. Buzard at (623) 393-5317.

Sincerely,

JHH/REB/DFH/gat

Attachment

cc: (with attachment)

B. S. Mallett	NRC Region IV Regional Administrator
M. T. Markley	NRC NRR Project Manager
G. G. Warnick	NRC Senior Resident Inspector for Palo Verde

A047

Attachment

Unit 2 – 13th Refueling Outage
Steam Generator Eddy Current Examination
Special Report No. 2-SR-2006-001-00

Attachment

Unit 2 – 13th Refueling Outage
Steam Generator Eddy Current Examination
Special Report No. 2-SR-2006-001-00

Palo Verde Nuclear Generating Station

UNIT 2
U2R13

ARIZONA PUBLIC SERVICE
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Prepared by: _____ Date: 4-26-07

Reviewed by: Richard Badegard Date: 4-26-07

Approved by: _____ Report Date: 4-26-07

Commercial Service Date: 9-19-86

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UNIT 2

STEAM GENERATOR EDDY CURRENT

U2 R13 Refueling Outage

1.0 Summary

This report is intended to satisfy the requirements of PVNGS Technical Specification 5.6.8 for the submittal of a Steam Generator Tube Inspection Report. The steam generator (SG) eddy current examination for the 13th refueling outage in Unit 2 (U2R13) was conducted during October 2006. Mode 4 entry for Unit 2 Cycle 14 was entered on November 7, 2006. The initial examination plan, for both steam generators, is listed in Table 1. This table summarizes the examinations performed for each of the various categories, examination types, extents, and the number of tubes or tube locations completed.

Based on a 100% eddy current examination of both steam generators, the only active damage mechanism identified was volumetric tube degradation (fretting wear) resulting from tube to tube support interaction.

The examinations resulted in a total of **14** tubes being plugged in SG 21, and **17** tubes being plugged in SG 22. A description of the plugging history for these replacement steam generators is contained in Appendix E along with tube plug maps illustrating the plug locations for this outage.

2.0 Original Examination Plan

The original examination plan was developed based on the "PVNGS Steam Generator Degradation Assessment" as specified in PVNGS Procedure 81DP-9RC01 and required by NEI 97-06. In addition, possible damage mechanisms were reviewed along with the specific requirements set forth in Procedure 73TI-9RC01 and the PVNGS Technical Specifications. The examination plan is summarized in Table 1 of this report.

3.0 Condition Monitoring Assessment

Per the Steam Generator Program, as defined in PVNGS Procedure 81DP-9RC01, a condition monitoring evaluation was conducted by PVNGS Engineering. The results indicated that the steam generator tube integrity performance criteria were satisfied for Unit 2 Cycle 13. All defects exceeding the Technical Specification repair limits or the PVNGS Administrative Plugging criteria were removed from service. The only tubes exceeding PVNGS Technical Specification and Administrative plugging limits were found in a region around the stay cylinder and at either the Batwing (BW) or Vertical Strap (VS3) supports (see Appendix A). This active degradation mechanism is denoted as BWSC in the plugging data sheets provided in Appendix E.

The eddy current results were reviewed with respect to the steam generator performance criteria specified in PVNGS Technical Specification 5.5.9. No tubes were found to exceed the performance criteria integrity limits. The examination results were also compared to pre-outage predictions. The U2 Cycle 13 Operational Assessment had predicted a maximum though-wall depth for Batwing related tube degradation of 48% based on a beginning of cycle (BOC) value of 18%. The deepest indication found during U2R13 was a 49% wear (as measured by Plus Point) in Tube R43C112 in SG 22. As such, the prediction was fundamentally accurate and the 20% administrative plugging criterion applied to Batwing degradation in the Stay Cylinder Region was validated.

Although not identified as active degradation, it should be noted that four (4) tubes were preventatively plugged as a consequence of foreign objects. Three (3) tubes in SG 22 were plugged based on wear indications attributed to a foreign object. Both eddy current and FOSAR (visual inspection) results indicated that the object was removed and no longer at the location. The wear indications were classified as volumetric indications (SVIs) and the affected tubes were preventatively plugged and staked (See Table 2). The fourth location was in SG 21. Eddy current examination revealed a potential foreign object (PLP) on a periphery tube (R58C7) in the free-span above the 08C tube support. No tube degradation (wear) was identified. The location could not be accessed for visual confirmation. PVNGS elected to preventatively plug and stake the affected tube as a conservative measure.

The condition monitoring assessment concluded that no tube integrity issues existed in the Unit 2 steam generators, and based on an overall comparison of projected versus actual results for Cycle 13, there were no identified cycle length limitations for U2 Cycle 14. No in situ pressure tests or tube pulls were performed nor required. As such, the Condition Monitoring Assessment concluded that there were no Mode 4 entry restraints.

4.0 Examination Results

A summary of the bobbin and rotating coil (RC) examination results is located in Table 2 of this report. In addition, Appendix A contains a reference drawing of steam generator support locations. The summary data sheets of Appendices B and C list all tubes in each steam generator with indications expressed as a percent wall thickness reduction, or as an analysis code. Appendix D contains summary data sheets for tubes classified as possible loose parts.

5.0 Examination Techniques and Equipment

The eddy current examinations were performed by Westinghouse Electric Company using Zetec MIZ-70 digital data acquisition instrumentation or the Core Star OMNI 200 instrumentation. Westinghouse Anser acquisition software was utilized with both systems. The following frequencies were used for the tube examinations:

Bobbin Coil	RC
500 KHz	300 KHz
300 KHz	200 KHz
100 KHz	100 KHz
35 KHz	35 KHz

Notes: For bobbin coil examinations these frequencies were utilized in both differential and absolute modes.

All tubing was examined with Zetec manufactured bobbin coil probes and Zetec RC style probes. Bobbin probes manufactured by Core Star and TRC were also utilized. Probe diameters were 0.540" to 0.610". Plus Point RC probes were used for the detection and characterization of the volumetric indications. Data acquisition in both steam generators was facilitated by using Westinghouse Pegasys fixtures configured with either a quad or dual guide tube in each of the hot and cold legs.

Fiber optic cable was used from containment to the data acquisition room located at the PVNGS North Annex. Primary and secondary analysis was all performed on site. The Primary and Secondary Resolution Analysts, Independent Review Analysts, and data management were also located at PVNGS in the North Annex. Westinghouse provided the data acquisition and primary data analysis. Anatec International, Inc. provided the secondary data analysis.

Each individual from Westinghouse and Anatec International, Inc. who performed data analysis was required to complete and pass a PVNGS site specific Eddy Current Data Analysis Course as well as an associated performance examination with at least an 80% proficiency. All individuals performing data analysis were also required to have Qualified Data Analyst (QDA) certification.

6.0 Repair Techniques and Equipment

All repairs were performed utilizing the Westinghouse mechanical rolled plug. The plugs were installed in accordance with the PVNGS work control process utilizing the Pegasys fixtures and associated remote plugging equipment.

TABLE 1

EXAMINATION SUMMARY

SCOPE DESCRIPTION		SG 21	SG 22
Exam Description	**Extents**	**Scope**	**Scope**
FULL LENGTH BOBBIN	TEC-TEH	12355	12354
HOT STRAIGHT SECTION BOBBIN *	TEH-08H	261	319
COLD STRAIGHT SECTION BOBBIN *	TEC-08C	278	206
HOT STRAIGHT RC	VARIOUS	34	31
HOT U & SQUARE BEND RC	VARIOUS	91	68
COLD STRAIGHT RC	VARIOUS	57	315
COLD U & SQUARE BEND RC	VARIOUS	15	19

Notes:

1. * Bobbin examinations were not performed on the short radius U-bends

TABLE 2

INDICATION SUMMARY

DAMAGE MECHANISM	STEAM GENERATOR 21	STEAM GENERATOR 22
WEAR 0% - 100% PLUGGED	56 (13)	83 (13)
Possible Loose Parts PLI PLP PLUGGED	0 19 (1)	0 11 (0)
Volumetric Indications SVI/MVI PLUGGED	0 (0)	4 (3) *
PREVENTATIVE	(0)	(1) **
PLUGGED U2R13	**(14)**	**(17)**
TOTAL PLUGGED / %	**(33 / 0.3%)**	**(37 / 0.3%)**

NOTES

1. Numbers in (X) are tubes numbers plugged in each category
2. The above represent the numbers of tubes; not indications
3. * 3 tubes were plugged based on PLP wear. No loose part was identified at the location
4. ** 1 tube was plugged to install a stabilizer adjacent to a plugged, but not stabilized Batwing stay cylinder tube.

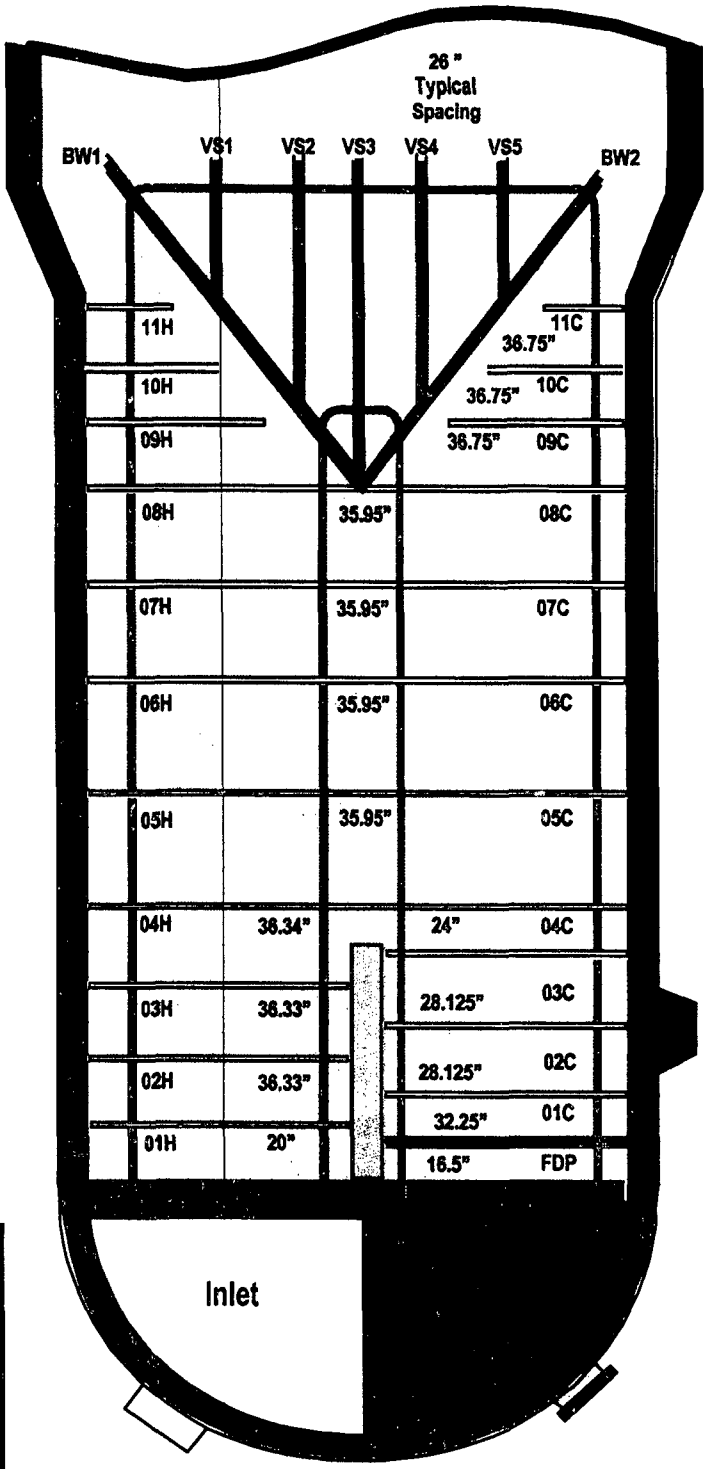
APPENDIX A

TUBE SUPPORT DIAGRAM,

LEGEND, and ANALYSIS CODES

PVNGS Steam Generator

REPLACEMENTS



Center of 08H to 08C
Row 1 - 17.415
Row 2 - 19.736
Row 3 - 22.056
Row 4 - 24.377
Row 5 - 26.698
Row 6 - 29.019

LEGEND

ROW: Indicates the row number of a given tube.

