



RCP, Inc

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

Redacted

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

Test Contractor:	Contra Costa Inspection Co. -- T-15 9/11/2011
Asset Owner:	Pacific Gas and Electric Company -- 41497369-T15
Construction Contractor:	ARB -- 0629-53-3500
Test Section:	PG&E T-15 L-105N, MP 27.94 - 28.13
Test Date:	September 11, 2011
Certificate Number:	RCP 61362 - T-15, L-105N, MP 27.94 - 28.13

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 374 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 8.25 hour test duration period.

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 348 psig and the established MAOP is 232 psig.

Pressure decreased 22 psi during the test. 700.80 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 247.16 ounces, gain, which is equivalent to a 0.74 °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 15  
Letter



### Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41497369-T15
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-15 9/11/2011
Test Section	PG&E T-15 L-105N, MP 27.94 - 28.13		
File Name	RCP 61362 - T-15, L-105N, MP 27.94 - 28.13		

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APPLICABLE CODE FOR CERTIFICATION: \_\_\_\_\_ Test Date: 11-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-15 L-105N, MP 27.94 - 28.13  
 From: 0+00 To: 9+49

Pipe Data						
Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS	
1	947 ft	26.000 in.	0.375 in.	33ksmys, SAW, Arc Weld, Steel	952 psi	
2	30 ft	26.000 in.	0.375 in.	API5L-X65, DSAW, Arc Weld, Steel	1,875 psi	
3	35 ft	24.000 in.	0.375 in.	API5L-X60, DSAW, Arc Weld, Steel	1,875 psi	
4	14 ft	8.625 in.	0.322 in.	API5L-Grade B, SM, Arc Weld, Steel	2,613 psi	
5	30 ft	6.625 in.	0.280 in.	API5L-Grade B, SM, Arc Weld, Steel	2,958 psi	
6	29 ft	1.315 in.	0.154 in.	API5L-Grade B, SM, Arc Weld, Steel	6,198 psi	
7	20 ft	26.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	2,500 psi	

#### Initial Test Conditions

Pressure at Test Point:	374 psig	Date/Time:	9/11/11 9:30 AM	Pipe Temperature	
Ambient Temperature:	67.0 °F	Elevation @ Test Point:	25.0 ft	Unrestrained:	61.0 °F
Pressure @ High Point (Cal/Measure):	371 psig	Elevation @ High Point:	32.0 ft	Restrained:	66.0 °F
Pressure @ Low Point (Cal/Measure):	374 psig	Elevation @ Low Point:	25.0 ft	Location:	9+49
				Location:	0+00
				Location:	9+49

#### Final Test Conditions

Pressure at Test Point:	352 psig	Date/Time:	9/11/11 5:45 PM	Pipe Temperature	
Ambient Temperature:	68.0 °F	Elevation @ Test Point:	25.0 ft	Unrestrained:	64.0 °F
Pressure @ High Point (Cal/Measure):	349 psig	Elevation @ High Point:	32.0 ft	Restrained:	66.0 °F
Pressure @ Low Point (Cal/Measure):	352 psig	Elevation @ Low Point:	25.0 ft	Location:	9+49
				Location:	0+00
				Location:	9+49

Total Fluid Injected:		Volume gain		
Total Fluid Withdrawn:	700.80 fluid ounces			
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	247.16 oz	gain	0.0072%	0.745 °F equivalent

Test Duration: 8.25 hours				
Minimum Test Pressure:	348 psig	345 psig	348 psig	
Maximum Test Pressure:	374 psig	371 psig	374 psig	
% SMYS :	15.0%	39.0%	39.3%	
Test Segment Observed % SMYS :	Minimum	4.6%	Maximum	39.3%

Minimum Test Pressure (Calculated/Measured):	349 psig
Maximum Allowable Operating Pressure:	DOT Part 192 Test Factor= 1.50 232 psig

Were leaks observed? **No** Explain: \_\_\_\_\_

Acceptable Hydrostatic Test? **Yes**

The test segment was subjected to a spike pressure test of 374 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 8.25 hour test duration period.

No leaks were observed during the test period. The test section included 947 feet of buried and 158 feet of exposed pipe. Pressure lost 22 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment gained 3°F.

700.80 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 247.16 ounces, gain, which is equivalent to a 0.74 °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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September 11, 2011



# Dead Weight Log Sheet

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Owner Company Pacific Gas and Electric Company

Job Number 41497369-T15

Construction Co. ARB

Job Number 0629-53-3500

Testing Co. Contra Costa Inspection Co.

