



**RCP, Inc**

801 Louisiana, Ste.200  
Houston, Texas 77002  
(713)655-8080

Redacted

August 25, 2011

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

Test Contractor:	Contra Costa Inspection Co. -- T-10 8/25/2011
Asset Owner:	Pacific Gas and Electric Company -- 41482858
Construction Contractor:	ARB -- 0629-53-3500
Test Section:	PG&E T-10 L-105C, MP 0.00 - 1.77
Test Date:	August 25, 2011
Certificate Number:	RCP 61362 - T-10, L-105C, MP 0.00 - 1.77

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 Contra Costa Inspection Co. 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 670 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 8.17 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.17 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 630 psig and the established MAOP is 420 psig.

Pressure decreased 36 psi during the test. 7,193.60 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 1,885.91 ounces, gain, which is equivalent to a 0.91 °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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cc. file



### Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41482858
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-10 8/25/2011
Test Section	PG&E T-10 L-105C, MP 0.00 - 1.77		
File Name	RCP 61362 - T-10, L-105C, MP 0.00 - 1.77		

#### Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION:	Test Date:	25-Aug-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-10 L-105C, MP 0.00 - 1.77
From:	0+00 To: 91+40

#### Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	27 ft	24.000 in.	0.375 in.	API5L-X60, DSAW, Arc Weld, Steel	1,875 psi
2	24 ft	22.000 in.	0.375 in.	API5L-X65, ERW-HF, Arc Weld, Steel	2,216 psi
3	8,268 ft	24.000 in.	0.313 in.	API5L-Grade B, SM, Arc Weld, Steel	911 psi
4	916 ft	24.000 in.	0.250 in.	API5L-X42, DSAW, Arc Weld, Steel	875 psi
5	169 ft	22.000 in.	0.313 in.	API5L-Grade B, SM, Arc Weld, Steel	994 psi
6	14 ft	6.625 in.	0.280 in.	API5L-Grade B, SM, Arc Weld, Steel	2,958 psi
7	22 ft	24.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	2,708 psi
8	3 ft	20.000 in.	0.375 in.	API5L-X65, ERW-HF, Arc Weld, Steel	2,438 psi

#### Initial Test Conditions

Pressure at Test Point:	670 psig	Date/Time:	8/25/11 8:40 AM	Pipe Temperature	
Ambient Temperature:	62.0 °F	Elevation @ Test Point:	20.0 ft	Unrestrained:	63.0 °F
Pressure @ High Point (Cal/Measure):	666 psig	Elevation @ High Point:	29.0 ft	Restrained:	60.0 °F
Pressure @ Low Point (Cal/Measure):	673 psig	Elevation @ Low Point:	14.0 ft	Location:	0+00
				Location:	91+40
				Location:	58+61

#### Final Test Conditions

Pressure at Test Point:	634 psig	Date/Time:	8/25/11 4:50 PM	Pipe Temperature	
Ambient Temperature:	72.0 °F	Elevation @ Test Point:	20.0 ft	Unrestrained:	68.0 °F
Pressure @ High Point (Cal/Measure):	630 psig	Elevation @ High Point:	29.0 ft	Restrained:	60.0 °F
Pressure @ Low Point (Cal/Measure):	637 psig	Elevation @ Low Point:	14.0 ft	Location:	0+00
				Location:	91+40
				Location:	58+61
Total Fluid Injected:			Volume gain		
Total Fluid Withdrawn:	7193.60 fluid ounces				
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	1,885.91 oz	gain	0.0070%	0.909 °F equivalent	

Test Duration: 8.17 hours

Minimum Test Pressure:	622 psig	Max Elevation	618 psig	Min Elevation	625 psig
Maximum Test Pressure:	670 psig		666 psig		673 psig
% SMYS:	24.7%		67.0%		
Test Segment Observed % SMYS:	Minimum	22.6%	Maximum	76.3%	
Minimum Test Pressure (Calculated/Measured):				630 psig	
Maximum Allowable Operating Pressure:		DOT Part 192	Test Factor= 1.50	420 psig	

Were leaks observed?	No	Explain:
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Acceptable Hydrostatic Test?	Yes	<p>The test segment was subjected to a spike pressure test of 670 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 8.17 hour test duration period.</p> <p>No leaks were observed during the test period. The test section included 9,353 feet of buried and 90 feet of exposed pipe. Pressure lost 36 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment gained 5°F.</p> <p>7,193.60 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 1,885.91 ounces, gain, which is equivalent to a 0.91 °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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Remarks	<p>Redacted</p> <p>Redacted</p> <p>25-Aug-11</p>
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# Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41482858
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	Contra Costa Inspection Co.	Project No.	T-10 8/25/2011
Test Section	PG&E T-10 L-105C, MP 0.00 - 1.77		
File Name	RCP 61362 - T-10, L-105C, MP 0.00 - 1.77		

