



RCP, Inc

801 Louisiana, Ste 200
Houston, Texas 77002

Redacted

June 23, 2011

Pacific Gas and Electric Company
3600 Adobe Rd
Petaluma, Ca 94954
Attention: Joel Mannie
Attention:

Test Contractor:	Akri – PG&E 6-13-11
Asset Owner:	Pacific Gas and Electric Company – 41474079
Construction Contractor:	ARB – 0629-53-3500
Test Section:	PG&E T-36B, Line 132
Test Date:	June 13, 2011
Certificate Number:	RCP 61362 - T-36B, L-132

To whom it may concern,

This letter is to certify that the hydrostatic test performed on pipe owned by Pacific Gas and Electric Company and tested by Akri met the requirements of the Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 3).

Prior to initiation of the hydrostatic test period, the test segment was subjected to a spike pressure of 582 psig for 30 minutes.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 9 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 460 psig and the established MAOP is 307 psig.

Pressure decreased 45 psi during the test. 7,507.20 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 2,135.36 ounces, loss, which is equivalent to a 0.93 °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,

Redacted

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RCP 61362,T-36B, L-132RB (1) xlsx
Letter



Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		
File Name	RCP 61362 - T-36B, L-132		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION:	Test Date:	13-Jun-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-36B, Line 132	
From:	125+00	To: 190+82

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	38.00 ft	30.000 in.	0.375 in.	API5L-X65, DSAW, Arc Weld, Steel	1,625 psi
2	6,608.00 ft	30.000 in.	0.375 in.	API5L-X52, DSAW, Arc Weld, Steel	1,300 psi
3	1.00 ft	6.625 in.	0.432 in.	API5L-Grade B, SM, Arc Weld, Steel	4,565 psi
4	8 ft	30.000 in.	0.375 in.	API5L-X65, DSAW, Arc Weld, Steel	1,625 psi
5	22 ft	30.000 in.	0.375 in.	API5L-X52, DSAW, Arc Weld, Steel	1,300 psi

Initial Test Conditions

Pressure at Test Point:	582 psig	Date/Time:	6/13/11 6:45 AM	Pipe Temperature	
Ambient Temperature:	64.0 °F	Elevation @ Test Point:	44.0 ft	Unrestrained:	63.0 °F
Pressure @ High Point (Cal/Measure):	506 psig	Elevation @ High Point:	220.0 ft	Restrained:	64.0 °F
Pressure @ Low Point (Cal/Measure):	585 psig	Elevation @ Low Point:	38.0 ft	Location:	125+00
				Location:	190+25
				Location:	129+50

Final Test Conditions

Pressure at Test Point:	537 psig	Date/Time:	6/13/11 3:15 PM	Pipe Temperature	
Ambient Temperature:	64.0 °F	Elevation @ Test Point:	44.0 ft	Unrestrained:	65.0 °F
Pressure @ High Point (Cal/Measure):	461 psig	Elevation @ High Point:	220.0 ft	Restrained:	65.0 °F
Pressure @ Low Point (Cal/Measure):	540 psig	Elevation @ Low Point:	38.0 ft	Location:	125+00
				Location:	190+25
				Location:	129+50
Total Fluid Injected:		Total Fluid Withdrawn:		Volume loss:	
		7507.20 fluid ounces			
Net Change in Volume of the Test Section ± (± Gain, - Loss):	(2,135.36) oz	loss	(0.0071)%	(0.826) °F equivalent	

Test Duration: 9 hours

Maximum Test Pressure:	582 psig					
% SMYS @:	44.8%	Test Point	38.9%	High Point	45.0%	Low Point
Minimum Test Pressure (Calculated/Measured):						461 psig
Maximum Allowable Operating Pressure:			DOT Part 192	Test Factor= 1.50	307 psig	

Were leaks observed?	No	Explain:
Acceptable Hydrostatic Test?	Yes	<p>Prior to initiation of the hydrostatic test period, the test segment was subjected to a spike pressure of 582 psig for 30 minutes.</p> <p>No leaks were observed during the test period. The test section included 6,608 feet of buried and 69 feet of exposed pipe. Pressure lost 45 psi during the test. The buried pipe segment gained 1°F fluid temperature and the exposed pipe segment gained 2°F.</p> <p>7,507.20 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 2,135.36 ounces, loss, which is equivalent to a 0.93 °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 loss is attributed to the error characteristic of the temperature measurement instrumentation utilized.</p>

