



RCP, Inc

801 Louisiana, Ste.200  
Houston Texas 77002

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October 17, 2011

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

Test Contractor:	ARB – T-43A 10/11/2011
Asset Owner:	Pacific Gas and Electric Company -- 41497360 - T43A
Construction Contractor:	ARB -- 0629-53-3500
Test Section:	PG&E T-43A L-147, MP 0.85 - 1.95
Test Date:	October 17, 2011
Certificate Number:	RCP 61362 - T-43A, L-147, MP 0.85 - 1.95

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 ARB 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 823 psig for 30 minutes, without observed leakage. The 30 minute spike test and subsequent pressure reduction with volume bleed was included and is part of the 8.4 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.4 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 628 psig and the established MAOP is 418 psig.

Pressure decreased 55 psi during the test. 10,752.00 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 1,216.99 ounces gain, which is equivalent to a 0.99 °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,

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Test T-43A  
Letter

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### Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41497360 - T43A
Contractor	ARB	Job Number	0629-53-3500
Hydro. Test Co.	ARB	Project No.	T-43A 10/11/2011
Test Section	PG&E T-43A L-147, MP 0.85 - 1.95		
File Name	RCP 61362 - T-43A, L-147, MP 0.85 - 1.95		

#### Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: \_\_\_\_\_ Test Date: 17-Oct-11

Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 3)

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-43A L-147, MP 0.85 - 1.95		
From:	0+13	To:	60+62.8

#### Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	25 ft	24.000 in.	0.375 in.	API5L-X80, DSAW, Arc Weld, Steel	1,875 psi
2	26 ft	20.000 in.	0.375 in.	API5L-X85, DSAW, Arc Weld, Steel	2,439 psi
3	2,818 ft	24.000 in.	0.281 in.	40ksmys, SM, Arc Weld, Steel	937 psi
4	798 ft	24.000 in.	0.281 in.	API5L-X52, DSAW, Arc Weld, Steel	1,218 psi
5	456 ft	24.000 in.	0.271 in.	API5L-X60, DSAW, Arc Weld, Steel	1,355 psi
6	58 ft	24.000 in.	0.313 in.	API5L-X52, DSAW, Arc Weld, Steel	1,354 psi
7	1,815 ft	24.000 in.	0.313 in.	API5L-X42, DSAW, Arc Weld, Steel	1,094 psi
8	321 ft	20.000 in.	0.313 in.	API5L-X42, DSAW, Arc Weld, Steel	1,313 psi
9	87 ft	1.315 in.	0.140 in.	API5L-Grade B, SM, Arc Weld, Steel	7,452 psi
10	11 ft	24.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	2,708 psi
11	11 ft	20.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	3,250 psi

#### Initial Test Conditions

Pressure at Test Point:	823 psig	Date/Time:	10/17/11 2:21 PM	Pipe Temperature	
Ambient Temperature:	82.0 °F	Elevation @ Test Point:	323.0 ft	Unrestrained:	64.0 °F
Pressure @ High Point (Cal/Measure):	683 psig	Elevation @ High Point:	646.0 ft	Restrained:	61.0 °F
Pressure @ Low Point (Cal/Measure):	887 psig	Elevation @ Low Point:	175.0 ft	Location:	0+13
				Location:	33+15
				Location:	59+01

#### Final Test Conditions

Pressure at Test Point:	768 psig	Date/Time:	10/17/11 10:45 PM	Pipe Temperature	
Ambient Temperature:	67.0 °F	Elevation @ Test Point:	323.0 ft	Unrestrained:	68.0 °F
Pressure @ High Point (Cal/Measure):	628 psig	Elevation @ High Point:	646.0 ft	Restrained:	64.0 °F
Pressure @ Low Point (Cal/Measure):	832 psig	Elevation @ Low Point:	175.0 ft	Location:	0+13
				Location:	33+15
				Location:	59+01

Total Fluid Injected:		Total Fluid Withdrawn:	10752.00 fluid ounces	Volume gain	
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	1,216.99 oz	gain	0.0070%	0.987 °F equivalent	

Test Duration: 8.40 hours						
Minimum Test Pressure:	766 psig	Test Point	Max Elevation	626 psig	Min Elevation	830 psig
Maximum Test Pressure:	823 psig			683 psig		887 psig
% SMYS:	62.4%			62.4%		67.6%
Test Segment Observed % SMYS:		Minimum	9.4%	Maximum	94.5%	
Minimum Test Pressure (Calculated/Measured):					628 psig	
Maximum Allowable Operating Pressure:				DOT Part 192	Test Factor= 1.50	418 psig

