RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002
Redacted

November 16, 2011

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

Test Contractor:	ARB -- T-121 11/16/11
Asset Owner:	Pacific Gas and Electric Company -- 41592685
Construction Contractor:	ARB -- 0629-53-3500 T-121
Test Section:	PG&E T-121 , L-303 , MP 26.752 - 27.704
Test Date:	November 16, 2011
Certificate Number:	RCP 61362 - T-121, L-303, MP 26.752 - 27.704

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).

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 1114 psig and the MAOP per 49 CFR Part 192, Subpart J can be as high as 742 psig. The MAOP established by this test is sufficient to qualify for Pacific Gas and Electric Company's desired MAOP of 731 psig.

Pressure increased 2 psi during the test. No fluid was intentionally injected or released from the test section. Net corrected volumetric change from beginning of the test to the end of the test is calculated to be 2,348.73 ounces, gain, which is equivalent to a 1.11 °F change in pipe temperature and larger than the anticipated error attributed to the temperature measurement instrumentation utilized.

Test pressure remained steady and no leaks were observed. The volumetric gain is attributed to the inherent error associated with physically attempting to measure the average temperature of 4,928 feet of buried and 73 feet of exposed pipe from a single point on the line. It is improbable that pipe temperature would track exacly with a physical leak, resulting in a steady pressure profile; therefore, the observed steady pressure suggests that pipe temperature remained steady as well.

Sincerely,

Redacted

cc. file

Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41592685
Construction Co.	ARB	Job Number	0629-53-3500 T-121
Hydro. Test Co.	ARB	Project No.	T-121 11/16/11
Test Section	PG&E T-121 , L-303 , MP 26.752 - 27.704		
File Name	RCP 61362 - T-121, L-303, MP 26.752 - 27.704		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Test Date: 16-Nov-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-121 , L-303 , MP 26.752 - 27.704		
From:	48+49	To:	0+00

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	54.70 ft	36.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,806 psi
2	4,918.10 ft	36.000 in.	0.422 in.	API5L-X52, DSAW, Arc Weld, Steel	1,219 psi
3	10.00 ft	4.500 in.	0.148 in.	API5L-Grade B, SM, Arc Weld, Steel	2,302 psi
4	18.00 ft	36.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,806 psi

Initial Test Conditions

Pressure at Test Point:	1,185 psig	Date/Time:	11/16/11 11:05 AM	Pipe Temperature Unrestrained:	66.0 °F
Ambient Temperature:	64.0 °F			Restrained:	57.0 °F
		Elevation @ Test Point:	528.0 ft	Location:	48+49
Pressure @ High Point (Cal/Measure):	1,114 psig	Elevation @ High Point:	693.0 ft	Location:	0+00
Pressure @ Low Point (Cal/Measure):	1,185 psig	Elevation @ Low Point:	528.0 ft	Location:	48+49

Final Test Conditions

Pressure at Test Point:	1,187 psig	Date/Time:	11/16/11 7:20 PM	Pipe Temperature Unrestrained:	68.0 °F
Ambient Temperature:	49.0 °F			Restrained:	56.0 °F
		Elevation @ Test Point:	528.0 ft	Location:	48+49
Pressure @ High Point (Cal/Measure):	1,116 psig	Elevation @ High Point:	693.0 ft	Location:	0+00
Pressure @ Low Point (Cal/Measure):	1,187 psig	Elevation @ Low Point:	528.0 ft	Location:	48+49

Total Fluid Injected:		Volume gain	
Total Fluid Withdrawn:			
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	2,348.73 oz	gain	0.0072% / 1.113 °F equivalent

Test Duration: 8.25 hours

Minimum Test Pressure:	Test Point	1,185 psig	Max Elevation	1,114 psig	Min Elevation 1,185 psig
Maximum Test Pressure:		1,187 psig		1,116 psig	1,187 psig
% SMYS :				91.5%	97.4%

Test Segment Observed % SMYS :	Minimum	51.5%	Maximum 97.4%
		Minimum Test Pressure (Calculated/Measured):	1,114 psig
Maximum Allowable Operating Pressure:	DOT Part 192	Test Factor= 1.50	742 psig

The MAOP established by this test is sufficient to qualify for Pacific Gas and Electric Company's desired MAOP of 731 psig.

