RCP

RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002
Redacted

September 29, 2011

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

Test Contractor:	Contra Costa Inspection Co. – T-7 9/29/2011
Asset Owner:	Pacific Gas and Electric Company – 41474064-T7&9
Construction Contractor:	ARB – 0629-53-3500
Test Section:	PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1
Test Date:	September 29, 2011
Certificate Number:	RCP 61362 - T-7&9, L-105A, MP 38.00-4100 L-105A-1

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 395 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 8.58 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.58 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 359 psig and the established MAOP is 239 psig.

Pressure decreased 29 psi during the test. 11,262.72 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 2,395.08 ounces, gain, which is equivalent to a 0.66 °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

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Company	Pacific Gas and Electric Company	Job Number	41474064-T7&9
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-7 9/29/2011
Test Section	PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1		
File Name	RCP 61362 - T-7&9, L-105A, MP 38.00-4100 L-105A-1		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Test Date: 29-Sep-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-7&9 L-105A, MP 38.00-41.00 L-105A-1		
From:	0+00	To:	111+79

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	11,141 ft	30.000 in.	0.313 in.	API5L-Grade B, DSAW, Arc Weld, Steel	729 psi
2	13 ft	6.625 in.	0.280 in.	API5L-Grade B, SM, Arc Weld, Steel	2,958 psi
3	6 ft	4.500 in.	0.237 in.	API5L-Grade B, SM, Arc Weld, Steel	3,687 psi
4	10 ft	3.500 in.	0.216 in.	API5L-Grade B, SM, Arc Weld, Steel	4,320 psi
5	75 ft	2.375 in.	0.154 in.	API5L-Grade B, SM, Arc Weld, Steel	4,539 psi
6	104 ft	1.315 in.	0.113 in.	API5L-Grade B, SM, Arc Weld, Steel	6,015 psi
7	45 ft	30.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	2,167 psi
8	97 ft	30.000 in.	0.375 in.	API5L-X65, DSAW, Arc Weld, Steel	1,625 psi
9	1 ft	3.500 in.	0.216 in.	API5L-Grade B, SM, Arc Weld, Steel	4,320 psi

Initial Test Conditions

Pressure at Test Point:	395 psig	Date/Time:	9/29/11 9:25 AM	Pipe Temperature	
				Unrestrained:	59.0 °F
Ambient Temperature:	60.0 °F			Restrained:	63.0 °F
		Elevation @ Test Point:	22.0 ft	Location:	11+16
Pressure @ High Point (Cal/Measure):	388 psig	Elevation @ High Point:	38.0 ft	Location:	106+82
Pressure @ Low Point (Cal/Measure):	401 psig	Elevation @ Low Point:	8.0 ft	Location:	45+09

Final Test Conditions

Pressure at Test Point:	366 psig	Date/Time:	9/29/11 6:00 PM	Pipe Temperature	
				Unrestrained:	62.0 °F
Ambient Temperature:	66.0 °F			Restrained:	63.0 °F
		Elevation @ Test Point:	22.0 ft	Location:	11+16
Pressure @ High Point (Cal/Measure):	359 psig	Elevation @ High Point:	38.0 ft	Location:	106+82
Pressure @ Low Point (Cal/Measure):	372 psig	Elevation @ Low Point:	8.0 ft	Location:	45+09
	Total Fluid Injected:			Volume gain	
	Total Fluid Withdrawn:	11262.72 fluid ounces			
Net Change in Volume of the Test Section ± (+ Gain, - Loss):		2,395.08 oz	gain	0.0047%	0.664 °F equivalent

Test Duration: 8.58 hours

Minimum Test Pressure:	Test Point	360 psig	Max Elevation	353 psig	Min Elevation 368 psig
Maximum Test Pressure:		395 psig		388 psig	401 psig
% SMYS :		18.2%		53.2%	55.0%
Test Segment Observed % SMYS :			Minimum	6.5%	Maximum 55.0%
				Minimum Test Pressure (Calculated/Measured):	359 psig
Maximum Allowable Operating Pressure:				DOT Part 192 Test Factor= 1.50	239 psig

Were leaks observed?	No	Explain: PG&E
Acceptable Hydrostatic Test?	Yes	The test segment was subjected to a spike pressure test of 395 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 8.58 hour test duration period. No leaks were observed during the test period. The test section included 11,336 feet of buried and 156 feet of exposed pipe. Pressure lost 29 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment gained 3°F. 11,262.72 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 2,395.08 ounces, gain, which is equivalent to a 0.66 °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		