Remarks

Redacted

23-Jun-11



Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		
File Name	RCP 61362 - T-36B, L-132		

Date 13-Jun-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	6/13/11	6:24 AM	387 psig	54 °F	62 °F	64 °F	Start Spike		
2	6/13/11	6:25 AM	397 psig						2,029 oz.
3	6/13/11	6:26 AM	407 psig						1,812 oz.
4	6/13/11	6:27 AM	417 psig						1,676 oz.
5	6/13/11	6:28 AM	427 psig						1,526 oz.
6	6/13/11	6:29 AM	437 psig						1,504 oz.
7	6/13/11	6:30 AM	447 psig						1,318 oz.
8	6/13/11	6:31 AM	457 psig						1,467 oz.
9	6/13/11	6:32 AM	467 psig						1,571 oz.
10	6/13/11	6:33 AM	477 psig						1,490 oz.
11	6/13/11	6:34 AM	487 psig						1,544 oz.
12	6/13/11	6:35 AM	497 psig						1,617 oz.
13	6/13/11	6:36 AM	507 psig						1,694 oz.
14	6/13/11	6:37 AM	517 psig						1,721 oz.
15	6/13/11	6:38 AM	527 psig						1,245 oz.
16	6/13/11	6:39 AM	537 psig						2,106 oz.
17	6/13/11	6:40 AM	547 psig						1,128 oz.
18	6/13/11	6:41 AM	557 psig						1,698 oz.
19	6/13/11	6:42 AM	567 psig						1,522 oz.
20	6/13/11	6:43 AM	577 psig						1,033 oz.
21	6/13/11	6:44 AM	582 psig	54 °F	63 °F	64 °F			2,124 oz.
22	6/13/11	6:45 AM	582 psig	54 °F	63 °F	64 °F	On Test		
23	6/13/11	6:55 AM	582 psig	54 °F	64 °F	64 °F			
24	6/13/11	7:05 AM	582 psig	54 °F	64 °F	64 °F			
25	6/13/11	7:15 AM	582 psig	54 °F	63 °F	64 °F	End Spike		
26	6/13/11	7:25 AM	572 psig	54 °F	63 °F	64 °F	Bleed	1,632 oz.	
27	6/13/11	7:30 AM	562 psig	54 °F	62 °F	64 °F		1,632 oz.	
28	6/13/11	7:45 AM	536 psig	54 °F	63 °F	64 °F		4,243 oz.	
29	6/13/11	8:00 AM	536 psig	54 °F	63 °F	64 °F	Cloud Cover		
30	6/13/11	8:15 AM	536 psig	54 °F	63 °F	64 °F			
31	6/13/11	8:30 AM	536 psig	55 °F	62 °F	64 °F			
32	6/13/11	8:45 AM	536 psig	56 °F	62 °F	64 °F			
33	6/13/11	9:00 AM	536 psig	57 °F	62 °F	64 °F			
34	6/13/11	9:15 AM	536 psig	57 °F	62 °F	64 °F			
35	6/13/11	9:30 AM	536 psig	58 °F	62 °F	64 °F			
36	6/13/11	9:45 AM	536 psig	58 °F	62 °F	64 °F			
37	6/13/11	10:00 AM	536 psig	59 °F	62 °F	64 °F			
38	6/13/11	10:15 AM	536 psig	59 °F	62 °F	64 °F			
39	6/13/11	10:30 AM	536 psig	59 °F	62 °F	64 °F			
40	6/13/11	10:45 AM	536 psig	60 °F	62 °F	64 °F			
41	6/13/11	11:00 AM	536 psig	60 °F	62 °F	64 °F			
42	6/13/11	11:15 AM	536 psig	60 °F	62 °F	64 °F			
43	6/13/11	11:30 AM	536 psig	60 °F	62 °F	64 °F	Cloud Cover		



Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		
File Name	RCP 61362 - T-36B, L-132		

