



RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002

Redacted

July 22, 2011

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

Test Contractor:	Milbar Hydro-test Incorporated -- FY12-112
Asset Owner:	Pacific Gas and Electric Company -- 41497329-T84
Construction Contractor:	Snelson -- 41474005-T84
Test Section:	PG&E T- 84 Line 300B, E-B, MP 353.54 - 354.31
Test Date:	July 22, 2011
Certificate Number:	RCP 61362 - T-84 E-B, L-300B

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 Incorporated met the requirements of the Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 1).

The test segment was subjected to a spike pressure test of 950 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 8.25 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.25 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 884 psig and the established MAOP is 804 psig.

Pressure decreased 62 psi during the test. 4,755.20 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 571.20 ounces, gain, which is equivalent to a 0.4 °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

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Letter



Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41497329-T84
Construction Co.	Snelson	Job Number	41474005-T84
Hydro. Test Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T- 84 Line 300B, E-B, MP 353.54 - 354.31		
File Name	RCP 61362 - T-84 E-B, L-300B		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION:	Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 1)	Test Date:	22-Jul-11
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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- 84 Line 300B, E-B, MP 353.54 - 354.31		
From:	16+29	To:	00+00

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	77 ft	34.000 in.	0.505 in.	API5L-X60, DSAW, Arc Weld, Steel	1,782 psi
2	131 ft	34.000 in.	0.500 in.	API5L-X46, DSAW, Arc Weld, Steel	1,353 psi
3	1,498 ft	34.000 in.	0.313 in.	API5L-X52, DSAW, Arc Weld, Steel	956 psi
4	40 ft	34.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,912 psi

Initial Test Conditions

Pressure at Test Point:	950 psig	Date/Time:	7/22/11 10:02 AM	Pipe Temperature	
Ambient Temperature:	83.0 °F	Elevation @ Test Point:	520.0 ft	Unrestrained:	89.0 °F
Pressure @ High Point (Cal/Measure):	947 psig	Elevation @ High Point:	528.0 ft	Restrained:	88.0 °F
Pressure @ Low Point (Cal/Measure):	950 psig	Elevation @ Low Point:	519.0 ft	Location:	16+29
				Location:	5+70
				Location:	15+80

Final Test Conditions

Pressure at Test Point:	888 psig	Date/Time:	7/22/11 6:17 PM	Pipe Temperature	
Ambient Temperature:	98.0 °F	Elevation @ Test Point:	520.0 ft	Unrestrained:	91.0 °F
Pressure @ High Point (Cal/Measure):	885 psig	Elevation @ High Point:	528.0 ft	Restrained:	88.0 °F
Pressure @ Low Point (Cal/Measure):	888 psig	Elevation @ Low Point:	519.0 ft	Location:	16+29
				Location:	5+70
				Location:	15+80
Total Fluid Injected:				Volume gain	
Total Fluid Withdrawn:	4755.20 fluid ounces				
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	571.20 oz	gain	0.0056%	0.397 °F equivalent	

Test Duration: 8.25 hours

Minimum Test Pressure:	884 psig	Max Elevation	881 psig	Min Elevation	884 psig
Maximum Test Pressure:	950 psig		947 psig		950 psig
% SMYS:	99.4%		99.0%		99.4%

Minimum Test Pressure (Calculated/Measured):	885 psig
Maximum Allowable Operating Pressure:	DOT Part 192 Test Factor= 1.10 804 psig

Were leaks observed? **No** Explain:

Acceptable Hydrostatic Test? **Yes**

The test segment was subjected to a spike pressure test of 950 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 8.25 hour test duration period.

No leaks were observed during the test period. The test section included 1,629 feet of buried and 138 feet of exposed pipe. Pressure lost 62 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment gained 2°F.

4,755.20 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 571.20 ounces, gain, which is equivalent to a 0.4 °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

22-Jul-11



Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497329-T84
Construction Co.	Snelson	Job Number	41474005-T84
Testing Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T- 84 Line 300B, E-B, MP 353.54 - 354.31		
File Name	RCP 61362 - T-84 E-B, L-300B		

