SOUTH CAROLINA ELECTRIC & GAS COMPANY
VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1
JENKINSVILLE, SOUTH CAROLINA 29065

STEAM GENERATOR A, B, & C
MARCH/APRIL 1987

INTRODUCTION

STEAM GENERATOR TUBE EDDY CURRENT EXAMINATION

The third inservice eddy current examination of Virgil C. Summer Nuclear Station steam generator tubing was performed during the months of March and April, 1987. This examination was performed in accordance with the ASME "Boiler and Pressure Vessel Code" Section XI, 1977 edition, through Summer 1978 addenda and as specified by the Nuclear Regulatory Commission in Regulatory Guide 1.83, Revision 1, dated July 1975.

The following basic program was used for each steam generator: 100 percent of rows 45 through 49 (all columns), all tubes exhibiting previous indications less than the plugging limit, a 4x4 matrix of the remainder of the tube bundle for full length of tubing, and an inspection of all inlet tube sheet regions within the remaining balance of steam generator tubes. The inspection was conducted from the inlet side (hot leg) for all tubes. The examination was conducted utilizing 'state of the art' digital multifrequency techniques.

The eddy current inspection plan consisted of three categories (all examined from the hot leg end (inlet)): tubes examined full length, tubes examined over the U-Bend to the 14th cold leg support, and tubes examined up to the 1st support on the hot leg side.

Approximately 500 tubes in each generator were examined full length (tube end to tube end). The full length exams were composed of preheater tubes, tubes with previous indications and random tubes (every fourth row and fourth column tube) to make up a 3% sample of full length examinations. Twenty-four (24) tubes were also inspected full length in "B" generator after previously installed plugs were removed.

Fifty-six (56) row 1 and 2 tubes in generator "A", twenty-nine (29) row 2 tubes in generator "B" (all Row 1 tubes in "B" generator were previously plugged), and fifty-nine (59) Row 1 and 2 tubes in generator "C" were examined up to and over the U-Bend to the 14th cold leg support. After heat treating the U-Bend area of all non-plugged Row 1 and 2 tubes in each generator, all of the heat-treated tubes were inspected over the U-Bend to the 14th cold leg support to verify the heat-treated area and establish new baseline data.

All of the remaining tubes in each generator were examined up to the 1st hot leg support to investigate for primary water stress corrosion cracking (PWSCC) in the hot leg tubesheet region. PWSCC was observed in this region during the previous refueling outage.

SUMMARY

The paragraphs below briefly summarize the results of the bobbin coil examinations. Several tubes with defects of 40% through-wall (TW) indications or greater were not plugged based on F* calculations.

S/G A - 3856 tubes were inspected to the 1st hot leg support. 554 tubes were inspected full-length. 224 tubes were inspected to the 14th cold leg support.

Seventy-five (75) tubes were found to contain indications of 40% TW or greater. All of these indictions were in the hot leg tubesheet region.

NOTE: SCE&G employs an F* calculation which determines whether a tube containing a 40% TW or greater indication in the tubesheet region requires plugging. Basically, if there is a sufficient length of properly rolled tubing within the tubesheet above the indication, the tube may remain in service. Therefore, not all tubes with 40% TW or greater indications are removed from service.

Eight (8) tubes exhibited indications of 20% to 39% TW. Most of these were wear fretting indications in tubes located in the preheater region.

Four (4) tubes exhibited indications of less than 20% TW. Most of these were also wear fretting indications in preheater tubes.

S/G B - 3802 tubes were inspected to the 1st hot leg support. 557 tubes were inspected full-length. 118 tubes were inspected to the 14th cold leg support.

One-hundred and five (105) tubes were found to exhibit indications of 40% TW or greater. All of these indications were in the hot leg tubesheet region.

Eighteen (18) tubes exhibited indications of 20% to 39% TW. Most of these were indications of wear fretting to preheater tubes.

One (1) tube exhibited an indication of less than 20% TW. This was also an indication of wear fretting in a preheater tube.

S/G C - 3844 tubes were examined to the 1st hot leg support. 552 tubes were examined full-length. 223 tubes were inspected to the 14th cold leg support.

Sixty-eight (68) tubes were found to contain indications of 40% TW or greater. All of these were found in the hot leg tubesheet region.

Four (4) tubes were found to exhibit indications of 20% to 39% TW. Most of these indications were noted as wear fretting in preheater tubes.

Seven (7) tubes exhibited indications of less than 20% TW. Most of these were also noted as wear fretting in preheater tubes.