Date	25-Aug-11	<b>Test Log</b>	
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Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	8/25/11	8:13 AM	457 psig	62 °F	63 °F	60 °F	Start Spike		
2	8/25/11	8:14 AM	467 psig	62 °F	63 °F	60 °F	Inject		2,206 oz.
3	8/25/11	8:15 AM	477 psig	62 °F	63 °F	60 °F	Inject		735 oz.
4	8/25/11	8:16 AM	487 psig	62 °F	63 °F	60 °F	Inject		1,456 oz.
5	8/25/11	8:17 AM	497 psig	62 °F	63 °F	60 °F	Inject		1,383 oz.
6	8/25/11	8:18 AM	507 psig	62 °F	63 °F	60 °F	Inject		1,451 oz.
7	8/25/11	8:19 AM	517 psig	62 °F	63 °F	60 °F	Inject		1,623 oz.
8	8/25/11	8:20 AM	527 psig	62 °F	63 °F	60 °F	Inject		1,716 oz.
9	8/25/11	8:21 AM	537 psig	62 °F	63 °F	60 °F	Inject		1,647 oz.
10	8/25/11	8:22 AM	547 psig	62 °F	63 °F	60 °F	Inject		1,559 oz.
11	8/25/11	8:23 AM	557 psig	62 °F	63 °F	60 °F	Inject		1,549 oz.
12	8/25/11	8:24 AM	567 psig	62 °F	63 °F	60 °F	Inject		1,515 oz.
13	8/25/11	8:26 AM	577 psig	62 °F	63 °F	60 °F	Inject		1,535 oz.
14	8/25/11	8:28 AM	587 psig	62 °F	63 °F	60 °F	Inject		1,520 oz.
15	8/25/11	8:30 AM	597 psig	62 °F	63 °F	60 °F	Inject		1,466 oz.
16	8/25/11	8:31 AM	607 psig	62 °F	63 °F	60 °F	Inject		1,486 oz.
17	8/25/11	8:32 AM	617 psig	62 °F	63 °F	60 °F	Inject		1,466 oz.
18	8/25/11	8:33 AM	627 psig	62 °F	63 °F	60 °F	Inject		1,422 oz.
19	8/25/11	8:34 AM	637 psig	62 °F	63 °F	60 °F	Inject		1,491 oz.
20	8/25/11	8:35 AM	647 psig	62 °F	63 °F	60 °F	Inject		1,383 oz.
21	8/25/11	8:36 AM	657 psig	62 °F	63 °F	60 °F	Inject		1,432 oz.
22	8/25/11	8:38 AM	667 psig	62 °F	63 °F	60 °F	Inject		1,334 oz.
23	8/25/11	8:39 AM	670 psig	62 °F	63 °F	60 °F	Inject		397 oz.
24	8/25/11	8:40 AM	670 psig	62 °F	63 °F	60 °F	On Test		
25	8/25/11	8:50 AM	670 psig	62 °F	63 °F	60 °F			
26	8/25/11	9:00 AM	670 psig	62 °F	63 °F	60 °F			
27	8/25/11	9:10 AM	670 psig	62 °F	63 °F	60 °F	End Spike		
28	8/25/11	9:11 AM	660 psig	62 °F	63 °F	60 °F	Bleed	1,499 oz.	
29	8/25/11	9:12 AM	650 psig	62 °F	63 °F	60 °F	Bleed	1,499 oz.	
30	8/25/11	9:13 AM	640 psig	62 °F	63 °F	60 °F	Bleed	1,499 oz.	
31	8/25/11	9:17 AM	630 psig	62 °F	63 °F	60 °F	Bleed	1,499 oz.	
32	8/25/11	9:18 AM	622 psig	62 °F	63 °F	60 °F	Bleed	1,199 oz.	
33	8/25/11	9:20 AM	622 psig	62 °F	63 °F	60 °F			
34	8/25/11	9:35 AM	622 psig	62 °F	63 °F	60 °F			
35	8/25/11	9:50 AM	622 psig	63 °F	63 °F	60 °F			
36	8/25/11	10:05 AM	623 psig	62 °F	63 °F	60 °F			
37	8/25/11	10:20 AM	622 psig	62 °F	63 °F	60 °F			
38	8/25/11	10:35 AM	624 psig	63 °F	63 °F	60 °F			
39	8/25/11	10:50 AM	624 psig	62 °F	63 °F	60 °F			
40	8/25/11	11:05 AM	625 psig	64 °F	63 °F	60 °F			
41	8/25/11	11:20 AM	625 psig	64 °F	63 °F	60 °F			
42	8/25/11	11:35 AM	625 psig	65 °F	64 °F	60 °F			
43	8/25/11	11:50 AM	626 psig	65 °F	64 °F	60 °F			
44	8/25/11	12:05 PM	626 psig	65 °F	64 °F	60 °F			





## Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41482858
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-10 8/25/2011
Test Section	PG&E T-10 L-105C, MP 0.00 - 1.77	<b>WATER</b>	
File Name	RCP 61362 - T-10, L-105C, MP 0.00 - 1.77		