Date **22-Jul-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	7/22/11	9:20 AM	650 psig	83 °F	88 °F	88 °F	Start Spike		
2	7/22/11	9:21 AM	660 psig	83 °F	88 °F	88 °F	Inject		658 oz.
3	7/22/11	9:22 AM	670 psig	83 °F	88 °F	88 °F	Inject		598 oz.
4	7/22/11	9:23 AM	680 psig	83 °F	88 °F	88 °F	Inject		598 oz.
5	7/22/11	9:24 AM	690 psig	83 °F	88 °F	88 °F	Inject		598 oz.
6	7/22/11	9:25 AM	700 psig	83 °F	88 °F	88 °F	Inject		598 oz.
7	7/22/11	9:26 AM	710 psig	83 °F	88 °F	88 °F	Inject		598 oz.
8	7/22/11	9:27 AM	720 psig	83 °F	88 °F	88 °F	Inject		598 oz.
9	7/22/11	9:28 AM	730 psig	83 °F	88 °F	88 °F	Inject		598 oz.
10	7/22/11	9:29 AM	740 psig	83 °F	88 °F	88 °F	Inject		598 oz.
11	7/22/11	9:30 AM	750 psig	83 °F	88 °F	88 °F	Inject		598 oz.
12	7/22/11	9:31 AM	760 psig	83 °F	88 °F	88 °F	Inject		658 oz.
13	7/22/11	9:32 AM	770 psig	83 °F	88 °F	88 °F	Inject		598 oz.
14	7/22/11	9:33 AM	780 psig	83 °F	88 °F	88 °F	Inject		598 oz.
15	7/22/11	9:34 AM	790 psig	83 °F	88 °F	88 °F	Inject		598 oz.
16	7/22/11	9:35 AM	800 psig	83 °F	88 °F	88 °F	Inject		598 oz.
17	7/22/11	9:36 AM	810 psig	83 °F	88 °F	88 °F	Inject		598 oz.
18	7/22/11	9:37 AM	820 psig	83 °F	88 °F	88 °F	Inject		598 oz.
19	7/22/11	9:38 AM	830 psig	83 °F	88 °F	88 °F	Inject		598 oz.
20	7/22/11	9:39 AM	840 psig	83 °F	88 °F	88 °F	Inject		598 oz.
21	7/22/11	9:40 AM	850 psig	83 °F	88 °F	88 °F	Inject		658 oz.
22	7/22/11	9:41 AM	860 psig	83 °F	88 °F	88 °F	Inject		598 oz.
23	7/22/11	9:42 AM	870 psig	83 °F	88 °F	88 °F	Inject		598 oz.
24	7/22/11	9:43 AM	880 psig	83 °F	88 °F	88 °F	Inject		598 oz.
25	7/22/11	9:44 AM	890 psig	83 °F	88 °F	88 °F	Inject		658 oz.
26	7/22/11	9:45 AM	900 psig	83 °F	88 °F	88 °F	Inject		598 oz.
27	7/22/11	9:46 AM	910 psig	83 °F	88 °F	88 °F	Inject		598 oz.
28	7/22/11	9:47 AM	920 psig	83 °F	88 °F	88 °F	Inject		598 oz.
29	7/22/11	9:48 AM	930 psig	83 °F	88 °F	88 °F	Inject		658 oz.
30	7/22/11	9:49 AM	940 psig	83 °F	88 °F	88 °F	Inject		598 oz.
31	7/22/11	9:52 AM	950 psig	83 °F	88 °F	88 °F	Inject		598 oz.
32	7/22/11	10:02 AM	950 psig	83 °F	89 °F	88 °F	On Test		
33	7/22/11	10:12 AM	949 psig	83 °F	90 °F	88 °F			
34	7/22/11	10:22 AM	949 psig	83 °F	90 °F	88 °F			
35	7/22/11	10:32 AM	949 psig	84 °F	90 °F	88 °F	End Spike		
36	7/22/11	10:35 AM	939 psig	84 °F	90 °F	88 °F	Bleed	608 oz.	
37	7/22/11	10:36 AM	929 psig	84 °F	90 °F	88 °F		608 oz.	
38	7/22/11	10:37 AM	919 psig	84 °F	90 °F	88 °F		608 oz.	
39	7/22/11	10:38 AM	909 psig	84 °F	90 °F	88 °F		608 oz.	
40	7/22/11	10:39 AM	899 psig	84 °F	90 °F	88 °F		608 oz.	
41	7/22/11	10:40 AM	889 psig	84 °F	90 °F	88 °F		608 oz.	
42	7/22/11	10:50 AM	885 psig	85 °F	91 °F	88 °F		243 oz.	
43	7/22/11	11:00 AM	886 psig	85 °F	91 °F	88 °F			



Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497329-T84
Construction Co.	Snelson	Job Number	41474005-T84
Testing Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-84 Line 300B, E-B, MP 353.54 - 354.31		
File Name	RCP 61362 - T-84 E-B, L-300B		