Were leaks observed?	<b>No</b>	Explain:
Acceptable Hydrostatic Test?	<b>Yes</b>	<p>The test segment was subjected to a spike pressure test of 823 psig for 30 minutes, without observed leakage. The 30 minute spike test and subsequent pressure reduction with volume bleed was included and is part of the 8.4 hour test duration period.</p> <p>No leaks were observed during the test period. The test section included 6,163 feet of buried and 62 feet of exposed pipe. Pressure lost 55 psi during the test. The buried pipe segment gained 3°F fluid temperature and the exposed pipe segment gained 4°F.</p> <p>10,752.00 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 1,216.99 ounces, gain, which is equivalent to a 0.99 °F change in pipe temperature and within the error attributed to the temperature measurement instrumentation utilized.</p> <p>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.</p>

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Certification

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# Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497360 - T43A
Contractor	ARB	Job Number	0629-53-3500
Testing Co.	ARB	Project No.	T-43A 10/11/201
Test Section	PG&E T-43A L-147, MP 0.85 - 1.95		
File Name	RCP 61362 - T-43A, L-147, MP 0.85 - 1.95		

Date 17-Oct-11

## Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	10/17/11	1:35 PM	555 psig	79 °F	62 °F	61 °F	Start Spike		
2	10/17/11	1:37 PM	565 psig	79 °F	62 °F	61 °F	Inject		2,326 oz.
3	10/17/11	1:39 PM	575 psig	79 °F	62 °F	61 °F	Inject		4,535 oz.
4	10/17/11	1:41 PM	585 psig	79 °F	62 °F	61 °F	Inject		2,285 oz.
5	10/17/11	1:43 PM	595 psig	79 °F	62 °F	61 °F	Inject		2,381 oz.
6	10/17/11	1:45 PM	605 psig	79 °F	62 °F	61 °F	Inject		2,278 oz.
7	10/17/11	1:47 PM	615 psig	79 °F	62 °F	61 °F	Inject		2,243 oz.
8	10/17/11	1:49 PM	625 psig	79 °F	62 °F	61 °F	Inject		2,381 oz.
9	10/17/11	1:51 PM	635 psig	79 °F	62 °F	61 °F	Inject		1,898 oz.
10	10/17/11	1:53 PM	645 psig	79 °F	62 °F	61 °F	Inject		2,002 oz.
11	10/17/11	1:55 PM	655 psig	79 °F	62 °F	61 °F	Inject		1,933 oz.
12	10/17/11	1:57 PM	665 psig	79 °F	62 °F	61 °F	Inject		1,898 oz.
13	10/17/11	1:59 PM	675 psig	79 °F	62 °F	61 °F	Inject		1,829 oz.
14	10/17/11	2:01 PM	685 psig	79 °F	62 °F	61 °F	Inject		1,898 oz.
15	10/17/11	2:03 PM	695 psig	79 °F	62 °F	61 °F	Inject		1,712 oz.
16	10/17/11	2:05 PM	705 psig	79 °F	62 °F	61 °F	Inject		1,739 oz.
17	10/17/11	2:06 PM	715 psig	79 °F	62 °F	61 °F	Inject		1,657 oz.
18	10/17/11	2:07 PM	725 psig	79 °F	62 °F	61 °F	Inject		1,622 oz.
19	10/17/11	2:08 PM	735 psig	79 °F	62 °F	61 °F	Inject		1,553 oz.
20	10/17/11	2:09 PM	745 psig	79 °F	62 °F	61 °F	Inject		1,657 oz.
21	10/17/11	2:10 PM	755 psig	79 °F	62 °F	61 °F	Inject		1,518 oz.
22	10/17/11	2:11 PM	765 psig	79 °F	62 °F	61 °F	Inject		1,567 oz.
23	10/17/11	2:12 PM	775 psig	79 °F	62 °F	61 °F	Inject		1,539 oz.
24	10/17/11	2:13 PM	785 psig	79 °F	62 °F	61 °F	Inject		1,484 oz.
25	10/17/11	2:14 PM	795 psig	79 °F	62 °F	61 °F	Inject		1,408 oz.
26	10/17/11	2:16 PM	805 psig	79 °F	62 °F	61 °F	Inject		1,491 oz.
27	10/17/11	2:17 PM	815 psig	79 °F	62 °F	61 °F	Inject		1,477 oz.
28	10/17/11	2:19 PM	823 psig	79 °F	62 °F	61 °F	Inject		1,146 oz.
29	10/17/11	2:21 PM	823 psig	82 °F	64 °F	61 °F	On Test		
30	10/17/11	2:31 PM	823 psig	83 °F	65 °F	61 °F			
31	10/17/11	2:41 PM	822 psig	83 °F	66 °F	61 °F			
32	10/17/11	2:51 PM	822 psig	84 °F	66 °F	61 °F	End Spike		
33	10/17/11	2:58 PM	812 psig	84 °F	66 °F	61 °F	Bleed	1,920 oz.	
34	10/17/11	3:05 PM	802 psig	84 °F	66 °F	61 °F	Bleed	1,920 oz.	
35	10/17/11	3:12 PM	792 psig	84 °F	66 °F	61 °F	Bleed	1,920 oz.	
36	10/17/11	3:18 PM	782 psig	84 °F	66 °F	61 °F	Bleed	1,920 oz.	
37	10/17/11	3:23 PM	772 psig	84 °F	66 °F	61 °F	Bleed	1,920 oz.	
38	10/17/11	3:27 PM	766 psig	84 °F	66 °F	61 °F	Bleed	1,152 oz.	
39	10/17/11	3:30 PM	766 psig	84 °F	66 °F	61 °F	Sun Shine		
40	10/17/11	3:45 PM	767 psig	85 °F	67 °F	61 °F			
41	10/17/11	4:00 PM	768 psig	85 °F	67 °F	61 °F			
42	10/17/11	4:15 PM	768 psig	85 °F	68 °F	61 °F	Sun Shine		
43	10/17/11	4:30 PM	768 psig	85 °F	68 °F	61 °F			