Date **13-Jun-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
44	6/13/11	11:45 AM	536 psig	60 °F	62 °F	65 °F			
45	6/13/11	12:00 PM	536 psig	60 °F	63 °F	65 °F			
46	6/13/11	12:15 PM	536 psig	65 °F	63 °F	65 °F			
47	6/13/11	12:30 PM	536 psig	65 °F	63 °F	65 °F			
48	6/13/11	12:45 PM	536 psig	66 °F	63 °F	65 °F			
49	6/13/11	1:00 PM	536 psig	66 °F	63 °F	65 °F			
50	6/13/11	1:15 PM	536 psig	66 °F	63 °F	65 °F			
51	6/13/11	1:30 PM	536 psig	66 °F	64 °F	66 °F			
52	6/13/11	1:45 PM	536 psig	67 °F	64 °F	66 °F			
53	6/13/11	2:00 PM	536 psig	67 °F	65 °F	66 °F			
54	6/13/11	2:15 PM	537 psig	66 °F	65 °F	66 °F			
55	6/13/11	2:30 PM	537 psig	66 °F	65 °F	66 °F			
56	6/13/11	2:45 PM	537 psig	65 °F	65 °F	66 °F			
57	6/13/11	3:00 PM	537 psig	63 °F	65 °F	65 °F			
58	6/13/11	3:15 PM	537 psig	64 °F	65 °F	65 °F	Cloud Cover	End of Test	

Spike Test | 7,507 oz. | 31,824 oz.

Hydrostatic Test | 7,507 oz.

Were leaks observed during the test period?

Exposed and buried pipe,
no leaks observed.

High Test Pressure: 582 psig
Low Test Pressure: 536 psig



Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		
File Name	RCP 61362 - T-36B, L-132		WATER

General Pipe Data

Description	Segment				
	1	2	3	4	5
Restrained or Unrestrained?	Unrestrained	Restrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	30.000 in.	30.000 in.	6.625 in.	30.000 in.	30.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.432 in.	0.375 in.	0.375 in.
Inside Diameter	29.250 in.	29.250 in.	5.761 in.	29.250 in.	29.250 in.
Spec./Grade	API5L-X65	API5L-X52	API5L-Grade B	API5L-X65	API5L-X52
Length Unrestrained	38 ft		1 ft	8 ft	22 ft
Length Restrained		6,608 ft			
Temperature -- On Test	63 °F	64 °F	63.0 °F	63.0 °F	63.0 °F
Temperature -- End of Test	65 °F	65 °F	65.0 °F	65.0 °F	65.0 °F
Pressure -- On Test	582 psig	582 psig	582 psig	582 psig	582 psig
Pressure -- End of Test	537 psig	537 psig	537 psig	537 psig	537 psig

Unrestrained Pipe

Sum:	Vo	2,375.02 gal 304,003 oz.	Vtp1	2,383.24 gal 305,055 oz.	Vtp2	2,382.18 gal 304,919 oz.
Vo Unrestrained	1,326 gal		279 gal	768 gal		
Fwp 1	1.001781		1.001781	1.001781		
Fpp 1	1.001892		1.000323	1.001892	1.001892	
Fpt 1	1.000055		1.000055	1.000055	1.000055	
Fwt 1	1.000267		1.000267	1.000267	1.000267	
Fpwt 1 = Fpt/Fwt	0.999788		0.999788	0.999788	0.999788	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	1,331.05 gal		1.36 gal	280.22 gal	770.61 gal	
Fwp 2	1.001643		1.001643	1.001643	1.001643	
Fpp 2	1.001745		1.000298	1.001745	1.001745	
Fpt 2	1.000091		1.000091	1.000091	1.000091	
Fwt 2	1.000467		1.000467	1.000467	1.000467	
Fpwt = Fpt/Fwt	0.999624		0.999624	0.999624	0.999624	
Vtp = Vo(Fwp)(Fpp)(Fpwt)	1,330.46 gal		1.36 gal	280.10 gal	770.27 gal	