Date **22-Jul-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
44	7/22/11	11:15 AM	886 psig	86 °F	92 °F	88 °F			
45	7/22/11	11:30 AM	887 psig	86 °F	92 °F	88 °F			
46	7/22/11	11:45 AM	887 psig	87 °F	92 °F	88 °F			
47	7/22/11	12:00 PM	888 psig	88 °F	93 °F	88 °F			
48	7/22/11	12:15 PM	889 psig	88 °F	93 °F	88 °F			
49	7/22/11	12:30 PM	890 psig	89 °F	93 °F	88 °F			
50	7/22/11	12:45 PM	891 psig	89 °F	94 °F	88 °F			
51	7/22/11	1:00 PM	891 psig	90 °F	94 °F	88 °F			
52	7/22/11	1:15 PM	892 psig	91 °F	94 °F	88 °F			
53	7/22/11	1:30 PM	893 psig	92 °F	94 °F	88 °F			
54	7/22/11	1:45 PM	894 psig	94 °F	94 °F	88 °F			
55	7/22/11	2:00 PM	895 psig	94 °F	94 °F	88 °F			
56	7/22/11	2:15 PM	896 psig	95 °F	94 °F	88 °F			
57	7/22/11	2:30 PM	896 psig	96 °F	94 °F	88 °F			
58	7/22/11	2:45 PM	898 psig	97 °F	94 °F	88 °F			
59	7/22/11	3:00 PM	898 psig	97 °F	94 °F	88 °F			
60	7/22/11	3:15 PM	899 psig	98 °F	94 °F	88 °F			
61	7/22/11	3:30 PM	899 psig	98 °F	94 °F	88 °F			
62	7/22/11	3:37 PM	900 psig	98 °F	94 °F	88 °F	Bleed	864.00 oz.	
63	7/22/11	3:41 PM	884 psig	98 °F	94 °F	88 °F			
64	7/22/11	3:45 PM	884 psig	98 °F	94 °F	88 °F			
65	7/22/11	4:00 PM	885 psig	99 °F	94 °F	88 °F			
66	7/22/11	4:15 PM	885 psig	99 °F	94 °F	88 °F			
67	7/22/11	4:30 PM	886 psig	99 °F	94 °F	88 °F			
68	7/22/11	4:45 PM	886 psig	99 °F	94 °F	88 °F			
69	7/22/11	5:00 PM	887 psig	99 °F	93 °F	88 °F			
70	7/22/11	5:15 PM	887 psig	99 °F	93 °F	88 °F			
71	7/22/11	5:30 PM	887 psig	99 °F	92 °F	88 °F			
72	7/22/11	5:45 PM	888 psig	98 °F	92 °F	88 °F			
73	7/22/11	6:00 PM	888 psig	98 °F	92 °F	88 °F			
74	7/22/11	6:17 PM	888 psig	98 °F	91 °F	88 °F	End of Test		

Spike Test

18,240.0 oz.

Hydrostatic Test

4,755.2 oz.

Were leaks observed during the test period?

Exposed and buried pipe,
no leaks observed.

High Test Pressure: 950 psig

Low Test Pressure: 884 psig



Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41497329-T84
Construction Co.	Snelson	Job Number	41474005-T84
Hydro. Test Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-84 Line 300B, E-B, MP 353.54 - 354.31	WATER	
File Name	RCP 61362 - T-84 E-B, L-300B		

General Pipe Data

Description	Segment				
	1	2	3	4	5
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Unrestrained	Unrestrained
Outside Diameter	34.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.
Wall Thickness	0.505 in.	0.500 in.	0.313 in.	0.500 in.	0.375 in.
Inside Diameter	32.990 in.	33.000 in.	33.375 in.	33.000 in.	33.250 in.
Spec./Grade	API5L-X60	API5L-X46	API5L-X52	API5L-X65	API5L-X65
Length Unrestrained	77 ft			40 ft	21 ft
Length Restrained		131 ft	1,498 ft		
Temperature -- On Test	89 °F	88 °F	88.0 °F	89.0 °F	89.0 °F
Temperature -- End of Test	91 °F	88 °F	88.0 °F	91.0 °F	91.0 °F
Pressure -- On Test	950 psig	950 psig	950 psig	950 psig	950 psig
Pressure -- End of Test	888 psig	888 psig	888 psig	888 psig	888 psig

Unrestrained Pipe

Sum:	Vo	Vtp1		Vtp2	
		6,143.61 gal 786,382 oz.	6,157.57 gal 788,170 oz.		6,153.35 gal 787,628 oz.
Vo Unrestrained	3,419 gal		1,777 gal	947 gal	
Fwp 1	1.002911		1.002911	1.002911	
Fpp 1	1.002586		1.002613	1.003510	
Fpt 1	1.000528		1.000528	1.000528	
Fwt 1	1.003903		1.003903	1.003903	
Fpwt 1 = Fpt/Fwt	0.996638		0.996638	0.996638	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	3,426.38 gal		1,781.06 gal	950.13 gal	
Fwp 2	1.002720		1.002720	1.002720	
Fpp 2	1.002417		1.002442	1.003281	
Fpt 2	1.000564		1.000564	1.000564	
Fwt 2	1.004260		1.004260	1.004260	
Fpwt = Fpt/Fwt	0.996320		0.996320	0.996320	
Vtp = Vo(Fwp)(Fpp)(Fpwt)	3,424.06 gal		1,779.86 gal	949.43 gal	