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29-Sep-11

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Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number 41474064-T7&9
Construction Co.	ARB	Job Number 0629-53-3500
Testing Co.	Contra Costa Inspection Co.	Project No. T-7 9/29/2011
Test Section	PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1	
File Name	RCP 61362 - T-7&9, L-105A, MP 38.00-4100 L-105A-1	

Date **29-Sep-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	Comment	Bleed	Inject
1	9/29/11	9:08 AM	258 psig	59 °F	58 °F	63 °F	Start Spike		
2	9/29/11	9:09 AM	268 psig	59 °F	58 °F	63 °F	Inject		2,923 oz.
3	9/29/11	9:10 AM	278 psig	59 °F	58 °F	63 °F	Inject		2,734 oz.
4	9/29/11	9:11 AM	288 psig	59 °F	58 °F	63 °F	Inject		2,881 oz.
5	9/29/11	9:12 AM	298 psig	59 °F	58 °F	63 °F	Inject		3,174 oz.
6	9/29/11	9:13 AM	308 psig	59 °F	58 °F	63 °F	Inject		3,091 oz.
7	9/29/11	9:14 AM	318 psig	59 °F	58 °F	63 °F	Inject		3,070 oz.
8	9/29/11	9:15 AM	328 psig	59 °F	58 °F	63 °F	Inject		3,337 oz.
9	9/29/11	9:16 AM	338 psig	59 °F	58 °F	63 °F	Inject		3,316 oz.
10	9/29/11	9:17 AM	348 psig	59 °F	58 °F	63 °F	Inject		3,421 oz.
11	9/29/11	9:18 AM	358 psig	59 °F	58 °F	63 °F	Inject		3,347 oz.
12	9/29/11	9:19 AM	368 psig	59 °F	58 °F	63 °F	Inject		3,468 oz.
13	9/29/11	9:20 AM	378 psig	59 °F	58 °F	63 °F	Inject		3,400 oz.
14	9/29/11	9:21 AM	388 psig	59 °F	58 °F	63 °F	Inject		3,384 oz.
15	9/29/11	9:22 AM	395 psig	59 °F	58 °F	63 °F	Inject		2,541 oz.
16	9/29/11	9:25 AM	395 psig	60 °F	59 °F	63 °F	On Test		
17	9/29/11	9:35 AM	395 psig	60 °F	60 °F	63 °F			
18	9/29/11	9:45 AM	395 psig	60 °F	60 °F	63 °F			
19	9/29/11	9:55 AM	395 psig	60 °F	60 °F	63 °F	End Spike		
20	9/29/11	9:56 AM	385 psig	60 °F	60 °F	63 °F	Bleed	3,218 oz.	
21	9/29/11	9:57 AM	375 psig	60 °F	60 °F	63 °F	Bleed	3,218 oz.	
22	9/29/11	9:58 AM	365 psig	60 °F	60 °F	63 °F	Bleed	3,218 oz.	
23	9/29/11	10:00 AM	360 psig	60 °F	60 °F	63 °F	Bleed	1,609 oz.	
24	9/29/11	10:15 AM	360 psig	61 °F	60 °F	63 °F			
25	9/29/11	10:30 AM	360 psig	61 °F	60 °F	63 °F			
26	9/29/11	10:45 AM	360 psig	61 °F	60 °F	63 °F			
27	9/29/11	11:00 AM	361 psig	61 °F	60 °F	63 °F			
28	9/29/11	11:15 AM	361 psig	62 °F	60 °F	63 °F			
29	9/29/11	11:30 AM	361 psig	62 °F	60 °F	63 °F			
30	9/29/11	11:45 AM	361 psig	63 °F	60 °F	63 °F			
31	9/29/11	12:00 PM	361 psig	63 °F	60 °F	63 °F			
32	9/29/11	12:15 PM	361 psig	64 °F	60 °F	63 °F			
33	9/29/11	12:30 PM	362 psig	64 °F	60 °F	63 °F			
34	9/29/11	12:45 PM	362 psig	64 °F	60 °F	63 °F			
35	9/29/11	1:00 PM	362 psig	64 °F	60 °F	63 °F			
36	9/29/11	1:15 PM	362 psig	65 °F	60 °F	63 °F			
37	9/29/11	1:30 PM	362 psig	65 °F	60 °F	63 °F			
38	9/29/11	1:45 PM	363 psig	66 °F	60 °F	63 °F			
39	9/29/11	2:00 PM	363 psig	66 °F	61 °F	63 °F			
40	9/29/11	2:15 PM	363 psig	66 °F	61 °F	63 °F			
41	9/29/11	2:30 PM	363 psig	66 °F	61 °F	63 °F			
42	9/29/11	2:45 PM	363 psig	66 °F	61 °F	63 °F			
43	9/29/11	3:00 PM	363 psig	66 °F	61 °F	63 °F			

