



RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002

Redacted

October 4, 2011

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

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Test Contractor:	Milbar Hydro-Test Inc. -- FY12-112
Asset Owner:	Pacific Gas and Electric Company -- 41497337-T87A
Construction Contractor:	Snelson -- 41474005 -T87A
Test Section:	PG&E T-87A L-300B, MP 450.7828 - 450.80
Test Date:	October 4, 2011
Certificate Number:	RCP 61362 - T-87A, L-300B, MP 450.7828 - 450.80

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 Milbar Hydro-Test Inc. met the requirements of the Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 3).

The test segment was subjected to a spike pressure test of 1043 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 8.3 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.3 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 981 psig and the established MAOP is 654 psig.

Pressure decreased 61 psi during the test. 160.10 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 4.59 ounces, loss, which is equivalent to a 0.08 °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 loss is attributed to the error characteristic of the temperature measurement instrumentation utilized.

Sincerely,

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T-87A version 8.30.2011
Letter



Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41497337-T87A
Construction Co.	Snelson	Job Number	41474005 -T87A
Hydro. Test Co.	Milbar Hydro-Test Inc.	Project No.	FY12-112
Test Section	PG&E T-87A L-300B, MP 450.7828 - 450.80		
File Name	RCP 61362 - T-87A, L-300B, MP 450.7828 - 450.80		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 3) Test Date: 4-Oct-11

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-87A L-300B, MP 450.7828 - 450.80
 From: 0+84 To: 0+00

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	71 ft	34.000 in.	0.500 in.	API5L-X48, DSAW, Arc Weld, Steel	1,353 psi
2	5 ft	34.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,912 psi
3	58 ft	20.000 in.	0.500 in.	API5L-X42, SM, Arc Weld, Steel	2,100 psi
4	2 ft	20.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	3,250 psi
5	21 ft	1.315 in.	0.113 in.	API5L-Grade B, SM, Arc Weld, Steel	6,015 psi

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Initial Test Conditions

Pressure at Test Point:	1,043 psig	Date/Time:	10/4/11 10:21 AM	Pipe Temperature	
Ambient Temperature:	67.0 °F	Elevation @ Test Point:	316.0 ft	Unrestrained:	67.0 °F
Pressure @ High Point (Cal/Measure):	1,043 psig	Elevation @ High Point:	317.0 ft	Restrained:	68.0 °F
Pressure @ Low Point (Cal/Measure):	1,043 psig	Elevation @ Low Point:	316.0 ft	Location:	0+84
				Location:	0+00
				Location:	0+84

Final Test Conditions

Pressure at Test Point:	982 psig	Date/Time:	10/4/11 6:38 PM	Pipe Temperature	
Ambient Temperature:	65.0 °F	Elevation @ Test Point:	316.0 ft	Unrestrained:	67.0 °F
Pressure @ High Point (Cal/Measure):	982 psig	Elevation @ High Point:	317.0 ft	Restrained:	68.0 °F
Pressure @ Low Point (Cal/Measure):	982 psig	Elevation @ Low Point:	316.0 ft	Location:	0+84
				Location:	0+00
				Location:	0+84

Total Fluid Injected:		Volume loss	
Total Fluid Withdrawn:	160.10 fluid ounces		
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	(4.59) oz	loss	(0.0008)% (0.088) °F equivalent

Test Duration:	8.30 hours		
Minimum Test Pressure:	961 psig	961 psig	961 psig
Maximum Test Pressure:	1,044 psig	1,044 psig	1,044 psig
% SMYS:		77.1%	77.2%
Test Segment Observed % SMYS:	Minimum	17.4%	Maximum
			77.2%

Minimum Test Pressure (Calculated/Measured):		982 psig
DOT Part 192		Test Factor= 1.50
Maximum Allowable Operating Pressure:		654 psig

Were leaks observed?	No	Explain:
Acceptable Hydrostatic Test?	Yes	No leaks were observed during the test period. The test section included 150 feet of buried and 7 feet of exposed pipe. Pressure lost 61 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment fluid temperature remained steady. 160.10 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 4.59 ounces, loss, which is equivalent to a 0.08 °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 loss is attributed to the error characteristic of the temperature measurement instrumentation utilized.

Remarks: A leak was observed when at the 1042 spike 30 minute hold. Apparently there was a weeping gauge tap. A decision was made by Redact to pressure up to 1042 to 1045 and hold for 30 minutes, injecting as necessary to maintain spike pressure. 7 + 1/2 hr test followed without incident. Pressure up was stopped at 1040 due to next stroke increment.