Restrained Pipe

Sum:	Vo	Vtp1		Vtp2	
		73,899.53 gal 9,459,139 oz.	74,093.39 gal 9,483,953 oz.		74,064.93 gal 9,480,311 oz.
Vo Unrestrained		5,820 gal	68,079 gal		
Fwp 1		1.002911	1.002911		
Fpp 1		1.002003	1.003178		
Fpt 1		1.000339	1.000339		
Fwt 1		1.003713	1.003713		
Fpwt 1 = Fpt/Fwt		0.996638	0.996638		
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		5,829 gal	68,264 gal		
Fwp 2		1.002720	1.002720		
Fpp 2		1.001879	1.002978		
Fpt 2		1.000339	1.000339		
Fwt 2		1.003713	1.003713		
Fpwt = Fpt/Fwt		0.996638	0.996638		
Vtp = Vo(Fwp)(Fpp)(Fpwt)		5,828 gal	68,237 gal		

Combined Pipe

Sum:	Vo	Vtp1		Vtp2	
		80,043.14 gal 10,245,521 oz.	80,250.96 gal 10,272,123 oz.		80,218.27 gal 10,267,939 oz.



Pipe Segment Volume Allowance Calculations

Company Pacific Gas and Electric Company	Job Number 41497329-T84
Construction Co. Snelson	Job Number 41474005-T84
Hydro. Test Co. Milbar Hydro-test Incorporated	Project No. FY12-112
Test Section PG&E T- 84 Line 300B, E-B, MP 353.54 - 354.31	WATER
File Name RCP 61362 - T-84 E-B, L-300B	

General Pipe Data

Description	Segment				
	1	2	3	4	5
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Unrestrained	Unrestrained
Outside Diameter	34.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.
Wall Thickness	0.505 in.	0.500 in.	0.313 in.	0.500 in.	0.375 in.
Inside Diameter	32.990 in.	33.000 in.	33.375 in.	33.000 in.	33.250 in.
Spec./Grade	API5L-X60	API5L-X46	API5L-X52	API5L-X65	API5L-X65
Length Unstrained	77.00 ft			40 ft	21 ft
Length Restrained		131 ft	1,498 ft		
Temperature -- On Test	89 °F	87 °F	87 °F	89 °F	89 °F
Temperature -- End of Test	90 °F	88 °F	88 °F	90 °F	90 °F
Pressure -- On Test	919 psig	919 psig	919 psig	919 psig	919 psig
Pressure -- End of Test	919 psig	919 psig	919 psig	919 psig	919 psig

Unrestrained Pipe

Sum:	Vo	Vtp1	Vtp2
	6,143.61 gal 786,382 oz.		6,155.57 gal 787,913 oz.
Vo Unrestrained	3,419 gal	1,777 gal	947 gal
Fwp 1	1.002815	1.002815	1.002815
Fpp 1	1.002501	1.002527	1.003395
Fpt 1	1.000528	1.000528	1.000528
Fwt 1	1.003903	1.003903	1.003903
Fpwt 1 = Fpt/Fwt	0.996638	0.996638	0.996638
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	3,425.77 gal	1,780.74 gal	949.93 gal
Fwp 2	1.002815	1.002815	1.002815
Fpp 2	1.002501	1.002527	1.003395
Fpt 2	1.000546	1.000546	1.000546
Fwt 2	1.004064	1.004064	1.004064
Fpwt = Fpt/Fwt	0.996496	0.996496	0.996496
Vtp = Vo(Fwp)(Fpp)(Fpwt)	3,425.28 gal	1,780.49 gal	949.80 gal

Restrained Pipe

Sum:	Vo	Vtp1	Vtp2
	73,899.53 gal 9,459,139 oz.	74,089.51 gal 9,483,457 oz.	74,079.16 gal 9,482,132 oz.
Vo Restrained	5,820 gal	68,079 gal	
Fwp 1	1.002815	1.002815	
Fpp 1	1.001937	1.003074	
Fpt 1	1.000327	1.000327	
Fwt 1	1.003557	1.003557	
Fpwt 1 = Fpt/Fwt	0.996781	0.996781	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	5,829 gal	68,260 gal	
Fwp 2	1.002815	1.002815	
Fpp 2	1.001941	1.003078	
Fpt 2	1.000339	1.000339	
Fwt 2	1.003713	1.003713	
Fpwt = Fpt/Fwt	0.996638	0.996638	
Vtp = Vo(Fwp)(Fpp)(Fpwt)	5,829 gal	68,251 gal	

Combined Pipe

Sum:	Vo	Vtp1	Vtp2
	80,043.14 gal 10,245,521 oz.	80,245.95 gal 10,271,482 oz.	80,234.72 gal 10,270,045 oz.
1 °F Change	11.23 gal	1,437.09 oz.	