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Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474064-T7&9
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	Contra Costa Inspection Co.	Project No.	T-7 9/29/2011
Test Section	PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1		
File Name	RCP 61362 - T-7&9, L-105A, MP 38.00-4100 L-105A-1		

Date 29-Sep-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe Unrestrained	Pipe Restrained	Comment	Bleed	Inject
44	9/29/11	3:15 PM	364 psig	66 °F	61 °F	63 °F			
45	9/29/11	3:30 PM	364 psig	66 °F	61 °F	63 °F			
46	9/29/11	3:45 PM	364 psig	66 °F	61 °F	63 °F			
47	9/29/11	4:00 PM	364 psig	66 °F	62 °F	63 °F			
48	9/29/11	4:15 PM	365 psig	66 °F	62 °F	63 °F			
49	9/29/11	4:30 PM	365 psig	66 °F	62 °F	63 °F			
50	9/29/11	4:45 PM	365 psig	66 °F	62 °F	63 °F			
51	9/29/11	5:00 PM	365 psig	66 °F	62 °F	63 °F			
52	9/29/11	5:15 PM	365 psig	67 °F	62 °F	63 °F			
53	9/29/11	5:30 PM	366 psig	67 °F	62 °F	63 °F			
54	9/29/11	5:45 PM	366 psig	68 °F	62 °F	63 °F			
55	9/29/11	6:00 PM	366 psig	66 °F	62 °F	63 °F	End of Test		

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PG&E

	Bleed	Inject
Spike Test		44,085.5 oz.
Hydrostatic Test	11,262.7 oz.	

Were leaks observed during the test period?	Exposed and buried pipe, no leaks observed.

High Test Pressure:	395 psig
Low Test Pressure:	360 psig

Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41474084-T7&9
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-7 9/29/2011
Test Section	PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1		WATER
File Name	RCP 61362 - T-7&9, L-105A, MP 38.00-4100 L-105A-1		

General Pipe Data

Description	Segment										
	1	2	3	4	5	6	7	8	9		
Restrained or Unrestrained?	Restrained	Unrestrained	Restrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained		
Outside Diameter	30.000 in.	6.625 in.	4.500 in.	3.500 in.	2.375 in.	1.315 in.	30.000 in.	30.000 in.	3.500 in.		
Wall Thickness	0.313 in.	0.280 in.	0.237 in.	0.216 in.	0.154 in.	0.113 in.	0.500 in.	0.375 in.	0.216 in.		
Inside Diameter	29.375 in.	6.065 in.	4.026 in.	3.068 in.	2.067 in.	1.089 in.	29.000 in.	29.250 in.	3.068 in.		
Spec./Grade	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-X65	API5L-X65	API5L-Grade B		
Length Unrestrained		13 ft					45 ft	97 ft	1 ft		
Length Restrained	11,141 ft		6 ft	10 ft	75 ft	104 ft					
Temperature – On Test	63 °F	59 °F	63.0 °F	63.0 °F	63.0 °F	63.0 °F	59.0 °F	59.0 °F	59.0 °F		
Temperature – End of Test	63 °F	62 °F	63.0 °F	63.0 °F	63.0 °F	63.0 °F	62.0 °F	62.0 °F	62.0 °F		
Pressure – On Test	395 psig	395 psig	395 psig	395 psig	395 psig	395 psig	395 psig	395 psig	395 psig		
Pressure – End of Test	366 psig	366 psig	366 psig	366 psig	366 psig	366 psig	366 psig	366 psig	366 psig		

Unrestrained Pipe

Sum:	Vo	4,949.93 gal / 633,591 oz.	Vtp1	4,962.12 gal / 635,151 oz.	Vtp2	4,960.16 gal / 634,901 oz.
Vo Unrestrained		20 gal			1,544 gal	3,386 gal	0 gal
Fwp 1		1.001208			1.001208	1.001208	1.001208
Fpp 1		1.000356			1.000955	1.001284	1.000234
Fpt 1		0.999982			0.999982	0.999982	0.999982
Fwt 1		0.999907			0.999907	0.999907	0.999907
Fpwt 1 = Fpt/Fwt		1.000074			1.000074	1.000074	1.000074
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		19.54 gal			1,547.53 gal	3,394.66 gal	0.38 gal
Fwp 2		1.001119			1.001119	1.001119	1.001119
Fpp 2		1.000330			1.000885	1.001190	1.000217
Fpt 2		1.000036			1.000036	1.000036	1.000036
Fwt 2		1.000181			1.000181	1.000181	1.000181
Fpwt = Fpt/Fwt		0.999856			0.999856	0.999856	0.999856
Vtp = Vo(Fwp)(Fpp)(Fpwt)		19.54 gal			1,546.95 gal	3,393.30 gal	0.38 gal