### General Pipe Data

Description	Segment							
	1	2	3	4	5	6	7	8
Restrained or Unrestrained?	Unrestrained	Unrestrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	24.000 in.	22.000 in.	24.000 in.	24.000 in.	22.000 in.	6.625 in.	24.000 in.	20.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.313 in.	0.250 in.	0.313 in.	0.280 in.	0.500 in.	0.375 in.
Inside Diameter	23.260 in.	21.250 in.	23.375 in.	23.500 in.	21.375 in.	6.065 in.	23.000 in.	19.250 in.
Spec./Grade	API5L-X60	API5L-X65	API5L-Grade B	API5L-X42	API5L-Grade B	API5L-Grade B	API5L-X65	API5L-X65
Length Unrestrained	27 ft	24 ft				14 ft	22 ft	3 ft
Length Restrained			8.268 ft	916 ft	169 ft			
Temperature -- On Test	63 °F	63 °F	60.0 °F	60.0 °F	60.0 °F	63.0 °F	63.0 °F	63.0 °F
Temperature -- End of Test	68 °F	68 °F	60.0 °F	60.0 °F	60.0 °F	68.0 °F	68.0 °F	68.0 °F
Pressure -- On Test	670 psig	670 psig	670 psig	670 psig	670 psig	670 psig	670 psig	670 psig
Pressure -- End of Test	634 psig	634 psig	634 psig	634 psig	634 psig	634 psig	634 psig	634 psig

### Unrestrained Pipe

Sum:	Vo	1,578.85 gal		Vtp1	1,584.17 gal		Vtp2	1,583.16 gal	
		202,093 oz.			202,774 oz.			202,645 oz.	
Vo Unrestrained	595 gal	442 gal			21 gal	475 gal	45 gal		
Fwp 1	1.002051	1.002051			1.002051	1.002051	1.002051		
Fpp 1	1.001731	1.001582			1.000605	1.001284	1.001433		
Fpl 1	1.000055	1.000055			1.000055	1.000055	1.000055		
Fwt 1	1.000267	1.000267			1.000267	1.000267	1.000267		
Fpwt 1 = Fpl/Fwt	0.999768	0.999768			0.999768	0.999768	0.999768		
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	597.61 gal	443.68 gal			21.06 gal	476.31 gal	45.61 gal		
Fwp 2	1.001941	1.001941			1.001941	1.001941	1.001941		
Fpp 2	1.001638	1.001497			1.000572	1.001215	1.001358		
Fpl 2	1.000146	1.000146			1.000146	1.000146	1.000146		
Fwt 2	1.000803	1.000803			1.000803	1.000803	1.000803		
Fpwt = Fpl/Fwt	0.999343	0.999343			0.999343	0.999343	0.999343		
Vtp = Vo(Fwp)(Fpp)(Fpwt)	597.22 gal	443.40 gal			21.05 gal	476.02 gal	45.48 gal		

### Restrained Pipe

Sum:	Vo	208,105.35 gal		Vtp1	208,856.85 gal		Vtp2	208,816.39 gal	
		26,637,485 oz.			26,733,677 oz.			26,728,498 oz.	
Vo Unrestrained			184,316 gal	20,839 gal	3,150 gal				
Fwp 1			1.002051	1.002051	1.002051				
Fpp 1			1.001520	1.001910	1.001390				
Fpl 1			1.000000	1.000000	1.000000				
Fwt 1			1.000000	1.000000	1.000000				
Fpwt 1 = Fpl/Fwt			1.000000	1.000000	1.000000				
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)			184,975 gal	20,721 gal	3,161 gal				
Fwp 2			1.001941	1.001941	1.001941				
Fpp 2			1.001439	1.001808	1.001316				
Fpl 2			1.000000	1.000000	1.000000				
Fwt 2			1.000000	1.000000	1.000000				
Fpwt = Fpl/Fwt			1.000000	1.000000	1.000000				
Vtp = Vo(Fwp)(Fpp)(Fpwt)			184,939 gal	20,717 gal	3,161 gal				

### Combined Pipe

Sum:	Vo	209,684.20 gal		Vtp1	210,441.02 gal		Vtp2	210,399.55 gal	
		26,839,577 oz.			26,936,451 oz.			26,931,143 oz.	



## Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41492858
Construction Co.	ARB	Job Number	0829-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-10 8/25/2011
Test Section	PG&E T-10 L-105C, MP 0.00 - 1.77		
File Name	RCP 61362 - T-10, L-105C, MP 0.00 - 1.77		<b>WATER</b>

Description	General Pipe Data							
	Segment							
	1	2	3	4	5	6	7	8
Restrained or Unrestrained?	Unrestrained	Unrestrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	24.000 in.	22.000 in.	24.000 in.	24.000 in.	22.000 in.	6.625 in.	24.000 in.	20.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.313 in.	0.250 in.	0.313 in.	0.280 in.	0.500 in.	0.375 in.
Inside Diameter	23.250 in.	21.250 in.	23.375 in.	23.500 in.	21.375 in.	6.065 in.	23.000 in.	19.250 in.
Spec./Grade	API5L-X60	API5L-X65	API5L-Grade B	API5L-X42	API5L-Grade B	API5L-Grade B	API5L-X65	API5L-X65
Length Unrestrained	27.00 ft	24.00 ft				14 ft	22 ft	3 ft
Length Restrained			8.268 ft	9.18 ft	169 ft			
Temperature -- On Test	65 °F	65 °F	59 °F	59 °F	59 °F	65 °F	65 °F	65 °F
Temperature -- End of Test	66 °F	66 °F	60 °F	60 °F	60 °F	66 °F	66 °F	66 °F
Pressure -- On Test	652 psig	652 psig	652 psig	652 psig	652 psig	652 psig	652 psig	652 psig
Pressure -- End of Test	652 psig	652 psig	652 psig	652 psig	652 psig	652 psig	652 psig	652 psig