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4-Oct-11



Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497337-T87A
Construction Co.	Snelson	Job Number	41474005 - T87A
Testing Co.	Milbar Hydro-Test Inc.	Project No.	FY12-112
Test Section	PG&E T-87A L-300B, MP 450.7828 - 450.80		
File Name	RCP 61362 - T-87A, L-300B, MP 450.7828 - 450.80		

Date	4-Oct-11	Test Log
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Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	10/4/11	8:58 AM	710 psig	63 °F	66 °F	68 °F	Start Spike		
2	10/4/11	8:59 AM	720 psig	63 °F	66 °F	68 °F	Inject		46 oz.
3	10/4/11	9:00 AM	730 psig	63 °F	66 °F	68 °F	Inject		23 oz.
4	10/4/11	9:01 AM	740 psig	63 °F	66 °F	68 °F	Inject		23 oz.
5	10/4/11	9:02 AM	750 psig	63 °F	66 °F	68 °F	Inject		23 oz.
6	10/4/11	9:03 AM	760 psig	63 °F	66 °F	68 °F	Inject		23 oz.
7	10/4/11	9:04 AM	770 psig	63 °F	66 °F	68 °F	Inject		46 oz.
8	10/4/11	9:05 AM	780 psig	63 °F	66 °F	68 °F	Inject		23 oz.
9	10/4/11	9:06 AM	790 psig	63 °F	66 °F	68 °F	Inject		23 oz.
10	10/4/11	9:07 AM	800 psig	63 °F	66 °F	68 °F	Inject		23 oz.
11	10/4/11	9:08 AM	810 psig	63 °F	66 °F	68 °F	Inject		23 oz.
12	10/4/11	9:09 AM	820 psig	63 °F	66 °F	68 °F	Inject		23 oz.
13	10/4/11	9:10 AM	830 psig	63 °F	66 °F	68 °F	Inject		46 oz.
14	10/4/11	9:11 AM	840 psig	63 °F	66 °F	68 °F	Inject		23 oz.
15	10/4/11	9:12 AM	850 psig	63 °F	66 °F	68 °F	Inject		23 oz.
16	10/4/11	9:13 AM	860 psig	63 °F	66 °F	68 °F	Inject		23 oz.
17	10/4/11	9:14 AM	870 psig	63 °F	66 °F	68 °F	Inject		23 oz.
18	10/4/11	9:15 AM	880 psig	63 °F	66 °F	68 °F	Inject		23 oz.
19	10/4/11	9:16 AM	890 psig	63 °F	66 °F	68 °F	Inject		46 oz.
20	10/4/11	9:17 AM	900 psig	63 °F	66 °F	68 °F	Inject		23 oz.
21	10/4/11	9:18 AM	910 psig	63 °F	66 °F	68 °F	Inject		23 oz.
22	10/4/11	9:19 AM	920 psig	63 °F	66 °F	68 °F	Inject		23 oz.
23	10/4/11	9:20 AM	930 psig	63 °F	66 °F	68 °F	Inject		23 oz.
24	10/4/11	9:21 AM	940 psig	63 °F	66 °F	68 °F	Inject		23 oz.
25	10/4/11	9:22 AM	950 psig	63 °F	66 °F	68 °F	Inject		23 oz.
26	10/4/11	9:23 AM	960 psig	63 °F	66 °F	68 °F	Inject		46 oz.
27	10/4/11	9:24 AM	970 psig	63 °F	66 °F	68 °F	Inject		23 oz.
28	10/4/11	9:25 AM	980 psig	63 °F	66 °F	68 °F	Inject		23 oz.
29	10/4/11	9:26 AM	990 psig	63 °F	66 °F	68 °F	Inject		23 oz.
30	10/4/11	9:27 AM	1,000 psig	63 °F	66 °F	68 °F	Inject		23 oz.
31	10/4/11	9:28 AM	1,010 psig	63 °F	66 °F	68 °F	Inject		46 oz.
32	10/4/11	9:29 AM	1,020 psig	63 °F	66 °F	68 °F	Inject		23 oz.
33	10/4/11	9:30 AM	1,030 psig	63 °F	66 °F	68 °F	Inject		23 oz.
34	10/4/11	9:31 AM	1,040 psig	63 °F	66 °F	68 °F	Inject		23 oz.
35	10/4/11	9:32 AM	1,043 psig	63 °F	66 °F	68 °F	Inject		
36	10/4/11	10:21 AM	1,043 psig	67 °F	67 °F	68 °F	On Test		
37	10/4/11	10:31 AM	1,043 psig	65 °F	67 °F	68 °F			
38	10/4/11	10:41 AM	1,044 psig	66 °F	67 °F	68 °F			
39	10/4/11	10:51 AM	1,044 psig	65 °F	67 °F	68 °F	End Spike		
40	10/4/11	10:52 AM	1,022 psig	65 °F	67 °F	68 °F	Bleed	60 oz.	
41	10/4/11	10:52 AM	1,012 psig	65 °F	67 °F	68 °F	Bleed	27 oz.	
42	10/4/11	10:52 AM	1,002 psig	65 °F	67 °F	68 °F	Bleed	27 oz.	
43	10/4/11	10:53 AM	992 psig	65 °F	67 °F	68 °F	Bleed	27 oz.	
44	10/4/11	10:53 AM	985 psig	65 °F	67 °F	68 °F	Bleed		

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Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497337-T87A
Construction Co.	Snelson	Job Number	41474005 - T87A
Testing Co.	Milbar Hydro-Test Inc.	Project No.	FY12-112
Test Section	PG&E T-87A L-300B, MP 450.7828 - 450.80		
File Name	RCP 61362 - T-87A, L-300B, MP 450.7828 - 450.80		