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## Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41497360 - T43A
Contractor Company	ARB	Job Number	0629-53-3500
Hydro. Test Co.	ARB	Project No.	T-43A 10/11/2011
Test Section	PG&E T-43A L-147, MP 0.85 - 1.95	WATER	
File Name	RCP 61362 - T-43A, L-147, MP 0.85 - 1.95		

### General Pipe Data

Description	Segment									
	1	2	3	4	5	6	7	8	9	10
Restrained or Unrestrained?	Unrestrained	Unrestrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained
Outside Diameter	24.000 in.	20.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	20.000 in.	1.315 in.	24.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.281 in.	0.281 in.	0.271 in.	0.313 in.	0.313 in.	0.313 in.	0.140 in.	0.500 in.
Inside Diameter	23.250 in.	19.250 in.	23.438 in.	23.438 in.	23.458 in.	23.375 in.	23.375 in.	19.375 in.	1.035 in.	23.000 in.
Spec./Grade	API5L-X60	API5L-X65	40ksmys	API5L-X52	API5L-X60	API5L-X52	API5L-X42	API5L-X42	API5L-Grade B	API5L-X65
Length Unrestrained	25 ft	26 ft								11 ft
Length Restrained			2,618 ft	798 ft	466 ft	58 ft	1,815 ft	321 ft	87 ft	
Temperature - On Test	64 °F	64 °F	61.0 °F	61.0 °F	61.0 °F	61.0 °F	61.0 °F	61.0 °F	61.0 °F	64.0 °F
Temperature - End of Test	68 °F	68 °F	64.0 °F	64.0 °F	64.0 °F	64.0 °F	64.0 °F	64.0 °F	64.0 °F	68.0 °F
Pressure - On Test	823 psig	823 psig	823 psig	823 psig	823 psig	823 psig	823 psig	823 psig	823 psig	823 psig
Pressure - End of Test	768 psig	768 psig	768 psig	768 psig	768 psig	768 psig	768 psig	768 psig	768 psig	768 psig

### Unrestrained Pipe

Sum:	Vo	1,181.88 gal 151,280 oz.	Vtp1	1,186.74 gal 151,903 oz.	Vtp2	1,185.97 gal 151,805 oz.
Vo Unrestrained	551 gal	393 gal				237 gal
Fwp 1	1.002521	1.002521				1.002521
Fpp 1	1.002126	1.001760				1.001577
Fpt 1	1.000073	1.000073				1.000073
Fwt 1	1.000375	1.000375				1.000375
Fpwt 1 = Fpt/Fwt	0.999698	0.999698				0.999698
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	553.77 gal	394.66 gal				238.32 gal
Fwp 2	1.002352	1.002352				1.002352
Fpp 2	1.001984	1.001643				1.001472
Fpt 2	1.000146	1.000146				1.000146
Fwt 2	1.000803	1.000803				1.000803
Fpwt = Fpt/Fwt	0.999343	0.999343				0.999343
Vtp = Vo(Fwp)(Fpp)(Fpwt)	553.40 gal	394.40 gal				238.17 gal

### Restrained Pipe

Sum:	Vo	133,699.56 gal 17,113,543 oz.	Vtp1	134,296.17 gal 17,189,909 oz.	Vtp2	134,222.45 gal 17,180,473 oz.
Vo Unrestrained		58,677 gal	17,886 gal	10,462 gal	1,293 gal	40,461 gal
Fwp 1		1.002521	1.002521	1.002521	1.002521	1.002521
Fpp 1		1.002086	1.002086	1.002165	1.001871	1.001551
Fpt 1		1.000012	1.000012	1.000012	1.000012	1.000012
Fwt 1		1.000080	1.000080	1.000080	1.000080	1.000080
Fpwt 1 = Fpt/Fwt		0.999932	0.999932	0.999932	0.999932	0.999932
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		58,944 gal	17,967 gal	10,511 gal	1,299 gal	40,636 gal
Fwp 2		1.002352	1.002352	1.002352	1.002352	1.002352
Fpp 2		1.001958	1.001958	1.002031	1.001757	1.001459
Fpt 2		1.000048	1.000048	1.000048	1.000048	1.000048
Fwt 2		1.000375	1.000375	1.000375	1.000375	1.000375
Fpwt = Fpt/Fwt		0.999674	0.999674	0.999674	0.999674	0.999674
Vtp = Vo(Fwp)(Fpp)(Fpwt)		58,911 gal	17,957 gal	10,505 gal	1,298 gal	40,614 gal