The indications of wear fretting in the pre-heater section of each steam generator show small amounts of actual growth, however; no tube exceeded the plugging limit for wear fretting.

The attached tables provide the location, percent of degradation and identification of tubes plugged. No repairs were performed on steam generator tubes during this outage.

≥ 40% INDICATIONS
STEAM GENERATOR "A"

ROW	COL	%	LOCATION
1	6	86	TEH + 7.60
		65	TEH + 7.10
3	7	96	TEH + 2.80
3	27	75	TEH + 13.20
4	10	66	TEH + 2.20
		40	TSH + 0.00
4	17	86	TEH + 19.70
5	5	58	TEH + 20.10
5	51	40	TEH + 19.90
6	3	40	TEH + 18.80
6	7	76	TEH + 18.90
		79	TEH + 17.90
		63	TEH + 16.90
6	10	49	TEH + 3.50
6	14	77	TEH + 20.00
6	18	71	TEH + 6.20
6	51	40	TEH + 19.80
7	14	44	TEH + 13.80
7	20	40	TEH + 19.80
7	21	44	TEH + 17.60
		41	TEH + 20.20
7	22	67	TEH + 20.60
7	23	57	TEH + 19.60
7	38	40	TEH + 20.00
7	46	68	TEH + 19.80
		70	TEH + 18.80
		40	TEH + 17.80
		40	TEH + 16.90
7	50	40	TEH + 20.30
7	60	54	TEH + 6.50
8	10	40	TEH + 20.00
8	12	47	TEH + 16.90
8	37	50	TEH + 19.90
8	48	40	TEH + 19.90

≥ 40% INDICATIONS
STEAM GENERATOR "A"

ROW	COL	%	LOCATION
9	17	55	TEH + 19.00
		64	TEH + 20.00
9	24	45	TEH + 19.90
10	57	40	TEH + 19.90
11	49	40	TEH + 19.90
11	82	80	TEH + 14.10
12	32	41	TEH + 18.10
12	50	40	TEH + 20.00
13	51	40	TEH + 18.00
		40	TEH + 17.20
15	55	40	TEH + 17.90
16	27	42	TEH + 19.80
16	45	40	TEH + 20.00
16	99	60	TEH + 18.30
17	61	61	TEH + 20.20
17	63	40	TEH + 20.00
18	95	76	TEH + 5.60
20	16	63	TEH + 19.60
20	78	96	TEH + 19.70
24	7	87	TEH + 17.10
25	35	72	TEH + 17.90
25	44	40	TEH + 17.80
25	46	76	TEH + 15.70
27	17	40	TEH + 17.90
27	19	40	TEH + 20.20
27	53	40	TEH + 15.10
28	36	40	TEH + 19.60
28	40	77	TEH + 18.80
29	31	94	TEH + 16.50
29	38	71	TEH + 16.40
30	46	65	TEH + 5.10
30	58	56	TEH + 16.10
31	18	40	TEH + 19.10
32	52	40	TEH + 18.30

≥ 40% INDICATIONS
STEAM GENERATOR "A"

ROW	COL	%	LOCATION
32	64	67	TEH + 16.60
		88	TEH + 18.10
33	65	40	TEH + 20.50
35	21	40	TEH + 19.90
35	101	78	TEH + 18.10
37	57	70	TEH + 18.20
38	41	79	TEH + 16.10
39	70	70	TEH + 19.50
39	77	84	TEH + 18.00
40	42	40	TEH + 14.20
41	25	84	TEH + 9.60
41	71	85	TEH + 18.90
42	35	87	TEH + 18.50
43	36	63	TEH + 19.70
43	73	87	TEH + 13.20
43	82	57	TEH + 15.20
44	53	55	TEH + 20.00
49	45	82	TEH + 19.20

20%-39% INDICATIONS
STEAM GENERATOR "A"

ROW	COL	%	LOCATION
7	23	26	TEH + 17.90
36	36	35	TEH +3.50
48	41	22	07C + 0.00
48	75	37	06C + 0.00
49	39	27	06C + 0.00
49	40	20	06C + 0.00
49	53	21	06C + 0.00
49	55	25	06C + 0.00

<20% INDICATIONS
STEAM GENERATOR "A"

ROW	COL	%	LOCATION
48	39	18	06C + 0.00
48	40	17	06C + 0.00
		19	08C + 0.00
49	37	16	06C + 0.00
49	40	19	14C + 0.00

TUBES PLUGGED IN
HOT LEG ONLY
STEAM GENERATOR
"A"

