RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002
(713) 655-9000
Redacted

November 14, 2011

Pacific Gas and Electric Company
350 N. Wiget
Walnut Creek, CA 94598
Attention Redacted

Test Contractor:	AKRI – T-93A 11/14/11
Asset Owner:	Pacific Gas and Electric Company -- 41474058
Construction Contractor:	ARB – 0629-53-3500 T-93A
Test Section:	PG&E T-93A , L-400-3 , Redacted
Test Date:	November 14, 2011
Certificate Number:	RCP 61362 - T-93A, L-400-3, Redacted

To whom it may concern,

This letter is to certify that the hydrostatic test performed on pipe owned by Pacific Gas and Electric Company and tested by AKRI met the requirements of the Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 1 - Roads/Facility).

The test segment was subjected to a spike pressure test of 1615 psig for 30 minutes, without observed leakage or yielding of the pipe segment. The 30 minute spike test and subsequent pressure reduction with volume bleed was included and is part of the 8.42 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.42 continuous hours without evidence of a leak failure. Water was the test medium. At the highest elevation point in the test section, the calculated test pressure was 1498 psig and the MAOP per 49 CFR Part 192, Subpart J can be as high as 1361 psig. The MAOP established by this test is sufficient to qualify for Pacific Gas and Electric Company's desired MAOP of 975 psig.

Pressure decreased 111 psi during the test. 40,492.80 ounces of fluid was intentionally released from the test section Net corrected volumetric change from beginning of the test to the end of the test is calculated to be 1,092.16 ounces, gain, which is equivalent to a 0.22 °F change in pipe temperature and within the error attributed to the temperature measurement instrumentation utilized.

Test pressure did not remain steady even though no leaks were observed. The volumetric gain is attributed to the error characteristic of the temperature measurement instrumentation utilized.

Sincerely,

Redacted

cc. file

Redacted

Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41474058
Construction Co.	ARB	Job Number	0629-53-3500 T-93A
Hydro. Test Co.	AKRI	Project No.	T-93A 11/14/11
Test Section	PG&E T-93A , L-400-3 , MP Redacted		
File Name	RCP 61362 - T-93A, L-400-3,		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Test Date: 14-Nov-11

Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 1 - Roads/Facility)

This is to certify that the pipeline or pipeline section(s) described below was hydrostatically pressure tested in accordance with the following procedure:

Pipeline:	PG&E T-93A , L-400-3 , MP 293.41 -297.67		
From:	233+67	To:	0+00

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	23,235.80 ft	26.000 in.	0.500 in.	API5L-X52, DSAW, Arc Weld, Steel	2,000 psi
2	48.00 ft	26.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	2,500 psi
3	213.00 ft	26.000 in.	0.500 in.	API5L-X52, DSAW, Arc Weld, Steel	2,000 psi
4	2.50 ft	26.000 in.	0.375 in.	API5L-X65, DSAW, Arc Weld, Steel	1,875 psi

Initial Test Conditions

Pressure at Test Point:	1,615 psig	Date/Time:	11/14/11 11:50 AM	Pipe Temperature Unrestrained:	65.0 °F
Ambient Temperature:	57.0 °F			Restrained:	57.0 °F
		Elevation @ Test Point:	7.0 ft	Location:	233+67
Pressure @ High Point (Cal/Measure):	1,609 psig	Elevation @ High Point:	20.0 ft	Location:	0+00
Pressure @ Low Point (Cal/Measure):	1,638 psig	Elevation @ Low Point:	(47.0) ft	Location:	194+00

Final Test Conditions

Pressure at Test Point:	1,504 psig	Date/Time:	11/14/11 8:15 PM	Pipe Temperature Unrestrained:	65.0 °F
Ambient Temperature:	58.0 °F			Restrained:	57.0 °F
		Elevation @ Test Point:	7.0 ft	Location:	233+67
Pressure @ High Point (Cal/Measure):	1,498 psig	Elevation @ High Point:	20.0 ft	Location:	0+00
Pressure @ Low Point (Cal/Measure):	1,527 psig	Elevation @ Low Point:	(47.0) ft	Location:	194+00
	Total Fluid Injected:			Volume gain	
	Total Fluid Withdrawn:	40492.60 fluid ounces			
Net Change in Volume of the Test Section ± (+ Gain, - Loss):		1,092.18 oz	gain	0.0014%	0.217 °F equivalent

Test Duration: 8.42 hours

Minimum Test Pressure:	Test Point	1,500 psig	Max Elevation	1,494 psig	Min Elevation 1,523 psig
Maximum Test Pressure:		1,615 psig		1,609 psig	1,638 psig
% SMYS :				64.4%	61.9%
Test Segment Observed % SMYS :			Minimum	64.4%	Maximum 66.1%

Minimum Test Pressure (Calculated/Measured):			1,498 psig
Maximum Allowable Operating Pressure:	DOT Part 192	Test Factor= 1.10	1,361 psig

The MAOP established by this test is sufficient to qualify for Pacific Gas and Electric Company's desired MAOP of 975 psig.