Hydrostatic Test Pipe Data Table

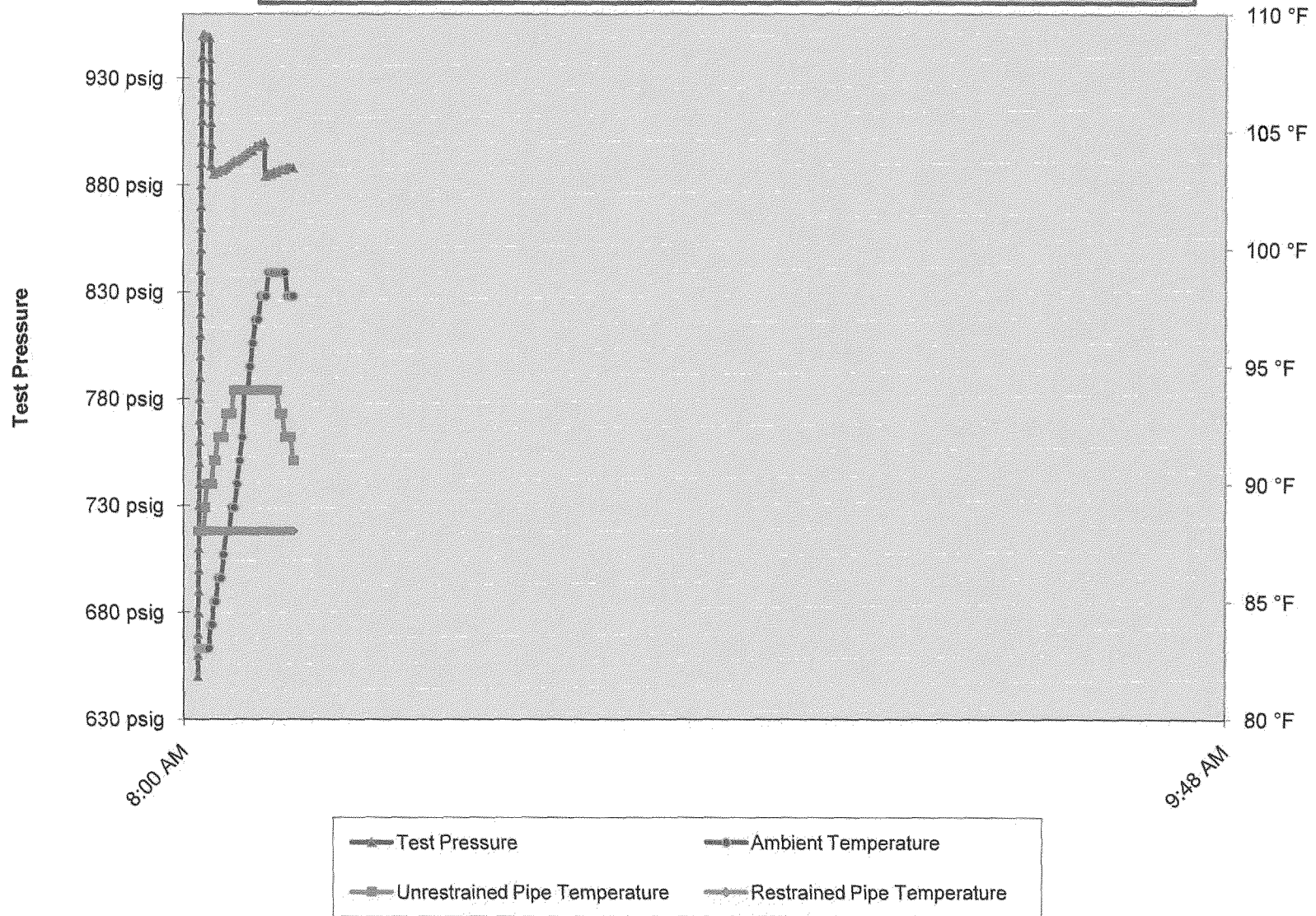
Pipe Type	Length	Restrained / Unrestrained	Outside Diameter	Wall Thickness	Specification & Grade	Pipe Yield Pressure	Material	Joint Type	Seam Type
1	77 ft	Unrestrained	34.000 in.	0.5050 in.	API5L-X60	1,782 psig	Steel	Arc Weld	DSAW
2	131 ft	Restrained	34.000 in.	0.5000 in.	API5L-X46	1,353 psig	Steel	Arc Weld	DSAW
3	1,498 ft	Restrained	34.000 in.	0.3125 in.	API5L-X52	956 psig	Steel	Arc Weld	DSAW
4	40 ft	Unrestrained	34.000 in.	0.5000 in.	API5L-X65	1,912 psig	Steel	Arc Weld	DSAW
5	21 ft	Unrestrained	34.000 in.	0.3750 in.	API5L-X65	1,434 psig	Steel	Arc Weld	DSAW