Restrained Pipe

Sum:	Vo	230,664.59 gal 29,525,067 oz.	Vtp1	231,321.51 gal 29,609,153 oz.	Vtp2	231,247.24 gal 29,599,647 oz.
Vo Unrestrained	230,665 gal					
Fwp 1	1.001781					
Fpp 1	1.001391					
Fpt 1	1.000048					
Fwt 1	1.000375					
Fpwt 1 = Fpt/Fwt	0.999674					
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	231,322 gal					
Fwp 2	1.001643					
Fpp 2	1.001289					
Fpt 2	1.000061					
Fwt 2	1.000467					
Fpwt = Fpt/Fwt	0.999593					
Vtp = Vo(Fwp)(Fpp)(Fpwt)	231,247 gal					

Combined Pipe

Sum:	Vo	233,039.61 gal 29,829,070 oz.	Vtp1	233,704.75 gal 29,914,208 oz.	Vtp2	233,629.42 gal 29,904,565 oz.
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Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		WATER
File Name	RCP 61362 - T-36B, L-132		

General Pipe Data

Description	Segment				
	1	2	3	4	5
Restrained or Unrestrained?	Unrestrained	Restrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	30.000 in.	30.000 in.	6.625 in.	30.000 in.	30.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.432 in.	0.375 in.	0.375 in.
Inside Diameter	29.250 in.	29.250 in.	5.761 in.	29.250 in.	29.250 in.
Spec./Grade	API5L-X65	API5L-X52	API5L-Grade B	API5L-X65	API5L-X52
Length Unstrained	38.00 ft		1.00 ft	8 ft	22 ft
Length Restrained		6.608 ft			
Temperature -- On Test	63 °F	64 °F	63 °F	63 °F	63 °F
Temperature -- End of Test	64 °F	65 °F	64 °F	64 °F	64 °F
Pressure -- On Test					
Pressure -- End of Test					

Unrestrained Pipe

Sum:	Vo	2,375.02 gal 304,003 oz.	Vtp1	2,374.52 gal 303,938 oz.	Vtp2	2,374.30 gal 303,911 oz.
Vo Unrestrained	1,326 gal		1 gal	279 gal	768 gal	
Fwp 1	1.000000		1.000000	1.000000	1.000000	
Fpp 1	1.000000		1.000000	1.000000	1.000000	
Fpt 1	1.000055		1.000055	1.000055	1.000055	
Fwt 1	1.000267		1.000267	1.000267	1.000267	
Fpwt 1 = Fpt/Fwt	0.999788		0.999788	0.999788	0.999788	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	1,326.18 gal		1.35 gal	279.20 gal	767.79 gal	
Fwp 2	1.000000		1.000000	1.000000	1.000000	
Fpp 2	1.000000		1.000000	1.000000	1.000000	
Fpt 2	1.000073		1.000073	1.000073	1.000073	
Fwt 2	1.000375		1.000375	1.000375	1.000375	
Fpwt = Fpt/Fwt	0.999698		0.999698	0.999698	0.999698	
Vtp = Vo(Fwp)(Fpp)(Fpwt)	1,326.06 gal		1.35 gal	279.17 gal	767.72 gal	

Restrained Pipe

Sum:	Vo	230,664.59 gal 29,525,067 oz.	Vtp1	230,592.69 gal 29,515,865 oz.	Vtp2	230,574.92 gal 29,513,590 oz.
Vo Restrained		230,665 gal				
Fwp 1		1.000000				
Fpp 1		1.000014				
Fpt 1		1.000048				
Fwt 1		1.000375				
Fpwt 1 = Fpt/Fwt		0.999674				
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		230,593 gal				
Fwp 2		1.000000				
Fpp 2		1.000018				
Fpt 2		1.000061				
Fwt 2		1.000467				
Fpwt = Fpt/Fwt		0.999593				
Vtp = Vo(Fwp)(Fpp)(Fpwt)		230,575 gal				

Combined Pipe

Sum:	Vo	233,039.61 gal 29,829,070 oz.	Vtp1	232,967.21 gal 29,819,803 oz.	Vtp2	232,949.23 gal 29,817,501 oz.
1 °F Change	17.98 gal					2,301.58 oz.