Unrestrained Pipe									
Sum:	Vo	1,578.85 gal 202,093 oz.		Vp1	1,583.76 gal 202,721 oz.		Vp2	1,583.61 gal 202,702 oz.	
Vo Unrestrained	595 gal	442 gal			21 gal		475 gal	45 gal	
Fwp 1	1.001998	1.001998			1.001998		1.001998	1.001998	
Fpp 1	1.001684	1.001539			1.000588		1.001250	1.001395	
Fpt 1	1.000091	1.000091			1.000091		1.000091	1.000091	
Fwt 1	1.000467	1.000467			1.000467		1.000467	1.000467	
Fpwt 1 = Fp/Fwt	0.999624	0.999624			0.999624		0.999624	0.999624	
Vp1 = Vo(Fwp)(Fpp)(Fpwt)	597.45 gal	443.57 gal			21.08 gal		476.19 gal	45 gal	
Fwp 2	1.001996	1.001996			1.001996		1.001996	1.001996	
Fpp 2	1.001684	1.001539			1.000588		1.001250	1.001395	
Fpt 2	1.000109	1.000109			1.000109		1.000109	1.000109	
Fwt 2	1.000582	1.000582			1.000582		1.000582	1.000582	
Fpwt 2 = Fp/Fwt	0.999527	0.999527			0.999527		0.999527	0.999527	
Vp2 = Vo(Fwp)(Fpp)(Fpwt)	597.39 gal	443.52 gal			21.08 gal		476.15 gal	45 gal	

Restrained Pipe									
Sum:	Vo	208,105.35 gal 26,637,485 oz.		Vp1	208,852.68 gal 26,733,143 oz.		Vp2	208,836.62 gal 26,731,087 oz.	
Vo Restrained		184,316 gal		20,639 gal	3,150 gal				
Fwp 1		1.001998		1.001998	1.001998				
Fpp 1		1.001476		1.001855	1.001349				
Fpt 1		0.999988		0.999988	0.999988				
Fwt 1		0.999907		0.999907	0.999907				
Fpwt 1 = Fp/Fwt		1.000081		1.000081	1.000081				
Vp1 = Vo(Fwp)(Fpp)(Fpwt)		184,971 gal		20,720 gal	3,161 gal				
Fwp 2		1.001996		1.001996	1.001996				
Fpp 2		1.001479		1.001859	1.001353				
Fpt 2		1.000000		1.000000	1.000000				
Fwt 2		1.000000		1.000000	1.000000				
Fpwt 2 = Fp/Fwt		1.000000		1.000000	1.000000				
Vp2 = Vo(Fwp)(Fpp)(Fpwt)		184,957 gal		20,719 gal	3,161 gal				

Combined Pipe									
Sum:	Vo	209,684.20 gal 26,839,577 oz.		Vp1	210,438.44 gal 26,935,864 oz.		Vp2	210,420.23 gal 26,933,789 oz.	
1 °F Change	16.22 gal	2,075.55 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	27 ft	Unrestrained	24.000 in.	0.3750 in.	API5L-X60	1,875 psig	Steel	Arc Weld	DSAW
2	24 ft	Unrestrained	22.000 in.	0.3750 in.	API5L-X65	2,216 psig	Steel	Arc Weld	ERW-HF
3	8,268 ft	Restrained	24.000 in.	0.3125 in.	API5L-Grade B	911 psig	Steel	Arc Weld	SM
4	916 ft	Restrained	24.000 in.	0.2500 in.	API5L-X42	875 psig	Steel	Arc Weld	DSAW
5	169 ft	Restrained	22.000 in.	0.3125 in.	API5L-Grade B	994 psig	Steel	Arc Weld	SM
6	14 ft	Unrestrained	6.625 in.	0.2800 in.	API5L-Grade B	2,958 psig	Steel	Arc Weld	SM
7	22 ft	Unrestrained	24.000 in.	0.5000 in.	API5L-X65	2,708 psig	Steel	Arc Weld	DSAW
8	3 ft	Unrestrained	20.000 in.	0.3750 in.	API5L-X65	2,438 psig	Steel	Arc Weld	ERW-HF