Were leaks observed?	No	Explain:
Acceptable Hydrostatic Test?	Yes	No leaks were observed during the test period. The test section included 4,928 feet of buried and 73 feet of exposed pipe. Pressure gained 2 psi during the test. The buried pipe segment lost 1°F fluid temperature and the exposed pipe segment gained 2°F. No fluid was intentionally injected or released from the test section. Net corrected volumetric change from beginning of the test to the end of the test is calculated to be 2,348.73 ounces, gain, which is equivalent to a 1.11 °F change in pipe temperature and larger than the anticipated error attributed to the temperature measurement instrumentation utilized. Test pressure remained steady and no leaks were observed. The volumetric gain is attributed to the inherent error associated with physically attempting to measure the average temperature of 4,928 feet of buried and 73 feet of exposed pipe from a single point on the line. It is improbable that pipe temperature would track exacly with a physical leak, resulting in a steady pressure profile; therefore, the observed steady pressure suggests that pipe temperature remained steady as well.
Remarks		

Redacted

16-Nov-11

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41592685
Construction Co.	ARB	Job Number	0629-53-3500 T-121
Testing Co.	ARB	Project No.	T-121 11/16/11
Test Section	PG&E T-121 , L-303 , MP 26.752 - 27.704		
File Name	RCP 61362 - T-121, L-303, MP 26.752 - 27.704		

Date **16-Nov-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	**Comment**	**Bleed**	**Inject**
1	11/16/11	10:25 AM	877 psig	60 °F	66 °F	57 °F			
2	11/16/11	10:27 AM	887 psig	60 °F	66 °F	57 °F	Inject		1,555 oz.
3	11/16/11	10:28 AM	897 psig	60 °F	66 °F	57 °F	Inject		1,253 oz.
4	11/16/11	10:29 AM	907 psig	60 °F	66 °F	57 °F	Inject		1,529 oz.
5	11/16/11	10:30 AM	917 psig	60 °F	66 °F	57 °F	Inject		1,529 oz.
6	11/16/11	10:31 AM	927 psig	60 °F	66 °F	57 °F	Inject		1,469 oz.
7	11/16/11	10:32 AM	937 psig	60 °F	66 °F	57 °F	Inject		1,469 oz.
8	11/16/11	10:33 AM	947 psig	60 °F	66 °F	57 °F	Inject		1,469 oz.
9	11/16/11	10:34 AM	957 psig	60 °F	66 °F	57 °F	Inject		1,469 oz.
10	11/16/11	10:35 AM	967 psig	60 °F	66 °F	57 °F	Inject		1,451 oz.
11	11/16/11	10:36 AM	977 psig	60 °F	66 °F	57 °F	Inject		1,529 oz.
12	11/16/11	10:37 AM	987 psig	60 °F	66 °F	57 °F	Inject		1,512 oz.
13	11/16/11	10:38 AM	997 psig	60 °F	66 °F	57 °F	Inject		1,434 oz.
14	11/16/11	10:39 AM	1,007 psig	60 °F	66 °F	57 °F	Inject		1,503 oz.
15	11/16/11	10:40 AM	1,017 psig	60 °F	66 °F	57 °F	Inject		1,417 oz.
16	11/16/11	10:41 AM	1,027 psig	60 °F	66 °F	57 °F	Inject		1,616 oz.
17	11/16/11	10:42 AM	1,037 psig	60 °F	66 °F	57 °F	Inject		1,408 oz.
18	11/16/11	10:43 AM	1,047 psig	60 °F	66 °F	57 °F	Inject		1,529 oz.
19	11/16/11	10:45 AM	1,057 psig	60 °F	66 °F	57 °F	Inject		1,486 oz.
20	11/16/11	10:47 AM	1,067 psig	60 °F	66 °F	57 °F	Inject		1,538 oz.
21	11/16/11	10:49 AM	1,077 psig	60 °F	66 °F	57 °F	Inject		1,555 oz.
22	11/16/11	10:51 AM	1,087 psig	60 °F	66 °F	57 °F	Inject		1,374 oz.
23	11/16/11	10:53 AM	1,097 psig	60 °F	66 °F	57 °F	Inject		1,538 oz.
24	11/16/11	10:55 AM	1,107 psig	60 °F	66 °F	57 °F	Inject		1,495 oz.
25	11/16/11	10:56 AM	1,117 psig	60 °F	66 °F	57 °F	Inject		1,486 oz.
26	11/16/11	10:57 AM	1,127 psig	60 °F	66 °F	57 °F	Inject		1,451 oz.
27	11/16/11	10:58 AM	1,137 psig	60 °F	66 °F	57 °F	Inject		1,503 oz.
28	11/16/11	10:59 AM	1,147 psig	60 °F	66 °F	57 °F	Inject		1,486 oz.
29	11/16/11	11:00 AM	1,157 psig	60 °F	66 °F	57 °F	Inject		1,477 oz.
30	11/16/11	11:01 AM	1,167 psig	60 °F	66 °F	57 °F	Inject		1,460 oz.
31	11/16/11	11:02 AM	1,177 psig	60 °F	66 °F	57 °F	Inject		1,486 oz.
32	11/16/11	11:03 AM	1,185 psig	60 °F	66 °F	57 °F	Inject		1,227 oz.
33	11/16/11	11:05 AM	1,185 psig	64 °F	66 °F	57 °F	On Test		
34	11/16/11	11:20 AM	1,185 psig	64 °F	66 °F	57 °F			
35	11/16/11	11:35 AM	1,185 psig	67 °F	66 °F	57 °F	Sun Shine		
36	11/16/11	11:50 AM	1,185 psig	69 °F	67 °F	57 °F			
37	11/16/11	12:05 PM	1,185 psig	72 °F	67 °F	57 °F			
38	11/16/11	12:20 PM	1,185 psig	73 °F	67 °F	57 °F	Sun Shine		
39	11/16/11	12:35 PM	1,186 psig	73 °F	67 °F	57 °F			
40	11/16/11	12:50 PM	1,186 psig	74 °F	67 °F	57 °F			
41	11/16/11	1:05 PM	1,186 psig	75 °F	67 °F	57 °F			
42	11/16/11	1:20 PM	1,186 psig	75 °F	67 °F	58 °F	Sun Shine		
43	11/16/11	1:35 PM	1,186 psig	75 °F	67 °F	58 °F			
44	11/16/11	1:50 PM	1,186 psig	77 °F	67 °F	58 °F			
45	11/16/11	2:05 PM	1,186 psig	76 °F	67 °F	58 °F			
46	11/16/11	2:20 PM	1,187 psig	76 °F	67 °F	58 °F	Sun Shine		
47	11/16/11	2:35 PM	1,187 psig	78 °F	67 °F	58 °F			