Date 4-Oct-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
45	10/4/11	10:53 AM	985 psig	65 °F	67 °F	68 °F			
46	10/4/11	11:08 AM	982 psig	65 °F	67 °F	68 °F			
47	10/4/11	11:23 AM	982 psig	66 °F	67 °F	68 °F			
48	10/4/11	11:38 AM	981 psig	67 °F	67 °F	68 °F			
49	10/4/11	11:53 AM	981 psig	66 °F	68 °F	68 °F			
50	10/4/11	12:08 PM	981 psig	66 °F	68 °F	68 °F			
51	10/4/11	12:23 PM	981 psig	67 °F	68 °F	68 °F			
52	10/4/11	12:38 PM	981 psig	66 °F	68 °F	68 °F			
53	10/4/11	12:53 PM	981 psig	66 °F	68 °F	68 °F			
54	10/4/11	1:08 PM	981 psig	67 °F	68 °F	68 °F			
55	10/4/11	1:23 PM	981 psig	67 °F	68 °F	68 °F			
56	10/4/11	1:38 PM	981 psig	66 °F	68 °F	68 °F			
57	10/4/11	1:53 PM	981 psig	68 °F	68 °F	68 °F			
58	10/4/11	2:08 PM	982 psig	71 °F	69 °F	68 °F			
59	10/4/11	2:23 PM	982 psig	71 °F	69 °F	68 °F			
60	10/4/11	2:38 PM	982 psig	71 °F	69 °F	68 °F			
61	10/4/11	2:53 PM	983 psig	69 °F	69 °F	68 °F			
62	10/4/11	3:08 PM	983 psig	71 °F	69 °F	68 °F			
63	10/4/11	3:23 PM	983 psig	70 °F	69 °F	68 °F			
64	10/4/11	3:38 PM	983 psig	69 °F	69 °F	68 °F			
65	10/4/11	3:53 PM	983 psig	69 °F	69 °F	68 °F			
66	10/4/11	4:08 PM	983 psig	70 °F	69 °F	68 °F			
67	10/4/11	4:23 PM	983 psig	68 °F	69 °F	68 °F			
68	10/4/11	4:38 PM	983 psig	67 °F	68 °F	68 °F			
69	10/4/11	4:53 PM	983 psig	66 °F	68 °F	68 °F			
70	10/4/11	5:08 PM	983 psig	65 °F	68 °F	68 °F			
71	10/4/11	5:23 PM	983 psig	65 °F	68 °F	68 °F			
72	10/4/11	5:38 PM	983 psig	65 °F	68 °F	68 °F			
73	10/4/11	5:53 PM	983 psig	66 °F	68 °F	68 °F			
74	10/4/11	6:08 PM	983 psig	65 °F	68 °F	68 °F			
75	10/4/11	6:23 PM	983 psig	65 °F	67 °F	68 °F			
76	10/4/11	6:38 PM	982 psig	65 °F	67 °F	68 °F			

End of Test

Spike Test

903.6 oz.

Hydrostatic Test

160.1 oz.

Were leaks observed during the test period?

Exposed and buried pipe,
no leaks observed.

High Test Pressure:	1,044 psig
Low Test Pressure:	981 psig

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Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41497337-T87A
Construction Co.	Snelson	Job Number	41474005-T87A
Hydro. Test Co.	Milbar Hydro-Test Inc.	Project No.	FY12-112
Test Section	PG&E T-87A L-300B, MP 450.7828 - 450.80		
File Name	RCP 61382 - T-87A, L-300B, MP 450.7828 - 450.80		WATER

General Pipe Data

Description	Segment				
	1	2	3	4	5
Restrained or Unrestrained?	Restrained	Unrestrained	Restrained	Unrestrained	Restrained
Outside Diameter	34.000 in.	34.000 in.	20.000 in.	20.000 in.	1.315 in.
Wall Thickness	0.500 in.	0.500 in.	0.500 in.	0.500 in.	0.113 in.
Inside Diameter	33.000 in.	33.000 in.	19.000 in.	19.000 in.	1.089 in.
Spec./Grade	API5L-X46	API5L-X65	API5L-X42	API5L-X65	API5L-Grade B
Length Unrestrained		5 ft		2 ft	
Length Restrained	71 ft		58 ft		21 ft
Temperature - On Test	68 °F	67 °F	68.0 °F	67.0 °F	68.0 °F
Temperature - End of Test	66 °F	67 °F	69.0 °F	67.0 °F	69.0 °F
Pressure - On Test	1,043 psig	1,043 psig	1,043 psig	1,043 psig	1,043 psig
Pressure - End of Test	982 psig	982 psig	982 psig	982 psig	982 psig