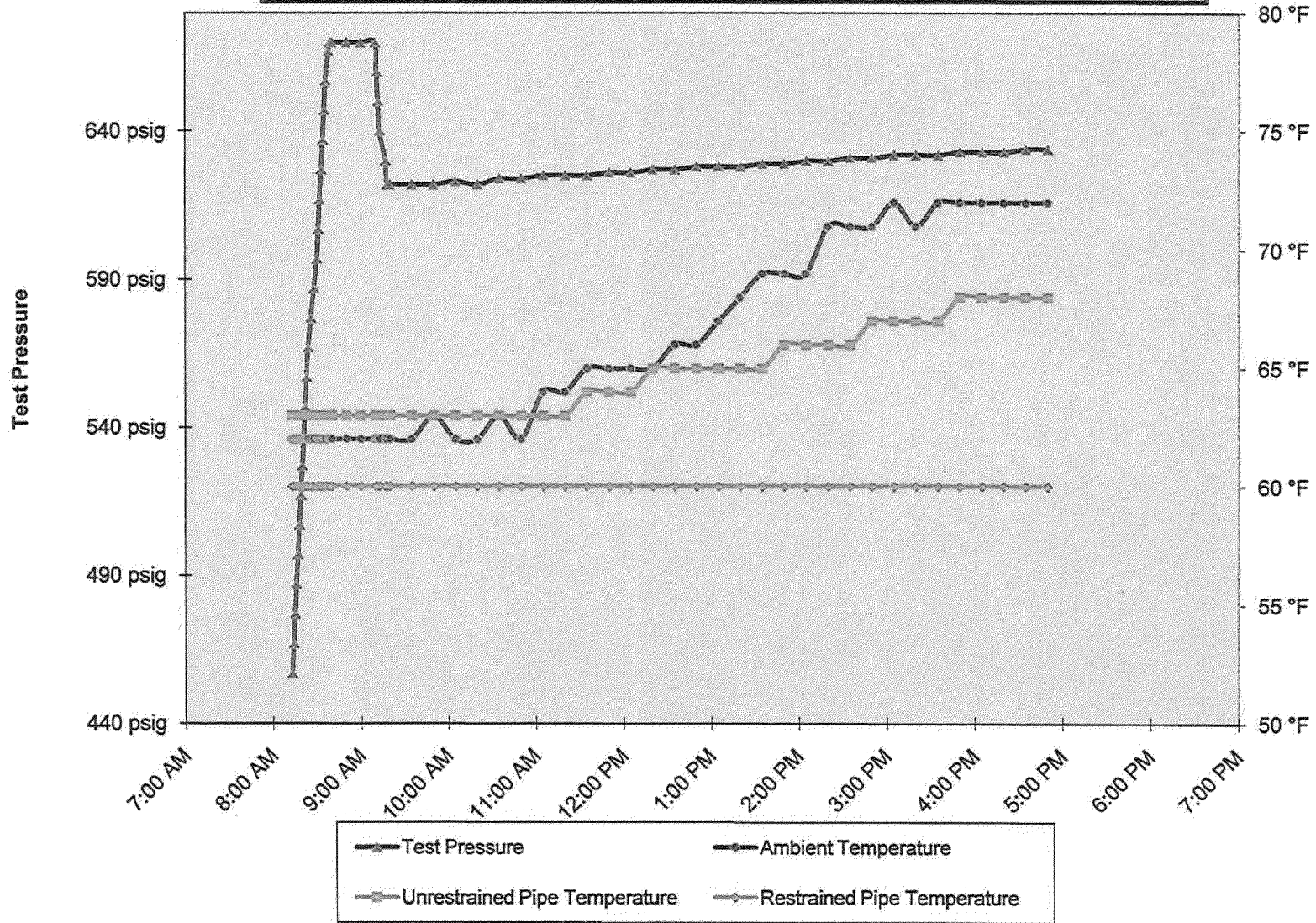
### Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	360 N. Wiget Walnut Creek, CA 94598	41482858
	Redacted	
Construction Company	ARB	Job Number
Address	1875 Loveridge Road Antioch, CA 94565	0629-53-3500
	Redacted	
Hydrostatic Test Co.	Contra Costa Inspection Co.	Project No.
Address	2820 LaJolla Drive Antioch, CA 94565	T-10 8/25/2011
	Redacted	
Test Section	PG&E T-10 L-105C, MP 0.00 - 1.77	
	From: 0+00	
	To: 91+40	
File Name	RCP 61362 - T-10, L-105C, MP 0.00 - 1.77	

<b>Part II – Test Data (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)</b>				Note: Minimum test pressure and duration are not to be charged without written approval.			
Time and Date Test Pressure Reached	8/25/11 8:40 AM	Elevation at Test Point	20 ft	Min. Required Test Press At Test Point (1)	608.90 psig	Max. Allowable Test Press at Test Point (4)	677.40 psig
Time and Date Test Ended	8/25/11 4:50 PM	Max. Elevation in Test Section	29 ft	Min. Indicated Test Pressure (2)	622.00 psig	Max. Indicated Test Pressure (5)	670.00 psig
Actual Duration of Test	8 hours 10 minutes	Min. Elevation in Test Section	14 ft	Min. Test Pressure at Max. Elevation (3)	618.10 psig	Max. Test Pressure at Min. Elevation (6)	672.60 psig