### Combined Pipe

Sum:	Vo	134,881.44 gal 17,264,824 oz.	Vtp1	135,482.91 gal 17,341,813 oz.	Vtp2	135,408.42 gal 17,332,278 oz.
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## Pipe Segment Volume Allowance Calculations

Company Pacific Gas and Electric Company	Job Number 41497360 - T43A
Contractor ARB	Job Number 0629-53-3500
Hydro. Test Co. ARB	Project No. T-43A 10/11/2011
Test Section PG&E T-43A L-147, MP 0.85 - 1.95	WATER
File Name RCP 61362 - T-43A, L-147, MP 0.85 - 1.95	

### General Pipe Data

Description	Segment									
	1	2	3	4	5	6	7	8	9	10
Restrained or Unrestrained?	Unrestrained	Unrestrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Unrestrained
Outside Diameter	24.000 in.	20.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	20.000 in.	1.315 in.	24.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.281 in.	0.281 in.	0.271 in.	0.313 in.	0.313 in.	0.313 in.	0.140 in.	0.500 in.
Inside Diameter	23.250 in.	19.250 in.	23.438 in.	23.438 in.	23.458 in.	23.375 in.	23.375 in.	19.375 in.	1.035 in.	23.000 in.
Spec./Grade	API5L-X60	API5L-X65	40ksmys	API5L-X52	API5L-X60	API5L-X52	API5L-X42	API5L-X42	API5L-Grade B	API5L-X65
Length Unstrained	25.00 ft	26.00 ft								11 ft
Length Restrained			2,618 ft	798 ft	466 ft	58 ft	1,815 ft	321 ft	87 ft	
Temperature - On Test	65 °F	65 °F	62 °F	62 °F	62 °F	62 °F	62 °F	62 °F	62 °F	65 °F
Temperature - End of Test	66 °F	66 °F	63 °F	63 °F	63 °F	63 °F	63 °F	63 °F	63 °F	66 °F
Pressure - On Test	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig
Pressure - End of Test	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig	795 psig

### Unrestrained Pipe

Sum:	Vo	1,181.68 gal 151,280 oz.	Vtp1	1,186.48 gal 151,869 oz.	Vtp2	1,186.36 gal 151,854 oz.
Vo Unrestrained	551 gal	393 gal				237 gal
Fwp 1	1.002435	1.002435				1.002435
Fpp 1	1.002054	1.001700				1.001524
Fpt 1	1.000091	1.000091				1.000091
Fwt 1	1.000467	1.000467				1.000467
Fpwt 1 = Fpt/Fwt	0.999624	0.999624				0.999624
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	553.64 gal	394.57 gal				238 gal
Fwp 2	1.002435	1.002435				1.002435
Fpp 2	1.002054	1.001700				1.001524
Fpt 2	1.000109	1.000109				1.000109
Fwt 2	1.000582	1.000582				1.000582
Fpwt = Fpt/Fwt	0.999527	0.999527				0.999527
Vtp = Vo(Fwp)(Fpp)(Fpwt)	553.59 gal	394.53 gal				238 gal

### Restrained Pipe

Sum:	Vo	133,699.56 gal 17,113,543 oz.	Vtp1	134,264.18 gal 17,185,815 oz.	Vtp2	134,254.66 gal 17,184,597 oz.
Vo Restrained		58,677 gal	17,986 gal	10,462 gal	1,293 gal	40,461 gal
Fwp 1		1.002435	1.002435	1.002435	1.002435	1.002435
Fpp 1		1.002019	1.002019	1.002095	1.001811	1.001502
Fpt 1		1.000024	1.000024	1.000024	1.000024	1.000024
Fwt 1		1.000181	1.000181	1.000181	1.000181	1.000181
Fpwt 1 = Fpt/Fwt		0.999844	0.999844	0.999844	0.999844	0.999844
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		58,930 gal	17,963 gal	10,508 gal	1,298 gal	40,627 gal
Fwp 2		1.002435	1.002435	1.002435	1.002435	1.002435
Fpp 2		1.002022	1.002022	1.002098	1.001815	1.001506
Fpt 2		1.000036	1.000036	1.000036	1.000036	1.000036
Fwt 2		1.000267	1.000267	1.000267	1.000267	1.000267
Fpwt = Fpt/Fwt		0.999769	0.999769	0.999769	0.999769	0.999769
Vtp = Vo(Fwp)(Fpp)(Fpwt)		58,925 gal	17,961 gal	10,507 gal	1,298 gal	40,624 gal

### Combined Pipe

Sum:	Vo	134,881.44 gal 17,264,824 oz.	Vtp1	135,450.66 gal 17,337,684 oz.	Vtp2	135,441.03 gal 17,336,451 oz.
1 °F Change	9.63 gal					1,232.90 oz.