Were leaks observed?	No	Explain:
Acceptable Hydrostatic Test?	Yes	The test segment was subjected to a spike pressure test of 1615 psig for 30 minutes, without observed leakage or yielding of the pipe segment. The 30 minute spike test and subsequent pressure reduction with volume bleed was included and is part of the 8.42 hour test duration period. No leaks were observed during the test period. The test section included 23,236 feet of buried and 286 feet of exposed pipe. Pressure lost 111 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment fluid temperature remained steady. 40,492.60 ounces of fluid was intentionally released from the test section Net corrected volumetric change from beginning of the test to the end of the test is calculated to be 1,092.18 ounces, gain, which is equivalent to a 0.22 °F change in pipe temperature and within the error attributed to the temperature measurement instrumentation utilized. Test pressure did not remain steady even though no leaks were observed. The volumetric gain is attributed to the error characteristic of the temperature measurement instrumentation utilized.
Remarks		

Redacted

14-Nov-11

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474058
Construction Co.	ARB	Job Number	0629-53-3500 T-93A
Testing Co.	AKRI	Project No.	T-93A 11/14/11
Test Section	PG&E T-93A , L-400-3 , Redacted		
File Name	RCP 61362 - T-93A, L-400		

Date 14-Nov-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	Comment	Bleed	Inject
1	11/14/11	11:02 AM	1,102 psig	56 °F	64 °F	56 °F	Start Spike		
2	11/14/11	11:02 AM	1,112 psig	56 °F	64 °F	56 °F	Inject		2,934 oz.
3	11/14/11	11:02 AM	1,122 psig	56 °F	64 °F	56 °F	Inject		3,299 oz.
4	11/14/11	11:02 AM	1,132 psig	56 °F	64 °F	56 °F	Inject		2,959 oz.
5	11/14/11	11:02 AM	1,142 psig	56 °F	64 °F	56 °F	Inject		3,274 oz.
6	11/14/11	11:02 AM	1,152 psig	56 °F	64 °F	56 °F	Inject		3,588 oz.
7	11/14/11	11:03 AM	1,162 psig	56 °F	64 °F	56 °F	Inject		3,337 oz.
8	11/14/11	11:04 AM	1,172 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
9	11/14/11	11:05 AM	1,182 psig	56 °F	64 °F	56 °F	Inject		3,274 oz.
10	11/14/11	11:06 AM	1,192 psig	56 °F	64 °F	56 °F	Inject		2,707 oz.
11	11/14/11	11:07 AM	1,202 psig	56 °F	64 °F	56 °F	Inject		3,274 oz.
12	11/14/11	11:08 AM	1,212 psig	56 °F	64 °F	56 °F	Inject		2,581 oz.
13	11/14/11	11:09 AM	1,222 psig	56 °F	64 °F	56 °F	Inject		3,387 oz.
14	11/14/11	11:10 AM	1,232 psig	56 °F	64 °F	56 °F	Inject		2,909 oz.
15	11/14/11	11:11 AM	1,242 psig	56 °F	64 °F	56 °F	Inject		3,135 oz.
16	11/14/11	11:12 AM	1,252 psig	56 °F	64 °F	56 °F	Inject		3,135 oz.
17	11/14/11	11:13 AM	1,262 psig	56 °F	64 °F	56 °F	Inject		3,135 oz.
18	11/14/11	11:14 AM	1,272 psig	56 °F	64 °F	56 °F	Inject		3,916 oz.
19	11/14/11	11:15 AM	1,282 psig	56 °F	64 °F	56 °F	Inject		3,765 oz.
20	11/14/11	11:16 AM	1,282 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
21	11/14/11	11:17 AM	1,292 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
22	11/14/11	11:18 AM	1,302 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
23	11/14/11	11:19 AM	1,312 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
24	11/14/11	11:20 AM	1,322 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
25	11/14/11	11:21 AM	1,332 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
26	11/14/11	11:22 AM	1,342 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
27	11/14/11	11:23 AM	1,352 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
28	11/14/11	11:24 AM	1,362 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
29	11/14/11	11:25 AM	1,372 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
30	11/14/11	11:26 AM	1,382 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
31	11/14/11	11:27 AM	1,392 psig	56 °F	64 °F	56 °F	Inject		3,525 oz.
32	11/14/11	11:28 AM	1,402 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
33	11/14/11	11:29 AM	1,412 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
34	11/14/11	11:30 AM	1,422 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
35	11/14/11	11:31 AM	1,432 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
36	11/14/11	11:32 AM	1,442 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
37	11/14/11	11:33 AM	1,452 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
38	11/14/11	11:34 AM	1,462 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
39	11/14/11	11:35 AM	1,472 psig	56 °F	64 °F	56 °F	Inject		3,525 oz.
40	11/14/11	11:36 AM	1,482 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
41	11/14/11	11:37 AM	1,492 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
42	11/14/11	11:38 AM	1,502 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.
43	11/14/11	11:39 AM	1,512 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
44	11/14/11	11:40 AM	1,522 psig	56 °F	64 °F	56 °F	Inject		3,525 oz.
45	11/14/11	11:41 AM	1,532 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
46	11/14/11	11:42 AM	1,542 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
47	11/14/11	11:43 AM	1,552 psig	56 °F	64 °F	56 °F	Inject		3,651 oz.

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474058
Construction Co.	ARB	Job Number	0629-53-3500 T-93A
Testing Co.	AKRI	Project No.	T-93A 11/14/11
Test Section	PG&E T-93A , L-400-3 , Redacted		
File Name	RCP 61362 - T-93A, L-40		