COL: Indicates the column number of a given tube.

VOLTS: Indicates the peak-to-peak voltage of a given indication response.

DEG: The measured phase angle of a given indication response.

IND: Indicates the analysis code or PCT for percent

PCT: The percent through the tube wall of a given indication

CHN: Indicates the channel used to measure and evaluate the referenced indication

LOCN: Gives indication location at INCH1 to INCH2 relative to known landmarks such as supports, vertical straps, and batwings. Typical location codes are as follows:

#1 Vertical Strap VS1
#1 Batwing BW1
#1 Support Plate in Hot Leg.....01H
#7 Support Plate in Cold Leg.....07C
Top Tube Sheet Cold Leg .....TSC
Tube End Hot Leg.....TEH
Tube End Cold Leg .....TEC

CRLEN: Indicates the flaw length

BEGT and ENDT: Indicates the beginning and end of the test; together they document the examination extent

PDIA: Documents the probe diameter

PTYPE: The last two characters indicates the probe type used for examination

MF-bobbin coil mid-frequency (Zetec)
WR-bobbin coil mid-frequency (Westinghouse Replaceable)
SF-bobbin coil spring flex
HP or HZ-RC +point solid body
FP or FZ-RC +point, .115 flexible
MZ- +point flexible modular
MB-RC mag bias +point
PH-RC +point HF and MF flexible for UBends

CAL: Indicates calibration number

L: Indicates the leg the examination was conducted from

COM: This comment field is utilized to document the UTIL1 and UTIL2 sizing measurements and APS Level III comments

Analysis CODES:

Absolute Drift	ADI
Apex Anomaly	APA
After Pressure Test	APT
Bad Data	BDA
Bulge	BLG
Deposit	DEP
Dent from History	DNH
Dent	DNT
Distorted Support Signal With Indication	DSI
DSI from History	DSH
Distorted Top of Tubesheet With Indication	DTI
Geometric Indication	GEO
ID Chatter	IDC
Indication Not Found	INF
Indication Not Reportable	INR
Location Not Correct	LNC
Multiple Volumetric Indication	MVI
No Detectable Defect	NDD
No Discontunity Found	NDF
Non-Quantifiable Indication	NQI
No Tube Sheet Expansion	NTE
Obstructed	OBS
Previous Bobbin Call	PBC
Positive Identification	PID
Positive Identification Verified	PIV
Possible Loose Part with Indication	PLI
Possible Loose Part	PLP
Previous RC Call	PRC
Possible Support Anomaly	PSA
Possible Support Indication	PSI
Retest With 3 coil Probe	R3C
Retest Identification Check	RID
Retest with Magnetic Bias RC Probe	RMB
Single Volumetric Indication	SVI
Sludge	SLG
To Be Plugged	TBP

Util2 CODES:

Batwing Wrapper Bar Wear	BWW
Change	CH
Data Quality Acceptable	DQA
History Review	HR
Inside Diameter	ID
NEW	NEW
No Change	NC
No Loose Part Present	NLP
Manufacturing Induced Groove	MIG
Manufacturing Abnormality	LAP
Outside Diameter	OD
Pit like indication	PIT
Stake	SK
Senior Level III Review	SR
Tube to Tube Wear	TTW
Volumetric Inside Diameter	VID

APPENDIX B

STEAM GENERATOR 21

SUMMARY DATA SHEETS

Palo Verde 2 U2R13 PVNGS2 20001001 10/26/2000 08:08:43

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
40	59	.06	116	DSH	5	P1	VS3	-.70			TEC	TEH	.610	ZBAZC	14	H	
58	69	38	115	DSI	11	P1	BW1	81			TEC	TEH	.610	ZBAZC	56	H	
58	69	64	75	PCT	10	P3	BW1	88			09H	VS3	.580	ZPUFZ	76	H	
64	71	30	104	DSI	10	P1	VS3	35			TEC	TEH	.610	ZBAZC	56	H	
64	71	1 11	73	PCT	16	P3	VS3	.53			VS3	VS3	.580	ZPUFZ	76	H	
37	80	32	139	DSI	10	P1	BW2	- 86			TEC	TEH	.610	ZBAZC	8	H	
37	80	72	64	PCT	13	P3	BW2	-1 09			08C	VS3	.580	ZPUFZ	80	C	
33	82	.26	116	DSI	11	P1	BW1	-.89			TEC	TEH	.610	ZBAZC	8	H	
33	82	1 11	68	PCT	16	P3	BW1	-.99			08H	VS3	.580	ZPUFZ	76	H	DQA
35	82	.25	125	DSI	10	P1	BW1	1 07			TEC	TEH	.610	ZBAZC	8	H	
35	82	80	73	PCT	12	P3	BW1	52			08H	VS3	.580	ZPUFZ	76	H	
34	83	50	170	DSI	21	P1	BW1	-1 00			TEC	TEH	.610	ZBAZC	8	H	
34	83	.39	117	DSI	14	P1	BW1	64			TEC	TEH	.610	ZBAZC	8	H	
34	83	1.83	66	PCT	24	P3	BW1	- 85			08H	VS3	.580	ZPUFZ	76	H	
34	83	1 82	69	PCT	24	P3	BW1	91			08H	VS3	.580	ZPUFZ	76	H	
36	85	1 95	102	DSI	43	P1	BW1	- 87			TEC	TEH	.610	ZBAZC	7	H	
36	85	3 46	63	PCT	38	P3	BW1	- 95			08H	VS3	.580	ZPUFZ	76	H	
41	86	.34	110	DSI	13	P1	BW1	-.98			TEC	TEH	.610	ZBAZC	8	H	
41	86	1.08	83	PCT	15	P3	BW1	- 87			08H	VS3	.580	ZPUFZ	76	H	
45	86	36	116	DSI	14	P1	VS3	85			TEC	TEH	.610	ZBAZC	8	H	
45	86	1.52	69	PCT	21	P3	VS3	83			VS3	VS3	.580	ZPUFZ	76	H	
46	87	.30	120	DSI	13	P1	VS3	76			TEC	TEH	.610	ZBAZC	6	H	
46	87	1.10	73	PCT	16	P3	VS3	79			VS3	VS3	.580	ZPUFZ	76	H	
43	92	.56	99	DSI	23	P1	BW2	-.98			TEC	TEH	.610	ZBAZC	5	H	
43	92	71	74	PCT	13	P3	VS3	-1.05			08C	VS3	.580	ZPUFZ	80	C	
43	92	1.04	78	PCT	18	P3	BW2	- 98			08C	VS3	.580	ZPUFZ	80	C	
45	92	42	133	DSI	15	P1	BW1	- 94			TEC	TEH	.610	ZBAZC	5	H	
45	92	.96	74	PCT	14	P3	BW1	- 86			08H	VS3	.580	ZPUFZ	76	H	
47	92	.56	106	DSI	23	P1	BW2	- 78			TEC	TEH	.610	ZBAZC	5	H	
47	92	91	72	PCT	16	P3	BW2	- 78			08C	VS3	.580	ZPUFZ	80	C	
44	93	84	117	DSI	27	P1	BW1	- 92			TEC	TEH	.610	ZBAZC	5	H	
44	93	2.68	68	PCT	32	P3	BW1	-.85			08H	VS3	.580	ZPUFZ	76	H	
44	93	65	72	PCT	10	P3	BW1	1 00			08H	VS3	.580	ZPUFZ	76	H	
48	93	44	75	DSI	20	P1	BW1	-1 01			TEC	TEH	.610	ZBAZC	5	H	
48	93	18	117	DSI	10	P1	VS3	.88			TEC	TEH	.610	ZBAZC	5	H	
48	93	2 07	67	PCT	26	P3	BW1	-.82			08H	VS3	.580	ZPUFZ	76	H	
48	93	76	75	PCT	11	P3	BW1	1.00			08H	VS3	.580	ZPUFZ	76	H	
48	93	70	63	PCT	10	P3	VS3	93			08H	VS3	.580	ZPUFZ	76	H	
47	94	.17	105	DSI	9	P1	BW1	-1 05			TEC	TEH	.610	ZBAZC	6	H	
47	94	12	82	DSI	7	P1	VS3	- 72			TEC	TEH	.610	ZBAZC	6	H	
47	94	.80	77	PCT	12	P3	BW1	- 92			08H	VS3	.580	ZPUFZ	76	H	
47	94	.85	66	PCT	12	P3	VS3	- 78			08H	VS3	.580	ZPUFZ	76	H	
49	94	28	87	DSI	13	P1	VS3	70			TEC	TEH	.610	ZBAZC	6	H	
49	94	1 24	65	PCT	17	P3	VS3	66			VS3	VS3	.580	ZPUFZ	76	H	
49	96	38	136	DSH	13	P1	BW1	- 86			TEC	TEH	.610	ZBAZC	5	H	
46	97	94	97	DSI	31	P1	BW1	- 86			TEC	TEH	.610	ZBAZC	5	H	
46	97	17	83	DSI	10	P1	VS3	1 01			TEC	TEH	.610	ZBAZC	5	H	
46	97	3 09	65	PCT	35	P3	BW1	-.78			08H	VS3	.580	ZPUFZ	76	H	DQA
46	97	1 04	64	PCT	15	P3	VS3	1 00			08H	VS3	.580	ZPUFZ	76	H	
45	98	.83	96	DSI	27	P1	BW1	- 94			TEC	TEH	.610	ZBAZC	6	H	
45	98	59	121	DSI	20	P1	BW2	-.95			TEC	TEH	.610	ZBAZC	6	H	
45	98	1.95	74	PCT	26	P3	BW1	-1.01			08H	VS3	.580	ZPUFZ	77	H	
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM

Palo Verde 2 U2R13 PVN632 20001001 10/26/2000 08:08:43

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
45	98	.84	77	PCT	15	P3	V33	-1.25			08C	V33	.580	ZPUFZ	80	C	
45	98	.95	76	PCT	17	P3	V33	-.22			08C	V33	.580	ZPUFZ	80	C	
45	98	.96	73	PCT	17	P3	BW2	-1.15			08C	V33	.580	ZPUFZ	80	C	
47	98	.31	111	DSI	14	P1	BW1	.99			TEC	TEH	.610	ZBAIC	6	H	
47	98	.18	61	DSI	9	P1	V33	.98			TEC	TEH	.610	ZBAIC	6	H	
47	98	1.09	71	PCT	16	P3	BW1	.94			08H	V33	.580	ZPUFZ	77	H	
47	98	.56	65	PCT	9	P3	V33	.64			08H	V33	.580	ZPUFZ	77	H	
64	101	.76	113	DSI	21	P1	V33	-.94			TEC	TEH	.610	ZBAIC	67	H	
64	101	1.39	73	PCT	29	P3	V33	-.97			V23	V33	.580	ZPUFZ	77	H	
59	102	.35	114	DSH	15	P1	V23	.88			TEC	TEH	.610	ZBAIC	66	H	
66	103	.63	129	DSI	22	P1	V33	-.86			TEC	TEH	.610	SBACC	63	H	
66	103	.49	108	DSI	21	P1	V33	1.01			TEC	TEH	.610	SBACC	63	H	
66	103	1.61	66	PCT	22	P3	V33	-.91			V23	V33	.580	ZPUFZ	77	H	
66	103	1.28	66	PCT	18	P3	V33	1.05			V23	V33	.580	ZPUFZ	77	H	
55	106	.18	105	DSI	9	P1	BW1	1.05			TEC	TEH	.610	ZBAIC	20	H	
55	106	.92	72	PCT	14	P3	BW1	1.09			09H	V33	.580	ZPUFZ	77	H	
48	107	.29	157	DSH	15	P1	V33	-.82			TEC	TEH	.610	ZBAIC	19	H	
45	108	.15	134	DSI	9	P1	BW2	-.86			TEC	TEH	.610	ZBAIC	19	H	
45	108	.39	95	PCT	8	P3	BW2	-.91			08C	V33	.580	ZPUFZ	80	C	
49	108	.36	126	DSI	19	P1	BW1	-.76			TEC	TEH	.610	ZBAIC	19	H	DOA
49	108	1.33	72	PCT	18	P3	BW1	-.75			09H	V33	.580	ZPUFZ	77	H	
47	110	.95	114	DSI	27	P1	BW1	-.76			TEC	TEH	.610	ZBAIC	20	H	
47	110	2.78	73	PCT	33	P3	BW1	-.88			08H	V33	.580	ZPUFZ	77	H	DOA
44	111	.38	96	DSI	17	P1	BW1	-.71			TEC	TEH	.610	ZBAIC	19	H	
44	111	.87	109	DSI	30	P1	BW1	.78			TEC	TEH	.610	ZBAIC	19	H	
44	111	1.39	78	PCT	19	P3	BW1	-.89			08H	V33	.580	ZPUFZ	77	H	
44	111	2.38	66	PCT	39	P3	BW1	.86			08H	V33	.580	ZPUFZ	77	H	
43	112	.92	96	DSI	32	P1	BW1	-.76			TEC	TEH	.610	ZBAIC	19	H	
43	112	.25	122	DSI	14	P1	BW1	.80			TEC	TEH	.610	ZBAIC	19	H	
43	112	1.74	72	PCT	23	P3	BW1	-.85			08H	V33	.580	ZPUFZ	77	H	
43	112	.91	69	PCT	14	P3	BW1	.95			08H	V33	.580	ZPUFZ	77	H	
45	112	.30	112	DSI	16	P1	BW1	-.89			TEC	TEH	.610	ZBAIC	19	H	
45	112	.47	124	DSI	21	P1	BW1	.72			TEC	TEH	.610	ZBAIC	19	H	
45	112	.25	112	DSH	15	P1	V33	-.67			TEC	TEH	.610	ZBAIC	19	H	
45	112	.78	86	PCT	12	P3	BW1	-.99			08H	V33	.580	ZPUFZ	77	H	
45	112	1.16	73	PCT	29	P3	BW1	.99			08H	V33	.580	ZPUFZ	77	H	
45	112	.77	62	PCT	12	P3	V33	-.72			08H	V33	.580	ZPUFZ	77	H	
47	112	.35	125	DSI	16	P1	BW1	-.88			TEC	TEH	.610	ZBAIC	19	H	
47	112	.32	117	DSI	17	P1	V33	-.79			TEC	TEH	.610	ZBAIC	19	H	
47	112	1.18	80	PCT	17	P3	BW1	-.90			08H	V33	.580	ZPUFZ	77	H	
47	112	1.73	68	PCT	23	P3	V33	-.73			08H	V33	.580	ZPUFZ	77	H	
42	113	.28	127	DSI	11	P1	V33	-.92			TEC	TEH	.610	ZBAIC	20	H	
42	113	1.19	61	PCT	17	P3	V33	-.90			V23	V33	.580	ZPUFZ	77	H	
44	113	.37	81	DSI	16	P1	V33	-.94			TEC	TEH	.610	ZBAIC	20	H	
44	113	2.26	64	PCT	29	P3	V33	-.86			V23	V33	.580	ZPUFZ	77	H	
47	114	.34	123	DSI	13	P1	BW2	.99			TEC	TEH	.610	ZBAIC	20	H	
47	114	.95	68	PCT	17	P3	BW2	1.01			08C	V33	.580	ZPUFZ	80	C	
40	115	.22	93	DSI	10	P1	BW2	-.98			TEC	TEH	.610	ZBAIC	20	H	
44	115	.38	128	DSH	11	P1	V33	.82			TEC	TEH	.610	ZBAIC	20	H	
46	115	.32	137	DSI	10	P1	V33	.78			TEC	TEH	.610	ZBAIC	20	H	
46	115	1.21	69	PCT	17	P3	V33	.94			V23	V33	.580	ZPUFZ	77	H	
43	116	.28	133	DSI	11	P1	BW2	.91			TEC	TEH	.610	ZBAIC	19	H	
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
43	116	.62	69	PCT	11	P3	BW2	1.10			08C	VS3	.580	ZPUFZ	80	C	
48	117	.16	105	DSI	12	P1	VS3	-1.11			TEC	TEH	.610	ZBAZC	17	H	
45	118	.85	124	DSI	29	P1	BW1	.77			TEC	TEH	.610	ZBAZC	17	H	
45	118	1.70	71	PCT	24	P3	BW1	.82			08H	VS3	.580	ZPUFZ	77	H	
47	118	.48	99	DSI	18	P1	BW1	.74			TEC	TEH	.610	ZBAZC	20	H	
47	118	1.51	71	PCT	21	P3	BW1	.98			08H	VS3	.580	ZPUFZ	77	H	
49	118	.47	98	DSI	18	P1	BW1	.83			TEC	TEH	.610	ZBAZC	20	H	DOA
49	118	1.67	72	PCT	23	P3	BW1	.81			09H	VS3	.580	ZPUFZ	77	H	
65	118	.48	151	DSI	7	P1	BW1	.95			TEH	TEC	.610	ZBAZC	70	C	
65	118	.78	67	PCT	12	P3	BW1	.84			09H	VS2	.580	ZPUFZ	77	H	
36	119	.91	61	DSI	24	P1	VS3	-1.07			TEC	TEH	.610	ZBAZC	17	H	
36	119	1.90	73	PCT	26	P3	VS3	-.92			VS3	VS3	.580	ZPUFZ	77	H	
38	119	.34	134	DSI	14	P1	VS3	-1.05			TEC	TEH	.610	ZBAZC	17	H	
38	119	.82	75	PCT	14	P3	VS3	-.78			VS3	VS3	.580	ZPUFZ	77	H	
35	120	.31	30	DSI	12	P1	BW2	-.82			TEC	TEH	.610	ZBAZC	17	H	
45	120	.42	123	DSI	13	P1	VS3	-1.01			TEC	TEH	.610	ZBAZC	18	H	
45	120	1.57	65	PCT	22	P3	VS3	-.83			VS3	VS3	.580	ZPUFZ	77	H	
47	120	.44	125	DSI	14	P1	VS3	-1.06			TEC	TEH	.610	ZBAZC	18	H	
47	120	1.86	69	PCT	25	P3	VS3	-1.00			VS3	VS3	.580	ZPUFZ	77	H	
38	121	.53	129	DSH	16	P1	VS3	-.75			TEC	TEH	.610	ZBAZC	15	H	
154	121	.22	141	DSI	9	P1	VS2	.73			TEC	TEH	.610	ZBAZC	43	H	
154	121	.62	60	PCT	10	P3	VS2	.80			VS2	VS2	.580	ZPUFZ	77	H	
161	132	.52	107	DSI	23	P1	VS1	.86			TEC	TEH	.610	ZBAZC	43	H	
161	132	.23	84	DSI	13	P1	VS4	.88			TEC	TEH	.610	ZBAZC	43	H	
161	132	1.77	70	PCT	24	P3	VS1	.92			VS1	VS1	.580	ZPUFZ	77	H	
161	132	.77	71	PCT	14	P3	VS4	1.14			VS4	VS4	.580	ZPUFZ	80	C	
161	134	.22	37	DSI	8	P1	VS1	.88			TEC	TEH	.610	ZBAZC	44	H	
161	134	.19	125	DSI	7	P1	VS5	.96			TEC	TEH	.610	ZBAZC	44	H	
161	134	1.22	71	PCT	17	P3	VS1	.84			VS1	VS1	.580	ZPUFZ	77	H	
161	134	.95	73	PCT	17	P3	VS5	1.14			VS5	VS5	.580	ZPUFZ	80	C	
34	137	.18	41	DSI	6	P1	06H	-.99			TEC	TEH	.610	ZBAZC	22	H	
34	137	.64	81	PCT	12	P3	06H	-.78			06H	06H	.600	ZPSHZ	73	H	