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41592685
Construction Co.	ARB	Job Number	0629-53-3500 T-121
Testing Co.	ARB	Project No.	T-121 11/16/11
Test Section	PG&E T-121 , L-303 , MP 26.752 - 27.704		
File Name	RCP 61362 - T-121, L-303, MP 26.752 - 27.704		

Date **16-Nov-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	**Comment**	**Bleed**	**Inject**
48	11/16/11	2:50 PM	1,187 psig	77 °F	67 °F	58 °F			
49	11/16/11	3:05 PM	1,187 psig	77 °F	68 °F	58 °F	Sun Shine		
50	11/16/11	3:20 PM	1,187 psig	77 °F	68 °F	58 °F			
51	11/16/11	3:35 PM	1,187 psig	77 °F	68 °F	58 °F			
52	11/16/11	3:50 PM	1,187 psig	77 °F	68 °F	58 °F			
53	11/16/11	4:05 PM	1,187 psig	75 °F	68 °F	58 °F			
54	11/16/11	4:20 PM	1,187 psig	73 °F	68 °F	58 °F	Sun Shine		
55	11/16/11	4:35 PM	1,187 psig	70 °F	68 °F	58 °F			
56	11/16/11	4:50 PM	1,187 psig	66 °F	68 °F	57 °F			
57	11/16/11	5:05 PM	1,187 psig	66 °F	68 °F	57 °F			
58	11/16/11	5:20 PM	1,187 psig	63 °F	68 °F	57 °F	Cool		
59	11/16/11	5:35 PM	1,187 psig	63 °F	68 °F	57 °F			
60	11/16/11	5:50 PM	1,187 psig	62 °F	68 °F	56 °F			
61	11/16/11	6:05 PM	1,187 psig	53 °F	68 °F	56 °F			
62	11/16/11	6:20 PM	1,187 psig	51 °F	68 °F	56 °F	Cool		
63	11/16/11	6:35 PM	1,187 psig	51 °F	68 °F	56 °F			
64	11/16/11	6:50 PM	1,187 psig	51 °F	68 °F	56 °F			
65	11/16/11	7:05 PM	1,187 psig	49 °F	68 °F	56 °F			
66	11/16/11	7:20 PM	1,187 psig	49 °F	68 °F	56 °F	Cool End of Test		
							Spike Test		
							Hydrostatic Test		

Were leaks observed during the test period?	Exposed and buried pipe, no leaks observed.	High Test Pressure:	1,187 psig
		Low Test Pressure:	1,185 psig

Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41592685
Construction Co.	ARB	Job Number	0629-53-3500 T-121
Hydro. Test Co.	ARB	Project No.	T-121 11/16/11
Test Section	PG&E T-121 , L-303 , MP 26.752 - 27.704	WATER	
File Name	RCP 61362 - T-121, L-303, MP 26.752 - 27.704		

General Pipe Data

Description	Segment 1	2	3	4				
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Unrestrained				
Outside Diameter	36.000 in.	36.000 in.	4.500 in.	36.000 in.				
Wall Thickness	0.500 in.	0.422 in.	0.148 in.	0.500 in.				
Inside Diameter	35.000 in.	35.156 in.	4.204 in.	35.000 in.				
Spec./Grade	API5L-X65	API5L-X52	API5L-Grade B	API5L-X65				
Length Unrestrained	55 ft			18 ft				
Length Restrained		4,918 ft	10 ft					
Temperature -- On Test	66 °F	57 °F	57.0 °F	66.0 °F				
Temperature -- End of Test	68 °F	56 °F	56.0 °F	68.0 °F				
Pressure -- On Test	1,185 psig	1,185 psig	1,185 psig	1,185 psig				
Pressure -- End of Test	1,187 psig	1,187 psig	1,187 psig	1,187 psig				

Unrestrained Pipe

Vo	3,633.54 gal / 465,093 oz.	Vtp1	3,657.61 gal / 468,174 oz.	Vtp2	3,656.98 gal / 468,094 oz.

Vo Unrestrained	2,734 gal			900 gal				
Fwp 1	1.003633			1.003633				
Fpp 1	1.003456			1.003456				
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)	2,752.01 gal			905.60 gal				
Fwp 2	1.003639			1.003639				
Fpp 2	1.003462			1.003462				
Fpt 2	1.000146			1.000146				
Fwt 2	1.000803			1.000803				
Fpwt = Fpt/Fwt	0.999343			0.999343				
Vtp = Vo(Fwp)(Fpp)(Fpwt)	2,751.54 gal			905.44 gal				

Restrained Pipe

Vo	248,009.34 gal / 31,745,196 oz.	Vtp1	249,706.76 gal / 31,962,466 oz.	Vtp2	249,725.74 gal / 31,964,895 oz.

Vo Unrestrained		248,002 gal	7 gal					
Fwp 1		1.003633	1.003633					
Fpp 1		1.002984	1.001010					
Fpt 1		0.999964	0.999964					
Fwt 1		0.999749	0.999749					
Fpwt 1 = Fpt/Fwt		1.000215	1.000215					
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		249,700 gal	7 gal					
Fwp 2		1.003639	1.003639					
Fpp 2		1.002985	1.001008					
Fpt 2		0.999952	0.999952					
Fwt 2		0.999668	0.999668					
Fpwt = Fpt/Fwt		1.000283	1.000283					
Vtp = Vo(Fwp)(Fpp)(Fpwt)		249,718 gal	7 gal					

Combined Pipe

Vo	251,642.88 gal / 32,210,289 oz.	Vtp1	253,364.38 gal / 32,430,640 oz.	Vtp2	253,382.73 gal / 32,432,989 oz.

Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41592685
Construction Co.	ARB	Job Number	0629-53-3500 T-121
Hydro. Test Co.	ARB	Project No.	T-121 11/16/11
Test Section	PG&E T-121 , L-303 , MP 26.752 - 27.704	WATER	
File Name	RCP 61362 - T-121, L-303, MP 26.752 - 27.704		

General Pipe Data

Description	Segment 1	2	3	4				
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Unrestrained				
Outside Diameter	36.000 in.	36.000 in.	4.500 in.	36.000 in.				
Wall Thickness	0.500 in.	0.422 in.	0.148 in.	0.500 in.				
Inside Diameter	35.000 in.	35.156 in.	4.204 in.	35.000 in.				
Spec./Grade	API5L-X65	API5L-X52	API5L-Grade B	API5L-X65				
Length Unstrained	55 ft			18 ft				
Length Restrained		4,918 ft	10 ft					
Temperature -- On Test	66 °F	56 °F	56 °F	66 °F				
Temperature -- End of Test	67 °F	57 °F	57 °F	67 °F				
Pressure -- On Test	1,186 psig	1,186 psig	1,186 psig	1,186 psig				
Pressure -- End of Test	1,186 psig	1,186 psig	1,186 psig	1,186 psig				

