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SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
1st Review Date: 5/22/98
Authority: ADD
Name: W. Branch
2nd Review Date: 5-26-98
Authority: ADD
Name: WC Layne
Determination (Circle Number(s)):
1. Classification Retained
2. Classification Changed to: UNCL
3. Contains No DOE Classified Information
4. Coordinate With:
5. Contains UCNI
6. Comments:
DECLASSIFY

AUG 22 1960

KW-49, 3.2
T-16979
Project No. 13.784.10

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO: U
AUTHORITY: W. C. Layne
Amelia Seph 5/27/98
PERSON CHANGING MARKING & DATE
RECORD ID: 98SN2126
W. C. Layne 5-28-98
PERSON VERIFYING MARKING & DATE
DATED: 5/26/98

TO: DISTRIBUTION

Re: Hydrostatic Test of W-49-4 Pressure Cover

Summary of Test

To determine the structural adequacy of the W-49-4 pressure cover, one cover was hydrostatically pressurized to 100 psi.

Strain gage data gave no indication of yielding or failure at 100 psi.

A maximum deflection of 0.173 inches was measured at the top of the cover at 100 psi.

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Object of Test

The object of this test was to determine the structural adequacy of the W-49-4 pressure cover, which was to be hydrostatically pressurized to 100 psi with strain and deflection gages mounted at various locations.

Authorization for Test

This test was requested in a Work Order Authorization from Division 1245 to Mr. D. Williams, 1513, dated April 12, 1960. Mr. M. L. Flury, 1245 was the consultant.

Test Equipment and Instrumentation

The following equipment was used:

1 - Baldwin SR-4 strain indicator, Serial No. 391905
1 - Baldwin SR-4 pressure cell, Serial No. 10653
1 - Fairchild, semi-automatic data processing system
1 - Sprague air operated hydraulic pump

FILE
XW-4.9-X4
3-2

The following instrumentation was used:

28 - Biaxial strain gages, type C12-121-120, gage factor 2.00 ± 1/2%
1 - Starrett dial indicator, least graduation .001 inch

Procedure

The W-49-4 pressure cover was instrumented with one deflection gage and 28 biaxial strain gages, at locations determined by Mr. W. A. Wabrell, 1282. For deflection and strain gage locations, see Figure 1.

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[illegible] provided in [illegible] as listed in Table 1. The [illegible] gage [illegible] used and [illegible] at each [illegible] of [illegible].

Pressure was applied with a [illegible] air operated hydraulic pump and measured [illegible] a pressure cell in conjunction with a Bolsen 3[illegible]-4 strain indicator.

Results

There was no indication of yielding or failure from the strain gage data [illegible] 150 psi.

[illegible] of Table 1 [illegible] on the top of the container on [illegible]. The data [illegible] in Table 2. The strain gage data, see [illegible] 2[illegible], [illegible] of [illegible] are listed in Table 3[illegible].

[illegible]
[illegible] - 3[illegible]

[illegible]
[illegible] Project [illegible] - 3[illegible]

[illegible]
[illegible] - 3[illegible]

[illegible]