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM

APPENDIX C

STEAM GENERATOR 22

SUMMARY DATA SHEETS

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ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM
36	3	.28	125	DSI	10	P1	06H	.86			TEH	TEC	.610	ZBAIC	11	C|	
84	29	25	120	DSI	8	P1	VS2	.96			TEH	TEC	.610	ZBAIC	30	C|	
84	29	35	78	PCT	8	P3	VS2	.83			VS2	VS2	.580	ZPUFZ	61	H|	
35	30	20	138	DSI	6	P1	08C	-1.00			TEH	TEC	.610	ZBAIC	15	C|	
51	34	17	132	DSH	5	P1	VS3	.92			TEH	TEC	.610	ZBAIC	19	C|	
90	41	16	75	DSI	6	P1	08H	35.00			TEH	TEC	.610	ZBAIC	28	C|	
137	48	65	97	SVI	12	P3	VS1	4.52			VS1	VS2	.580	ZPUFZ	61	H|	LAP
152	55	.27	128	DSI	9	P1	11C	-1.06			TEH	TEC	.610	ZBAIC	34	C|	
152	55	45	69	PCT	8	P3	11C	-1.01			11C	11C	.600	ZPSMZ	76	C|	DOA
113	56	19	129	DSH	6	P1	VS3	-.78			TEH	TEC	.610	ZBAIC	36	C|	
118	57	25	115	DSI	8	P1	VS2	.99			TEH	TEC	.610	ZBAIC	35	C|	
118	57	.77	77	PCT	15	P3	VS2	.93			VS2	VS2	.580	ZPUFZ	61	H|	
129	60	44	132	DSI	13	P1	VS3	.63			TEC	TEH	.610	ZBAIC	52	H|	
129	60	.87	72	PCT	17	P3	VS3	.58			VS3	VS3	.580	ZPUFZ	61	H|	
24	65	28	76	DSI	9	P1	VS3	.74			TEC	TEH	.610	ZBAIC	1	H|	
24	65	67	79	PCT	14	P3	VS3	.75			VS3	VS3	.580	ZPUFZ	61	H|	
159	66	.36	26	DSI	11	P1	BW2	.90			TEC	TEH	.610	ZBAIC	38	H|	
159	66	.92	78	PCT	17	P3	BW2	.90			11C	VS3	.580	ZPUFZ	80	C|	
156	69	24	131	DSI	8	P1	VS1	.88			TEC	TEH	.610	ZBAIC	38	H|	
156	69	69	83	PCT	14	P3	VS1	.75			VS1	VS1	.580	ZPUFZ	61	H|	
161	72	.28	138	DSI	7	P1	VS3	.60			TEC	TEH	.610	ZBAIC	37	H|	
161	72	77	79	PCT	15	P3	VS3	.51			VS3	VS3	.580	ZPUFZ	61	H|	
164	73	52	147	DSI	13	P1	BW2	.90			TEC	TEH	.610	ZBAIC	38	H|	
164	73	98	74	PCT	18	P3	BW2	.90			11C	VS3	.580	ZPUFZ	80	C|	
161	76	48	141	DSI	13	P1	VS1	-.93			TEC	TEH	.610	ZBAIC	38	H|	
161	76	.91	72	PCT	18	P3	VS1	-.70			VS1	VS1	.580	ZPUFZ	61	H|	
22	77	.33	89	DSI	11	P1	BW1	-.87			TEC	TEH	.610	ZBAIC	3	H|	
22	77	.57	84	PCT	12	P3	BW1	-.67			08H	VS3	.580	ZPUFZ	61	H|	
84	77	22	56	DSI	8	P1	VS2	.76			TEC	TEH	.610	ZBAIC	13	H|	
84	77	57	77	PCT	12	P3	VS2	.79			VS2	VS2	.580	ZPUFZ	61	H|	
30	81	23	60	DSI	8	P1	BW1	-.84			TEC	TEH	.610	ZBAIC	3	H|	
30	81	39	101	DSI	13	P1	BW2	-.84			TEC	TEH	.610	ZBAIC	3	H|	
30	81	66	93	PCT	13	P3	BW1	-.60			08H	VS3	.580	ZPUFZ	61	H|	
30	81	91	75	PCT	17	P3	BW2	-.84			08C	VS3	.580	ZPUFZ	80	C|	
90	81	.18	73	DSI	7	P1	VS3	-.94			TEC	TEH	.610	ZBAIC	18	H|	
90	81	65	79	PCT	13	P3	VS3	-.73			VS3	VS3	.580	ZPUFZ	61	H|	
37	84	20	74	DSI	9	P1	BW1	-.85			TEC	TEH	.610	ZBAIC	3	H|	
37	84	.54	86	PCT	11	P3	BW1	-.88			08H	VS3	.580	ZPUFZ	61	H|	DOA
38	85	.38	64	DSH	11	P1	VS3	.87			TEC	TEH	.610	ZBAIC	3	H|	
38	85	42	69	DSI	13	P1	BW2	-.72			TEC	TEH	.610	ZBAIC	3	H|	
38	85	1.06	66	PCT	19	P3	VS3	.87			08C	VS3	.580	ZPUFZ	80	C|	
38	85	1.18	78	PCT	19	P3	BW2	-.72			08C	VS3	.580	ZPUFZ	80	C|	
47	86	27	113	DSH	10	P1	VS3	-.95			TEC	TEH	610	ZBAIC	4	H|	
42	89	.38	128	DSI	10	P1	BW1	-.87			TEC	TEH	.610	ZBAIC	3	H|	
42	89	55	101	PCT	12	P3	BW1	-.70			08H	VS3	.580	ZPUFZ	61	H|	
46	89	51	122	DSI	15	P1	BW1	.71			TEC	TEH	.610	ZBAIC	3	H|	
46	89	1.18	79	PCT	22	P3	BW1	.77			08H	VS3	.580	ZPUFZ	61	H|	
48	89	1.66	110	DSI	33	P1	BW1	.66			TEC	TEH	.610	ZBAIC	3	H|	
48	89	1.82	78	PCT	30	P3	BW1	.89			BW1	VS3	.580	ZPUFZ	61	H|	
132	89	53	136	DSI	12	P1	VS3	-.97			TEC	TEH	.610	ZBAIC	47	H|	
132	89	90	86	PCT	18	P3	VS3	-.65			VS3	VS3	.580	ZPUFZ	61	H|	
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
168	89	49	166	DSI	10	P1	BW2	.91			TEC	TEH	.610	ZBAZC	30	H	
168	89	.71	82	PCT	14	P3	BW2	.91			11C	VS3	.580	ZPUFZ	80	C	
41	90	3.41	98	DSI	50	P1	BW1	-.88			TEC	TEH	.610	ZBAZC	4	H	
41	90	2.32	118	DSI	42	P1	BW1	.86			TEC	TEH	.610	ZBAZC	4	H	
41	90	4.34	64	PCT	48	P3	BW1	-.79			08H	VS3	.580	ZPUFZ	61	H	
41	90	.65	87	PCT	13	P3	BW1	.16			08H	VS3	.580	ZPUFZ	61	H	
41	90	3.17	69	PCT	41	P3	BW1	.75			08H	VS3	.580	ZPUFZ	61	H	
43	90	1.47	115	DSI	34	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	4	H	
43	90	1.88	79	PCT	29	P3	BW1	-.79			08H	VS3	.580	ZPUFZ	61	H	
45	90	35	88	DSI	14	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	4	H	
45	90	75	91	PCT	15	P3	BW1	-.92			08H	VS3	.580	ZPUFZ	61	H	
42	91	1.64	94	DSI	38	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	4	H	
42	91	70	107	DSI	20	P1	BW1	.90			TEC	TEH	.610	ZBAZC	4	H	
42	91	2.13	73	PCT	33	P3	BW1	-.76			08H	VS3	.580	ZPUFZ	61	H	
42	91	1.33	75	PCT	24	P3	BW1	.89			08H	VS3	.580	ZPUFZ	61	H	
44	91	59	140	DSI	18	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	4	H	
44	91	.90	90	PCT	18	P3	BW1	-.94			08H	VS3	.580	ZPUFZ	61	H	
44	91	.52	99	PCT	11	P3	BW1	.85			08H	VS3	.580	ZPUFZ	61	H	
45	92	.25	83	DSI	9	P1	BW1	-.98			TEC	TEH	.610	ZBAZC	3	H	
45	92	.45	32	PCT	10	P3	BW1	-.86			08H	VS3	.580	ZPUFZ	61	H	
47	92	38	99	DSI	12	P1	BW1	-.96			TEC	TEH	.610	ZBAZC	3	H	
47	92	58	104	PCT	11	P3	BW1	-.96			08H	VS3	.580	ZPUFZ	61	H	
44	93	46	110	DSI	14	P1	BW1	.73			TEC	TEH	.610	ZBAZC	3	H	
44	93	78	81	PCT	16	P3	BW1	.73			08H	VS3	.580	ZPUFZ	61	H	
48	93	24	88	DSI	8	P1	BW1	-.89			TEC	TEH	.610	ZBAZC	3	H	
48	93	.49	88	PCT	10	P3	BW1	-.89			BW1	VS3	.580	ZPUFZ	61	H	
50	93	.43	167	DSI	8	P1	BW1	.67			TEC	TEH	.610	ZBAZC	3	H	
50	93	45	99	PCT	10	P3	BW1	.67			09H	VS3	.580	ZPUFZ	61	H	
50	93	.33	111	DSI	12	P1	VS4	-.94			TEC	TEH	.610	ZBAZC	17	H	
50	93	.87	76	PCT	16	P3	VS4	-.94			VS4	VS4	.580	ZPUFZ	80	C	
45	94	32	76	DSI	12	P1	BW1	-.92			TEC	TEH	.610	ZBAZC	4	H	
45	94	.74	77	PCT	15	P3	BW1	-.82			08H	VS3	.580	ZPUFZ	61	H	
49	94	53	127	DSH	16	P1	BW1	.77			TEC	TEH	.610	ZBAZC	4	H	
46	97	33	122	DSI	10	P1	VS3	1.03			TEC	TEH	.610	ZBAZC	3	H	
46	97	68	79	PCT	14	P3	VS3	1.03			VS3	VS3	.580	ZPUFZ	61	H	
48	97	32	83	DSH	11	P1	VS3	.91			TEC	TEH	.610	ZBAZC	3	H	
51	100	27	86	DSI	10	P1	BW2	1.00			TEC	TEH	.610	ZBAZC	3	H	
51	100	.55	81	PCT	11	P3	BW2	.92			09C	VS3	.580	ZPUFZ	80	C	
48	101	72	97	DSI	20	P1	VS3	.77			TEC	TEH	.610	ZBAZC	3	H	
48	101	1.16	75	PCT	21	P3	VS3	.77			VS3	VS3	.580	ZPUFZ	61	H	
49	102	.67	123	DSI	17	P1	BW1	-.92			TEC	TEH	.610	ZBAZC	5	H	
49	102	93	78	PCT	18	P3	BW1	-.76			09H	VS3	.580	ZPUFZ	61	H	
49	102	.58	77	PCT	12	P3	VS3	-.71			09H	VS3	.580	ZPUFZ	61	H	
45	104	1.73	112	DSI	37	P1	BW1	.77			TEC	TEH	.610	ZBAZC	6	H	
45	104	2.17	70	PCT	33	P3	BW1	.79			08H	VS3	.580	ZPUFZ	61	H	
47	104	71	106	DSI	23	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	6	H	
47	104	1.07	123	DSI	27	P1	BW1	.88			TEC	TEH	.610	ZBAZC	6	H	
47	104	.88	86	PCT	16	P3	BW1	-.80			08H	VS3	.580	ZPUFZ	61	H	
47	104	1.37	78	PCT	24	P3	BW1	.81			08H	VS3	.580	ZPUFZ	61	H	
46	105	59	153	DSI	11	P1	BW2	.92			TEC	TEH	.610	ZBAZC	6	H	
46	105	.54	76	PCT	11	P3	BW2	.92			08C	VS3	.580	ZPUFZ	80	C	
45	106	39	42	DSI	9	P1	BW1	-.98			TEC	TEH	.610	ZBAZC	5	H	
49	106	.42	128	DSI	11	P1	BW1	-.93			TEC	TEH	.610	ZBAZC	5	H	
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM
40	106	53	82	PCT	11	P3	BW1	-.93			08H	VS3	.580	ZPUFZ	61	H	
46	107	1.05	119	DSI	24	P1	BW1	-.86			TEC	TEH	.610	ZBAZC	5	H	
46	107	1.46	80	PCT	25	P3	BW1	-.94			08H	VS3	.580	ZPUFZ	60	H	
48	107	.76	113	DSI	20	P1	VS3	.82			TEC	TEH	.610	ZBAZC	5	H	
48	107	1.61	83	PCT	26	P3	VS3	.82			VS3	VS3	.580	ZPUFZ	60	H	DOA
118	107	.36	109	DSI	13	P1	BW1	.88			TEC	TEH	.610	ZBAZC	44	H	
118	107	92	69	PCT	17	P3	BW1	.88			10H	VS3	.580	ZPUFZ	60	H	
45	108	.86	82	DSI	26	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	6	H	
45	108	.97	84	DSI	28	P1	BW2	-.81			TEC	TEH	.610	ZBAZC	6	H	
45	108	1.49	80	PCT	25	P3	BW1	-.99			08H	VS3	.580	ZPUFZ	60	H	
45	108	1.90	75	PCT	29	P3	BW2	-.81			08C	VS3	.580	ZPUFZ	80	C	
47	108	.38	120	DSI	13	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	6	H	
47	108	78	91	PCT	15	P3	BW1	-.94			08H	VS3	.580	ZPUFZ	60	H	
51	108	.27	73	DSI	11	P1	BW1	.88			TEC	TEH	.610	ZBAZC	6	H	
51	108	57	77	PCT	11	P3	BW1	.86			09H	VS3	.580	ZPUFZ	60	H	
43	112	4.96	99	DSI	56	P1	BW1	-.79			TEC	TEH	.610	ZBAZC	6	H	
43	112	.28	67	DSI	10	P1	BW1	.79			TEC	TEH	.610	ZBAZC	6	H	
43	112	.39	96	DSI	15	P1	BW2	.83			TEC	TEH	.610	ZBAZC	6	H	
43	112	4.51	64	PCT	49	P3	BW1	-.91			08H	VS3	.580	ZPUFZ	60	H	
43	112	.66	85	PCT	13	P3	BW1	.92			08H	VS3	.580	ZPUFZ	60	H	
43	112	83	67	PCT	16	P3	BW2	.83			08C	VS3	.580	ZPUFZ	80	C	
45	112	.57	156	DSI	13	P1	BW1	.74			TEC	TEH	.610	ZBAZC	6	H	
45	112	.71	88	PCT	14	P3	BW1	.95			08H	VS3	.580	ZPUFZ	60	H	
48	113	.20	93	DSI	10	P1	BW1	.85			TEC	TEH	.610	ZBAZC	6	H	
48	113	45	85	PCT	10	P3	BW1	.85			BW1	VS3	.580	ZPUFZ	61	H	DOA
110	113	33	106	DSI	10	P1	VS4	-.91			TEH	TEC	.610	ZBAZC	61	C	
110	113	1.09	73	PCT	19	P3	VS4	-.91			VS4	VS4	.580	ZPUFZ	80	C	
41	114	1.43	109	DSI	31	P1	BW1	.75			TEC	TEH	.610	ZBAZC	5	H	
41	114	.52	131	DSI	13	P1	VS3	-.91			TEC	TEH	.610	ZBAZC	5	H	
41	114	2.49	71	PCT	35	P3	BW1	.86			08H	VS3	.580	ZPUFZ	60	H	
41	114	1.18	77	PCT	21	P3	VS3	-.91			08H	VS3	.580	ZPUFZ	60	H	
43	114	33	73	DSI	11	P1	BW1	.77			TEC	TEH	.610	ZBAZC	5	H	
43	114	.65	88	PCT	13	P3	BW1	.97			08H	VS3	.580	ZPUFZ	60	H	
47	114	.30	132	DSI	9	P1	BW2	-.90			TEC	TEH	.610	ZBAZC	5	H	
47	114	.55	91	PCT	11	P3	BW2	-.90			08C	VS3	.580	ZPUFZ	80	C	
40	115	.54	110	DSI	16	P1	VS3	.82			TEC	TEH	.610	ZBAZC	5	H	
40	115	.64	110	DSI	18	P1	BW2	.80			TEC	TEH	.610	ZBAZC	5	H	
40	115	1.09	71	PCT	19	P3	VS3	.82			08C	VS3	.580	ZPUFZ	80	C	
40	115	1.03	84	PCT	19	P3	BW2	.80			08C	VS3	.580	ZPUFZ	80	C	
66	115	34	96	DSI	12	P1	VS3	-.86			TEH	TEC	.610	ZBAZC	58	C	
66	115	58	74	PCT	12	P3	VS3	-.86			VS3	VS3	.580	ZPUFZ	60	H	
45	116	1.23	156	DSI	23	P1	BW1	-.81			TEC	TEH	.610	ZBAZC	6	H	
45	116	1.21	86	PCT	21	P3	BW1	-.90			08H	VS3	.580	ZPUFZ	60	H	DOA
40	117	38	96	DSH	14	P1	VS3	.79			TEC	TEH	.610	ZBAZC	6	H	
42	117	.69	113	DSH	21	P1	VS3	.79			TEC	TEH	.610	ZBAZC	6	H	
116	117	.19	112	DSI	8	P1	VS4	-.96			TEC	TEH	.610	ZBAZC	58	H	
116	117	75	79	PCT	14	P3	VS4	-.96			VS4	VS4	.580	ZPUFZ	80	C	
39	118	99	115	DSI	24	P1	BW1	-.91			TEC	TEH	.610	ZBAZC	5	H	
39	118	1.85	71	PCT	29	P3	BW1	-.99			08H	VS3	.580	ZPUFZ	60	H	
36	119	.67	136	DSI	15	P1	BW1	-.93			TEC	TEH	.610	ZBAZC	5	H	
36	119	1.32	80	PCT	23	P3	BW1	-.92			08H	VS3	.580	ZPUFZ	60	H	
45	120	34	19	DSI	9	P1	VS3	-.81			TEC	TEH	.610	ZBAZC	6	H	
45	120	62	79	PCT	12	P3	VS3	-.85			VS3	VS3	.580	ZPUFZ	60	H	
40	121	44	152	DSI	10	P1	VS3	.79			TEC	TEH	.610	ZBAZC	6	H	
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
33	122	.62	120	DSI	16	P1	BW1	-.95			TEC	TEH	.610	ZBAZC	5	H	
33	122	1.00	82	PCT	19	P3	BW1	-.87			OBH	VS3	.580	ZPUFZ	60	H	
29	124	.51	139	DSI	10	P1	BW1	-.92			TEC	TEH	.610	ZBAZC	6	H	
29	124	.43	52	DSI	14	P1	BW1	.90			TEC	TEH	.610	ZBAZC	6	H	
29	124	.60	90	PCT	12	P3	BW1	-.92			OBH	VS3	.580	ZPUFZ	60	H	
29	124	.94	85	PCT	18	P3	BW1	.90			OBH	VS3	.580	ZPUFZ	60	H	
165	124	1.56	70	SVI	24	P3	TSC	.37			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
167	124	2.78	68	SVI	36	P3	TSC	.40			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
166	125	.54	94	SVI	10	P3	TSC	.83			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
166	125	.53	88	SVI	10	P3	TSC	.59			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
28	127	.26	109	DSI	10	P1	VS3	1.00			TEC	TEH	.610	ZBAZC	5	H	
28	127	.41	70	PCT	10	P3	VS3	1.00			VS3	VS3	.580	ZPUFZ	60	H	
118	133	.21	96	DSI	7	P1	VS3	.81			TEH	TEC	.610	ZBAZC	55	C	
118	133	.57	88	PCT	11	P3	VS3	.81			VS3	VS3	.580	ZPUFZ	60	H	
160	135	.57	143	DSI	16	P1	BW2	-.80			TEC	TEH	.610	ZBAZC	41	H	
160	135	1.11	71	PCT	20	P3	BW2	-.80			11C	VS5	.580	ZPUFZ	80	C	
162	135	.55	128	DSI	15	P1	BW2	-.79			TEC	TEH	.610	ZBAZC	41	H	
162	135	.80	79	PCT	15	P3	BW2	-.79			11C	VS5	.580	ZPUFZ	80	C	
102	143	.68	161	DSI	10	P1	VS2	.88			TEH	TEC	.610	ZBAZC	54	C	
102	143	.65	79	PCT	13	P3	VS2	.84			VS2	VS2	.580	ZPUFZ	60	H	
113	146	.37	66	DSI	11	P1	VS2	-.73			TEH	TEC	.610	ZBAZC	38	C	
113	146	1.05	82	PCT	19	P3	VS2	-.85			VS2	VS2	.580	ZPUFZ	60	H	DOA
106	181	.24	93	DSI	8	P1	VS3	-.94			TEH	TEC	.610	ZBAZC	51	C	
106	181	.71	80	PCT	14	P3	VS3	-.94			VS3	VS3	.580	ZPUFZ	60	H	
35	200	.35	156	DSI	6	P1	VS3	.27			TEH	TEC	.610	ZBAZC	12	C	
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM

Tubes: 87 Records: 183

APPENDIX D

PLI & PLP

DATA SHEETS

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
58	7	1.06	142	PLP		8	08C	14.14			TEH	TEC	.610	IBAIC	47	C	3R
58	7	1.08	93	PLP		8	08C	14.14			08C	09C	.600	IPSHI	79	C	3R
86	15	1.01	85	PLP		8	01C	1.02			01C	01C	.600	IPSHI	84	C	3R
86	15	1.09	88	PLP		8	01C	1.28			01C	01C	.600	IPSHI	84	C	3R
87	16	1.26	84	PLP		8	01C	1.16			01C	01C	.600	IPSHI	84	C	3R
151	56	.23	91	PLP		8	07H	18.48			TEH	TEC	.610	IBAIC	30	C	3R
152	57	.23	93	PLP		8	07H	18.24			TEH	TEC	.610	IBAIC	30	C	3R
38	79	.37	110	PLP		8	T3H	6.17			TEC	TEH	.610	IBAIC	11	H	3R
38	79	2.16	89	PLP		8	T3H	6.24			T3H	01H	.600	IPSHI	73	H	3R
39	80	.28	100	PLP		8	T3H	5.80			TEC	TEH	.610	IBAIC	8	H	3R
39	80	1.55	81	PLP		8	T3H	6.61			T3H	01H	.600	IPSHI	73	H	3R
157	142	.11	91	PLP		8	07H	27.63			TEC	TEH	.610	IBAIC	42	H	3R
157	142	.94	67	PLP		8	07H	27.61			07H	08H	.600	IPSHI	73	H	3R
143	150	.24	69	PLP		8	02C	18.53			02C	03C	.600	IPSHI	84	C	3R
143	150	.16	70	PLP		8	02C	18.97			02C	03C	.600	IPSHI	84	C	3R
142	151	.19	75	PLP		8	02C	18.17			02C	03C	.600	IPSHI	84	C	3R
144	151	.15	70	PLP		8	02C	19.16			02C	03C	.600	IPSHI	79	C	3R
143	152	.28	67	PLP		8	02C	19.13			02C	03C	.600	IPSHI	79	C	3R
145	152	.26	99	PLP		8	02C	19.02			TEH	TEC	.610	IBAIC	30	C	3R
145	152	.95	73	PLP		8	02C	19.02			02C	03C	.600	IPSHI	79	C	3R
144	153	.77	66	PLP		8	02C	18.84			02C	03C	.600	IPSHI	79	C	3R
146	153	.10	83	PLP		8	02C	19.06			TEH	TEC	.610	IBAIC	30	C	3R
146	153	.45	68	PLP		8	02C	19.06			02C	03C	.600	IPSHI	79	C	3R
145	154	.10	98	PLP		8	02C	18.93			TEH	TEC	.610	IBAIC	30	C	3R
145	154	.64	71	PLP		8	02C	18.93			02C	03C	.600	IPSHI	79	C	3R
144	155	.18	65	PLP		8	02C	19.03			02C	03C	.600	IPSHI	79	C	3R
143	156	.08	70	PLP		8	02C	19.70			02C	03C	.600	IPSHI	84	C	3R
145	156	.06	74	PLP		8	02C	16.62			02C	03C	.600	IPSHI	84	C	3R
145	156	.22	67	PLP		8	02C	17.23			02C	03C	.600	IPSHI	84	C	3R