Restrained Pipe

Sum:	Vo	392,254.35 gal / 50,208,556 oz.	Vtp1	393,084.08 gal / 50,314,762 oz.	Vtp2	393,016.75 gal / 50,306,144 oz.
Vo Unrestrained	392,228 gal	4 gal	4 gal	13 gal	5 gal		
Fwp 1	1.001208	1.001208	1.001208	1.001208	1.001208		
Fpp 1	1.001137	1.000214	1.000181	1.000172	1.000126		
Fpt 1	1.000036	1.000036	1.000036	1.000036	1.000036		
Fwt 1	1.000267	1.000267	1.000267	1.000267	1.000267		
Fpwt 1 = Fpt/Fwt	0.999769	0.999769	0.999769	0.999769	0.999769		
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	393,058 gal	4 gal	4 gal	13 gal	5 gal		
Fwp 2	1.001119	1.001119	1.001119	1.001119	1.001119		
Fpp 2	1.001054	1.000199	1.000168	1.000160	1.000118		
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)	392,991 gal	4 gal	4 gal	13 gal	5 gal		

Combined Pipe

Sum:	Vo	397,204.28 gal / 50,842,148 oz.	Vtp1	398,046.19 gal / 50,949,913 oz.	Vtp2	397,976.92 gal / 50,941,045 oz.

Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41474064-T7&9
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-7 9/29/2011
Test Section	PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1		WATER
File Name	RCP 61362 - T-7&9, L-105A, MP 38.00-4100 L-105A-1		

General Pipe Data

Description	Segment 1	2	3	4	5	6	7	8	9
Restrained or Unrestrained?	Restrained	Unrestrained	Restrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	30.000 in.	6.625 in.	4.500 in.	3.500 in.	2.375 in.	1.315 in.	30.000 in.	30.000 in.	3.500 in.
Wall Thickness	0.313 in.	0.280 in.	0.237 in.	0.216 in.	0.154 in.	0.113 in.	0.500 in.	0.375 in.	0.216 in.
Inside Diameter	29.375 in.	6.065 in.	4.026 in.	3.068 in.	2.067 in.	1.089 in.	29.000 in.	29.250 in.	3.068 in.
Spec./Grade	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-X65	API5L-X65	API5L-Grade B
Length Unstrained		13.00 ft					45 ft	97 ft	1 ft
Length Restrained	11,141 ft		6 ft	10 ft	75 ft	104 ft			
Temperature – On Test	62 °F	60 °F	62 °F	62 °F	62 °F	62 °F	60 °F	60 °F	60 °F
Temperature – End of Test	63 °F	61 °F	63 °F	63 °F	63 °F	63 °F	61 °F	61 °F	61 °F
Pressure – On Test	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig
Pressure – End of Test	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig	380 psig

Unrestrained Pipe

Sum:	Vo	4,949.93 gal / 633,591 oz.	Vtp1	4,961.30 gal / 635,046 oz.	Vtp2	4,960.99 gal / 635,007 oz.		
Vo Unrestrained		20 gal			1,544 gal	3,386 gal	0 gal	
Fwp 1		1.001162			1.001162	1.001162	1.001162	
Fpp 1		1.000343			1.000918	1.001235	1.000225	
Fpt 1		1.000000			1.000000	1.000000	1.000000	
Fwt 1		1.000000			1.000000	1.000000	1.000000	
Fpwt 1 = Fpt/Fwt		1.000000			1.000000	1.000000	1.000000	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		19.54 gal			1,547.29 gal	3,394 gal	0 gal	
Fwp 2		1.001162			1.001162	1.001162	1.001162	
Fpp 2		1.000343			1.000918	1.001235	1.000225	
Fpt 2		1.000018			1.000018	1.000018	1.000018	
Fwt 2		1.000080			1.000080	1.000080	1.000080	
Fpwt = Fpt/Fwt		0.999938			0.999938	0.999938	0.999938	
Vtp = Vo(Fwp)(Fpp)(Fpwt)		19.54 gal			1,547.19 gal	3,394 gal	0 gal	