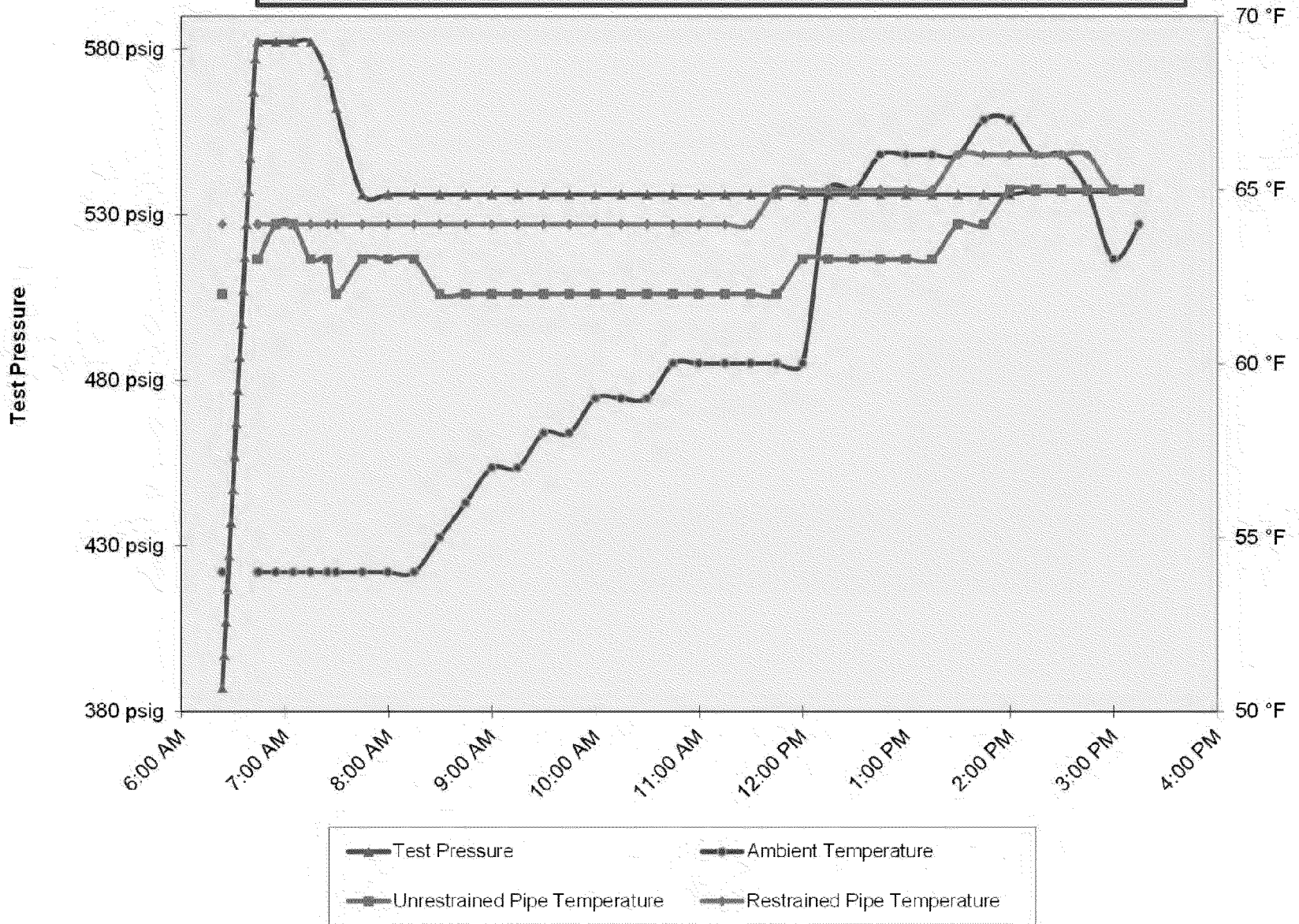
Hydrostatic Test Pipe Data Table

Pipe Type	Length	Restrained / Unrestrained	Outside Diameter	Wall Thickness	Specification & Grade	Pipe Yield Pressure	Material	Joint Type	Seam Type
1	38 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X65	1,625 psig	Steel	Arc Weld	DSAW
2	6,608 ft	Restrained	30.000 in.	0.3750 in.	API5L-X52	1,300 psig	Steel	Arc Weld	DSAW
3	1 ft	Unrestrained	6.625 in.	0.4320 in.	API5L-Grade B	4,565 psig	Steel	Arc Weld	SM
4	8 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X65	1,625 psig	Steel	Arc Weld	DSAW
5	22 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X52	1,300 psig	Steel	Arc Weld	DSAW