Tubes 19 Records: 29

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ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
32	105	1 56	87	PLP		8	FDP	80			FDP	FDP	.000	ZPSHZ	81	C	3R
34	125	2 09	93	PLP		8	FDP	89			FDP	FDP	.000	ZPSHZ	81	C	3R
36	125	2 18	92	PLP		8	FDP	60			FDP	FDP	.000	ZPSHZ	81	C	3R
35	126	75	89	PLP		8	FDP	63			FDP	01C	.000	ZPSHZ	81	C	3R
1	176	1 65	89	PLP		8	TSC	11			TSC	TSC	.000	ZPSHZ	81	C	3R
6	185	34	57	PLP		8	90H	24 46			TEH	TEC	.010	ZBAZC	64	C	3R
8	185	27	59	PLP		8	90H	24.70			TEH	TEC	.010	ZBAZC	64	C	3R
6	187	21	74	PLP		8	90H	24.71			TEH	TEC	.010	ZBAZC	65	C	3R
6	189	27	60	PLP		8	90H	24 50			TEH	TEC	.010	ZBAZC	64	C	3R
8	199	1 88	81	PLP		8	02C	14			02C	02C	.000	ZPSHZ	81	C	3R
7	200	1.96	85	PLP		8	02C	15			02C	02C	.000	ZPSHZ	81	C	3R

Tubes 11 Records: 11

APPENDIX E

PLUG Lists

PLUG Maps

PLUG HISTORY

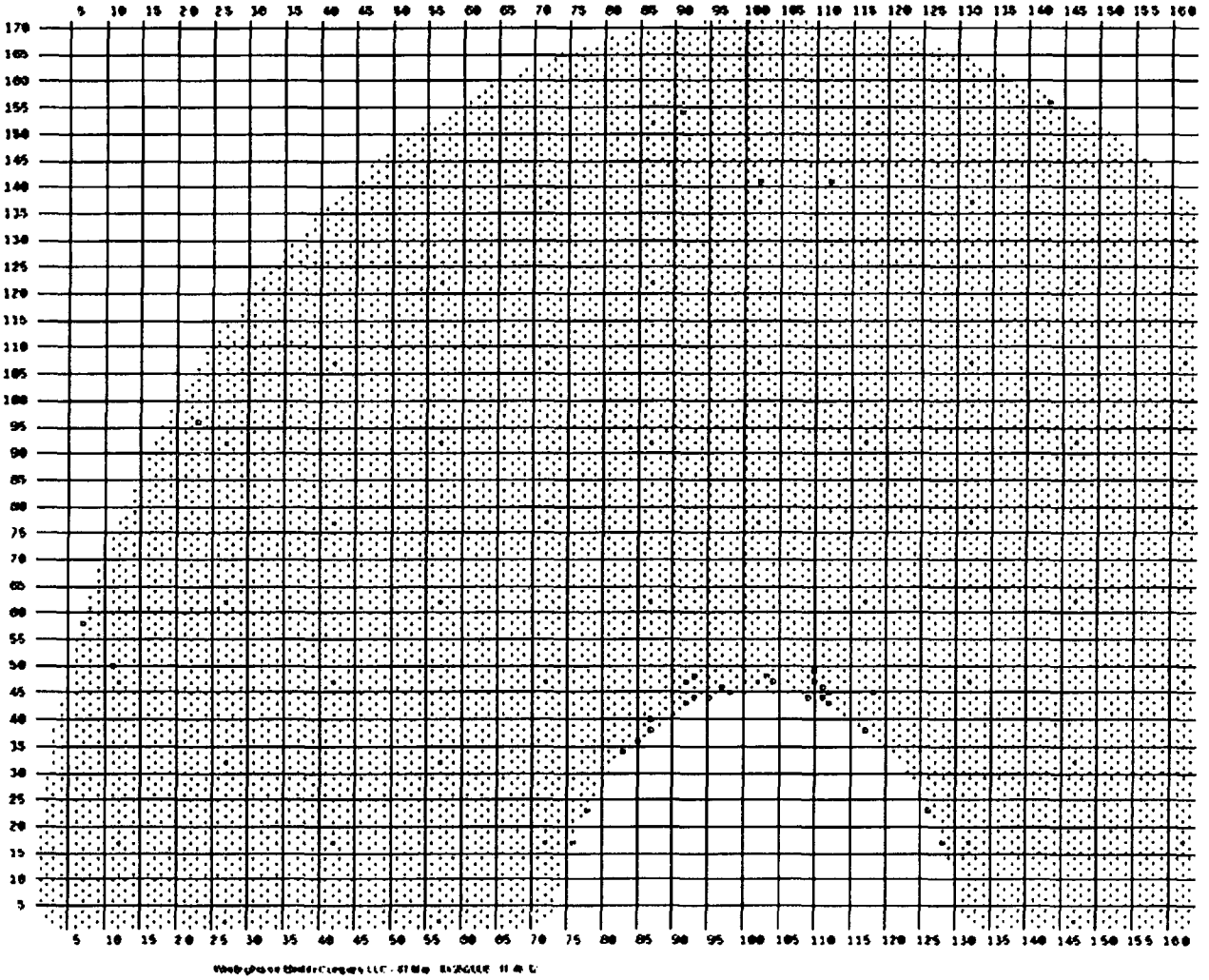
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
58	7	1.06	142	PLP		8	08C	14.14			TEH	TEC	.610	ZBAZC	47	C	SR
58	7			PIV		6	02C	5.02			TEH	TEC	.610	ZBAZC	47	C	
58	7	1.98	93	PLP		8	08C	14.14			08C	09C	.600	ZPSHZ	79	C	SR
58	7			TBP							TEH	TEH	.610	ZBAZC	1000	C	SK
58	7																PLP
34	83	50	170	DSI	21	P1	BM1	-1.00			TEC	TEH	.610	ZBAZC	8	H	
34	83	39	117	DSI	14	P1	BM1	.64			TEC	TEH	.610	ZBAZC	8	H	
34	83			PID		P1	BM1	-1.00			TEC	TEH	.610	ZBA1C	65	H	
34	83	1.83	66	PCT	24	P3	BM1	-.85			08H	VS3	.580	ZPUFZ	76	H	
34	83	1.82	69	PCT	24	P3	BM1	.91			08H	VS3	.580	ZPUFZ	76	H	
34	83			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
34	83																BWSC
36	85	1.95	102	DSI	43	P1	BM1	-.87			TEC	TEH	.610	ZBAZC	7	H	
36	85			PID		P1	BM1	-.87			TEC	TEH	.610	ZBA1C	65	H	
36	85	3.46	63	PCT	38	P3	BM1	-.95			08H	VS3	.580	ZPUFZ	76	H	
36	85			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
36	85																BWSC
43	92	.56	99	DSI	23	P1	BM2	-.98			TEC	TEH	.610	ZBAZC	5	H	
43	92			LNC		P1	BM2	.88			TEC	TEH	.610	ZBAZC	5	H	
43	92			PID		P1	BM2	-.98			TEC	TEH	.610	ZBA1C	65	H	
43	92	.71	74	PCT	13	P3	VS3	-1.05			08C	VS3	.580	ZPUFZ	80	C	
43	92	1.04	78	PCT	18	P3	BM2	-.98			08C	VS3	.580	ZPUFZ	80	C	
43	92			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
43	92																BWSC
47	92	.56	106	DSI	23	P1	BM2	-.78			TEC	TEH	.610	ZBAZC	5	H	
47	92			PID		P1	BM2	-.78			TEC	TEH	.610	ZBA1C	65	H	
47	92	91	72	PCT	16	P3	BM2	-.78			08C	VS3	.580	ZPUFZ	80	C	
47	92			TBP							TEC	TEC	.610	ZBAZC	1000	C	BWSC
44	93	84	117	DSI	27	P1	BM1	-.92			TEC	TEH	.610	ZBAZC	5	H	
44	93			PID		P1	BM1	-.92			TEC	TEH	.610	ZBA1C	65	H	
44	93	2.68	88	PCT	32	P3	BM1	-.85			08H	VS3	.580	ZPUFZ	76	H	
44	93	65	72	PCT	10	P3	BM1	1.00			08H	VS3	.580	ZPUFZ	76	H	
44	93			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
44	93																BWSC
48	93	44	75	DSI	20	P1	BM1	-1.01			TEC	TEH	.610	ZBAZC	5	H	
48	93	.18	117	DSI	10	P1	VS3	.88			TEC	TEH	.610	ZBAZC	5	H	
48	93			PID		P1	BM1	-1.01			TEC	TEH	.610	ZBA1C	65	H	
48	93	2.97	67	PCT	26	P3	BM1	-.82			08H	VS3	.580	ZPUFZ	76	H	
48	93	76	75	PCT	11	P3	BM1	1.00			08H	VS3	.580	ZPUFZ	76	H	
48	93	78	63	PCT	18	P3	VS3	.93			08H	VS3	.580	ZPUFZ	76	H	
48	93			TBP							TEC	TEC	.610	ZBAZC	1000	C	BWSC
46	97	94	97	DSI	31	P1	BM1	-.86			TEC	TEH	.610	ZBAZC	5	H	
46	97	17	83	DSI	10	P1	VS3	1.01			TEC	TEH	.610	ZBAZC	5	H	
46	97			PID		P1	BM1	-.86			TEC	TEH	.610	ZBA1C	65	H	
46	97	3.09	65	PCT	35	P3	BM1	-.78			08H	VS3	.580	ZPUFZ	76	H	DOA
46	97	1.04	64	PCT	15	P3	VS3	1.00			08H	VS3	.580	ZPUFZ	76	H	
46	97			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
46	97																BWSC
45	98	83	96	DSI	27	P1	BM1	-.94			TEC	TEH	.610	ZBAZC	6	H	
45	98	59	121	DSI	20	P1	BM2	-.95			TEC	TEH	.610	ZBAZC	6	H	
45	98			PID		P1	BM1	-.94			TEC	TEH	.610	ZBA1C	65	H	
45	98			PRC							08H	VS3	.580	ZPUFZ	77	H	
45	98	1.95	74	PCT	26	P3	BM1	-1.01			08H	VS3	.580	ZPUFZ	77	H	
45	98	84	77	PCT	15	P3	VS3	-1.25			08C	VS3	.580	ZPUFZ	80	C	
45	98	85	76	PCT	17	P3	VS3	-.22			08C	VS3	.580	ZPUFZ	80	C	
45	98	96	73	PCT	17	P3	BM2	-1.15			08C	VS3	.580	ZPUFZ	80	C	
45	98			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
45	98																BWSC
47	110	.95	114	DSI	27	P1	BM1	-.76			TEC	TEH	.610	ZBAZC	20	H	
47	110			PID		P1	BM1	-.76			TEC	TEH	.610	ZBA1C	65	H	
47	110	2.78	73	PCT	33	P3	BM1	-.88			08H	VS3	.580	ZPUFZ	77	H	DOA
47	110			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
47	110																BWSC
44	111	30	96	DSI	17	P1	BM1	-.71			TEC	TEH	.610	ZBAZC	19	H	
44	111	87	109	DSI	30	P1	BM1	.78			TEC	TEH	.610	ZBAZC	19	H	
44	111			PID		P1	BM1	.78			TEC	TEH	.610	ZBA1C	65	H	
44	111	1.30	78	PCT	19	P3	BM1	-.80			08H	VS3	.580	ZPUFZ	77	H	