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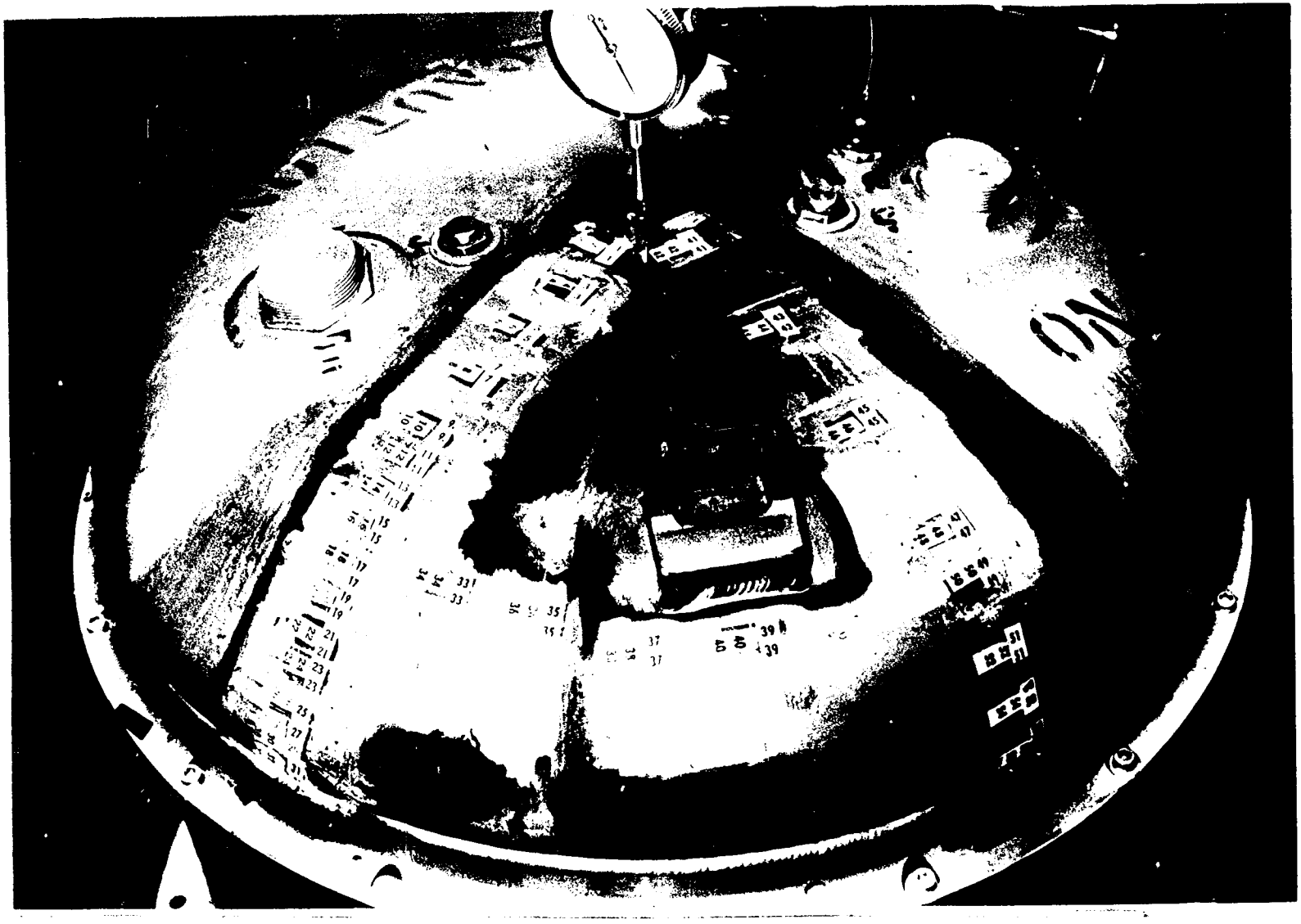

FIGURE 1 -- STRAIN GAGE AND DIAL INDICATOR LOCATIONS FOR HYDROSTATIC TEST OF F-49-4 PRESSURE COVER.

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TABLE I

LOAD-DEFLECTION DATA DURING HYDROSTATIC TEST
OF W-49-4 PRESSURE COVER

Load (psi)	No. 1
0	0
10	.017
20	.032
30	.049
40	.066
50	.084
60	.102
65	.110
0	.007
70	.120
75	.128
80	.137
85	.146
90	.156
95	.164
100	.173
0	.029

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TABL

MEASURED STRAINS ON PRESSURE COVER – HYDROST

STRAINS (MICR

	Pressure (psi)	Run 1		2		3		4		5		6		Gage 7
		1	2	3	4	5	6	7	8	9	10	11	12	13
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	10	49	50	25	12	88	39	127	4	0	-32	-64	-130	-30
3	20	148	168	67	43	261	69	338	15	0	-120	-135	-277	-33
4	30	248	294	111	84	458	130	576	15	7	-231	-211	-425	-34
5	40	291	378	166	140	593	171	765	17	9	-336	-337	-577	-86
6	50	331	470	201	147	760	198	989	4	0	-409	-414	-702	-84
7	60	430	640	210	180	950	190	1220	0	90	-410	-420	-760	0
8	65	460	690	240	210	1040	210	1360	0	150	-430	-440	-820	0
9	0	-97	-101	-28	-50	-48	-40	14	-65	-19	0	-181	21	-51
10	65	550	720	260	210	1060	[illegible]	1370	0	170	-410	-430	-780	0
11	70	520	750	280	240	1110	[illegible]	1460	0	210	-440	-460	-830	0
12	75	590	800	280	250	1190	240	1550	0	290	-480	-480	-940	0
13	80	590	820	310	270	1270	250	1660	0	390	-480	-480	-1020	3
14	85	610	910	340	350	1340	290	1750	[illegible]	470	-500	-500	-1100	7
15	90	620	960	320	320	1400	270	1850	0	560	-550	-500	-1150	12
16	95	680	1020	370	330	1490	290	1980	0	700	-540	-450	-1200	[illegible]
17	100	700	1090	380	340	1550	300	2060	0	800	-560	-390	-1310	[illegible]
18	0													
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ABLE II