Date 14-Nov-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	Comment	Bleed	Inject
48	11/14/11	11:44 AM	1,562 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
49	11/14/11	11:45 AM	1,572 psig	56 °F	64 °F	56 °F	Inject		3,777 oz.
50	11/14/11	11:46 AM	1,582 psig	56 °F	64 °F	56 °F	Inject		3,903 oz.
51	11/14/11	11:47 AM	1,592 psig	56 °F	64 °F	56 °F	Inject		3,903 oz.
52	11/14/11	11:48 AM	1,602 psig	56 °F	64 °F	56 °F	Inject		3,903 oz.
53	11/14/11	11:49 AM	1,612 psig	56 °F	64 °F	56 °F	Inject		1,574 oz.
54	11/14/11	11:50 AM	1,615 psig	57 °F	65 °F	57 °F	On Test		
55	11/14/11	12:00 PM	1,615 psig	57 °F	65 °F	57 °F			
56	11/14/11	12:10 PM	1,614 psig	60 °F	65 °F	57 °F			
57	11/14/11	12:20 PM	1,614 psig	59 °F	65 °F	57 °F	End Spike		
58	11/14/11	12:26 PM	1,602 psig	59 °F	65 °F	57 °F	Bleed	4,262 oz.	
59	11/14/11	12:32 PM	1,585 psig	59 °F	65 °F	57 °F	Bleed	6,038 oz.	
60	11/14/11	12:38 PM	1,565 psig	59 °F	65 °F	57 °F	Bleed	7,104 oz.	
61	11/14/11	12:44 PM	1,560 psig	60 °F	65 °F	57 °F	Bleed	1,776 oz.	
62	11/14/11	12:50 PM	1,535 psig	60 °F	65 °F	57 °F	Bleed	8,880 oz.	
63	11/14/11	12:56 PM	1,515 psig	59 °F	65 °F	57 °F	Bleed	7,104 oz.	
64	11/14/11	1:00 PM	1,500 psig	61 °F	65 °F	57 °F	Bleed	5,328 oz.	
65	11/14/11	1:15 PM	1,500 psig	62 °F	65 °F	57 °F			
66	11/14/11	1:30 PM	1,501 psig	62 °F	66 °F	57 °F			
67	11/14/11	1:45 PM	1,502 psig	65 °F	66 °F	57 °F			
68	11/14/11	2:00 PM	1,502 psig	63 °F	67 °F	57 °F			
69	11/14/11	2:15 PM	1,502 psig	65 °F	67 °F	57 °F			
70	11/14/11	2:30 PM	1,503 psig	64 °F	67 °F	57 °F			
71	11/14/11	2:45 PM	1,503 psig	64 °F	67 °F	57 °F			
72	11/14/11	3:00 PM	1,503 psig	64 °F	67 °F	57 °F			
73	11/14/11	3:15 PM	1,504 psig	64 °F	67 °F	57 °F			
74	11/14/11	3:30 PM	1,504 psig	64 °F	67 °F	57 °F			
75	11/14/11	3:45 PM	1,504 psig	64 °F	67 °F	57 °F			
76	11/14/11	4:00 PM	1,504 psig	64 °F	67 °F	57 °F			
77	11/14/11	4:15 PM	1,505 psig	64 °F	67 °F	57 °F			
78	11/14/11	4:30 PM	1,505 psig	63 °F	67 °F	57 °F			
79	11/14/11	4:45 PM	1,505 psig	62 °F	67 °F	57 °F			
80	11/14/11	5:00 PM	1,505 psig	62 °F	67 °F	57 °F			
81	11/14/11	5:15 PM	1,505 psig	62 °F	67 °F	57 °F			
82	11/14/11	5:30 PM	1,505 psig	62 °F	67 °F	57 °F			
83	11/14/11	5:45 PM	1,505 psig	60 °F	67 °F	57 °F			
84	11/14/11	6:00 PM	1,505 psig	60 °F	66 °F	57 °F			
85	11/14/11	6:15 PM	1,505 psig	59 °F	66 °F	57 °F			
86	11/14/11	6:30 PM	1,505 psig	59 °F	66 °F	57 °F			
87	11/14/11	6:45 PM	1,505 psig	58 °F	66 °F	57 °F			
88	11/14/11	7:00 PM	1,504 psig	59 °F	66 °F	57 °F			
89	11/14/11	7:15 PM	1,504 psig	59 °F	65 °F	57 °F			
90	11/14/11	7:30 PM	1,504 psig	59 °F	65 °F	57 °F			
91	11/14/11	7:45 PM	1,504 psig	58 °F	65 °F	57 °F			
92	11/14/11	8:00 PM	1,504 psig	58 °F	65 °F	57 °F			
93	11/14/11	8:15 PM	1,504 psig	58 °F	65 °F	57 °F	End of Test		

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474058
Construction Co.	ARB	Job Number	0629-53-3500 T-93A
Testing Co.	AKRI	Project No.	T-93A 11/14/11
Test Section	PG&E T-93A , L-400-3 , Redacted		
File Name	RCP 61362 - T-93A, L-40		

Date 14-Nov-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	Comment	Bleed	Inject
							Spike Test		182,217.6 oz.
							Hydrostatic Test	40,492.8 oz.	

Were leaks observed during the test period?	Exposed and buried pipe, no leaks observed.	High Test Pressure:	1,615 psig
		Low Test Pressure:	1,500 psig

Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41474058
Construction Co.	ARB	Job Number	0629-53-3500 T-93A
Hydro. Test Co.	AKRI	Project No.	T-93A 11/14/11
Test Section	PG&E T-93A , L-400-3 , [Redacted]		WATER
File Name	RCP 61362 - T-93A, L-400		

General Pipe Data

Description	Segment 1	2	3	4	5
Restrained or Unrestrained?	Restrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	26.000 in.	26.000 in.	26.000 in.	26.000 in.	26.000 in.
Wall Thickness	0.500 in.	0.500 in.	0.500 in.	0.375 in.	0.500 in.
Inside Diameter	25.000 in.	25.000 in.	25.000 in.	25.250 in.	25.000 in.
Spec./Grade	API5L-X52	API5L-X65	API5L-X52	API5L-X65	API5L-X65
Length Unrestrained		48 ft	213 ft	3 ft	22 ft
Length Restrained	23,236 ft				
Temperature -- On Test	57 °F	65 °F	65.0 °F	65.0 °F	65.0 °F
Temperature -- End of Test	57 °F	65 °F	65.0 °F	65.0 °F	65.0 °F
Pressure -- On Test	1,615 psig	1,615 psig	1,615 psig	1,615 psig	1,615 psig
Pressure -- End of Test	1,504 psig	1,504 psig	1,504 psig	1,504 psig	1,504 psig

Unrestrained Pipe

Vo	7,281.51 gal / 932,034 oz.	Vtp1	7,339.55 gal / 939,463 oz.	Vtp2	7,335.38 gal / 938,926 oz.