ROW	COL
10	58
16	62
16	64
41	35
42	36

TUBES CURRENTLY PLUGGED
STEAM GENERATOR "A"

ROW	COL	ROW	COL	ROW	COL	ROW	COL
1	1	*8	37	22	29	*43	36
1	15	*8	48	*22	50	44	45
*1	16	8	50	22	89	*44	53
1	33	*9	17	23	55	*44	75
2	9	*9	20	*24	19	*45	53
3	19	9	22	*25	35	*46	32
*4	10	*9	24	*25	44	*49	45
*4	17	*10	50	26	30	49	51
*5	5	*10	54	26	35	49	67
5	6	*10	57	26	38		
*5	51	*10	58	26	79		
*6	3	*11	49	*27	17		
6	6	*11	51	*27	19		
*6	7	*12	50	27	31		
*6	14	*12	58	27	38		
*6	20	*12	61	27	46		
6	28	*13	51	*28	36		
*6	51	*16	27	*28	40		
*7	8	*16	45	28	42		
*7	18	*16	62	29	68		
*7	20	*16	64	*31	18		
*7	21	*17	36	31	19		
*7	22	*17	61	*33	22		
*7	23	*17	63	*33	65		
*7	26	*18	60	34	19		
*7	32	*18	64	*35	21		
*7	34	*18	79	36	48		
*7	38	*19	11	40	32		
*7	46	19	44	40	72		
*7	47	19	60	41	34		
*7	49	19	69	*41	35		
*7	50	*20	16	*41	37		
7	106	*20	78	41	68		
*8	10	21	7	*42	35		
*8	12	21	25	*42	36		
*8	34	21	28	43	25		

* Plugged in 1987

≥ 40% INDICATIONS
STEAM GENERATOR "B"

ROW	COL	%	LOCATION
2	58	40	TEH + 18.70
		40	TEH + 18.40
2	72	80	TEH + 18.90
		91	TEH + 18.60
3	45	40	TSH + 0.00
3	69	52	TEH + 3.80
4	56	46	TEH + 19.50
4	58	87	TEH + 19.60
4	67	92	TEH + 15.40
4	70	98	TEH + 20.50
5	11	40	TSH + 0.00
5	12	40	TSH + 0.00
5	16	40	TSH + 0.00
5	20	40	TEH + 13.90
		73	TEH + 15.70
		56	TEH + 17.90
5	23	40	TSH + 0.00
5	24	59	TEH + 6.80
5	25	40	TEH + 20.00
5	26	40	TSH + 0.00
5	31	40	TSH + 0.00
5	33	40	TEH + 17.00
5	34	40	TEH + 19.70
5	40	40	TSH + 0.00
5	41	40	TSH + 0.00
5	53	40	TSH + 0.00
5	54	40	TSH + 0.00
5	60	72	TEH + 8.20
5	65	58	TEH + 18.80
5	67	40	TEH + 16.30
5	69	63	TEH + 18.20
		40	TEH + 19.10

≥ 40% INDICATIONS
STEAM GENERATOR "B"

ROW	COL	%	LOCATION
		58	TEH + 20.20
		47	TEH + 19.80
5	70	87	TEH + 17.90
		85	TEH + 20.50
5	74	40	TEH + 18.00
6	20	40	TEH + 19.90
6	34	40	TEH + 18.40
		40	TEH + 19.80
6	43	40	TEH + 19.90
6	52	40	TSH + 0.00
6	54	40	TSH + 0.00
6	56	40	TEH + 19.70
6	57	73	TEH + 19.60
6	72	46	TEH + 3.20
		55	TEH + 4.90
6	73	47	TEH + 19.20
7	27	40	TEH + 19.90
7	37	40	TEH + 16.50
9	13	40	TEH + 19.60
9	31	40	TEH + 19.90
9	43	49	TEH + 17.50
		40	TSH + 0.00
11	69	40	TEH + 19.10
11	21	40	TEH + 15.00
11	40	40	TEH + 17.70
		40	TEH + 18.70
11	73	91	TEH + 19.10
12	25	62	TEH + 5.90
12	56	40	TEH + 19.00
13	26	40	TEH + 20.50
		40	TEH + 19.50
13	31	40	TEH + 19.80

≥ 40% INDICATIONS
STEAM GENERATOR "B"