Unrestrained Pipe

Sum:	Vo	Vip1	Vip2
	251.81 gal 32,206 oz.		252.97 gal 32,380 oz.
Vo Unrestrained	222 gal	29 gal	
Fwp 1	1.003197	1.003197	
Fpp 1	1.002868	1.001651	
Fpt 1	1.000127	1.000127	
Fwt 1	1.000681	1.000681	
Fpwt 1 = Fpt/Fwt	0.999447	0.999447	
Vip 1 = Vo(Fwp)(Fpp)(Fpwt)	223.38 gal	29.58 gal	
Fwp 2	1.003009	1.003009	
Fpp 2	1.002701	1.001555	
Fpt 2	1.000127	1.000127	
Fwt 2	1.000881	1.000881	
Fpwt = Fpt/Fwt	0.999447	0.999447	
Vip = Vo(Fwp)(Fpp)(Fpwt)	223.30 gal	29.58 gal	

Restrained Pipe

Sum:	Vo	Vip1	Vip2
	4,009.89 gal 513,266 oz.		4,027.62 gal 515,535 oz.
Vo Unrestrained	3,155 gal	854 gal	1 gal
Fwp 1	1.003197	1.003197	1.003197
Fpp 1	1.002117	1.001231	1.000334
Fpt 1	1.000097	1.000097	1.000087
Fwt 1	1.000803	1.000803	1.000803
Fpwt 1 = Fpt/Fwt	0.999294	0.999294	0.999294
Vip 1 = Vo(Fwp)(Fpp)(Fpwt)	3,169 gal	857 gal	1 gal
Fwp 2	1.003009	1.003009	1.003009
Fpp 2	1.001955	1.001161	1.000316
Fpt 2	1.000097	1.000097	1.000097
Fwt 2	1.000803	1.000803	1.000803
Fpwt = Fpt/Fwt	0.999294	0.999294	0.999294
Vip = Vo(Fwp)(Fpp)(Fpwt)	3,168 gal	857 gal	1 gal

Combined Pipe

Sum:	Vo	Vip1	Vip2
	4,261.51 gal 545,473 oz.		4,279.30 gal 547,750 oz.

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Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41497337-187A
Construction Co.	Shelton	Job Number	41474005-187A
Hydro. Test Co.	Milbar Hydro-Test Inc.	Project No.	FY12-112
Test Section	PG&E T-87A L-300B, MP 450.7828 - 450.80		
File Name	RCP 61362 - T-87A, L-300B, MP 450.7828 - 450.80		WATER

Description	General Pipe Data					Segment				
	1	2	3	4	5					
Restrained or Unrestrained?	Restrained	Unrestrained	Restrained	Unrestrained	Restrained					
Outside Diameter	34.000 in.	34.000 in.	20.000 in.	20.000 in.	1.315 in.					
Wall Thickness	0.500 in.	0.500 in.	0.500 in.	0.500 in.	0.113 in.					
Inside Diameter	33.000 in.	33.000 in.	19.000 in.	19.000 in.	1.089 in.					
Spec./Grade	API5L-X46	API5L-X65	API5L-X42	API5L-X65	API5L-Grade B					
Length Unrestrained		5.00 ft		2 ft						
Length Restrained	71 ft		58 ft		21 ft					
Temperature - On Test	67 °F	68 °F	67 °F	66 °F	67 °F					
Temperature - End of Test	68 °F	67 °F	68 °F	67 °F	68 °F					
Pressure - On Test	1,012 psig	1,012 psig	1,012 psig	1,012 psig	1,012 psig					
Pressure - End of Test	1,012 psig	1,012 psig	1,012 psig	1,012 psig	1,012 psig					

Unrestrained Pipe						
Sum:	Vo	251.61 gal	Vtp1	252.94 gal	Vtp2	252.92 gal
		32,206 oz.		32,376 oz.		32,374 oz.
Vo Unrestrained		222 gal		29 gal		
Fwp 1		1.003101		1.003101		
Fpp 1		1.002783		1.001602		
Fpt 1		1.000109		1.000109		
Fwt 1		1.000582		1.000582		
Fpwt 1 = Fpt/Fwt		0.999527		0.999527		
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		223.36 gal		29.58 gal		
Fwp 2		1.003101		1.003101		
Fpp 2		1.002783		1.001602		
Fpt 2		1.000127		1.000127		
Fwt 2		1.000681		1.000681		
Fpwt 2 = Fpt/Fwt		0.999447		0.999447		
Vtp 2 = Vo(Fwp)(Fpp)(Fpwt)		223.34 gal		29.58 gal		

Restrained Pipe						
Sum:	Vo	4,009.89 gal	Vtp1	4,027.44 gal	Vtp2	4,027.01 gal
		513,266 oz.		515,512 oz.		515,457 oz.
Vo Restrained	3,155 gal		854 gal	1 gal		
Fwp 1	1.003101		1.003101	1.003101		
Fpp 1	1.002051		1.001192	1.000321		
Fpt 1	1.000085		1.000085	1.000085		
Fwt 1	1.000681		1.000681	1.000681		
Fpwt 1 = Fpt/Fwt	0.999404		0.999404	0.999404		
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	3,169 gal		857 gal	1 gal		
Fwp 2	1.003101		1.003101	1.003101		
Fpp 2	1.002055		1.001195	1.000325		
Fpt 2	1.000097		1.000097	1.000097		
Fwt 2	1.000803		1.000803	1.000803		
Fpwt 2 = Fpt/Fwt	0.999294		0.999294	0.999294		
Vtp 2 = Vo(Fwp)(Fpp)(Fpwt)	3,169 gal		857 gal	1 gal		

Combined Pipe						
Sum:	Vo	4,261.51 gal	Vtp1	4,280.38 gal	Vtp2	4,279.93 gal
		545,473 oz.		547,899 oz.		547,831 oz.
1 °F Change	0.45 gal		37.36 oz.			