Vo Unrestrained	1,224 gal	5,431 gal	65 gal	561 gal	
Fwp 1	1.004958	1.004958	1.004958	1.004958	
Fpp 1	1.003365	1.003365	1.004531	1.003365	
Fpt 1	1.000091	1.000091	1.000091	1.000091	
Fwt 1	1.000467	1.000467	1.000467	1.000467	
Fpwt 1 = Fpt/Fwt	0.999624	0.999624	0.999624	0.999624	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	1,233.74 gal	5,474.72 gal	65.63 gal	565.46 gal	
Fwp 2	1.004616	1.004616	1.004616	1.004616	
Fpp 2	1.003133	1.003133	1.004220	1.003133	
Fpt 2	1.000091	1.000091	1.000091	1.000091	
Fwt 2	1.000467	1.000467	1.000467	1.000467	
Fpwt = Fpt/Fwt	0.999624	0.999624	0.999624	0.999624	
Vtp = Vo(Fwp)(Fpp)(Fpwt)	1,233.04 gal	5,471.60 gal	65.58 gal	565.14 gal	

Restrained Pipe

Vo	592,511.51 gal / 75,841,474 oz.	Vtp1	597,029.73 gal / 76,419,805 oz.	Vtp2	596,726.11 gal / 76,380,942 oz.

Vo Unrestrained	592,512 gal
Fwp 1	1.004958
Fpp 1	1.002439
Fpt 1	0.999964
Fwt 1	0.999749
Fpwt 1 = Fpt/Fwt	1.000215
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	597,030 gal
Fwp 2	1.004616
Fpp 2	1.002270
Fpt 2	0.999964
Fwt 2	0.999749
Fpwt = Fpt/Fwt	1.000215
Vtp = Vo(Fwp)(Fpp)(Fpwt)	596,726 gal

Combined Pipe

Vo	599,793.03 gal / 76,773,508 oz.	Vtp1	804,369.28 gal / 77,359,268 oz.	Vtp2	804,061.46 gal / 77,319,867 oz.

Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41474058
Construction Co.	ARB	Job Number	0629-53-3500 T-93A
Hydro. Test Co.	AKRI	Project No.	T-93A 11/14/11
Test Section	PG&E T-93A , L-400-3 , Redacted	WATER	
File Name	RCP 61362 - T-93A, L-40[illegible]		

General Pipe Data

Description	Segment 1	2	3	4	5			
Restrained or Unrestrained?	Restrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained			
Outside Diameter	26.000 in.	26.000 in.	26.000 in.	26.000 in.	26.000 in.			
Wall Thickness	0.500 in.	0.500 in.	0.500 in.	0.375 in.	0.500 in.			
Inside Diameter	25.000 in.	25.000 in.	25.000 in.	25.250 in.	25.000 in.			
Spec./Grade	API5L-X52	API5L-X65	API5L-X52	API5L-X65	API5L-X65			
Length Unstrained		49 ft	213 ft	3 ft	22 ft			
Length Restrained	23,236 ft							
Temperature – On Test	58 °F	64 °F	64 °F	64 °F	64 °F			
Temperature – End of Test	57 °F	65 °F	65 °F	65 °F	65 °F			
Pressure – On Test	1,559 psig	1,559 psig	1,559 psig	1,559 psig	1,559 psig			
Preasure – End of Test	1,559 psig	1,559 psig	1,559 psig	1,559 psig	1,559 psig			

Unrestrained Pipe

Vo	7,281.51 gal		Vtp1	7,337.98 gal		Vtp2	7,337.44 gal	
	932,034 oz.			939,262 oz.			939,192 oz.	
Vo Unrestrained		1,224 gal	5,431 gal	65 gal	561 gal			
Fwp 1		1.004786	1.004786	1.004786	1.004786			
Fpp 1		1.003248	1.003248	1.004374	1.003248			
Fpt 1		1.000073	1.000073	1.000073	1.000073			
Fwt 1		1.000375	1.000375	1.000375	1.000375			
Fpwt 1 = Fpt/Fwt		0.999698	0.999698	0.999698	0.999698			
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		1,233.48 gal	5,473.55 gal	65.61 gal	565.34 gal			
Fwp 2		1.004786	1.004786	1.004786	1.004786			
Fpp 2		1.003248	1.003248	1.004374	1.003248			
Fpt 2		1.000091	1.000091	1.000091	1.000091			
Fwt 2		1.000467	1.000467	1.000467	1.000467			
Fpwt = Fpt/Fwt		0.999624	0.999624	0.999624	0.999624			
Vtp = Vo(Fwp)(Fpp)(Fpwt)		1,233.38 gal	5,473.15 gal	65.60 gal	565.30 gal			

Restrained Pipe

Vo	592,511.51 gal		Vtp1	596,915.22 gal		Vtp2	596,876.52 gal	
	75,841,474 oz.			76,405,148 oz.			76,400,195 oz.	
Vo Restrained	592,512 gal							
Fwp 1	1.004786							
Fpp 1	1.002350							
Fpt 1	0.999952							
Fwt 1	0.999668							
Fpwt 1 = Fpt/Fwt	1.000283							
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	596,915 gal							
Fwp 2	1.004786							
Fpp 2	1.002354							
Fpt 2	0.999964							
Fwt 2	0.999749							
Fpwt = Fpt/Fwt	1.000215							
Vtp = Vo(Fwp)(Fpp)(Fpwt)	596,877 gal							

Combined Pipe

Vo	599,793.03 gal		Vtp1	604,253.20 gal		Vtp2	604,213.96 gal	
	76,773,508 oz.			77,344,410 oz.			77,339,387 oz.	
1 °F Change	39.24 gal		5,023.32 oz.					