Hydrostatic Test Project Owner & Participants

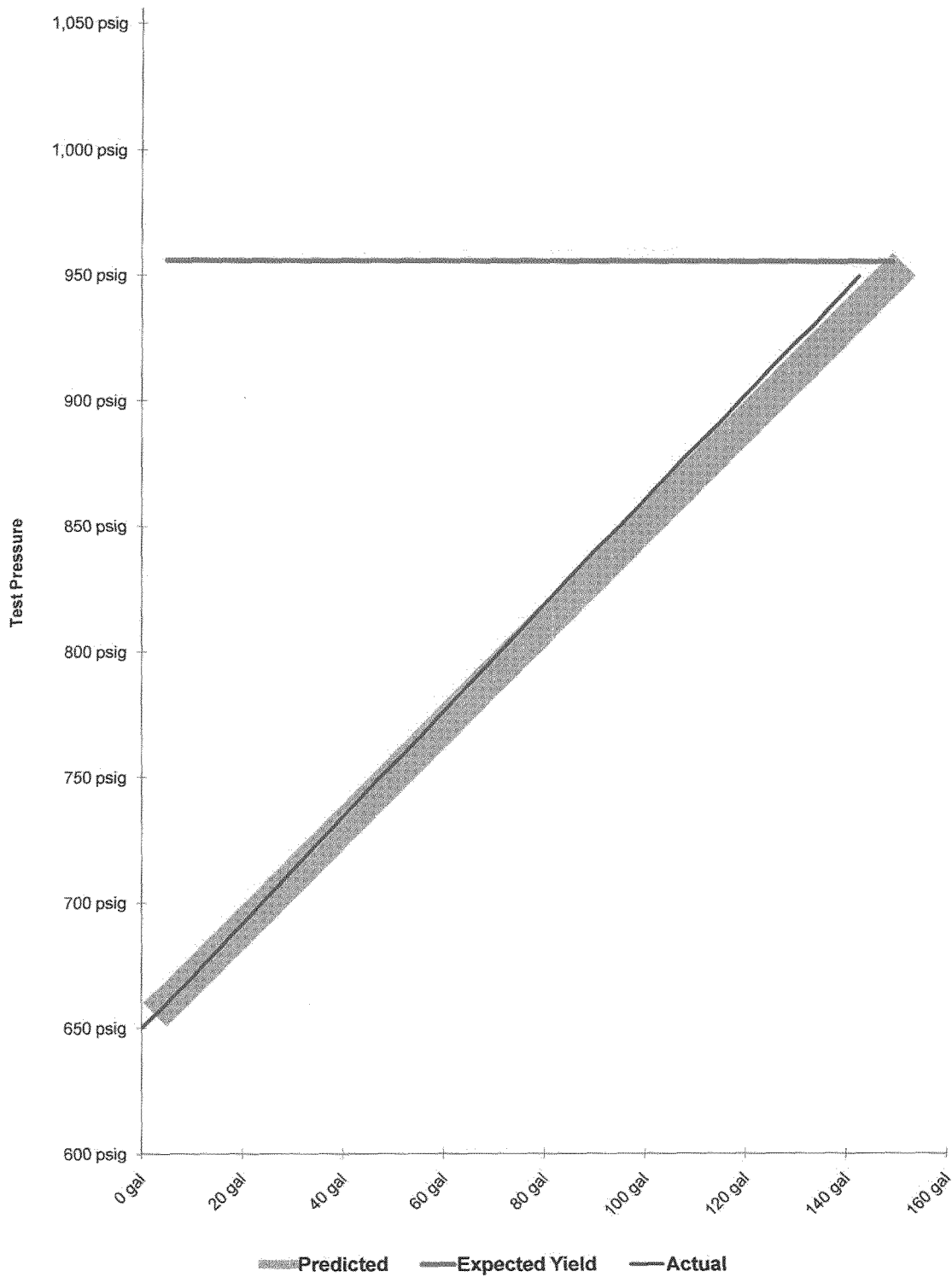
Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget Walnut Creek, CA 94598 Attention: Redacted	41497329-T84
Construction Company	Snelson	Job Number
Address	601 West State Street Sedro-Woolley, WA 98284 Attention: Redacted	41474005-T84
Hydrostatic Test Co.	Milbar Hydro-test Incorporated	Project No.
Address	P.O. Box 7701 Shreveport, Louisiana 71137-7701	FY12-112
Test Section	PG&E T- 84 Line 300B, E-B, MP 353.54 - 354.31 From: 16+29 To: 00+00	
File Name	RCP 61362 - T-84 E-B, L-300B	