ROW	COL	%	LOCATION
14	53	40	TEH + 19.80
15	19	40	TEH + 17.80
15	23	91	TEH + 20.00
17	21	44	TEH + 16.70
17	51	40	TEH + 19.70
18	49	64	TEH + 19.50
19	18	40	TEH + 16.40
19	52	40	TEH + 19.70
19	56	48	TEH + 18.40
19	64	75	TEH + 19.60
19	97	69	TEH + 20.60
22	8	40	TSH + 0.00
22	21	72	TEH + 17.80
23	56	61	TEH + 14.10
24	43	53	TEH + 19.20
27	22	40	TEH + 15.10
		40	TEH + 14.10
28	26	75	TEH + 15.90
		97	TEH + 20.40
31	65	74	TEH + 12.80
		99	TEH + 8.90
31	66	65	TEH + 17.10
32	12	40	TSH + 0.00
32	14	40	TSH + 0.00
32	18	40	TEH + 19.90
32	25	86	TEH + 12.20
32	33	64	TEH + 11.50
32	56	40	TEH + 14.50
		40	TEH + 15.50
		40	TEH + 19.70
		79	TEH + 18.50
32	65	86	TEH + 18.30

≥ 40% INDICATIONS
STEAM GENERATOR "B"

ROW	COL	%	LOCATION
34	40	72	TEH + 2.00
34	64	93	TSH + 14.90
		95	TEH + 13.60
34	65	88	TEH + 12.90
34	68	65	TEH + 14.10
		60	TEH + 14.20
34	71	40	TEH + 7.20
		82	TEH + 13.00
		58	TEH + 20.00
35	44	79	TEH + 1.20
36	54	40	TEH + 18.60
37	21	40	TEH + 19.80
		42	TEH + 18.60
37	30	40	TEH + 19.80
37	46	74	TEH + 19.20
37	71	50	TEH + 8.80
38	24	40	TEH + 19.90
38	31	40	TEH + 20.00
38	59	40	TSH + 0.00
38	63	72	TEH + 0.30
38	67	65	TEH + 17.90
38	98	62	TEH + 6.80
40	39	75	TEH + 19.20
40	62	89	TEH + 0.40
40	67	40	TEH + 17.20
42	44	47	TEH + 17.00
43	54	76	TEH + 20.10
44	30	77	TEH + 14.40
44	35	50	TEH + 3.60
		60	TEH + 5.30
44	37	54	TEH + 20.30
44	42	96	TEH + 19.10

≥ 40% INDICATIONS
STEAM GENERATOR "B"

ROW	COL	%	LOCATION
44	53	40	TEH + 20.20
45	85	53	TEH + 20.70

20% -39% INDICATIONS
STEAM GENERATOR "B"

ROW	COL	%	LOCATION
47	56	26	06C + 0.00
47	72	28	08C + 0.00
48	38	25	06C + 0.00
48	55	30	06C + 0.00
48	67	23	07C + 0.00
48	69	28	06C + 0.00
48	72	24	06C + 0.00
48	74	27	06C + 0.00
48	76	31	08C + 0.00
48	79	27	08C + 0.00
48	80	24	08C + 0.00
49	64	26	06C + 0.00
49	69	24	06C + 0.00
49	70	25	06C + 0.00
49	76	27	06C + 0.00
49	77	31	06C + 0.00
49	78	27	06C + 0.00
49	79	36	08C + 0.00

<20% INDICATIONS
STEAM GENERATOR "B"

ROW	COL	%	LOCATION
49	84	18	13H + 31.00

TUBES PLUGGED IN
HOT LEG ONLY
STEAM GENERATOR
"B"

ROW	COL
21	39
23	39

TUBES CURRENTLY PLUGGED
STEAM GENERATOR "B"