Restrained Pipe

Sum:	Vo	392,254.35 gal / 50,208,556 oz.	Vtp1	393,077.11 gal / 50,313,871 oz.	Vtp2	393,049.25 gal / 50,310,304 oz.		
Vo Restrained	392,228 gal	4 gal	4 gal	13 gal	5 gal			
Fwp 1	1.001162	1.001162	1.001162	1.001162	1.001162			
Fpp 1	1.001091	1.000203	1.000171	1.000162	1.000118			
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)	393,051 gal	4 gal	4 gal	13 gal	5 gal			
Fwp 2	1.001162	1.001162	1.001162	1.001162	1.001162			
Fpp 2	1.001094	1.000207	1.000175	1.000166	1.000122			
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)	393,023 gal	4 gal	4 gal	13 gal	5 gal			

Combined Pipe

Sum:	Vo	397,204.28 gal / 50,842,148 oz.	Vtp1	398,038.41 gal / 50,948,917 oz.	Vtp2	398,010.24 gal / 50,945,311 oz.
1 °F Change	28.17 gal	3,605.80 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	11,141 ft	Restrained	30.000 in.	0.3125 in.	API5L-Grade B	729 psig	Steel	Arc Weld	DSAW
2	13 ft	Unrestrained	6.625 in.	0.2800 in.	API5L-Grade B	2,958 psig	Steel	Arc Weld	SM
3	6 ft	Restrained	4.500 in.	0.2370 in.	API5L-Grade B	3,687 psig	Steel	Arc Weld	SM
4	10 ft	Restrained	3.500 in.	0.2160 in.	API5L-Grade B	4,320 psig	Steel	Arc Weld	SM
5	75 ft	Restrained	2.375 in.	0.1540 in.	API5L-Grade B	4,539 psig	Steel	Arc Weld	SM
6	104 ft	Restrained	1.315 in.	0.1130 in.	API5L-Grade B	6,015 psig	Steel	Arc Weld	SM
7	45 ft	Unrestrained	30.000 in.	0.5000 in.	API5L-X65	2,167 psig	Steel	Arc Weld	DSAW
8	97 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X65	1,625 psig	Steel	Arc Weld	DSAW
9	1 ft	Unrestrained	3.500 in.	0.2160 in.	API5L-Grade B	4,320 psig	Steel	Arc Weld	SM

Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget	41474064-T7&9
	Walnut Creek, CA 94598	
	Attention: Redacted	
Construction Company	ARB	Job Number
Address	1875 Loveridge Road	0629-53-3500
	Antioch, CA 94565	
	Attention: Redacted	
Hydrostatic Test Co.	Contra Costa Inspection Co.	Project No.
Address	2820 LaJolla Drive	T-7 9/29/2011
	Atnitioch, CA 94565	
	Attention: Redacted	
Test Section	PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1	
	From: 0+00	
	To: 111+79	
File Name	RCP 61362 - T-7&9, L-105A, MP 38.00-4100 L-105A-1	