OSTATIC TEST OF W-49-4 PRESSURE COVER

ICRO-INCHES PER INCH)

Gage Element No. 7		8		9		10		11		12		13		14		15		16		
[illegible]	[illegible]	[illegible]	[illegible]	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
30	-111	33	-24	-12	33	34	22	9	-25	49	-57	-38	-78	-49	-90	-50	-46	0	-56	2
33	-249	145	-70	-6	149	146	51	129	-19	159	-80	-32	-158	-116	-184	-125	-134	64	-105	3
34	-377	274	-109	0	272	266	87	275	0	280	-93	-27	-235	-209	-276	-208	-217	140	-149	4
36	-485	353	-137	-18	358	357	121	343	14	335	-108	-56	-281	-283	-346	-330	-327	185	-168	5
34	-599	427	-183	-12	465	440	145	471	39	470	-120	0	-341	-345	-435	-397	-395	291	-217	6
2	-660	620	-17	30	610	580	130	630	10	640	-80	120	-370	-350	-490	-280	-410	490	-190	7
0	-710	640	-190	30	680	650	170	710	40	710	-80	170	-380	-250	-570	-290	-430	570	-190	8
51	-41	-47	-280	-50	-64	-70	-7	-91	-70	-28	-20	81	0	129	7	67	1	34	6	9
0	-710	620	-190	40	690	630	150	700	50	730	-80	190	-380	-230	-510	-310	-470	570	-210	10
0	-760	760	-200	50	740	690	190	780	70	800	-60	250	-420	-190	-570	-270	-510	670	-230	11
0	-800	800	-210	60	790	750	210	830	80	870	-70	300	-450	-200	-630	-310	-590	720	-250	12
3	-850	900	-220	70	850	790	220	890	80	940	-70	370	-490	-190	-690	-320	-660	810	-260	13
7	-910	950	-230	70	890	830	240	950	100	1020	-80	430	-550	-190	-780	-380	-760	890	-280	14
2	-1000	1000	-280	50	950	890	240	1010	110	1110	-70	510	-590	-190	-860	-410	-850	970	-290	15
5	-1080	1050	-250	50	1000	930	270	1070	120	1180	-90	586	-640	-190	-930	-480	-920	1040	-300	16
5	-1100	1100	-310	90	1060	990	300	1140	140	1260	-90	660	-680	-200	-1000	-550	-1040	1090	-320	17
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Table I

BC 3640-A (10-50)

	17		18		19		20		21		22		
Pressure	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	0	0	0	0	0	0	[illegible]	0	0	0	0	0	[illegible]
2	[illegible]	[illegible]	0	[illegible]	15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	49	[illegible]
3	[illegible]	[illegible]	160	[illegible]	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	190	[illegible]	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-79	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	230	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	340	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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II (CONT)

23		24		25		26		27		28	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	57	58
[illegible]	[illegible]	[illegible]	[illegible]	-14	[illegible]	79	[illegible]	4	-45	139	170
[illegible]	[illegible]	[illegible]	512	-	-420	159	[illegible]	37	-79	194	[illegible]
[illegible]	[illegible]	-53	[illegible]	-59	-552	[illegible]	[illegible]	[illegible]	-115	294	299
[illegible]	[illegible]	-52	[illegible]	-48	[illegible]	[illegible]	[illegible]	[illegible]	-44	313	360
[illegible]	[illegible]	[illegible]	[illegible]	-50	-750	[illegible]	[illegible]	80	[illegible]	530	430
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-420	-270	[illegible]	[illegible]	[illegible]	430
[illegible]	[illegible]	[illegible]	[illegible]	0	17	-51	9	[illegible]	55	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	10	[illegible]	[illegible]	[illegible]	70	-150	60	45
[illegible]	[illegible]	[illegible]	[illegible]	50	[illegible]	420	[illegible]	10	[illegible]	70	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	30	[illegible]	[illegible]	[illegible]	20	[illegible]	710	530
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	520	[illegible]	30	[illegible]	770	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	42	[illegible]	560	[illegible]	40	[illegible]	830	610
[illegible]	[illegible]	[illegible]	[illegible]	56	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	170
[illegible]	[illegible]	[illegible]	[illegible]	60	[illegible]	830	[illegible]	[illegible]	[illegible]	141	830
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	750