RCP

Hydrostatic Test Pipe Data Table

Pipe Type	Length	Restrained / Unrestrained	Outside Diameter	Wall Thickness	Specification & Grade	Pipe Yield Pressure	Material	Joint Type	Seam Type
1	23,235.80 ft	Restrained	26.000 in.	0.5000 in.	API5L-X52	2,000 psig	Steel	Arc Weld	DSAW
2	48.00 ft	Unrestrained	26.000 in.	0.5000 in.	API5L-X65	2,500 psig	Steel	Arc Weld	DSAW
3	213.00 ft	Unrestrained	26.000 in.	0.5000 in.	API5L-X52	2,000 psig	Steel	Arc Weld	DSAW
4	2.50 ft	Unrestrained	26.000 in.	0.3750 in.	API5L-X65	1,875 psig	Steel	Arc Weld	DSAW
5	22.00 ft	Unrestrained	26.000 in.	0.5000 in.	API5L-X65	2,500 psig	Steel	Arc Weld	DSAW

Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget Walnut Creek, CA 94598 Attention: Redacted	41474058
Construction Company	ARB	Job Number
Address	1875 Loveridge Road Pittsburg, CA 94565 Attention: T. Barnes	0629-53-3500 T-93A
Hydrostatic Test Co.	AKRI	Project No.
Address	1414 Valhalla Drive Bakersfield, CA. 93309	T-93A 11/14/11
Test Section	PG&E T-93A , L-400-3 , Redacted From: 233+67 To: 0+00	
File Name	RCP 61362 - T-93A, L-400-3, Redacted	

Part II – Test Data (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)

Note: Minimum test pressure and duration are not to be changed without written approval.

Time and Date Test Pressure Reached	11/14/11 11:50 AM	Elevation at Test Point	7 ft	Min. Required Test Press At Test Point (1)	1,468.63 psig	Max. Allowable Test Press at Test Point (4)	1,616.60 psig
Time and Date Test Ended	11/14/11 8:15 PM	Max. Elevation in Test Section	20 ft	Min. Indicated Test Pressure (2)	1,500.00 psig	Max. Indicated Test Pressure (5)	1,615.00 psig
Actual Duration of Test	8 hours 25 minutes	Min. Elevation in Test Section	(47) ft	Min. Test Pressure at Max. Elevation (3)	1,494.37 psig	Max. Test Pressure at Min. Elevation (6)	1,838.40 psig

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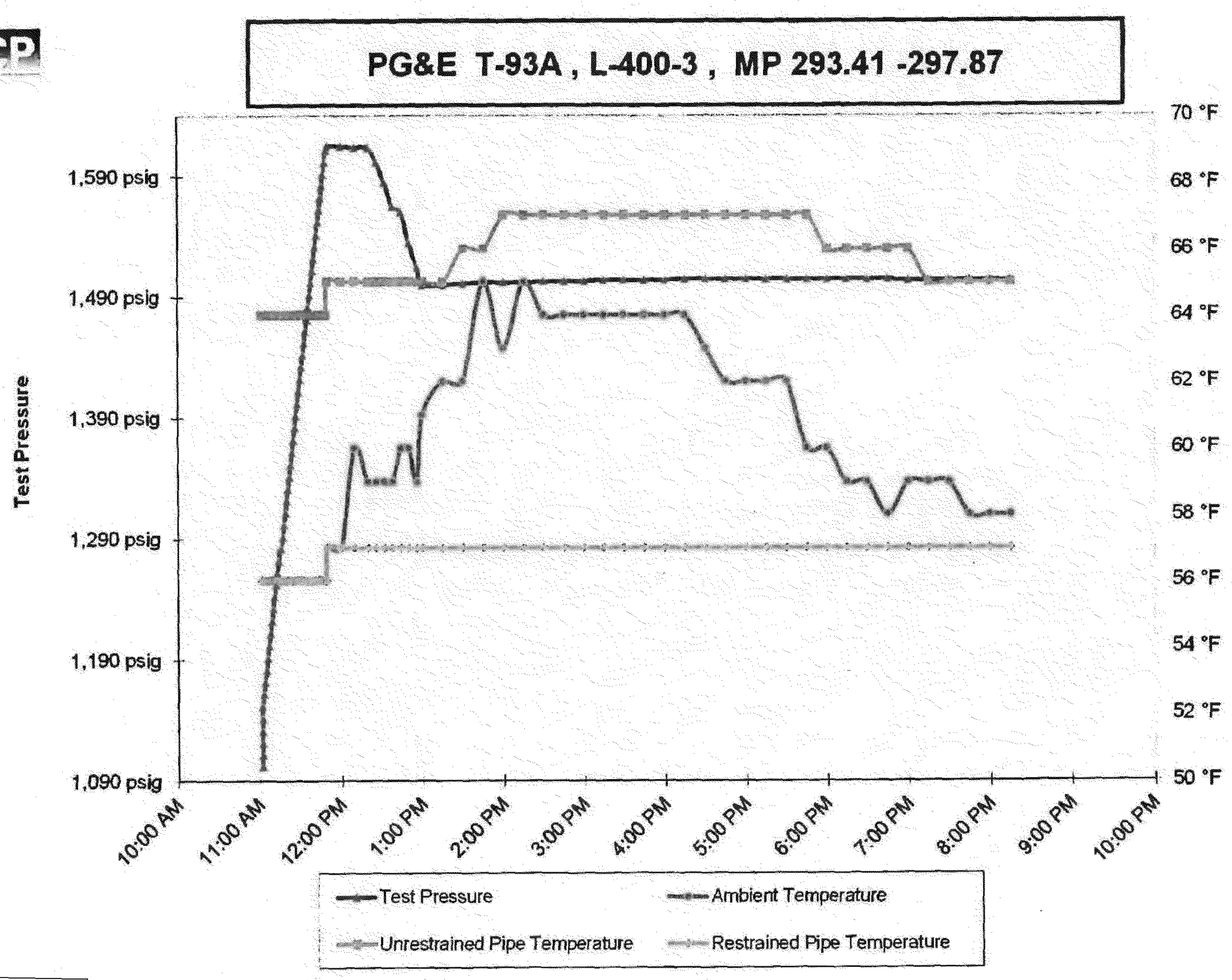
BCP