COPY

SEP 29 2011

PG&E

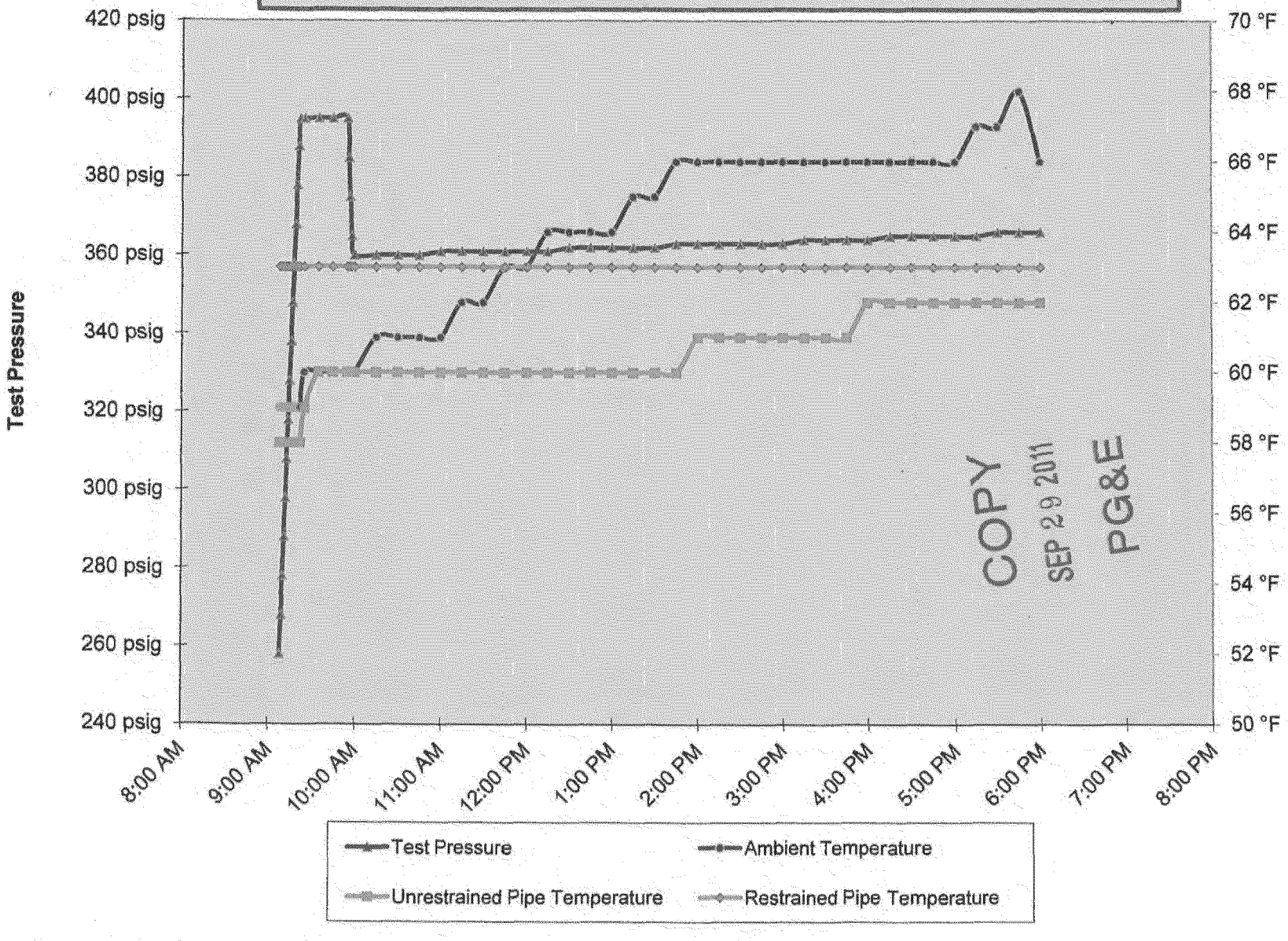
Part II – Test Data (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)

Note: Minimum test pressure and duration are not to be changed without written approval.

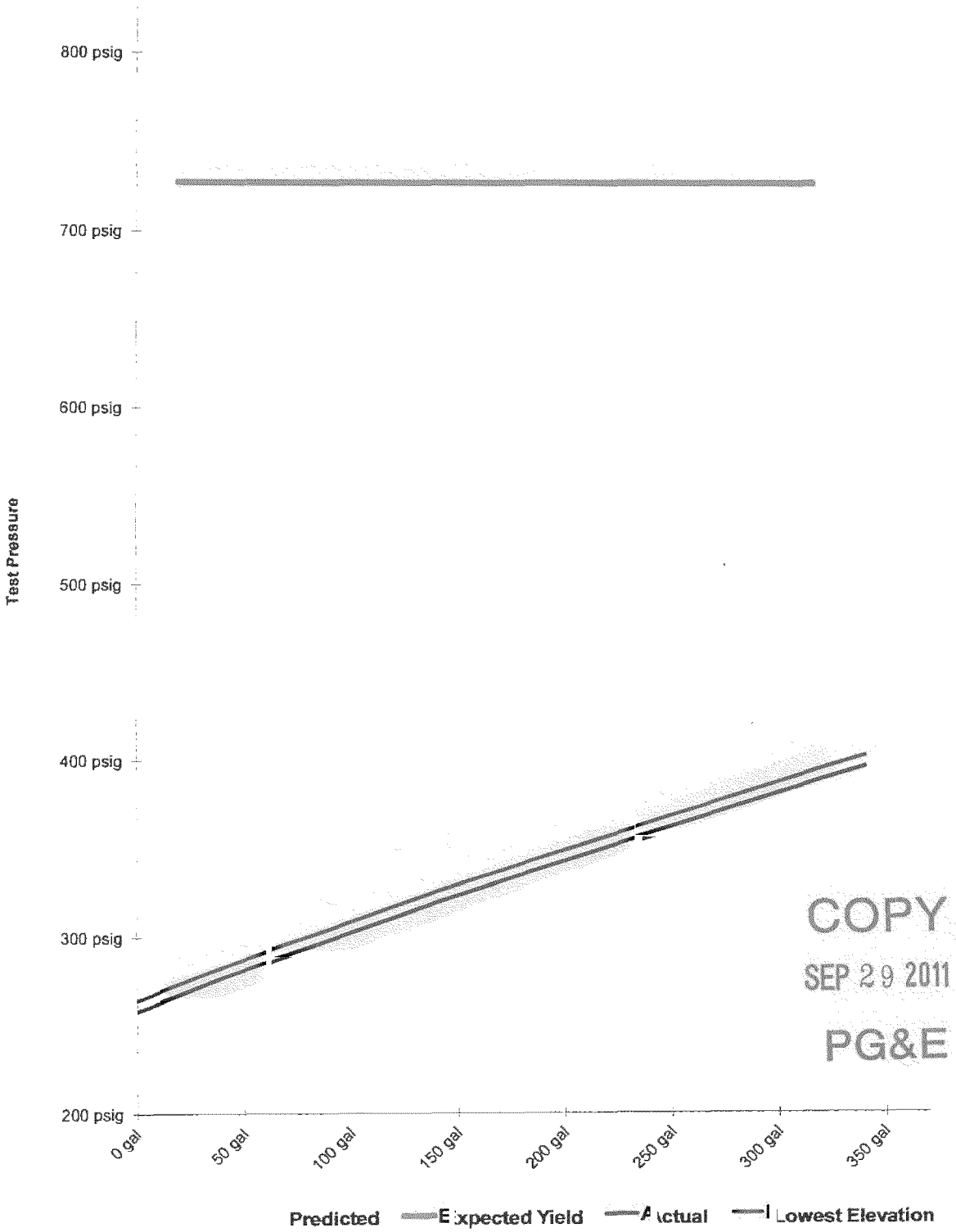
Time and Date Test Pressure Reached	9/29/11 9:25 AM	Elevation at Test Point	22 ft	Min. Required Test Press At Test Point (1)	343.93 psig	Max. Allowable Test Press at Test Point (4)	403.93 psig
Time and Date Test Ended	9/29/11 6:00 PM	Max. Elevation in Test Section	38 ft	Min. Indicated Test Pressure (2)	360.00 psig	Max. Indicated Test Pressure (5)	395.00 psig
Actual Duration of Test	8 hours 35 minutes	Min. Elevation in Test Section	8 ft	Min. Test Pressure at Max. Elevation (3)	353.07 psig	Max. Test Pressure at Min. Elevation (6)	401.07 psig