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TAB

Computed stresses on Pressure cover — Hydrostat

Computed

GAGE

	1		2		3		4		5		6		7	
Pressure (psi)	S_L	S_C	S_L	S_C	S_L	S_C	S_L	S_C	S_L	S_C	S_L	S_C	S_L	S_C
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	760	770	340	240	1170	790	1490	540	-120	-370	-1240	-1750	-780	-146
20	2360	2520	940	760	3290	1810	3970	1480	-460	-1390	-2630	-3730	-1300	-29
30	4010	4360	1610	1400	5810	3270	6730	2400	-810	-2650	-4080	-5740	-1850	-45
40	4830	5500	2460	2260	7530	4270	8930	3150	-1190	-3860	-6130	-7980	-2870	-59
50	5650	6720	2900	2480	9570	5230	11470	3860	-1580	-4740	-7500	-9730	-3280	-72
60	7450	9070	3130	2900	11740	5870	14130	4710	-540	-4400	-7800	-10420	-2550	-76
65	7990	9770	3590	3360	12860	6440	15740	5250	80	-4400	-8260	-11200	-2740	-82
0	-1510	-1540	-520	-690	-710	-650	-100	-730	-220	-70	-2020	-460	-750	-67
65	9150	10460	3820	3440	13130	6640	15870	5280	390	-4090	-7990	-10700	-2740	-82
70	8920	10690	4170	3860	13780	7060	16910	5630	740	-4290	-8530	-11390	-2930	-88
75	9920	11540	4210	3980	14710	7370	17960	5980	1510	-4440	-9190	-12740	-3160	-95
80	10000	11780	4630	4320	15790	8140	19230	6400	2550	-4100	-9500	-13670	-3400	-103
85	10580	12900	5020	4560	16600	8410	20270	6750	3520	-3980	-10040	-14670	-3660	-112
90	10890	13510	4940	4630	17260	8530	21430	7140	4370	-4210	-10380	-15720	-3990	-123
95	11810	14440	5560	5250	18380	9110	23940	7640	6030	-3560	-9960	-15780	-4130	-130
100	12310	15330	5710	5410	19110	9460	23860	7950	7340	-3320	-9570	-16680	-4340	-146

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Table III

Static Test of W-49-4 Pressure cover

ed Stresses (psi)

element Number

7		8		9		10		11		12		13		14		15		16		
	Sc	Sx	Sc	Sx	Sc	Sx	Sc	Sx	Sc	Sx	Sc	Sx	Sc	Sx	Sc	Sx	Sc	Sx	Sc	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
-1400	290	-150	-10	340	480	390	10	-260	350	-470	-740	-1050	-920	-1230	-760	-730	-220	-650		4
-2900	1440	-240	510	1700	1890	1150	1420	280	1530	-310	-980	-1950	-2050	-2580	-1960	-2040	340	-970		5
-4500	2750	-210	1050	3150	3440	2030	3190	1060	2880	0	-1220	-2830	-3490	-4000	-3250	-3320	1050	-1190		6
-5950	3560	-220	1170	4080	4600	2780	4030	1480	3460	40	-1730	-3470	-4610	-5120	-5080	-5060	1500	-1230		7
-7250	4700	-320	1660	5340	5660	3380	5610	2270	4980	420	-1320	-3950	-5680	-6370	-6120	-6110	2530	-1390		8
-7650	7120	2200	2700	7180	7220	3740	7340	2560	7110	1640	-40	-3820	-4790	-6640	-4820	-5830	4940	-310		9
-8220	7260	460	2970	7990	8190	4480	8380	3200	7920	1810	500	-3750	-4860	-6870	-5020	-6100	5870	0		10
-670	-1620	-3420	-830	-930	-840	-350	-1320	-1160	-400	-340	940	310	1520	580	780	270	420	200		11
-8220	7260	460	3120	8150	7880	4170	8300	3280	8150	1890	740	-3670	-4630	-6800	-5400	-6640	5790	-230		12
-8800	8030	620	3430	8760	8730	4860	9310	3820	9040	2390	1280	-3940	-4400	-7340	-5100	-6950	6870	-80		13
-9500	8570	690	3740	9380	9500	5230	9920	4130	9810	2540	1750	-4060	-4750	-8070	-5870	-8030	7380	-120		14
-10300	9350	850	4090	10120	10000	5600	10650	4360	10620	2850	2400	-4250	-4860	-8730	-6250	-8880	8380	110		15
-11210	10120	1000	4240	10580	10570	5980	11390	4820	11510	3010	2860	-4710	-5210	-9770	-7330	-10270	9230	190		16
-12350	10620	650	4590	11310	11240	6210	12130	5170	12590	3470	3630	-4870	-5790	-11510	-8030	-11450	10120	380		17
-13010	11550	960	4770	11890	11850	6720	12970	5560	13320	3510	4250	-5180	-5520	-10700	-9110	-12510	10890	540		18
-14030	12340	880	5130	12630	12540	7260	13750	6020	14250	3820	5020	-5530	-6210	-12470	-10380	-14170	11390	500		19
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T-16979