Unrestrained Pipe

Vo	3,633.54 gal / 465,093 oz.		Vtp1	3,657.63 gal / 468,177 oz.		Vtp2	3,657.34 gal / 468,140 oz.	
Vo Unrestrained	2,734 gal			900 gal				
Fwp 1	1.003636			1.003636				
Fpp 1	1.003459			1.003459				
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)	2,752.03 gal			905.60 gal				
Fwp 2	1.003636			1.003636				
Fpp 2	1.003459			1.003459				
Fpt 2	1.000127			1.000127				
Fwt 2	1.000681			1.000681				
Fpwt = Fpt/Fwt	0.999447			0.999447				
Vtp = Vo(Fwp)(Fpp)(Fpwt)	2,751.81 gal			905.53 gal				

Restrained Pipe

Vo	248,009.34 gal / 31,745,196 oz.		Vtp1	249,724.35 gal / 31,964,717 oz.		Vtp2	249,708.16 gal / 31,962,644 oz.	
Vo Restrained		248,002 gal	7 gal					
Fwp 1		1.003636	1.003636					
Fpp 1		1.002983	1.001007					
Fpt 1		0.999952	0.999952					
Fwt 1		0.999668	0.999668					
Fpwt 1 = Fpt/Fwt		1.000283	1.000283					
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		249,717 gal	7 gal					
Fwp 2		1.003636	1.003636					
Fpp 2		1.002986	1.001011					
Fpt 2		0.999964	0.999964					
Fwt 2		0.999749	0.999749					
Fpwt = Fpt/Fwt		1.000215	1.000215					
Vtp = Vo(Fwp)(Fpp)(Fpwt)		249,701 gal	7 gal					

Combined Pipe

Vo	251,642.88 gal / 32,210,289 oz.	Vtp1	253,381.98 gal / 32,432,894 oz.	Vtp2	253,365.50 gal / 32,430,784 oz.
1 °F Change	16.48 gal	2,110.03 oz.			

RCP

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	54.70 ft	Unrestrained	36.000 in.	0.5000 in.	API5L-X65	1,806 psig	Steel	Arc Weld	DSAW
2	4,918.10 ft	Restrained	36.000 in.	0.4220 in.	API5L-X52	1,219 psig	Steel	Arc Weld	DSAW
3	10.00 ft	Restrained	4.500 in.	0.1480 in.	API5L-Grade B	2,302 psig	Steel	Arc Weld	SM
4	18.00 ft	Unrestrained	36.000 in.	0.5000 in.	API5L-X65	1,806 psig	Steel	Arc Weld	DSAW

Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget	41592685
	Walnut Creek, CA 94598	
	Attention: Redacted	
Construction Company	ARB	Job Number
Address	1875 Loveridge Road	0629-53-3500 T-121
	Pittsburg, CA 94565	
	Attention: Redacted	
Hydrostatic Test Co.	ARB	Project No.
Address	1875 Loveridge Road	T-121 11/16/11
	Pittsburg, CA 94565	
	Attention: Redacted	
Test Section	PG&E T-121 , L-303 , MP 26.752 - 27.704	
	From: 48+49	
	To: 0+00	
File Name	RCP 61362 - T-121, L-303, MP 26.752 - 27.704	

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	11/16/11 11:05 AM	Elevation at Test Point	528 ft	Min. Required Test Press At Test Point (1)	1,168.50 psig	Max. Allowable Test Press at Test Point (4)	1,200.00 psig
Time and Date Test Ended	11/16/11 7:20 PM	Max. Elevation in Test Section	693 ft	Min. Indicated Test Pressure (2)	1,185.00 psig	Max. Indicated Test Pressure (5)	1,187.00 psig
Actual Duration of Test	8 hours 15 minutes	Min. Elevation in Test Section	528 ft	Min. Test Pressure at Max. Elevation (3)	1,113.50 psig	Max. Test Pressure at Min. Elevation (6)	1,187.00 psig