ROW	COL	ROW	COL	ROW	COL	ROW	COL	ROW	COL
1	1	1	37	1	75	1	114	*5	40
1	2	1	38	1	76	*2	7	*5	41
1	3	1	39	1	77	*2	36	*5	49
1	4	1	40	1	79	*2	40	*5	53
1	5	1	41	1	80	2	74	*5	54
1	6	1	42	1	81	*3	42	*5	58
1	7	1	43	1	82	*3	45	*5	59
1	8	1	44	1	84	*3	47	*5	66
1	9	1	45	1	85	3	52	*5	68
1	10	1	46	1	86	3	54	*5	69
1	11	1	47	1	88	3	58	*5	70
1	12	1	48	1	89	*4	12	*5	72
1	13	1	49	1	90	*4	37	*5	74
1	14	1	50	1	91	*4	44	5	76
1	15	1	51	1	92	*4	56	*6	20
1	16	1	52	1	93	*4	57	*6	26
1	17	1	53	1	94	*4	58	*6	31
1	18	1	54	1	95	4	62	*6	34
1	19	1	55	1	96	*4	70	*6	37
1	20	1	56	1	97	*4	71	*6	39
1	21	1	57	1	98	4	75	*6	43
1	22	1	58	1	99	4	83	*6	52
1	23	1	59	1	100	5	3	*6	54
1	24	1	60	1	101	*5	8	*6	56
1	25	1	61	1	102	*5	11	*6	57
1	26	1	62	1	103	*5	12	6	65
1	27	1	63	1	104	*5	13	*6	73
1	28	1	64	1	105	*5	16	*7	27
1	29	1	65	1	106	*5	19	7	44
1	30	1	66	1	107	*5	20	*9	13
1	31	1	67	1	108	*5	22	*9	29
1	32	1	69	1	109	*5	23	*9	31
1	33	1	70	1	110	*5	25	9	34
1	34	1	71	1	111	*5	26	*9	43
1	35	1	72	1	112	*5	31	9	63
1	36	1	74	1	113	*5	34	*10	69

* Plugged in 1987

TUBES CURRENTLY PLUGGED
STEAM GENERATOR "B"

ROW	COL	ROW	COL	ROW	COL	ROW	COL
10	99	21	39	*33	66	*45	85
*11	4	*21	43	33	93	47	42
11	25	*22	8	34	17	47	43
11	29	*22	21	34	36	*48	29
11	37	*22	51	34	60	49	57
*11	42	23	39	34	70		
*12	10	*23	56	*34	71		
*12	27	*24	43	35	70		
12	32	24	50	36	25		
*12	43	25	24	36	26		
12	55	26	14	*36	54		
*12	63	26	21	36	60		
*13	26	27	14	36	61		
*13	31	*27	16	36	64		
13	39	*27	27	36	67		
14	37	27	91	*37	21		
*14	53	*28	26	*37	24		
*15	23	28	28	37	28		
15	43	*28	61	*37	30		
15	49	29	40	*37	46		
*16	13	*29	53	37	67		
*16	68	30	48	*38	24		
*17	18	31	26	*38	30		
*17	21	31	31	*38	31		
*17	34	31	64	*38	59		
*17	51	*31	66	*38	67		
*18	49	*32	12	*38	98		
*19	52	*32	14	*39	25		
*19	56	*32	18	39	28		
19	58	32	20	*40	39		
*19	64	*32	28	42	37		
19	68	*32	56	*43	54		
*19	97	32	64	43	58		
*20	25	33	29	*44	37		
20	56	33	34	44	40		
20	94	33	46	*44	53		

* Plugged in 1987

≥ 40% INDICATIONS
STEAM GENERATOR "C"

ROW	COL	%	LOCATION
1	35	82	TEH + 1.20
		90	TEH + 1.30
2	43	47	TEH + 19.90
		55	TEH + 19.70
3	4	41	TEH + 19.00
3	30	40	TEH + 3.60
		40	TSH + 0.00
3	38	40	TEH + 19.80
3	93	92	TEH + 16.30
4	5	40	TEH + 17.90
4	14	40	TEH + 19.70
4	25	40	TEH + 19.70
4	40	40	TEH + 20.10
4	53	40	TEH + 18.80
4	57	68	TEH + 20.90
4	68	40	TEH + 18.80
5	13	40	TEH + 18.70
5	24	57	TEH + 19.90
		44	TEH + 18.90
5	30	40	TEH + 13.20
5	45	40	TEH + 19.90
6	40	40	TEH + 18.50
7	37	78	TEH + 20.00
		44	TEH + 19.70
		76	TEH + 18.00
7	43	40	TEH + 19.20
7	44	78	TEH + 18.70
8	19	40	TEH + 15.40
8	41	59	TEH + 18.80
8	55	59	TEH + 19.80
		40	TEH + 18.80
8	56	44	TEH + 20.00

≥ 40% INDICATIONS
STEAM GENERATOR "C"