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### Hydrostatic Test Pipe Data Table

PipeType	Length	Restrained / Unrestrained	Outside Diameter	Wall Thickness	Specification & Grade	Pipe Yield Pressure	Material	Joint Type	Seam Type
1	25 ft	Unrestrained	24.000 in.	0.3750 in.	API5L-X60	1,875 psig	Steel	Arc Weld	DSAW
2	26 ft	Unrestrained	20.000 in.	0.3750 in.	API5L-X65	2,438 psig	Steel	Arc Weld	DSAW
3	2,618 ft	Restrained	24.000 in.	0.2810 in.	40ksmys	937 psig	Steel	Arc Weld	SM
4	798 ft	Restrained	24.000 in.	0.2810 in.	API5L-X52	1,218 psig	Steel	Arc Weld	DSAW
5	466 ft	Restrained	24.000 in.	0.2710 in.	API5L-X60	1,355 psig	Steel	Arc Weld	DSAW
6	58 ft	Restrained	24.000 in.	0.3125 in.	API5L-X52	1,354 psig	Steel	Arc Weld	DSAW
7	1,815 ft	Restrained	24.000 in.	0.3125 in.	API5L-X42	1,094 psig	Steel	Arc Weld	DSAW
8	321 ft	Restrained	20.000 in.	0.3125 in.	API5L-X42	1,313 psig	Steel	Arc Weld	DSAW
9	87 ft	Restrained	1.315 in.	0.1400 in.	API5L-Grade B	7,452 psig	Steel	Arc Weld	SM
10	11 ft	Unrestrained	24.000 in.	0.5000 in.	API5L-X65	2,708 psig	Steel	Arc Weld	DSAW
11	11 ft	Unrestrained	20.000 in.	0.5000 in.	API5L-X65	3,250 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	41497360 - T43A
Construction Company	ARB	Job Number
Address	1875 Loveridge Road Antioch, CA 94565 Attention: Redacted	0629-53-3500
Hydrostatic Test Co.	ARB	Project No.
Address	1875 Loveridge Antioch, CA 94565 Attention: Redacted	T-43A 10/11/2011
Test Section	PG&E T-43A L-147, MP 0.85 - 1.95 From: 0+13 To: 60+62.8	
File Name	RCP 61362 - T-43A, L-147, MP 0.85 - 1.95	

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	10/17/11 2:21 PM	Elevation at Test Point	323 ft	Min. Required Test Press At Test Point (1)	739.97 psig	Max. Allowable Test Press at Test Point (4)	825.87 psig
Time and Date Test Ended	10/17/11 10:45 PM	Max. Elevation in Test Section	646 ft	Min. Indicated Test Pressure (2)	766.00 psig	Max. Indicated Test Pressure (5)	823.00 psig
Actual Duration of Test	8 hours 24 minutes	Min. Elevation in Test Section	175 ft	Min. Test Pressure at Max. Elevation (3)	626.03 psig	Max. Test Pressure at Min. Elevation (6)	887.13 psig