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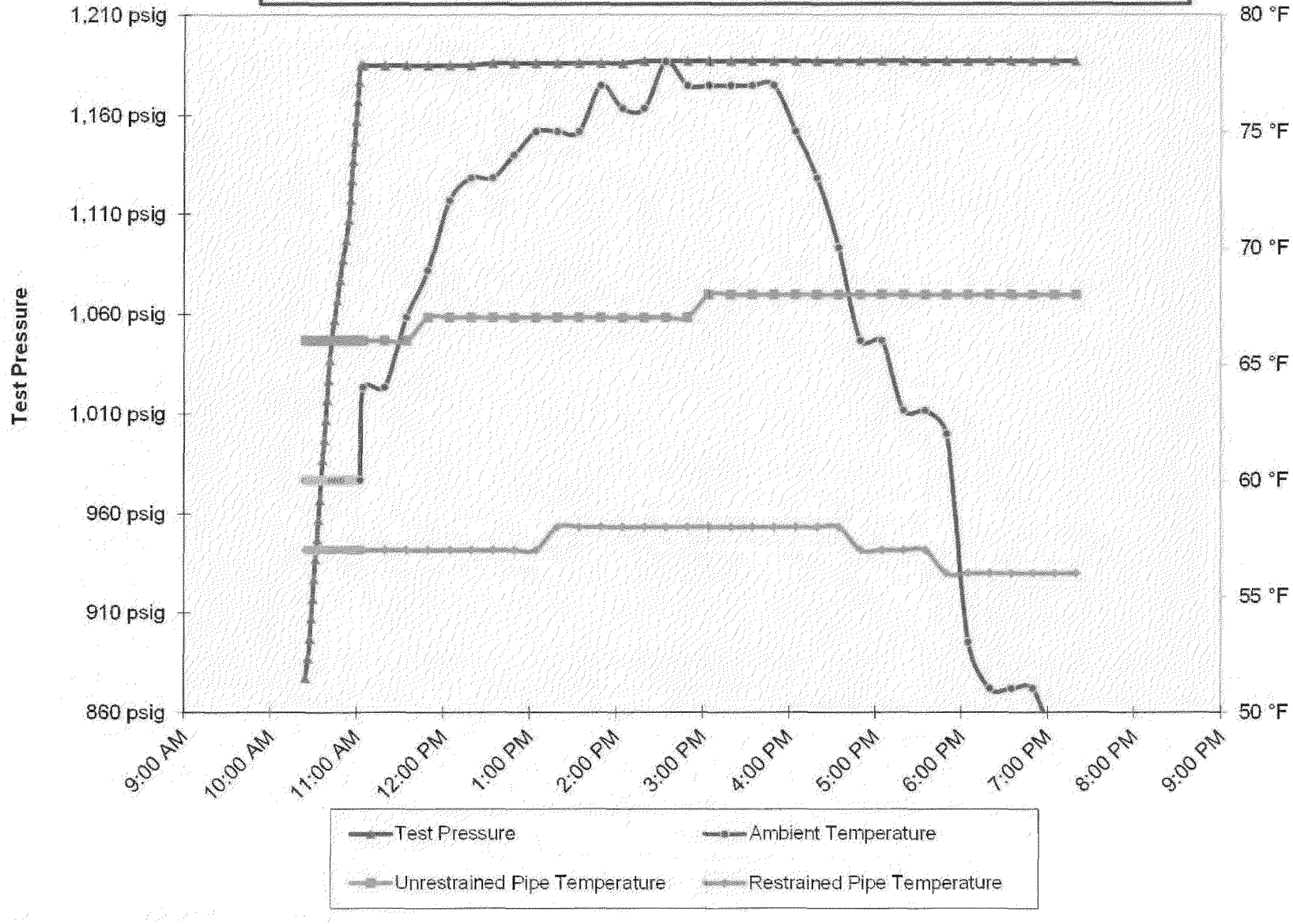