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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	71 ft	Restrained	34.000 in.	0.5000 in.	API5L-X46	1,353 psig	Steel	Arc Weld	DSAW
2	5 ft	Unrestrained	34.000 in.	0.5000 in.	API5L-X65	1,912 psig	Steel	Arc Weld	DSAW
3	58 ft	Restrained	20.000 in.	0.5000 in.	API5L-X42	2,100 psig	Steel	Arc Weld	SM
4	2 ft	Unrestrained	20.000 in.	0.5000 in.	API5L-X65	3,250 psig	Steel	Arc Weld	DSAW
5	21 ft	Restrained	1.315 in.	0.1130 in.	API5L-Grade B	6,015 psig	Steel	Arc Weld	SM

Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget Walnut Creek, CA 94598 Attention: Redacted	41497337-T87A
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Construction Company	Snelson	Job Number
Address	601 West State Street Sedro-Wooley, WA 98284 Attention: Redacted	41474005 -T87A
OCT 04 2011 PG & E		
Hydrostatic Test Co.	Milbar Hydro-Test Inc.	Project No.
Address	P O Box 7701 Shreveport, La. 71137-7701	FY12-112
Test Section	PG&E T-87A L-300B, MP 450.7828 - 450.80 From: 0+84 To: 0+00	
File Name	RCP 61362 - T-87A, L-300B, MP 450.7828 - 450.80	

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	10/4/11 10:21 AM	Elevation at Test Point	316 ft	Min. Required Test Press At Test Point (1)	947.43 psig	Max. Allowable Test Press at Test Point (4)	1,045.00 psig
Time and Date Test Ended	10/4/11 6:38 PM	Max. Elevation in Test Section	317 ft	Min. Indicated Test Pressure (2)	981.00 psig	Max. Indicated Test Pressure (5)	1,044.00 psig
Actual Duration of Test	8 hours 18 minutes	Min. Elevation in Test Section	316 ft	Min. Test Pressure at Max. Elevation (3)	980.57 psig	Max. Test Pressure at Min. Elevation (6)	1,044.00 psig

RCP

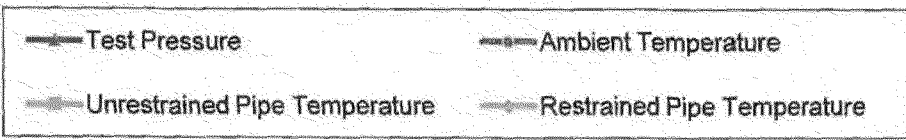
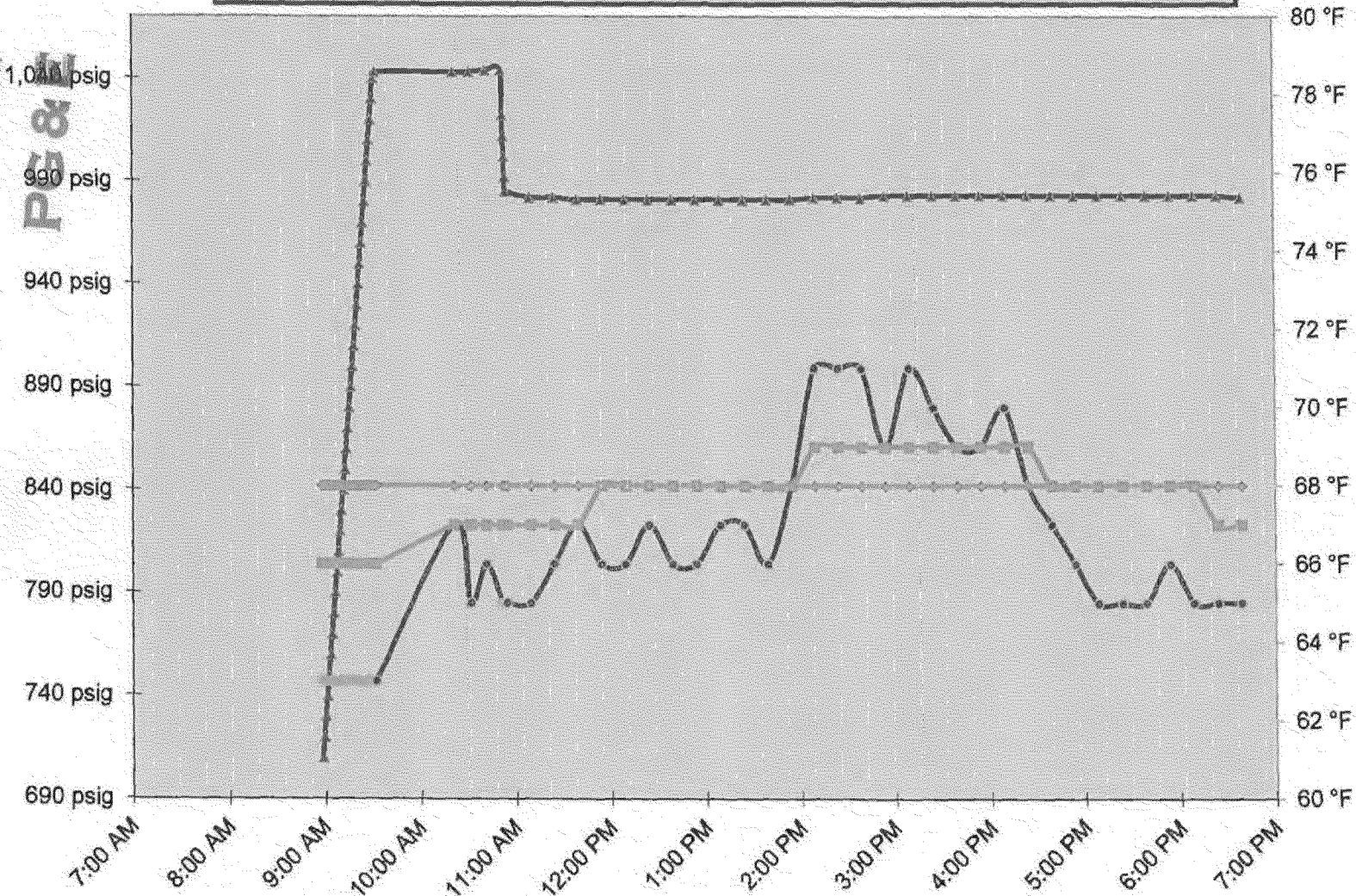
PG&E T-87A L-300B, MP 450.7828 - 450.80