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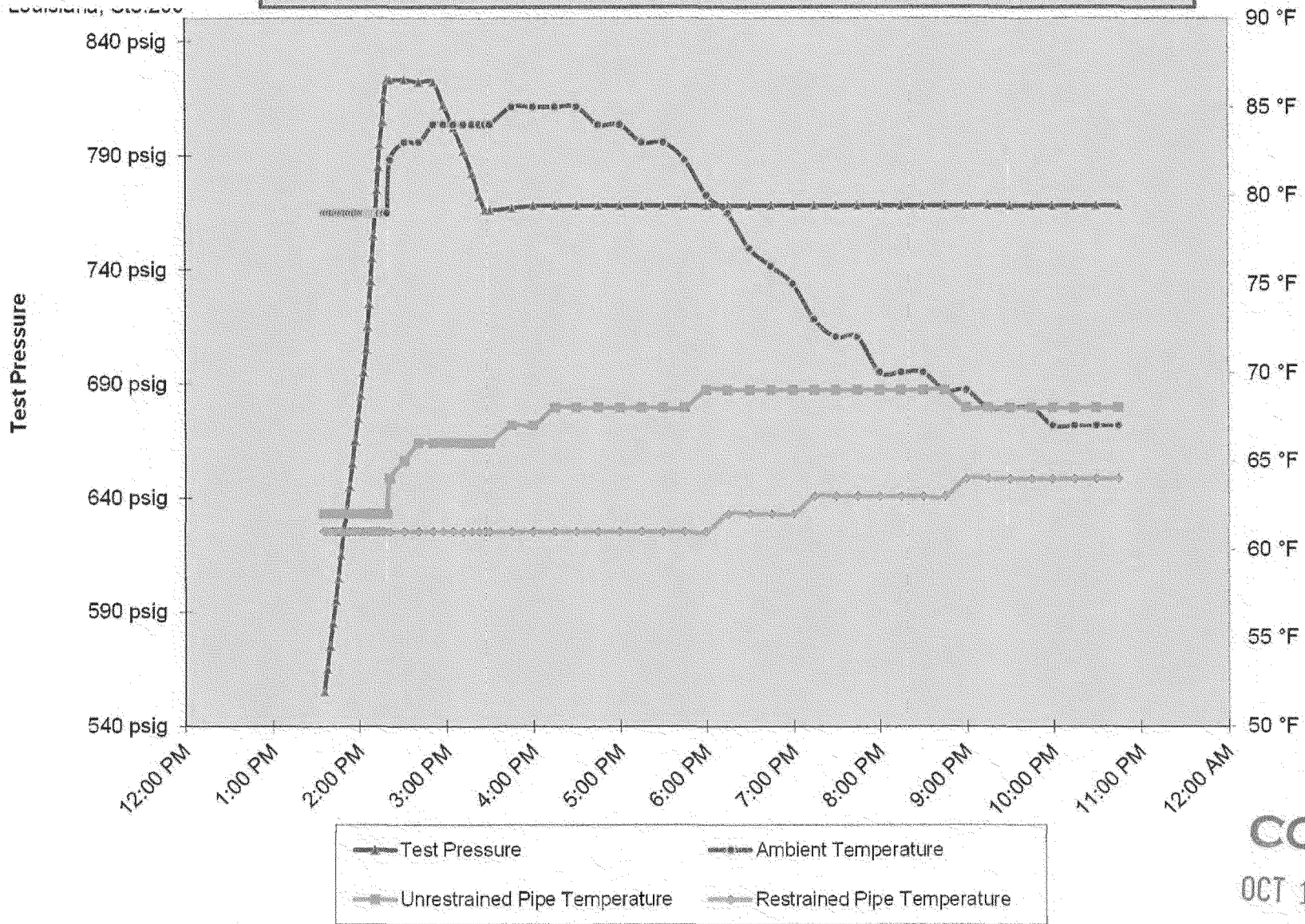
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# PG&E T-43A L-147, MP 0.85 - 1.95



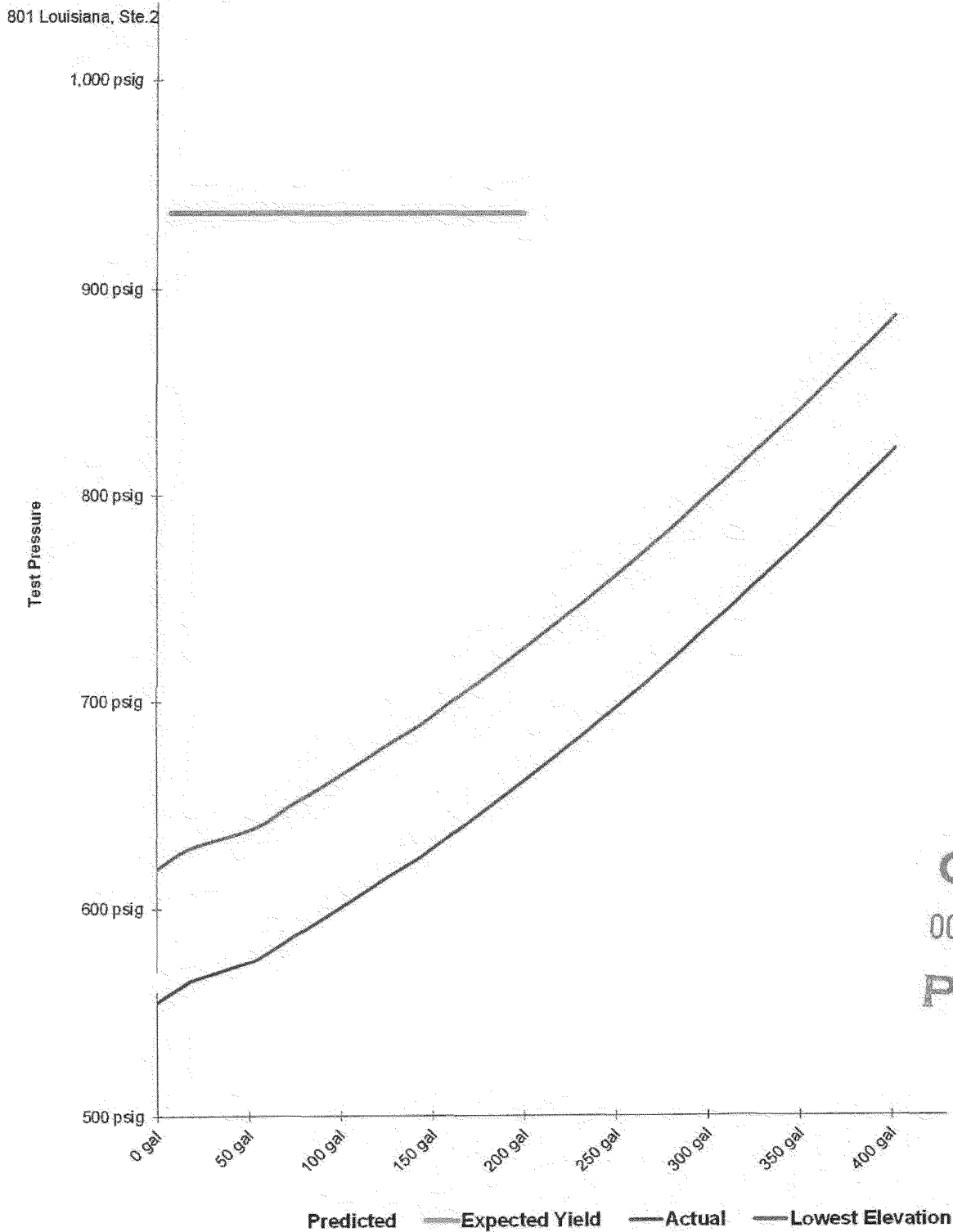
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**Spike Pressure Test  
Stress Strain Curve -- PG&E T-43A L-147, MP 0.85 - 1.95**