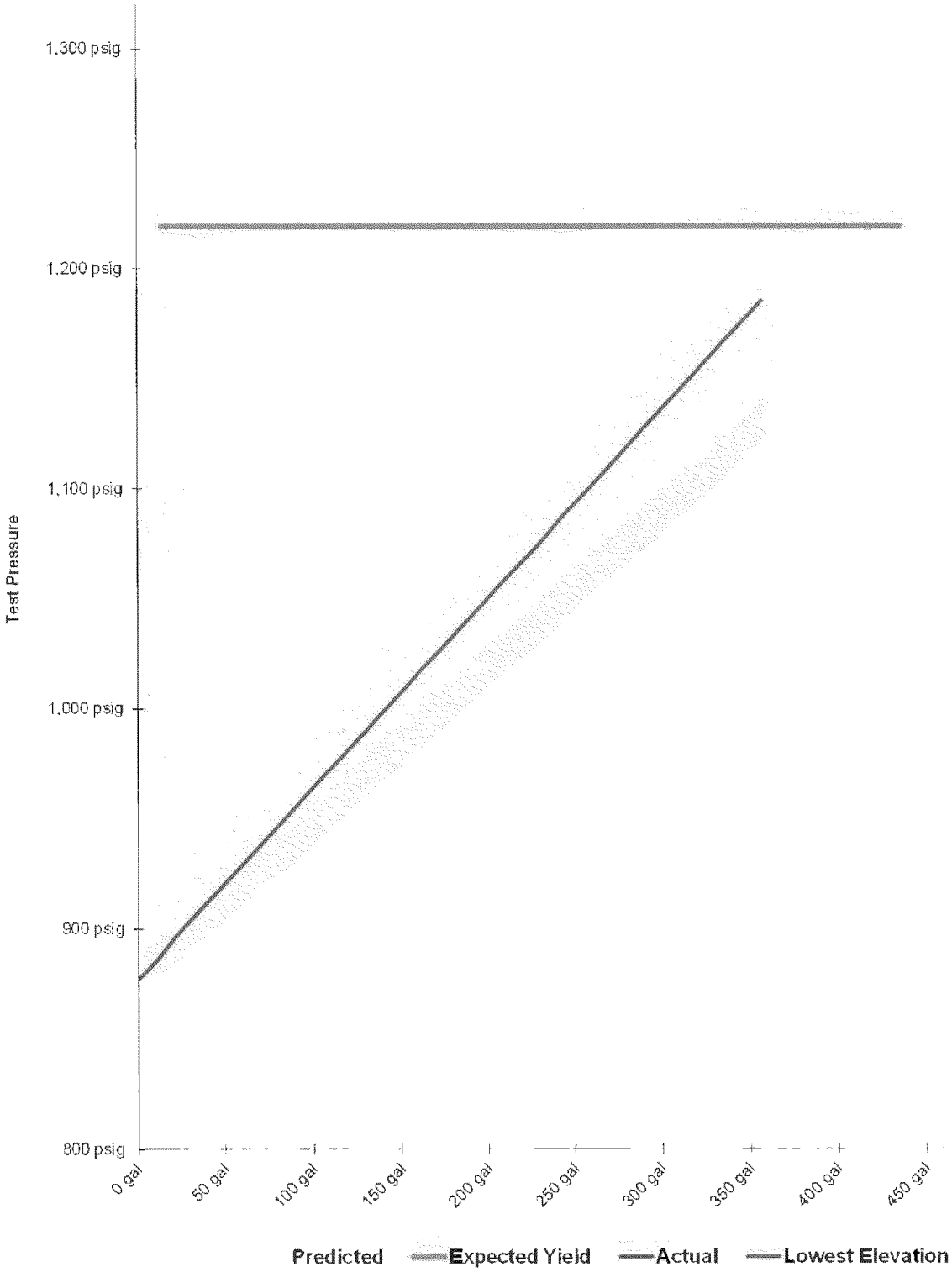
PG&E T-121 , L-303 , MP 26.752 - 27.704