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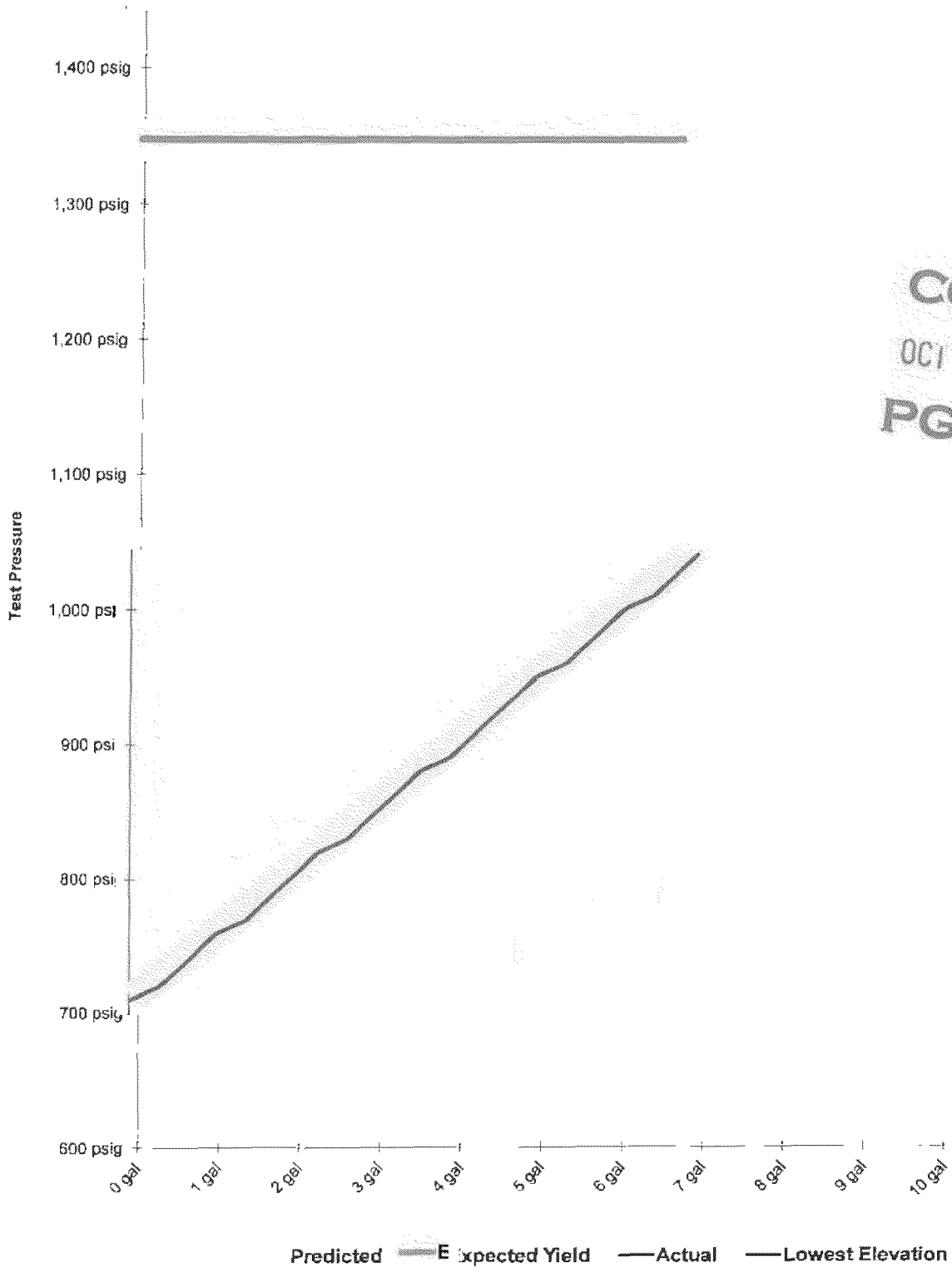
Test Pressure