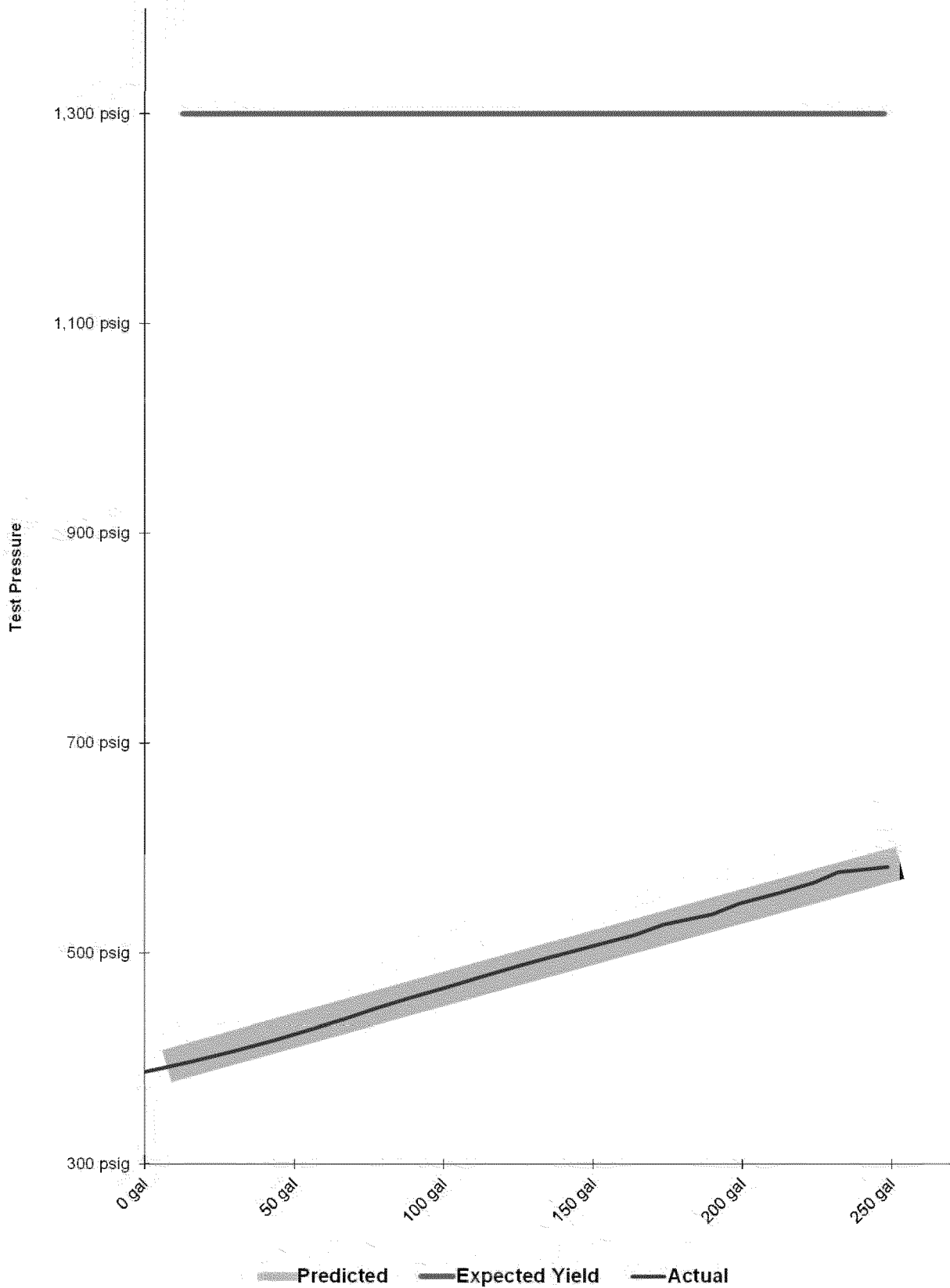
Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	3600 Adobe Rd Petaluma, Ca 94954 Attention: Joel Mannie	41474079
Construction Company	Redacted	Job Number
Address		0629-53-3500
Hydrostatic Test Co.	Redacted	Project No.
Address		PG&E 6-13-11
Test Section	PG&E T-36B, Line 132 From: 125+00 To: 190+82	
File Name	RCP 61362 - T-36B, L-132	