RCP

PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1



Spike Pressure Test
Stress Strain Curve -- PG&E T-7&9 L-105A, MP 38.00-41.00 L-105A-1



Spike Pressure Test
Stress Strain Curve -- PG&E T-7&9 L-105A, MP 38.00-41.00
L-105A-1

Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted
258 psig	0	0.00 gal		0	0.000
268 psig	558	22.84 gal	23.50 gal	2.284	2.350
278 psig	1080	44.20 gal	47.01 gal	2.136	2.350
288 psig	1630	66.71 gal	70.51 gal	2.251	2.350
298 psig	2236	91.51 gal	94.02 gal	2.480	2.351
308 psig	2826	115.65 gal	117.52 gal	2.415	2.351
318 psig	3412	139.63 gal	141.03 gal	2.398	2.351
328 psig	4049	165.70 gal	164.54 gal	2.607	2.351
338 psig	4682	191.61 gal	188.06 gal	2.591	2.351
348 psig	5335	218.33 gal	211.57 gal	2.672	2.351
358 psig	5974	244.48 gal	235.08 gal	2.615	2.351
368 psig	6636	271.57 gal	258.60 gal	2.709	2.352
378 psig	7285	298.13 gal	282.12 gal	2.656	2.352
388 psig	7931	324.57 gal	305.64 gal	2.644	2.352
395 psig	8416	344.42 gal	322.10 gal	2.835	2.352
395 psig		344.42 gal	322.10 gal	0.000	0.000
395 psig		344.42 gal	322.10 gal	0.000	0.000
395 psig		344.42 gal	322.10 gal	0.000	0.000
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395 psig		344.42 gal	322.10 gal	0.000	0.000
395 psig		344.42 gal	322.10 gal	0.000	0.000
395 psig		344.42 gal	322.10 gal	0.000	0.000
395 psig		344.42 gal	322.10 gal	0.000	0.000

Pump gal per stroke	0.056 gal/stroke
Pump Piston Diameter	1.250 in
Pump Piston Stroke	3.50 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.041 gal/stroke
Volume Released (gallons)	25.14 gal
Pressure Reduced (psi)	10 psi
Maximum2	370 gal
Minimum2	0 gal
Maximum1	830 psig
Minimum1	200 psig
Gallons/Stroke Used	0.041 gal/stroke
Predicted Gallons/Stroke	0.038 gal/stroke
Pressure Increment	10 psi
Max Pressure	395 psig
Buried Pipe Temperature	63 °F
Exposed Pipe Temperature	60 °F