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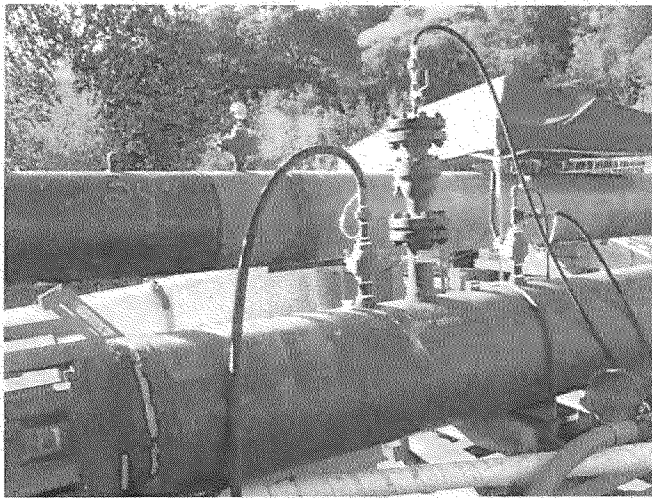


Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope		Spike Pressure Test Stress Strain Curve -- PG&E T-43A L-147, MP 0.85 - 1.95	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted		
555 psig		0.00 gal		0	0.000	Pump gal per stroke	0.094 gal/stroke
565 psig	337	18.17 gal	7.42 gal	1.817	0.742	Pump Piston Diameter	1.625 in
575 psig	994	53.60 gal	14.85 gal	3.543	0.742	Pump Piston Stroke	3.50 in
585 psig	1325	71.45 gal	22.27 gal	1.785	0.743	Pump Cylinders	3 ea
595 psig	1670	90.05 gal	29.70 gal	1.860	0.743	Volume check gal per stroke	0.054 gal/stroke
605 psig	2000	107.85 gal	37.13 gal	1.779	0.743	Volume Released (gallons)	15.00 gal
615 psig	2325	125.37 gal	44.55 gal	1.753	0.743	Pressure Reduced (psi)	10 psi
625 psig	2670	143.98 gal	51.98 gal	1.860	0.743	Maximum2	430 gal
635 psig	2945	158.80 gal	59.41 gal	1.483	0.743	Minimum2	0 gal
645 psig	3235	174.44 gal	66.84 gal	1.564	0.743	Maximum1	1,037 psig
655 psig	3515	189.54 gal	74.26 gal	1.510	0.743	Minimum1	500 psig
665 psig	3790	204.37 gal	81.69 gal	1.483	0.743	Gallons/Stroke Used	0.054 gal/stroke
675 psig	4055	218.66 gal	89.12 gal	1.429	0.743	Predicted Gallons/Stroke	0.027 gal/stroke
685 psig	4330	233.49 gal	96.55 gal	1.483	0.743	Pressure Increment	10 psi
695 psig	4578	246.86 gal	103.98 gal	1.337	0.743	Max Pressure	823 psig
705 psig	4830	260.45 gal	111.41 gal	1.359	0.743	Buried Pipe Temperature	61 °F
715 psig	5070	273.39 gal	118.84 gal	1.294	0.743	Exposed Pipe Temperature	62 °F
725 psig	5305	286.06 gal	126.28 gal	1.267	0.743	ASME B31.8 Appendix N-5	
735 psig	5530	298.20 gal	133.71 gal	1.213	0.743		
745 psig	5770	311.14 gal	141.14 gal	1.294	0.743	Average Actual Elastic Slope	1.817
755 psig	5990	323.00 gal	148.57 gal	1.186	0.743	Average Predicted Elastic Slope	0.743
765 psig	6217	335.24 gal	156.01 gal	1.224	0.743	Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	3.453
775 psig	6440	347.27 gal	163.44 gal	1.202	0.743	Established Minimum Yield Pressure B31.8 N-5 (c)(2)	565 psig
785 psig	6655	358.86 gal	170.87 gal	1.159	0.743	Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2)	418 gal
795 psig	6859	369.86 gal	178.31 gal	1.100	0.743	Volume (After Slope Deviation) B31.8 N-5 (c)(2)	0 gal
805 psig	7075	381.51 gal	185.75 gal	1.165	0.744	<div style="border: 1px solid black; padding: 10px; width: fit-content;"> Redacted   10/17/11  Date </div>	
815 psig	7289	393.05 gal	193.18 gal	1.154	0.744		
823 psig	7455	402.00 gal	199.13 gal	1.119	0.744		
823 psig		402.00 gal	199.13 gal	0.000	0.000		
823 psig		402.00 gal	199.13 gal	0.000	0.000		
823 psig		402.00 gal	199.13 gal	0.000	0.000		
823 psig		402.00 gal	199.13 gal	0.000	0.000		
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823 psig		402.00 gal	199.13 gal	0.000	0.000		
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Test Header Location A