PG&E T-36B, Line 132



Spike Pressure Test
Stress Strain Curve -- PG&E T-36B, Line 132

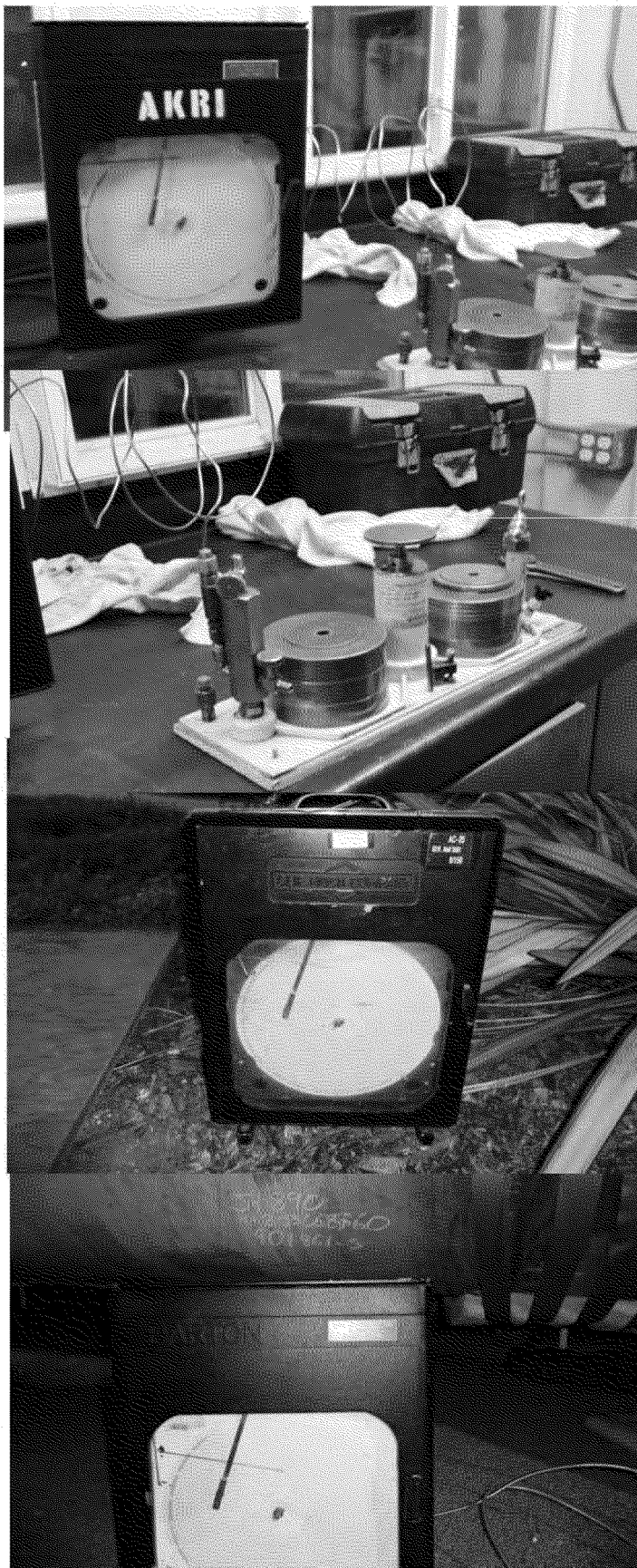




Exposed Pipe and Test Header



Test Pump Name Plate



Pressure Recording Chart

**Dead Weight Pressure
Gage**

**Buried Pipe Temperature
Recorder**

**Exposed Pipe
Temperature Recorder**