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Test 93Aa
PlotT

11/14/2011

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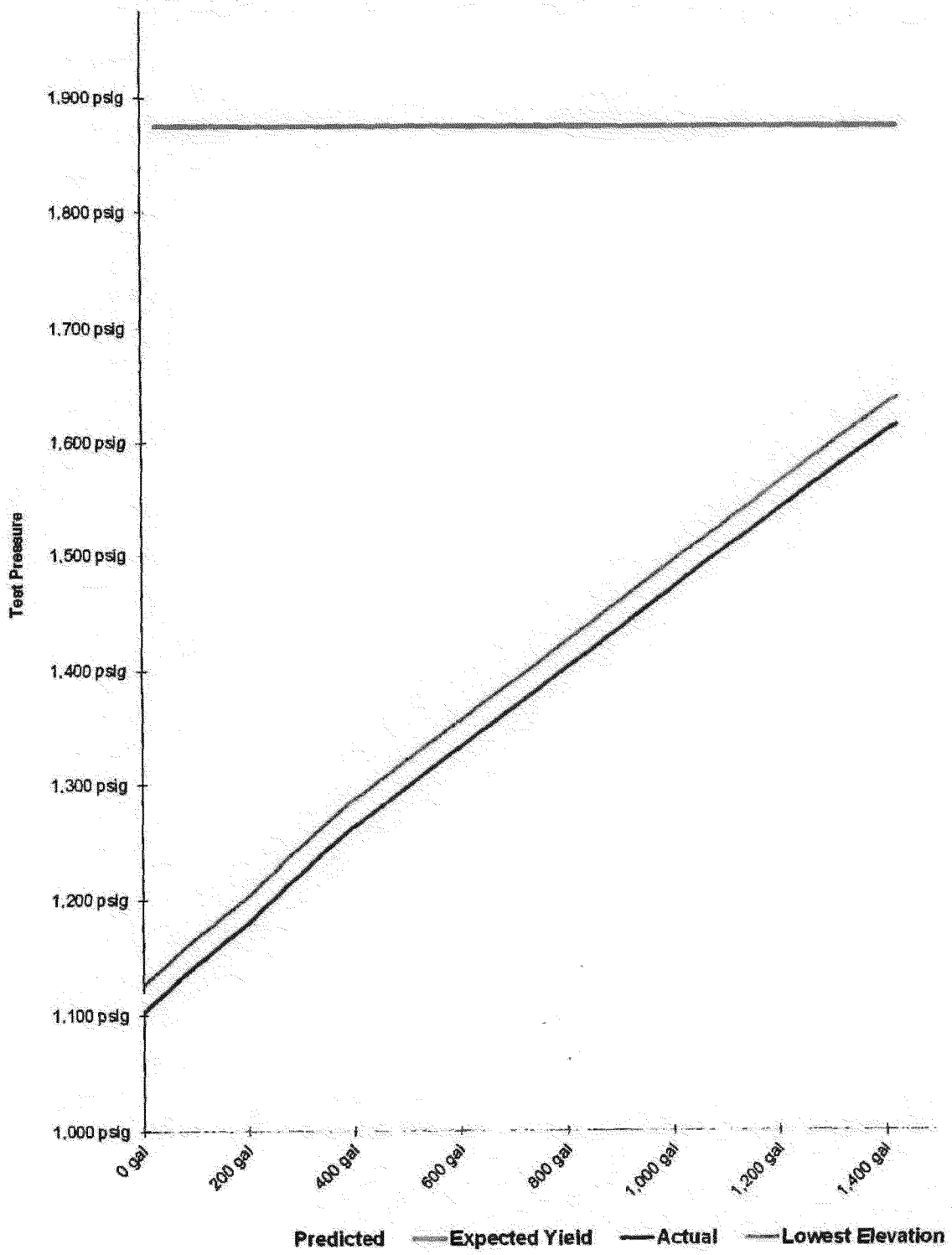
RCP