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Spike Pressure Test
Stress Strain Curve -- PG&E T-87A L-300B, MP 450.7828 - 450.80

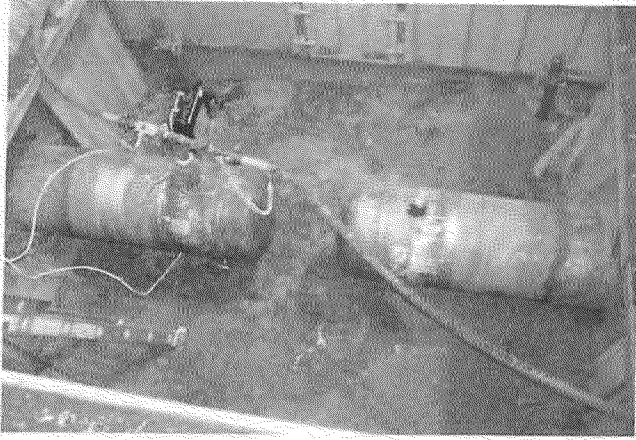


Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope		Spike Pressure Test Stress Strain Curve -- PG&E T-87A L-300B, MP 450.7828 - 450.80	
Pressure	Strokes		Gallons	Actual	Predicted		
710 psig	0	0.00 gal		0	0.000	Pump gal per stroke	0.184 gal/stroke
720 psig	2	0.36 gal	0.21 gal	0.036	0.021	Pump Piston Diameter	3.000 in
730 psig	3	0.54 gal	0.42 gal	0.018	0.021	Pump Piston Stroke	6.00 in
740 psig	4	0.72 gal	0.63 gal	0.018	0.021	Pump Cylinders	1 ea
750 psig	5	0.91 gal	0.84 gal	0.018	0.021	Volume check gal per stroke	0.181 gal/stroke
760 psig	6	1.09 gal	1.05 gal	0.018	0.021	Volume Released (gallons)	0.21 gal
770 psig	8	1.45 gal	1.26 gal	0.036	0.021	Pressure Reduced (psi)	10 psi
780 psig	9	1.63 gal	1.47 gal	0.018	0.021	Maximum2	10 gal
790 psig	10	1.81 gal	1.69 gal	0.018	0.021	Minimum2	0 gal
800 psig	11	1.99 gal	1.90 gal	0.018	0.021	Maximum1	1,453 psig
810 psig	12	2.17 gal	2.11 gal	0.018	0.021	Minimum1	600 psig
820 psig	13	2.35 gal	2.32 gal	0.018	0.021	Gallons/Stroke Used	0.181 gal/stroke
830 psig	15	2.72 gal	2.53 gal	0.036	0.021	Predicted Gallons/Stroke	0.180 gal/stroke
840 psig	16	2.90 gal	2.74 gal	0.018	0.021	Pressure Increment	10 psi
850 psig	17	3.08 gal	2.95 gal	0.018	0.021	Max Pressure	1,043 psig
860 psig	18	3.26 gal	3.16 gal	0.018	0.021	Buried Pipe Temperature	68 °F
870 psig	19	3.44 gal	3.37 gal	0.018	0.021	Exposed Pipe Temperature	67 °F
880 psig	20	3.62 gal	3.58 gal	0.018	0.021	ASME B31.8 Appendix N-5	
890 psig	22	3.98 gal	3.79 gal	0.036	0.021		
900 psig	23	4.16 gal	4.00 gal	0.018	0.021	Average Actual Elastic Slope	0.019
910 psig	24	4.34 gal	4.22 gal	0.018	0.021	Average Predicted Elastic Slope	0.021
920 psig	25	4.53 gal	4.43 gal	0.018	0.021	Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	0.036
930 psig	26	4.71 gal	4.64 gal	0.018	0.021	Established Minimum Yield Pressure B31.8 N-5 (c)(2)	710 psig
940 psig	27	4.89 gal	4.85 gal	0.018	0.021	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
950 psig	28	5.07 gal	5.06 gal	0.018	0.021	<div style="border: 1px solid black; padding: 5px; display: inline-block;">Redacted</div> <div style="text-align: right; margin-top: 10px;"> <i>0.84/2011</i> Date </div>	
960 psig	30	5.43 gal	5.27 gal	0.036	0.021		
970 psig	31	5.61 gal	5.48 gal	0.018	0.021		
980 psig	32	5.79 gal	5.69 gal	0.018	0.021		
990 psig	33	5.97 gal	5.90 gal	0.018	0.021		
1,000 psig	34	6.15 gal	6.11 gal	0.018	0.021		
1,010 psig	36	6.52 gal	6.33 gal	0.036	0.021		
1,020 psig	37	6.70 gal	6.54 gal	0.018	0.021		
1,030 psig	38	6.88 gal	6.75 gal	0.018	0.021		
1,040 psig	39	7.06 gal	6.96 gal	0.018	0.021		
1,043 psig		7.06 gal	7.02 gal	0.000	0.000		
1,043 psig		7.06 gal	7.02 gal	0.000	0.000		
1,043 psig		7.06 gal	7.02 gal	0.000	0.000		
1,043 psig		7.06 gal	7.02 gal	0.000	0.000		
1,043 psig		7.06 gal	7.02 gal	0.000	0.000		
1,043 psig		7.06 gal	7.02 gal	0.000	0.000		
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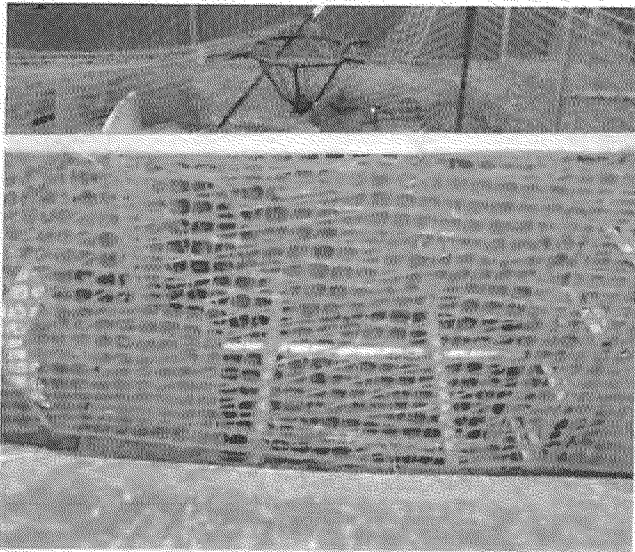
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Test T-87A Test Head