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM
44	111	2.38	66	PCT	30	P3	BM1	.86			OSH	VS3	.580	ZPUFZ	77	H	
44	111			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K BMSC
44	111																
43	112	92	96	DSI	32	P1	BM1	-.76			TEC	TEH	.610	ZBAZC	19	H	
43	112	25	122	DSI	14	P1	BM1	.80			TEC	TEH	.610	ZBAZC	19	H	
43	112			PID		P1	BM1	-.76			TEC	TEH	.610	ZBA1C	65	H	
43	112	1.74	72	PCT	23	P3	BM1	-.85			OSH	VS3	.580	ZPUFZ	77	H	
43	112	91	69	PCT	14	P3	BM1	.95			OSH	VS3	.580	ZPUFZ	77	H	
43	112			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K BMSC
43	112																
45	112	.30	112	DSI	16	P1	BM1	-.89			TEC	TEH	.610	ZBAZC	19	H	
45	112	.47	124	DSI	21	P1	BM1	.72			TEC	TEH	.610	ZBAZC	19	H	
45	112	25	112	DSH	15	P1	VS3	-.67			TEC	TEH	.610	ZBAZC	19	H	
45	112			PID		P1	BM1	.72			TEC	TEH	.610	ZBA1C	65	H	
45	112	.78	86	PCT	12	P3	BM1	-.99			OSH	VS3	.580	ZPUFZ	77	H	
45	112	1.16	73	PCT	20	P3	BM1	.99			OSH	VS3	.580	ZPUFZ	77	H	
45	112	77	62	PCT	12	P3	VS3	-.72			OSH	VS3	.580	ZPUFZ	77	H	
45	112			TBP							TEC	TEC	.610	ZBAZC	1000	C	BMSC
45	118	85	124	DSI	29	P1	BM1	.77			TEC	TEH	.610	ZBAZC	17	H	
45	118			PID		P1	BM1	.77			TEC	TEH	.610	ZBA1C	65	H	
45	118	1.76	71	PCT	24	P3	BM1	.92			OSH	VS3	.580	ZPUFZ	77	H	
45	118			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K BMSC
45	118																
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	PDIA	PTYPE	CAL	L	COM

Tubes: 14 Records: 79

SG - 21 Tubes to be Plugged Based on U2R13 Eddy Current Results

Palo Verde U2R13 PVNGS2 2RSG



Palo Verde 2 U2R13 PVNG32 20061001 10/26/2006 08:23 14

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM
39	86			NDD							TEC	TEH	.610	ZBAZC	4	H	
39	86			PIV		6	TEC	17.88			TEC	TEH	.610	ZBAZC	4	H	
39	86			TBP							TEH	TEH	.610	ZBAZC	1000	C	3K
39	86																PVNT
48	89	1.66	119	DSI	33	P1	BW1	.66			TEC	TEH	.610	ZBAZC	3	H	
48	89			PID		P1	BW1	.66			TEC	TEH	.610	ZBA1C	55	H	
48	89	1.82	70	PCT	30	P3	BW1	.89			BW1	VS3	.580	ZPUFZ	61	H	
48	89			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K
48	89																BWSC
41	90	3.41	98	DSI	50	P1	BW1	-.88			TEC	TEH	.610	ZBAZC	4	H	
41	90	2.32	118	DSI	42	P1	BW1	.86			TEC	TEH	.610	ZBAZC	4	H	
41	90			PID		P1	BW1	-.88			TEC	TEH	.610	ZBA1C	55	H	
41	90	4.34	64	PCT	48	P3	BW1	-.79			08H	VS3	.580	ZPUFZ	61	H	
41	90	.65	87	PCT	13	P3	BW1	.16			08H	VS3	.580	ZPUFZ	61	H	
41	90	3.17	69	PCT	41	P3	BW1	.75			08H	VS3	.580	ZPUFZ	61	H	
41	90			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K
41	90																BWSC
43	90	1.47	115	DSI	34	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	4	H	
43	90			PID		P1	BW1	-.94			TEC	TEH	.610	ZBA1C	55	H	
43	90	1.80	70	PCT	29	P3	BW1	-.79			08H	VS3	.580	ZPUFZ	61	H	
43	90			TBP							TEC	TEC	.610	ZBAZC	1000	C	BWSC
42	91	1.64	94	DSI	38	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	4	H	
42	91	.70	107	DSI	20	P1	BW1	.90			TEC	TEH	.610	ZBAZC	4	H	
42	91			PID		P1	BW1	-.94			TEC	TEH	.610	ZBA1C	55	H	
42	91	2.13	73	PCT	33	P3	BW1	-.76			08H	VS3	.580	ZPUFZ	61	H	
42	91	1.33	75	PCT	24	P3	BW1	.89			08H	VS3	.580	ZPUFZ	61	H	
42	91			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K
42	91																BWSC
45	104	1.73	112	DSI	37	P1	BW1	.77			TEC	TEH	.610	ZBAZC	6	H	
45	104	2.01	177	DNH		P1	03C	-.79			TEC	TEH	.610	ZBAZC	6	H	
45	104	5.31	177	DNH		P1	02C	25.06			TEC	TEH	.610	ZBAZC	6	H	
45	104	.49	284	INR		B	02C	25.57			TEC	TEH	.610	ZBAZC	6	H	
45	104	5.31	177	DNH		P1	02C	25.84			TEC	TEH	.610	ZBAZC	6	H	
45	104			PID		P1	BW1	.77			TEC	TEH	.610	ZBA1C	55	H	
45	104	2.17	78	PCT	33	P3	BW1	.79			08H	VS3	.580	ZPUFZ	61	H	
45	104			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K
45	104																BWSC
47	104	.71	106	DSI	23	P1	BW1	-.94			TEC	TEH	.610	ZBAZC	6	H	
47	104	1.07	123	DSI	27	P1	BW1	.88			TEC	TEH	.610	ZBAZC	6	H	
47	104			PID		P1	BW1	.88			TEC	TEH	.610	ZBA1C	55	H	
47	104	.88	86	PCT	16	P3	BW1	-.80			08H	VS3	.580	ZPUFZ	61	H	
47	104	1.37	78	PCT	24	P3	BW1	.81			08H	VS3	.580	ZPUFZ	61	H	
47	104			TBP							TEC	TEC	.610	ZBAZC	1000	C	BWSC
46	107	1.05	119	DSI	24	P1	BW1	-.86			TEC	TEH	.610	ZBAZC	5	H	
46	107			PID		P1	BW1	-.86			TEC	TEH	.610	ZBA1C	55	H	
46	107	1.46	88	PCT	25	P3	BW1	-.94			08H	VS3	.580	ZPUFZ	60	H	
46	107			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K
46	107																BWSC
45	108	.86	82	DSI	26	P1	BW1	- 94			TEC	TEH	.610	ZBAZC	6	H	
45	108	.97	94	DSI	28	P1	BW2	-.81			TEC	TEH	.610	ZBAZC	6	H	
45	108			PID		P1	BW2	-.81			TEC	TEH	.610	ZBA1C	55	H	
45	108	1.49	80	PCT	25	P3	BW1	-.99			08H	VS3	.580	ZPUFZ	60	H	
45	108	1.90	75	PCT	29	P3	BW2	-.81			08C	VS3	.580	ZPUFZ	80	C	
45	108			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K
45	108																BWSC
43	112	4.96	99	DSI	56	P1	BW1	-.79			TEC	TEH	.610	ZBAZC	6	H	
43	112	.28	67	DSI	10	P1	BW1	.79			TEC	TEH	.610	ZBAZC	6	H	
43	112	.39	96	DSI	15	P1	BW2	.83			TEC	TEH	.610	ZBAZC	6	H	
43	112			PID		P1	BW1	-.79			TEC	TEH	.610	ZBA1C	55	H	
43	112	4.51	64	PCT	49	P3	BW1	-.91			08H	VS3	.580	ZPUFZ	60	H	
43	112	.66	85	PCT	13	P3	BW1	.92			08H	VS3	.580	ZPUFZ	60	H	
43	112	.83	67	PCT	16	P3	BW2	.83			08C	VS3	.580	ZPUFZ	80	C	
43	112			TBP							TEC	TEC	.610	ZBAZC	1000	C	3K
43	112																BWSC
41	114	1.43	109	DSI	31	P1	BW1	.75			TEC	TEH	.610	ZBAZC	5	H	
41	114	.52	131	DSI	13	P1	VS3	-.91			TEC	TEH	.610	ZBAZC	5	H	
41	114			PID		P1	BW1	.75			TEC	TEH	.610	ZBA1C	55	H	
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM

S6 - 22 TBP Tubes With Current Cycle Data

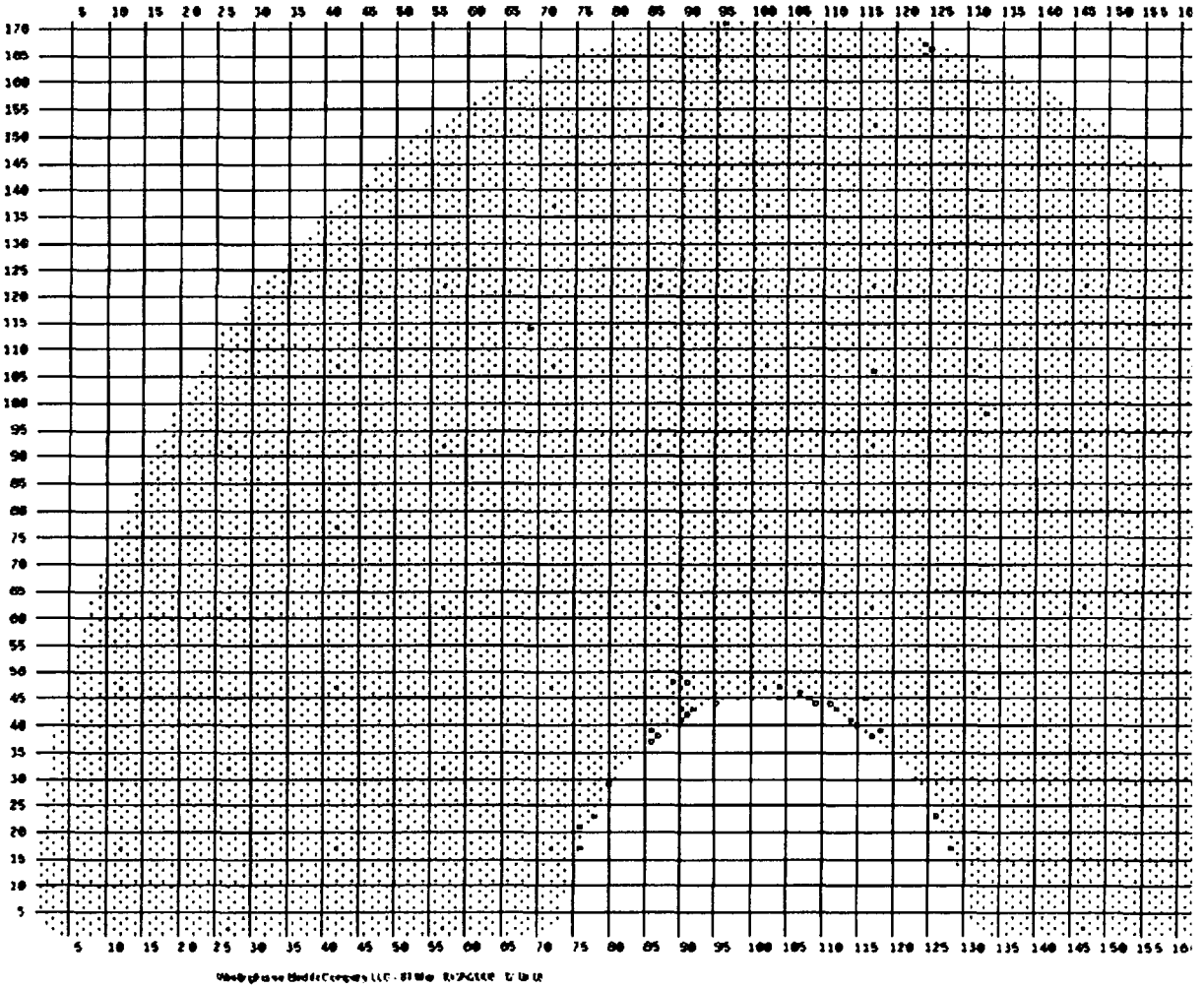
Palo Verde 2 U2R13 PVNGS2 20061001 10/26/2006 08:23 14

ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM
41	114	2.49	71	PCT	35	P3	BW1	.86			08H	VS3	.580	ZPUFZ	60	H	
41	114	1.18	77	PCT	21	P3	VS3	-.91			08H	VS3	.580	ZPUFZ	60	H	
41	114			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
41	114																BWSC
40	115	.54	110	DSI	16	P1	VS3	.82			TEC	TEH	.610	ZBAZC	5	H	
40	115	64	110	DSI	18	P1	BW2	.80			TEC	TEH	.610	ZBAZC	5	H	
40	115			PIV		6	TEC	2.10			TEC	TEH	.610	ZBAZC	5	H	
40	115	1.09	71	PCT	19	P3	VS3	.82			08C	VS3	.580	ZPUFZ	80	C	
40	115	1.03	84	PCT	19	P3	BW2	.80			08C	VS3	.580	ZPUFZ	80	C	
40	115			TBP							TEH	TEH	.610	ZBAZC	1000	C	SK
40	115																BWSC
45	116	1.23	156	DSI	23	P1	BW1	-.81			TEC	TEH	.610	ZBAZC	6	H	
45	116			PID		P1	BW1	-.81			TEC	TEH	.610	ZBA1C	55	H	
45	116	1.21	86	PCT	21	P3	BW1	-.90			08H	VS3	.580	ZPUFZ	60	H	DOA
45	116			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
45	116																BWSC
38	118	.99	115	DSI	24	P1	BW1	-.91			TEC	TEH	.610	ZBAZC	5	H	
38	118			PID		P1	BW1	-.91			TEC	TEH	.610	ZBA1C	55	H	
38	118	1.85	71	PCT	29	P3	BW1	-.90			08H	VS3	.580	ZPUFZ	60	H	
38	118			TBP							TEC	TEC	.610	ZBAZC	1000	C	SK
38	118																BWSC
165	124	1.94	137	NOI		P1	TSC	.29			TEC	TEH	.610	ZBAZC	32	H	
165	124			PIV		6	TEC	13.34			TEC	TEH	.610	ZBAZC	32	H	
165	124	1.56	70	SVI	24	P3	TSC	.37			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
165	124			TBP							TEH	TEH	.610	ZBAZC	1000	C	SK
165	124																NLP
165	124																SVI
167	124	1.51	91	NOI		P1	TSC	.54			TEC	TEH	.610	ZBAZC	32	H	
167	124			PIV		P1	TEC	19.00			TEC	TEH	.610	ZBAZC	32	H	
167	124	2.78	68	SVI	36	P3	TSC	.40			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
167	124			TBP							TEH	TEH	.610	ZBAZC	1000	C	SK
167	124																NLP
167	124																SVI
166	125	41	87	NOI		3	TSC	.82			TEC	TEH	.610	ZBAZC	31	H	
166	125			PIV		2	TEC	15.40			TEC	TEH	.610	ZBAZC	31	H	
166	125	54	94	SVI	10	P3	TSC	.63			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
166	125	53	88	SVI	10	P3	TSC	.59			TSC	TSC	.600	ZPSHZ	74	C	NO PLP
166	125			TBP							TEH	TEH	.610	ZBAZC	1000	C	SK
166	125																NLP
166	125																SVI
ROW	COL	VOLTS	DEG	IND	PER	CHN	LOCN	INCH1	INCH2	CRLEN	BEGT	ENDT	POIA	PTYPE	CAL	L	COM

Tubes: 17 Records: 89

SG - 22 Tubes to be Plugged Based on U2R13 Eddy Current Results

Palo Verde U2R13 PVNGS2 2R SG



PLUG HISTORY

	STEAM GENERATOR 21		STEAM GENERATOR 22	
OUTAGE/YEAR	**NUMBER OF PLUGS**	**% BOBBIN EXAMINED**	**NUMBER OF PLUGS**	**% BOBBIN EXAMINED**
FACTORY 2002	0	NA	1	NA
BASELINE 2-03	10	100	12	100
U2M12	1	<1%	0	0
U2R12	8	100	7	100
U2R13	14	100	17	100
TOTAL	**33**		**37**	

APPENDIX F

FORM NIS-1

APS	NIS – 1 FORM OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS
1. OWNER	ARIZONA PUBLIC SERVICE COMPANY, et al
1a. ADDRESS	P. O. BOX 52034; PHOENIX, ARIZONA 85072
2. PLANT	PALO VERDE NUCLEAR GENERATING STATION
2a. ADDRESS	5801 SOUTH WINTERSBURG ROAD, TONOPAH, ARIZONA 85354
3. UNIT NUMBER	2
4. OWNERS CERTIFICATE OF AUTHORIZATION	NONE
5. COMMERCIAL SERVICE DATE	9-19-86
6. COMPONENTS INSPECTED:	

COMPONENT OR APPURTENANCE	MANUFACTURER OR INSTALLER	SERIAL NUMBER	STATE OR PROVINCE	NATIONAL BOARD NO
2MRCEE01A STEAM GENERATOR 21	Ansaldo	212	NA	161
2MRCEE01B STEAM GENERATOR 22	Ansaldo	211	NA	160

APS	NIS – 1 BACK OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS

7. EXAM DATES	October 2006
8. INSPECTION INTERVAL	October 2006

9. ABSTRACT OF EXAMINATIONS. INCLUDE A LIST OF EXAMINATIONS AND A STATEMENT CONCERNING STATUS OF WORK REQUIRED FOR CURRENT INTERVAL.

Table 1 in the report summary section documents the number and type of each examination performed.

Several degraded/defective tubes were observed during these examinations. A summary of the tubes with indications of degradation is listed in Appendix B and C of this report for SG 21 and 22 respectively. The tubes identified on the following pages were plugged as a result of this examination.

The number of tubes plugged are as follows: SG 21 = 14 tubes

SG 22 = 17 tubes

WE CERTIFY THAT THE STATEMENTS MADE IN THIS REPORT ARE CORRECT AND THE EXAMINATIONS AND CORRECTIVE MEASURES TAKEN CONFORM TO THE RULES OF THE ASME CODE, SECTION XI.

DATE 1-8-07 SIGNED: ARIZONA PUBLIC SERVICE COMPANY BY [signature]

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 OF PROVINCE OF ARIZONA EMPLOYED BY HSB CT OF HARTFORD, CONNECTICUT HAVE INSPECTED THE COMPONENTS DESCRIBED IN THIS OWNERS REPORT DURING THE PERIOD Oct. 2006 TO 1-11-07, AND STATE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE OWNER HAS PERFORMED EXAMINATIONS AND TAKEN CORRECTIVE MEASURES DESCRIBED IN THIS OWNERS 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 OWNERS 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 [signature] COMMISSIONS NB 9685 "A.N.I.C" Az 264
NATL' BOARD, STATE, PROVINCE

DATE 1-11-07

APS	NIS – 1 FORM OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS
1. OWNER	ARIZONA PUBLIC SERVICE COMPANY, et al
1a. ADDRESS	P. O. BOX 52034; PHOENIX, ARIZONA 85072
2. PLANT	PALO VERDE NUCLEAR GENERATING STATION
2a. ADDRESS	5801 SOUTH WINTERSBURG ROAD, TONOPAH, ARIZONA 85354
3. UNIT NUMBER	2
4. OWNERS CERTIFICATE OF AUTHORIZATION	NONE
5. COMMERCIAL SERVICE DATE	9-19-86

SG 21 Tubes Plugged	SG 22 Tubes Plugged
R58 C7	R39 C86
R34 C83	R48 C89
R36 C85	R41 C90
R43 C92	R43 C90
R47 C92	R42 C91
R44 C93	R45 C104
R48 C93	R47 C104
R46 C97	R46 C107
R45 C98	R45 C108
R47 C110	R43 C112
R44 C111	R41 C114
R43 C112	R40 C115
R45 C112	R45 C116
R45 C118	R39 C118
	R165 C124
	R167 C124
	R166 C125