Spike Pressure Test
Stress Strain Curve -- PG&E T-93A , L-400-3 , Redacted



11/14/2011

RCP

Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted
1,102 psig	0	0.00 gal		0	0.000
1,112 psig	233	22.92 gal	27.66 gal	2.292	2.766
1,122 psig	495	48.69 gal	55.31 gal	2.577	2.766
1,132 psig	730	71.81 gal	82.97 gal	2.312	2.766
1,142 psig	990	97.38 gal	110.64 gal	2.558	2.766
1,152 psig	1275	125.42 gal	138.30 gal	2.803	2.766
1,162 psig	1540	151.49 gal	165.96 gal	2.607	2.766
1,172 psig	1830	180.01 gal	193.63 gal	2.853	2.767
1,182 psig	2090	205.59 gal	221.30 gal	2.558	2.767
1,192 psig	2305	226.74 gal	248.97 gal	2.115	2.767
1,202 psig	2565	252.31 gal	276.64 gal	2.558	2.767
1,212 psig	2770	272.48 gal	304.31 gal	2.017	2.767
1,222 psig	3039	298.94 gal	331.99 gal	2.646	2.768
1,232 psig	3270	321.66 gal	359.67 gal	2.272	2.768
1,242 psig	3519	346.16 gal	387.34 gal	2.449	2.768
1,252 psig	3768	370.65 gal	415.02 gal	2.449	2.768
1,262 psig	4017	395.14 gal	442.71 gal	2.449	2.768
1,272 psig	4328	425.73 gal	470.39 gal	3.059	2.768
1,282 psig	4627	455.15 gal	498.07 gal	2.941	2.769
1,292 psig	4917	483.67 gal	525.76 gal	2.853	2.769
1,302 psig	5207	512.20 gal	553.45 gal	2.853	2.769
1,312 psig	5497	540.73 gal	581.14 gal	2.853	2.769
1,322 psig	5797	570.24 gal	608.83 gal	2.951	2.769
1,332 psig	6097	599.75 gal	636.53 gal	2.951	2.769
1,342 psig	6387	628.27 gal	664.22 gal	2.853	2.770
1,352 psig	6677	656.80 gal	691.92 gal	2.853	2.770
1,362 psig	6967	685.33 gal	719.62 gal	2.853	2.770
1,372 psig	7257	713.85 gal	747.32 gal	2.853	2.770
1,382 psig	7557	743.38 gal	775.02 gal	2.951	2.770
1,392 psig	7847	771.89 gal	802.72 gal	2.853	2.770
1,402 psig	8127	799.43 gal	830.43 gal	2.754	2.771
1,412 psig	8427	828.94 gal	858.14 gal	2.951	2.771
1,422 psig	8717	857.47 gal	885.85 gal	2.853	2.771
1,432 psig	9007	886.00 gal	913.56 gal	2.853	2.771
1,442 psig	9307	915.51 gal	941.27 gal	2.951	2.771
1,452 psig	9597	944.03 gal	968.98 gal	2.853	2.771
1,462 psig	9887	972.56 gal	996.70 gal	2.853	2.772
1,472 psig	10187	1,002.07 gal	1,024.42 gal	2.951	2.772
1,482 psig	10467	1,029.61 gal	1,052.14 gal	2.754	2.772
1,492 psig	10757	1,058.14 gal	1,079.86 gal	2.853	2.772
1,502 psig	11057	1,087.65 gal	1,107.58 gal	2.951	2.772
1,512 psig	11347	1,116.18 gal	1,135.30 gal	2.853	2.772
1,522 psig	11647	1,145.69 gal	1,163.03 gal	2.951	2.773
1,532 psig	11927	1,173.23 gal	1,190.76 gal	2.754	2.773
1,542 psig	12227	1,202.74 gal	1,218.49 gal	2.951	2.773
1,552 psig	12527	1,232.25 gal	1,246.22 gal	2.951	2.773
1,562 psig	12817	1,260.78 gal	1,273.95 gal	2.853	2.773
1,572 psig	13117	1,290.29 gal	1,301.68 gal	2.951	2.773
1,582 psig	13417	1,319.80 gal	1,329.42 gal	2.951	2.774
1,592 psig	13727	1,350.29 gal	1,357.16 gal	3.049	2.774
1,602 psig	14037	1,380.79 gal	1,384.90 gal	3.049	2.774
1,612 psig	14347	1,411.28 gal	1,412.64 gal	3.049	2.774
1,615 psig	14472	1,423.58 gal	1,420.96 gal	4.099	2.774

Spike Pressure Test
Stress Strain Curve -- PG&E T-93A , L-400-3 , Redacted
Redact

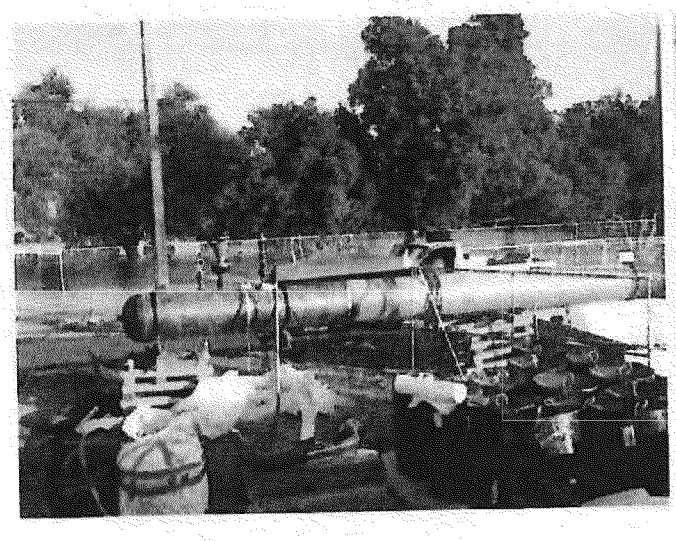
39250	0.094 gal/stroke
Pump Piston Diameter	1.625 in
Pump Piston Stroke	3.50 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.098 gal/stroke
Volume Released (gallons)	27.75 gal
Pressure Reduced (psi)	10 psi
Maximum2	1,500 gal
Minimum2	0 gal
Maximum1	1,975 psig
Minimum1	1,000 psig
Gallons/Stroke Used	0.098 gal/stroke
Predicted Gallons/Stroke	0.098 gal/stroke
Pressure Increment	10 psi
Max Pressure	1,615 psig
Buried Pipe Temperature	56 °F
Exposed Pipe Temperature	60 °F