Spike Pressure Test
Stress Strain Curve -- PG&E T-121 , L-303 , MP 26.752 - 27.704



RCP

Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted
877 psig	0	0.00 gal		0	0.000
887 psig	180	12.15 gal	14.14 gal	1.215	1.414
897 psig	325	21.94 gal	28.28 gal	0.979	1.414
907 psig	502	33.88 gal	42.42 gal	1.195	1.414
917 psig	679	45.83 gal	56.56 gal	1.195	1.414
927 psig	849	57.30 gal	70.71 gal	1.147	1.414
937 psig	1019	68.78 gal	84.85 gal	1.147	1.414
947 psig	1189	80.25 gal	99.00 gal	1.147	1.414
957 psig	1359	91.73 gal	113.14 gal	1.147	1.415
967 psig	1527	103.07 gal	127.29 gal	1.134	1.415
977 psig	1704	115.01 gal	141.44 gal	1.195	1.415
987 psig	1879	126.82 gal	155.58 gal	1.181	1.415
997 psig	2045	138.03 gal	169.73 gal	1.120	1.415
1,007 psig	2219	149.77 gal	183.88 gal	1.174	1.415
1,017 psig	2383	160.84 gal	198.03 gal	1.107	1.415
1,027 psig	2570	173.46 gal	212.19 gal	1.262	1.415
1,037 psig	2733	184.46 gal	226.34 gal	1.100	1.415
1,047 psig	2910	196.41 gal	240.49 gal	1.195	1.415
1,057 psig	3082	208.02 gal	254.65 gal	1.161	1.415
1,067 psig	3260	220.03 gal	268.80 gal	1.201	1.416
1,077 psig	3440	232.18 gal	282.96 gal	1.215	1.416
1,087 psig	3599	242.92 gal	297.11 gal	1.073	1.416
1,097 psig	3777	254.93 gal	311.27 gal	1.201	1.416
1,107 psig	3950	266.61 gal	325.43 gal	1.168	1.416
1,117 psig	4122	278.22 gal	339.59 gal	1.161	1.416
1,127 psig	4290	289.55 gal	353.75 gal	1.134	1.416
1,137 psig	4464	301.30 gal	367.91 gal	1.174	1.416
1,147 psig	4636	312.91 gal	382.07 gal	1.161	1.416
1,157 psig	4807	324.45 gal	396.24 gal	1.154	1.416
1,167 psig	4976	335.86 gal	410.40 gal	1.141	1.416
1,177 psig	5148	347.47 gal	424.57 gal	1.161	1.416
1,185 psig	5290	357.05 gal	435.90 gal	1.198	1.417
1,185 psig		357.05 gal	435.90 gal	0.000	0.000
1,185 psig		357.05 gal	435.90 gal	0.000	0.000
1,185 psig		357.05 gal	435.90 gal	0.000	0.000
1,185 psig		357.05 gal	435.90 gal	0.000	0.000
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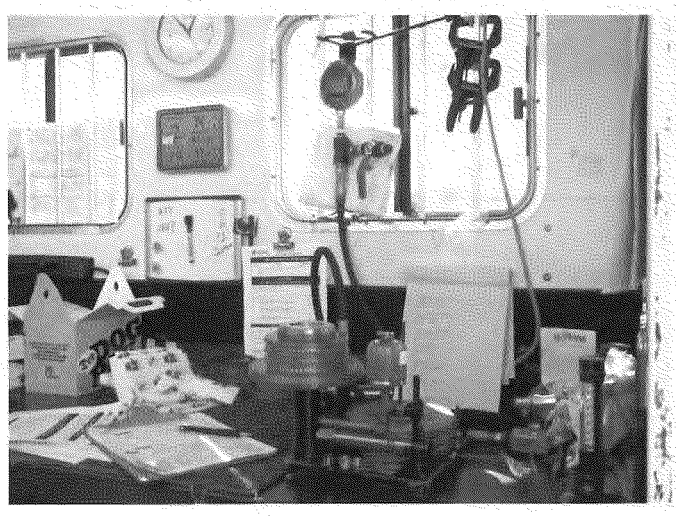
1,185 psig		357.05 gal	435.90 gal	0.000	0.000
1,185 psig		357.05 gal	435.90 gal	0.000	0.000
1,185 psig		357.05 gal	435.90 gal	0.000	0.000

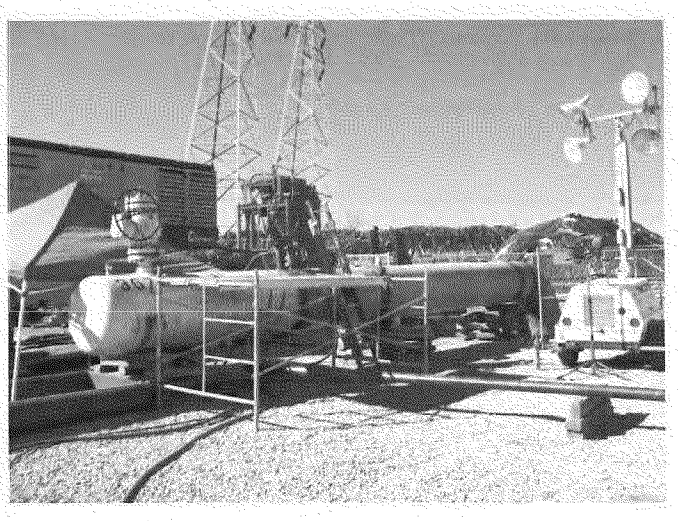
Spike Pressure Test Stress Strain Curve -- PG&E T-121 , L-303 , MP 26.752 - 27.704	
3440	0.067 gal/stroke
Pump Piston Diameter	1.375 in
Pump Piston Stroke	3.50 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.000 gal/stroke
Volume Released (gallons)	
Pressure Reduced (psi)	10 psi
Maximum2	460 gal
Minimum2	0 gal
Maximum1	1,320 psig
Minimum1	800 psig
Gallons/Stroke Used	0.067 gal/stroke
Predicted Gallons/Stroke	0.082 gal/stroke
Pressure Increment	10 psi
Max Pressure	1,185 psig
Buried Pipe Temperature	57 °F
Exposed Pipe Temperature	66 °F
ASME B31.8 Appendix N-5	
Average Actual Elastic Slope	1.160
Average Predicted Elastic Slope	1.415
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	2.203
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	1,185 psig
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

Redacted

11/16/11
Date



Deadweight Testing Equipment



Test Header at Location

Pressure Pump

Pressure Chart Recorder and Chart

Unrestrained Temp Recorder and Chart

Restrained Temp Recorder and Chart