ASME B31.8 Appendix N-5

Average Actual Elastic Slope	2.521
Average Predicted Elastic Slope	2.351
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	4.790
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	395 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

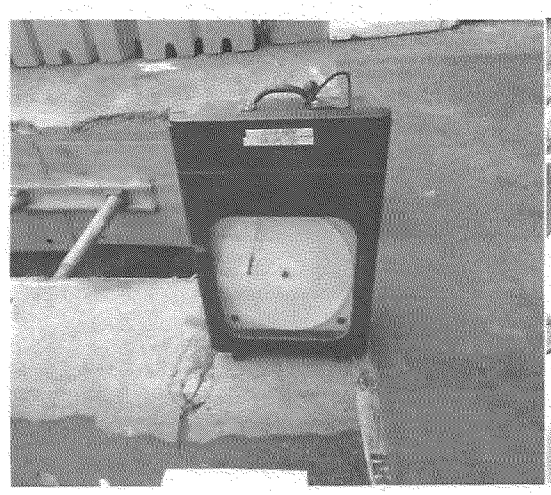
9-29-11

Date

RCP

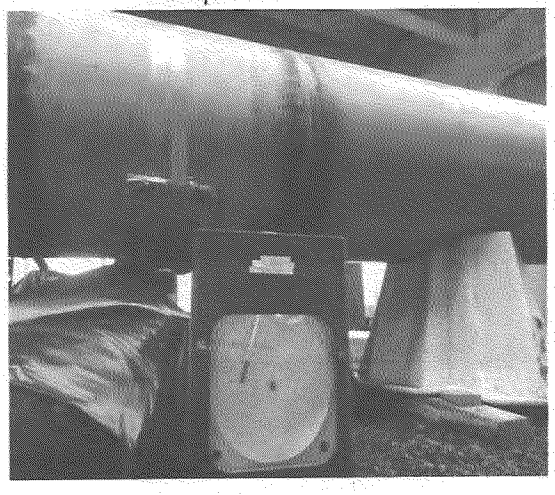
Redacted

Test T-7 Test Head



Test T-7 Test Head

Test T-7 Restrained .
Temp. Rec



Test T-7 Unrestrained
Temp. Recorder

Test T-7 Test Head
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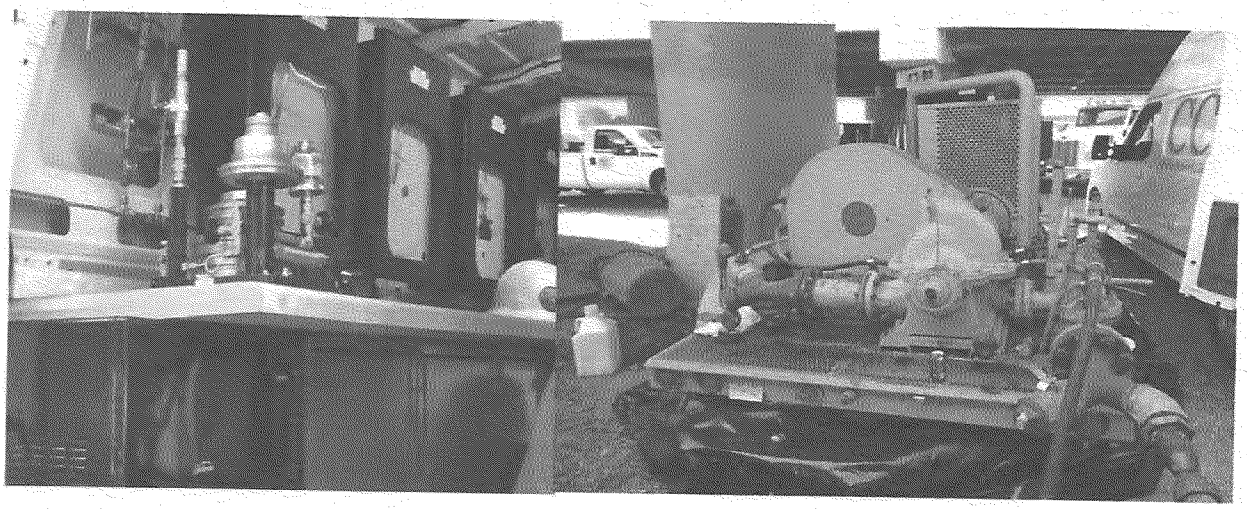
Test T-7 Restrained Temp.
Alternate Recorder

Test T-7 Test End



Test T-7 Deadweight and Press.
Recorder

Test T-7 Pressure Pump