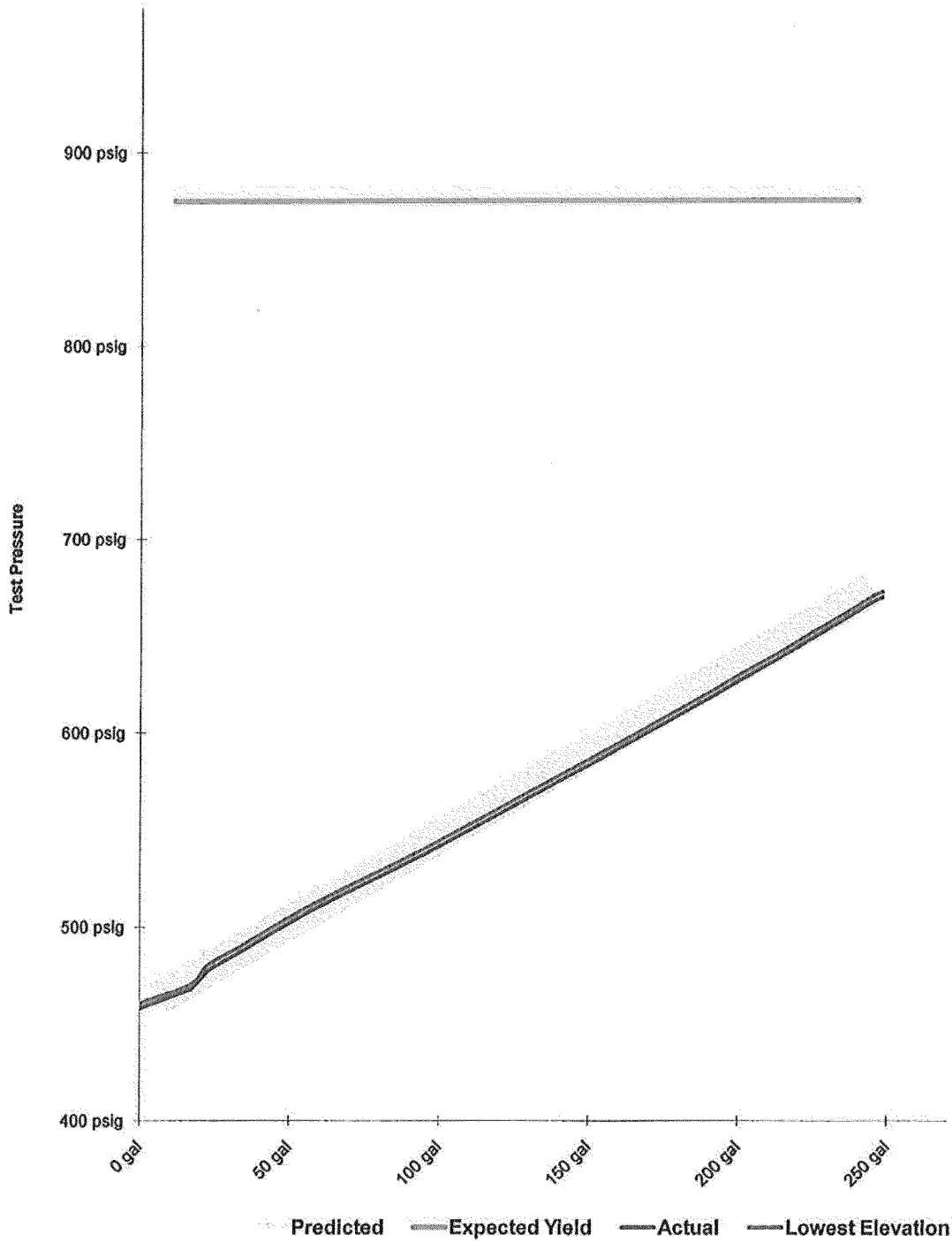
RCP

PG&E T-10 L-105C, MP 0.00 - 1.77

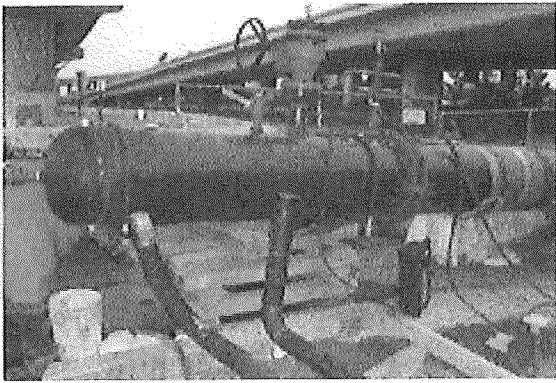




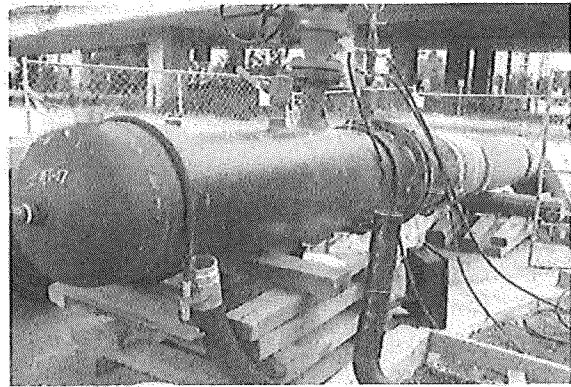
**Spike Pressure Test  
Stress Strain Curve -- PG&E T-10 L-105C, MP 0.00 - 1.77**



Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope		Spike Pressure Test Stress Strain Curve -- PG&E T-10 L-105C, MP 0.00 - 1.77			
Pressure	Strokes	Gallons	Gallons	Actual	Predicted				
458 psig	0	0.00 gal		0	0.000	Pump gal per stroke	0.058 gal/stroke		
468 psig	450	17.24 gal	11.31 gal	1.724	1.131	Pump Piston Diameter	1.250 in		
478 psig	600	22.98 gal	22.62 gal	0.575	1.131	Pump Piston Stroke	3.50 in		
488 psig	897	34.36 gal	33.93 gal	1.138	1.131	Pump Cylinders	3 ea		
498 psig	1179	45.16 gal	45.24 gal	1.080	1.131	Volume check gal per stroke	0.038 gal/stroke		
508 psig	1475	58.50 gal	58.55 gal	1.134	1.131	Volume Released (gallons)	58.20 gal		
518 psig	1806	69.18 gal	67.86 gal	1.268	1.131	Pressure Reduced (psi)	48 psi		
528 psig	2156	82.59 gal	79.18 gal	1.341	1.131	Maximum2	270 gal		
538 psig	2492	95.46 gal	90.49 gal	1.287	1.131	Minimum2	0 gal		
548 psig	2810	107.64 gal	101.81 gal	1.218	1.131	Maximum1	975 psig		
558 psig	3126	119.74 gal	113.12 gal	1.210	1.132	Minimum1	400 psig		
568 psig	3435	131.58 gal	124.44 gal	1.184	1.132	Gallons/Stroke Used	0.038 gal/stroke		
578 psig	3748	143.57 gal	135.75 gal	1.199	1.132	Predicted Gallons/Stroke	0.037 gal/stroke		
588 psig	4058	155.44 gal	147.07 gal	1.187	1.132	Pressure Increment	10 psi		
598 psig	4357	166.90 gal	158.39 gal	1.145	1.132	Max Pressure	670 psig		
608 psig	4660	178.50 gal	169.71 gal	1.161	1.132	Buried Pipe Temperature	60 °F		
618 psig	4959	189.95 gal	181.03 gal	1.145	1.132	Exposed Pipe Temperature	63 °F		
628 psig	5249	201.06 gal	192.35 gal	1.111	1.132	ASME B31.8 Appendix N-5			
638 psig	5553	212.71 gal	203.67 gal	1.164	1.132				
648 psig	5835	223.51 gal	214.99 gal	1.080	1.132				
658 psig	6127	234.69 gal	226.31 gal	1.119	1.132				
668 psig	6399	245.11 gal	237.63 gal	1.042	1.132				
670 psig	6480	248.22 gal	239.90 gal	1.551	1.132				
670 psig		248.22 gal	239.90 gal	0.000	0.000			Average Actual Elastic Slope	1.167
670 psig		248.22 gal	239.90 gal	0.000	0.000			Average Predicted Elastic Slope	1.132
670 psig		248.22 gal	239.90 gal	0.000	0.000			Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	2.218
670 psig		248.22 gal	239.90 gal	0.000	0.000			Established Minimum Yield Pressure B31.8 N-5 (c)(2)	670 psig
670 psig		248.22 gal	239.90 gal	0.000	0.000	Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2)	418 gal		
670 psig		248.22 gal	239.90 gal	0.000	0.000	Volume (After Slope Deviation) B31.8 N-5 (c)(2)	0 gal		
670 psig		248.22 gal	239.90 gal	0.000	0.000	Redacted			
670 psig		248.22 gal	239.90 gal	0.000	0.000				
670 psig		248.22 gal	239.90 gal	0.000	0.000				
670 psig		248.22 gal	239.90 gal	0.000	0.000				
670 psig		248.22 gal	239.90 gal	0.000	0.000				
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670 psig		248.22 gal	239.90 gal	0.000	0.000				
670 psig		248.22 gal	239.90 gal	0.000	0.000				
670 psig		248.22 gal	239.90 gal	0.000	0.000				