ROW	COL	%	LOCATION
		40	TEH + 18.90
		63	TEH + 18.10
8	85	92	TEH + 19.80
9	24	40	TEH + 19.80
9	35	40	TEH + 19.80
9	53	55	TEH + 18.90
10	35	63	TEH + 19.90
10	44	53	TEH + 19.80
10	45	40	TEH + 19.90
		40	TEH + 18.30
		40	TEH + 17.10
10	49	77	TEH + 19.80
11	37	58	TEH + 20.10
		40	TEH + 19.80
		40	TEH + 16.90
		40	TEH + 16.00
11	39	40	TEH + 19.90
11	89	90	TEH + 20.00
12	19	40	TEH + 15.90
12	41	75	TEH + 19.20
		53	TEH + 18.30
14	44	46	TEH + 15.60
		55	TEH + 17.60
17	13	40	TEH + 16.90
19	22	40	TEH + 19.70
19	24	40	TEH + 14.10
20	72	89	TEH + 19.60
22	59	41	TEH + 19.00
22	101	90	TEH + 19.90
22	102	83	TEH + 18.80
23	9	40	TEH + 19.40
23	37	59	TEH + 17.00

≥ 40% INDICATIONS
STEAM GENERATOR "C"

ROW	COL	%	LOCATION
24	65	98	TEH + 19.80
25	33	49	TEH + 20.00
25	37	50	TEH + 19.70
26	26	40	TEH + 15.90
		56	TEH + 18.80
26	44	97	TEH + 15.90
27	27	40	TEH + 12.90
27	32	71	TEH + 19.60
27	36	56	TEH + 19.30
		69	TEH + 20.70
29	29	40	TSH + 0.00
29	30	57	TEH + 18.70
		40	TEH + 17.70
		57	TEH + 13.00
		54	TEH + 12.00
		61	TEH + 9.10
29	31	40	TEH + 19.80
31	53	87	TEH + 21.00
35	31	73	TEH + 17.70
35	35	81	TEH + 18.00
36	19	40	TEH + 18.80
43	55	97	TEH + 19.90
44	49	61	TEH + 19.80
44	53	94	TEH + 19.80
45	75	81	TEH + 15.80
47	49	46	TEH + 20.30

20%-39% INDICATIONS
STEAM GENERATOR "C"

ROW	COL	%	LOCATION
46	44	20	06C + 0.00
48	39	22	06C + 0.00
48	47	25	06C + 0.00
49	58	20	06C + 0.00

<20% INDICATIONS
STEAM GENERATOR "C"

ROW	COL	%	LOCATION
2	64	19	11H + 0.00
46	47	19	06C + 0.00
47	36	5	08H + 19.80
47	42	18	06C + 0.00
48	44	17	06C + 0.00
48	56	18	06C + 0.00
49	74	19	06C + 0.00

TUBES PLUGGED IN
HOT LEG ONLY
STEAM GENERATOR
"C"

ROW	COL
23	66
25	66

TUBES CURRENTLY PLUGGED
STEAM GENERATOR "C"

ROW	COL	ROW	COL	ROW	COL	ROW	COL
*1	30	*8	19	15	36	*29	30
1	42	8	35	15	39	*29	31
*1	88	*8	37	*15	42	29	35
2	29	8	39	15	45	*29	37
2	30	8	50	15	49	30	36
2	36	8	54	16	36	31	12
2	40	*8	55	*16	82	*31	53
*2	43	*8	56	17	65	33	35
*3	25	8	68	18	11	33	41
*3	26	*8	85	18	45	33	45
*3	27	*9	24	*19	22	33	52
*3	30	*9	35	*19	24	*36	19
*3	38	*9	37	20	39	36	59
*4	14	9	44	*20	72	37	35
*4	25	*9	46	*22	8	*37	53
4	26	9	76	*22	101	*43	55
*4	40	*10	35	*23	9	*44	49
4	44	*10	44	23	66	*44	53
*4	53	*10	45	*23	102	*47	49
*4	57	*10	49	*24	65	49	64
*4	58	10	56	25	10	49	65
*4	68	*11	37	*25	33		
*5	24	*11	39	*25	34		
*5	30	11	42	*25	37		
*5	45	11	43	25	66		
*5	67	11	54	26	19		
*6	26	*11	89	*26	22		
6	33	12	34	26	40		
6	47	*12	37	*27	28		
*7	29	*12	41	*27	32		
7	36	*14	31	*27	36		
*7	37	14	41	27	52		
7	39	14	42	28	38		
*7	43	14	45	*29	24		
*7	44	14	53	*29	27		
7	53	15	35	*29	29		

* Plugged in 1987