RCP

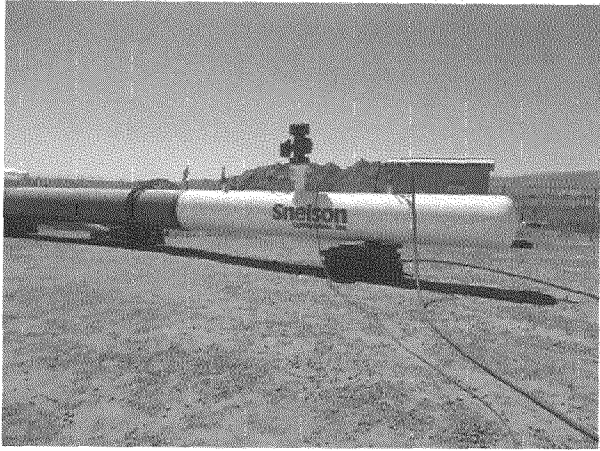
PG&E T- 84 Line 300B, E-B, MP 353.54 - 354.31



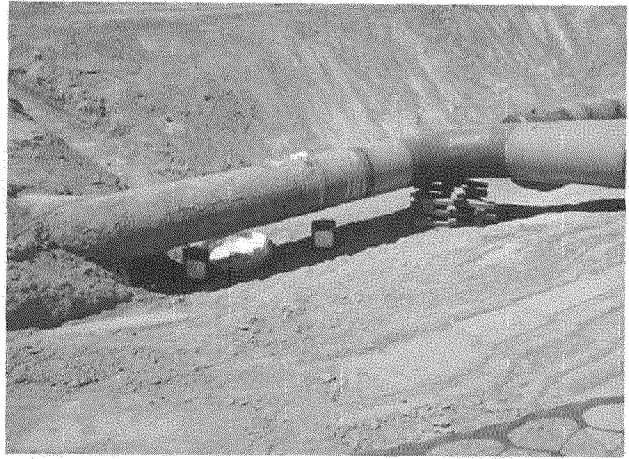
**Spike Pressure Test
Stress Strain Curve -- PG&E T- 84 Line 300B, E-B, MP 353.54 -
354.31**



Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope		Spike Pressure Test Stress Strain Curve -- PG&E T- 84 Line 300B, E-B, MP 353.54 - 354.31	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted		
650 psig	0	0.00 gal		0	0.00 gal	Pump gal per stroke	0.551 gal/stroke
660 psig	11	5.14 gal	4.96 gal	0.514	0.496	Pump Piston Diameter	3.000 in
670 psig	21	9.81 gal	9.93 gal	0.467	0.496	Pump Piston Stroke	6.00 in
680 psig	31	14.48 gal	14.89 gal	0.467	0.496	Pump Cylinders	3 ea
690 psig	41	19.16 gal	19.86 gal	0.467	0.496	Volume check gal per stroke	0.467 gal/stroke
700 psig	51	23.83 gal	24.82 gal	0.467	0.496	Volume Released (gallons)	4.75 gal
710 psig	61	28.50 gal	29.79 gal	0.467	0.497	Pressure Reduced (psi)	10 psi
720 psig	71	33.17 gal	34.75 gal	0.467	0.497	Maximum2	160 gal
730 psig	81	37.84 gal	39.72 gal	0.467	0.497	Minimum2	0 gal
740 psig	91	42.52 gal	44.68 gal	0.467	0.497	Maximum1	1,056 psig
750 psig	101	47.19 gal	49.65 gal	0.467	0.497	Minimum1	600 psig
760 psig	112	52.33 gal	54.62 gal	0.514	0.497	Gallons/Stroke Used	0.467 gal/stroke
770 psig	122	57.00 gal	59.58 gal	0.467	0.497	Predicted Gallons/Stroke	0.489 gal/stroke
780 psig	132	61.67 gal	64.55 gal	0.467	0.497	1160	10 psi
790 psig	142	66.34 gal	69.52 gal	0.467	0.497		
800 psig	152	71.02 gal	74.49 gal	0.467	0.497	Max Pressure	950 psig
810 psig	162	75.69 gal	79.46 gal	0.467	0.497	Buried Pipe Temperature	88 °F
820 psig	172	80.36 gal	84.42 gal	0.467	0.497		
830 psig	182	85.03 gal	89.39 gal	0.467	0.497	Exposed Pipe Temperature	90 °F
840 psig	192	89.70 gal	94.36 gal	0.467	0.497		
850 psig	203	94.84 gal	99.33 gal	0.514	0.497	ASME B31.8 Appendix N-5	
860 psig	213	99.52 gal	104.30 gal	0.467	0.497		
870 psig	223	104.19 gal	109.27 gal	0.467	0.497	Average Actual Elastic Slope	0.475
880 psig	233	108.86 gal	114.24 gal	0.467	0.497	Average Predicted Elastic Slope	0.497
890 psig	244	114.00 gal	119.21 gal	0.514	0.497		
900 psig	254	118.67 gal	124.18 gal	0.467	0.497	Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	0.903
910 psig	264	123.34 gal	129.15 gal	0.467	0.497	Established Minimum Yield Pressure B31.8 N-5 (c)(2)	950 psig
920 psig	274	128.02 gal	134.13 gal	0.467	0.497		
930 psig	285	133.16 gal	139.10 gal	0.514	0.497	Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2)	418 gal
940 psig	295	137.83 gal	144.07 gal	0.467	0.497		
950 psig	305	142.50 gal	149.04 gal	0.467	0.497	Volume (After Slope Deviation) B31.8 N-5 (c)(2)	0 gal
950 psig		142.50 gal	149.04 gal	0.000	0.000		
950 psig		142.50 gal	149.04 gal	0.000	0.000	<div style="border: 1px solid black; padding: 5px; display: inline-block;">Redacted</div> <div style="margin-left: 20px; text-align: right;"> <u>7-22-11</u> Date </div>	
950 psig		142.50 gal	149.04 gal	0.000	0.000		
950 psig		142.50 gal	149.04 gal	0.000	0.000		
950 psig		142.50 gal	149.04 gal	0.000	0.000		
950 psig		142.50 gal	149.04 gal	0.000	0.000		
950 psig		142.50 gal	149.04 gal	0.000	0.000		
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950 psig		142.50 gal	149.04 gal	0.000	0.000		
950 psig		142.50 gal	149.04 gal	0.000	0.000		



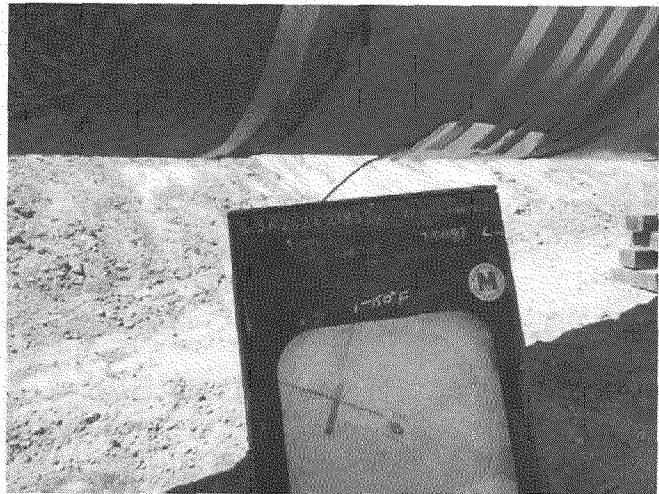
Test Location Test Header



Test Location Test Header to existing pipe



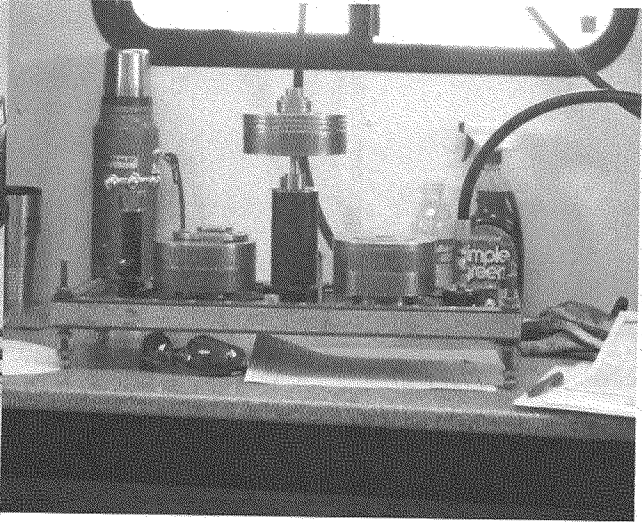
Restrained Temp. in Ditch



Unrestrained Temp. recorder



Injection pump



Dead Weight Tester



Test End



Test End



Restrained Temp. Recorder
(Note: Not used had problem)