ASME B31.8 Appendix N-5

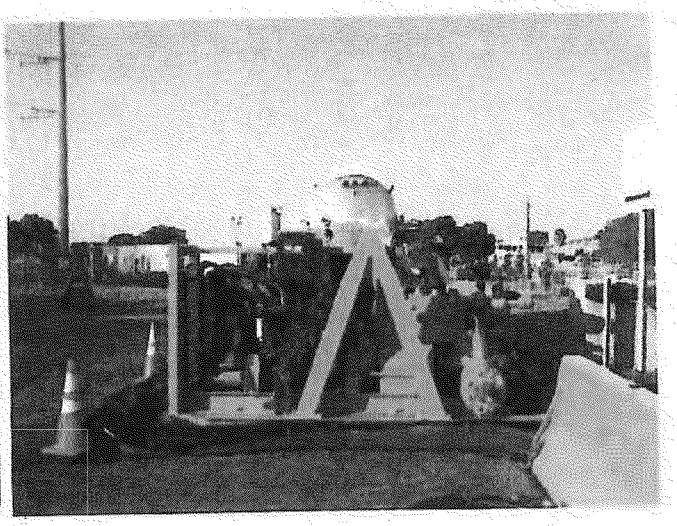
Average Actual Elastic Slope	2.470
Average Predicted Elastic Slope	2.770
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	4.892
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	1,615 psig
Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2)	418 gal
Volume (After Slope Deviation) B31.8 N-5 (c)(2)	0 gal

Redacted

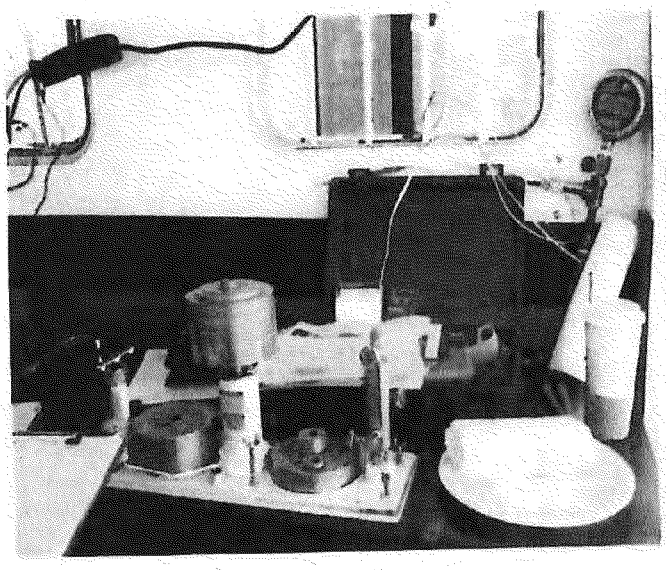
11/14/11
Date



Test Header at Location B

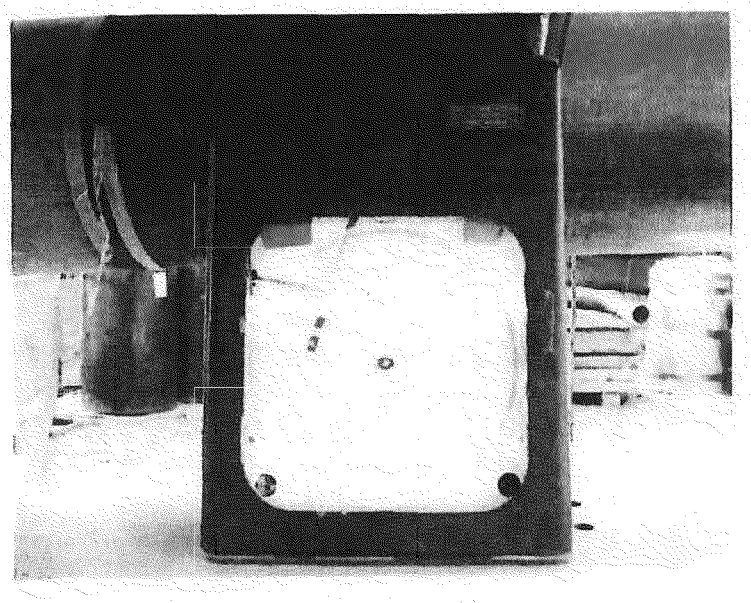


Pressure Pump

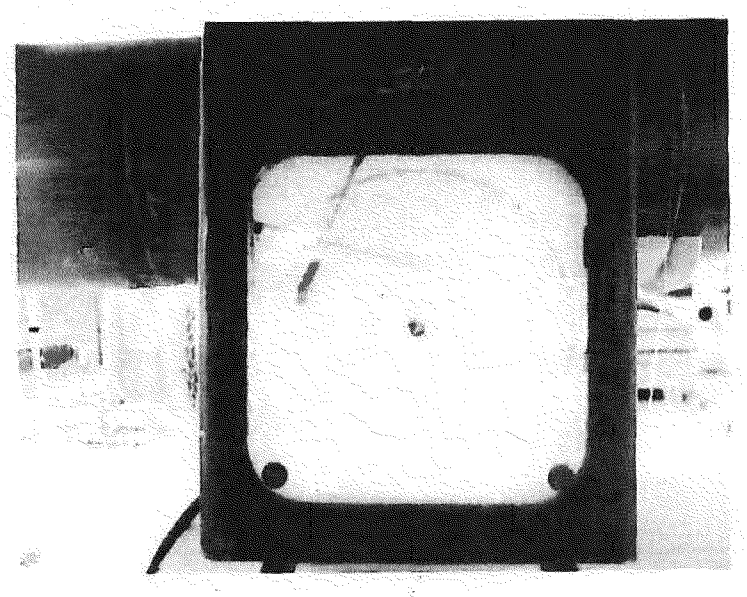


Deadweight Testing Equipment

Restraine Temp Recorder and Chart



Unrestrained Temp Recorder and Chart



Pressure Recorder and Chart