SC 3640-A (10-60)

COMPUTED STRESSES ON PRESSURE COVER —

COMPONENT

GAGE E

		17		18		19		20		21		22		23
	TIME (PSI)	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	-540	60	-810	-1250	150	-70	330	830	970	420	980	750	138
	20	1560	1030	140	-2790	290	-300	-130	-3880	3070	1680	2350	1640	353
	30	2260	1790	560	-4440	450	-600	-1750	-4080	5620	3260	4070	2770	598
	40	3170	2260	460	-6540	180	-830	-2760	-5860	7540	4490	5060	3490	760
	50	4160	2770	650	-7450	510	-950	-3500	-7160	9940	5760	6600	4250	944
	60	5350	3450	1470	-7960	1210	-750	-2750	-7800	12300	6490	8430	4560	1125
	62	5470	3050	1560	-7340	1250	-620	-2750	-5340	13490	7060	9690	5060	1251
	1	-50	-100	-100	-100	240	180	630	310	-630	-2070	-1540	-1530	-161
	65	6310	3440	1740	-7330	1750	-620	-2860	-8570	13590	7100	9340	5450	122
	70	6760	3540	1820	-7650	2200	-500	-2970	-5920	15030	7990	10390	6450	1350
	75	7220	3740	1820	-9670	2250	-1200	-2850	-9500	16100	8450	11270	6950	1397
	80	7540	4050	1780	-10430	2740	-1040	-2350	-10130	17450	9110	12080	7530	1470
	85	7450	4210	1940	-10590	3211	-1500	-2740	-10700	18650	9610	13040	7140	1560
	90	9110	4418	2060	-11470	3530	-1700	-2700	-11500	19960	10150	14050	7800	1635
	95	9620	4750	2010	-11970	4090	-1950	-2700	-12450	21040	10610	14850	8260	1711
	100	10390	4[illegible]	2150	-12440	4640	-2000	-2610	-12790	22400	11270	15650	8650	1790

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T-16999

— HYDROSTATIC TEST OF W-49-4 PRESSURE COVER

VL STRESSES (PSI)

ELEMENT NUMBER

23		24		25		26		27		28											
Sa	Sb	Sa	Sb	Sa	Sb	Sa	Sb	Sa	Sb	Sa	Sb										1
C	C	C	C	C	C	C	C	C	C	C	C										2
530	-540	-1170	-560	-1380	-340	-1150	-40	-40	880	870											3
3040	-1820	-3740	-1150	[illegible]	90	-2160	-50	-450	3270	3510											4
3410	[illegible]	-4610	-1750	[illegible]	630	-3340	[illegible]	[illegible]	3060	3160											5
4390	-2330	-5760	[illegible]	[illegible]	450	[illegible]	[illegible]	-1500	4240	4600											6
6360	[illegible]	-7450	[illegible]	-9110	790	-4610	[illegible]	[illegible]	[illegible]	5690											7
5710	-2660	-7990	-3470	-9280	1650	-440	-450	-1500	7800	7030											8
6560	-2700	-8420	-4440	-9620	2280	-6140	1270	-910	7720	7540											9
1660	-620	-390	370	1120	-560	-100	-160	[illegible]	-1630	6060											10
6250	[illegible]	-7570	[illegible]	-9220	3320	-2650	700	-1310	870	750											11
6650	-3090	-9270	-2850	-10120	2470	[illegible]	700	-1310	-7760	8440											12
6910	-3200	-9630	-3160	-10430	[illegible]	[illegible]	700	-1620	[illegible]	8890											13
7290	-3510	-10370	-3590	-11120	[illegible]	[illegible]	770	-1710	[illegible]	9800											14
7360	-3740	-11240	-3470	-11660	[illegible]	[illegible]	910	[illegible]	[illegible]	10670											15
7720	-3970	-11230	-3630	-12430	5170	[illegible]	770	[illegible]	[illegible]	11160											16
9060	-4310	-13630	-3740	-13970	[illegible]	[illegible]	930	[illegible]	[illegible]	11630											17
[illegible]	-4440	-14320	-3900	-14440	[illegible]	[illegible]	770	[illegible]	[illegible]	13470											18
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