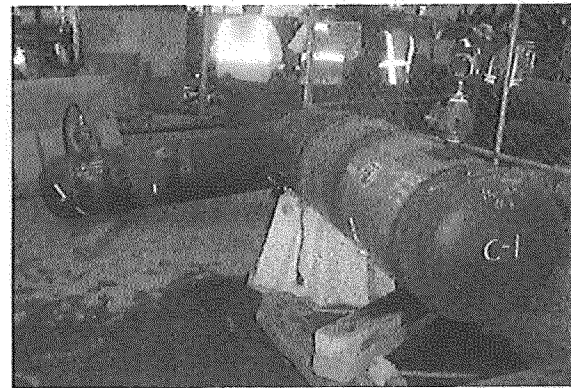
Test Location: Test Head T-10



Test Location: Segment Header



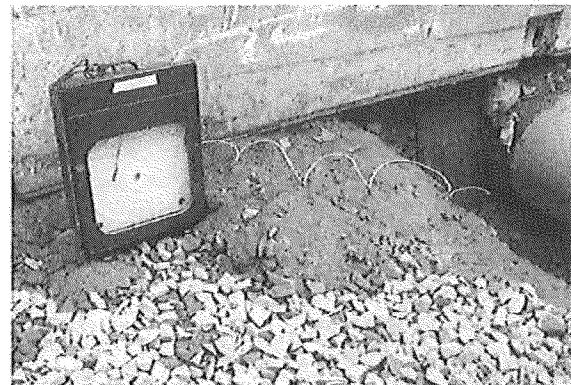
Test Location: Pipeline Connects (Loc A)



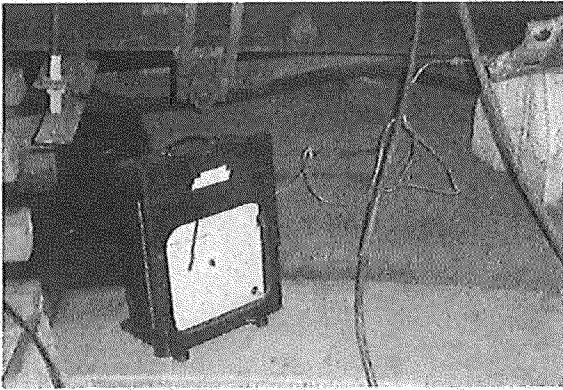
Test Location: Spool Piece for Tie-In (Loc A)



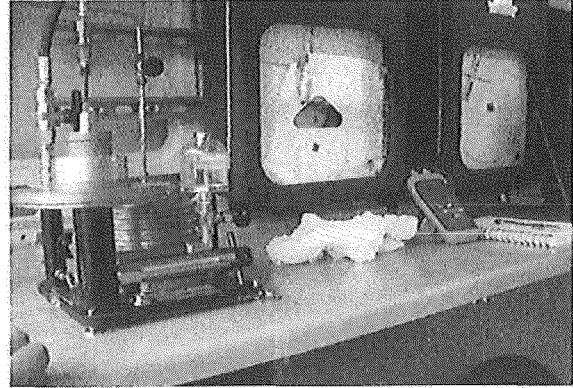
Injection pump



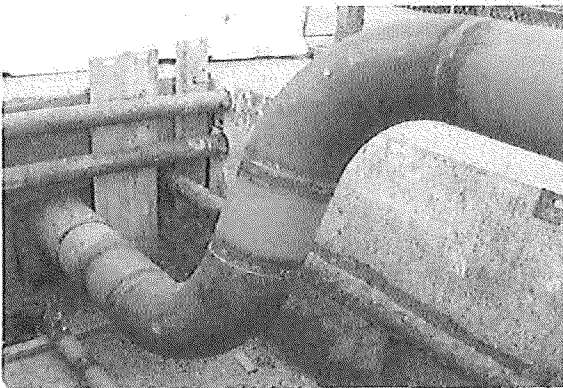
Restrained Temp Recorder (Loc A)



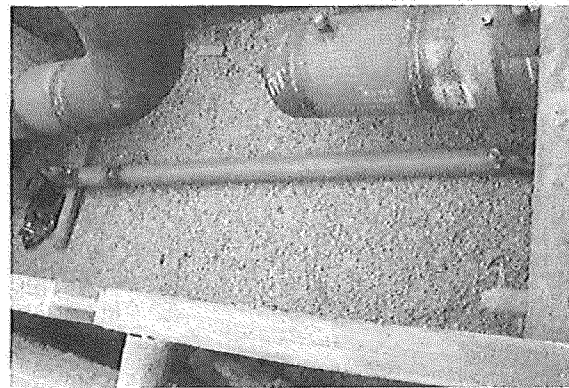
Unrestrained Temp Recorder (Loc A)



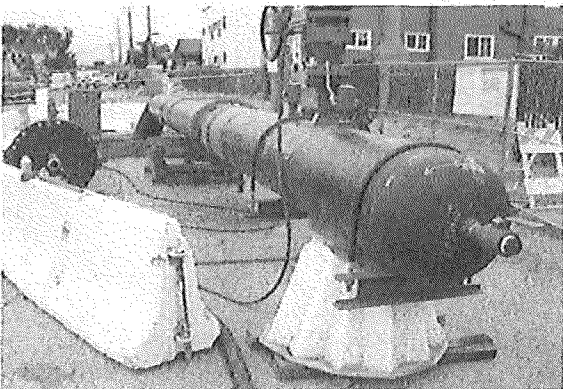
Deadweight, Temp Fluke and Pressure Recorder



Test Location: Pipeline Connects (Loc B)



6" X 9"4" Pipe Section (Loc B)



Test Location: Test End



Restrained Temp Recorder (Loc C)