Test Header Location A

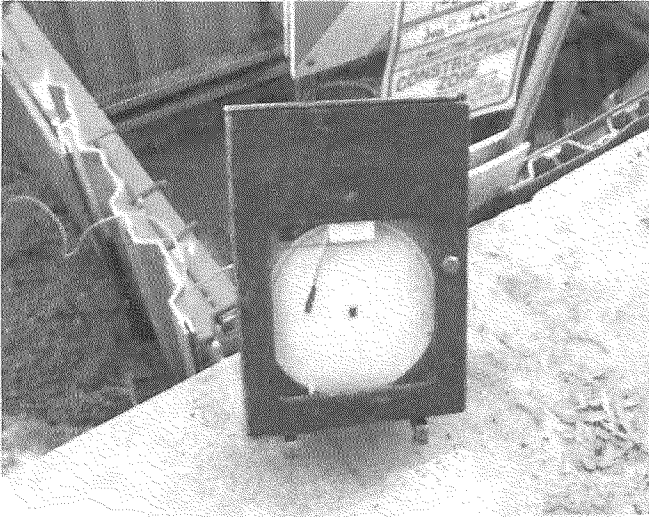


Pressure Recorder and Chart

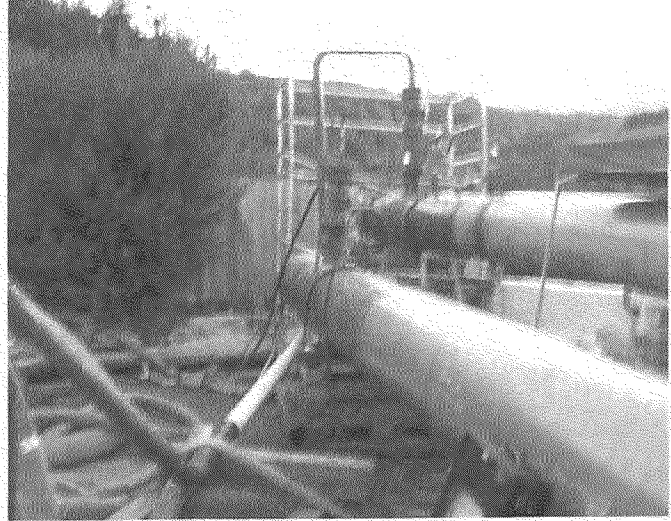


Unrestrained Temp Recorder and Chart

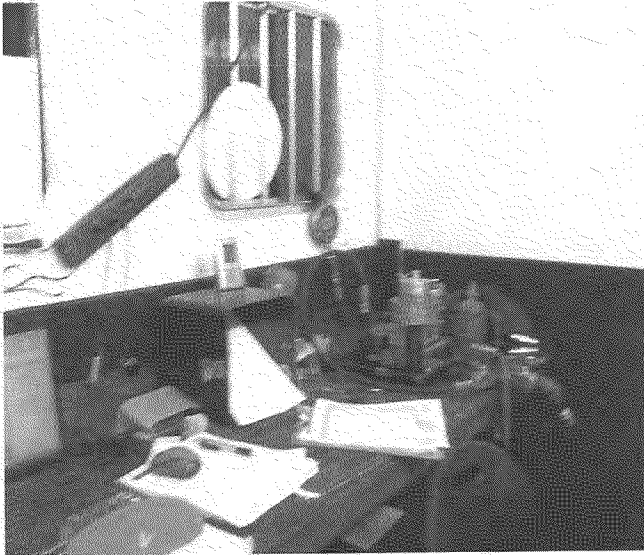
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Restrained Temp Recorder and Chart



Test Header Location A



Deadweight Tester



Test Head Tie-In to Mainline.

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