Test T-87A One of Three Test Ends

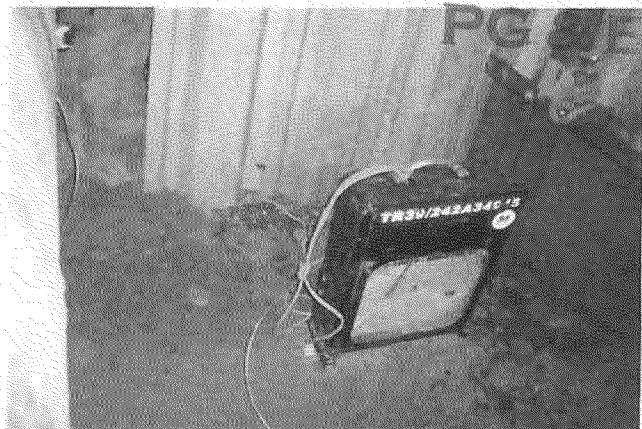


Test T-87A One of Three Test Ends

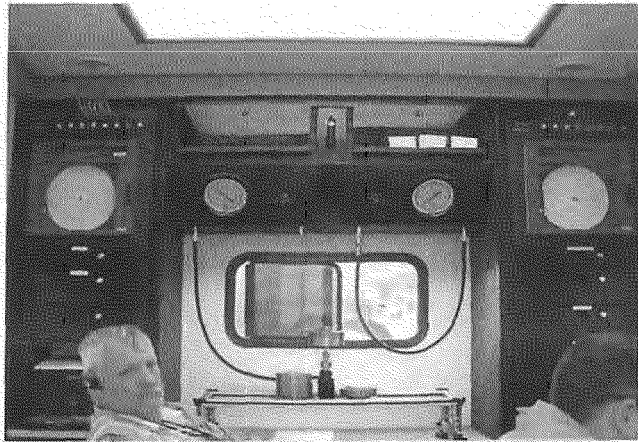


Test T-87A One of Three Test Ends

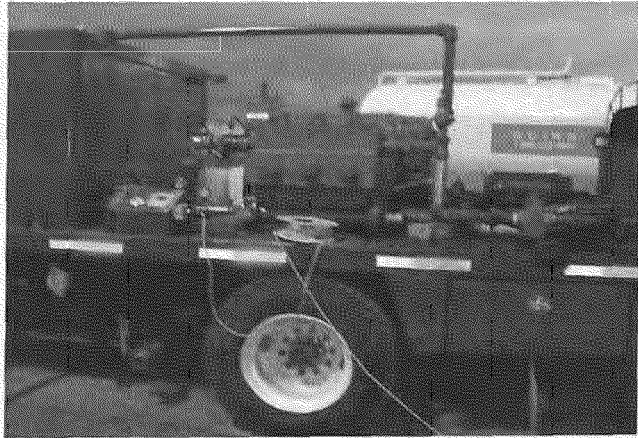
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Test T-87A Pressure Chart Recorder



Test T-87A Restrained Temp. Rec.



Test T-87A Deadweight

Test T-87A Pump Truck

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PG & E