Project No. T-15 9/11/2011

Test Section PG&E T-15 L-105N, MP 27.94 - 28.13

File Name RCP 61362 - T-15, L-105N, MP 27.94 - 28.13

n 11-Sep-11

## Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	9/11/11	9:11 AM	255 psig	67 °F	61 °F	66 °F	Start Spike		
2	9/11/11	9:12 AM	265 psig	67 °F	61 °F	66 °F	Inject		177 oz.
3	9/11/11	9:13 AM	275 psig	67 °F	61 °F	66 °F	Inject		183 oz.
4	9/11/11	9:14 AM	285 psig	67 °F	61 °F	66 °F	Inject		175 oz.
5	9/11/11	9:15 AM	295 psig	67 °F	61 °F	66 °F	Inject		173 oz.
6	9/11/11	9:16 AM	305 psig	67 °F	61 °F	66 °F	Inject		179 oz.
7	9/11/11	9:17 AM	315 psig	67 °F	61 °F	66 °F	Inject		179 oz.
8	9/11/11	9:18 AM	325 psig	67 °F	61 °F	66 °F	Inject		180 oz.
9	9/11/11	9:19 AM	335 psig	67 °F	61 °F	66 °F	Inject		176 oz.
10	9/11/11	9:20 AM	345 psig	67 °F	61 °F	66 °F	Inject		185 oz.
11	9/11/11	9:21 AM	355 psig	67 °F	61 °F	66 °F	Inject		177 oz.
12	9/11/11	9:22 AM	365 psig	67 °F	61 °F	66 °F	Inject		171 oz.
13	9/11/11	9:27 AM	374 psig	67 °F	61 °F	66 °F	Inject		154 oz.
14	9/11/11	9:30 AM	374 psig	67 °F	61 °F	66 °F	On Test		
15	9/11/11	9:40 AM	374 psig	67 °F	61 °F	66 °F			
16	9/11/11	9:50 AM	374 psig	68 °F	61 °F	66 °F			
17	9/11/11	10:00 AM	374 psig	69 °F	61 °F	66 °F	End Spike		
18	9/11/11	10:01 AM	364 psig	69 °F	61 °F	66 °F	Bleed	177 oz.	
19	9/11/11	10:02 AM	354 psig	69 °F	61 °F	66 °F	Bleed	177 oz.	
20	9/11/11	10:03 AM	348 psig	69 °F	61 °F	66 °F	Bleed	106 oz.	
21	9/11/11	10:05 AM	348 psig	69 °F	61 °F	66 °F			
22	9/11/11	10:20 AM	348 psig	70 °F	61 °F	66 °F			
23	9/11/11	10:35 AM	348 psig	70 °F	61 °F	66 °F			
24	9/11/11	10:50 AM	349 psig	71 °F	61 °F	66 °F			
25	9/11/11	11:05 AM	349 psig	71 °F	62 °F	66 °F			
26	9/11/11	11:20 AM	350 psig	68 °F	62 °F	66 °F			
27	9/11/11	11:35 AM	350 psig	68 °F	62 °F	66 °F			
28	9/11/11	11:50 AM	350 psig	68 °F	62 °F	66 °F			
29	9/11/11	12:05 PM	350 psig	70 °F	62 °F	66 °F			
30	9/11/11	12:20 PM	351 psig	73 °F	62 °F	66 °F			
31	9/11/11	12:35 PM	352 psig	75 °F	62 °F	66 °F			
32	9/11/11	12:50 PM	353 psig	71 °F	62 °F	66 °F			
33	9/11/11	1:05 PM	354 psig	70 °F	62 °F	66 °F	Bleed	120 oz.	
34	9/11/11	1:20 PM	348 psig	73 °F	62 °F	66 °F			
35	9/11/11	1:35 PM	348 psig	74 °F	63 °F	66 °F			
36	9/11/11	1:50 PM	349 psig	78 °F	63 °F	66 °F			
37	9/11/11	2:05 PM	350 psig	77 °F	63 °F	66 °F			
38	9/11/11	2:20 PM	351 psig	73 °F	63 °F	66 °F	Clear		
39	9/11/11	2:35 PM	352 psig	75 °F	63 °F	66 °F			
40	9/11/11	2:50 PM	353 psig	75 °F	63 °F	66 °F			
41	9/11/11	3:05 PM	354 psig	75 °F	63 °F	66 °F	Bleed	120 oz.	
42	9/11/11	3:20 PM	348 psig	74 °F	63 °F	66 °F			
43	9/11/11	3:35 PM	349 psig	73 °F	63 °F	66 °F			
44	9/11/11	3:50 PM	350 psig	72 °F	64 °F	66 °F			



# Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497369-T15
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	Contra Costa Inspection Co.	Project No.	T-15 9/11/2011
Test Section	PG&E T-15 L-105N, MP 27.94 - 28.13		
File Name	RCP 61362 - T-15, L-105N, MP 27.94 - 28.13		

n	11-Sep-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			
45	9/11/11	4:05 PM	350 psig	73 °F	64 °F	66 °F			
46	9/11/11	4:20 PM	351 psig	72 °F	64 °F	66 °F			
47	9/11/11	4:35 PM	351 psig	70 °F	64 °F	66 °F			
48	9/11/11	4:50 PM	351 psig	69 °F	64 °F	66 °F			
49	9/11/11	5:05 PM	352 psig	69 °F	64 °F	66 °F			
50	9/11/11	5:20 PM	352 psig	68 °F	64 °F	66 °F			
51	9/11/11	5:35 PM	352 psig	68 °F	64 °F	66 °F			
52	9/11/11	5:45 PM	352 psig	68 °F	64 °F	66 °F	End of Test		

<b>Spike Test</b>		2,109.0 oz.
<b>Hydrostatic Test</b>	700.8 oz.	

Were leaks observed during the test period?	Exposed and buried pipe, no leaks observed.	<table border="1"> <tr> <td>High Test Pressure:</td> <td>374 psig</td> </tr> <tr> <td>Low Test Pressure:</td> <td>348 psig</td> </tr> </table>	High Test Pressure:	374 psig	Low Test Pressure:	348 psig
High Test Pressure:	374 psig					
Low Test Pressure:	348 psig					

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## Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41497369-T15
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-15 9/11/2011
Test Section	PG&E T-15 L-105N, MP 27.94 - 28.13	<b>WATER</b>	
File Name	RCP 61362 - T-15, L-105N, MP 27.94 - 28.13		

Description	Segment							
	1	2	3	4	5	6	7	
Restrained or Unrestrained?	Restrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained	
Outside Diameter	26.000 in.	26.000 in.	24.000 in.	8.625 in.	6.625 in.	1.315 in.	26.000 in.	
Wall Thickness	0.375 in.	0.375 in.	0.375 in.	0.322 in.	0.280 in.	0.154 in.	0.500 in.	
Inside Diameter	25.250 in.	25.250 in.	23.250 in.	7.981 in.	6.065 in.	1.007 in.	25.000 in.	
Spec./Grade	33ksmys	API5L-X65	API5L-X60	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-X65	
Length Unrestrained		30 ft	35 ft	14 ft	30 ft	29 ft	20 ft	
Length Restrained	947 ft							
Temperature -- On Test	66 °F	61 °F	61.0 °F	61.0 °F	61.0 °F	61.0 °F	61.0 °F	
Temperature -- End of Test	66 °F	64 °F	64.0 °F	64.0 °F	64.0 °F	64.0 °F	64.0 °F	
Pressure -- On Test	374 psig	374 psig	374 psig	374 psig	374 psig	374 psig	374 psig	
Pressure -- End of Test	352 psig	352 psig	352 psig	352 psig	352 psig	352 psig	352 psig	

### Unrestrained Pipe

Sum:	Vo	2,144.90 gal		Vlp1	2,149.22 gal		Vtp2	2,148.44 gal
		274,547 oz.			275,100 oz.			275,000 oz.
Vo Unrestrained		780 gal	772 gal	36 gal	45 gal	1 gal	510 gal	
Fwp 1		1.001144	1.001144	1.001144	1.001144	1.001144	1.001144	
Fpp 1		1.001049	1.000966	1.000386	1.000338	1.000102	1.000779	
Fpt 1		1.000018	1.000018	1.000018	1.000018	1.000018	1.000018	
Fwt 1		1.000080	1.000080	1.000080	1.000080	1.000080	1.000080	
Fpwt 1 = Fpt/Fwt		0.999938	0.999938	0.999938	0.999938	0.999938	0.999938	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		782.04 gal	773.50 gal	36.44 gal	45.09 gal	1.20 gal	510.95 gal	
Fwp 2		1.001077	1.001077	1.001077	1.001077	1.001077	1.001077	
Fpp 2		1.000988	1.000909	1.000364	1.000318	1.000096	1.000733	
Fpt 2		1.000073	1.000073	1.000073	1.000073	1.000073	1.000073	
Fwt 2		1.000375	1.000375	1.000375	1.000375	1.000375	1.000375	
Fpwt = Fpt/Fwt		0.999698	0.999698	0.999698	0.999698	0.999698	0.999698	
Vtp = Vo(Fwp)(Fpp)(Fpwt)		781.75 gal	773.22 gal	36.42 gal	45.07 gal	1.20 gal	510.77 gal	

### Restrained Pipe

Sum:	Vo	24,633.83 gal		Vlp1	24,668.80 gal		Vtp2	24,666.04 gal
		3,153,130 oz.			3,157,607 oz.			3,157,253 oz.
Vo Unrestrained	24,634 gal							
Fwp 1	1.001144							
Fpp 1	1.000785							
Fpt 1	1.000073							
Fwt 1	1.000582							
Fpwt 1 = Fpt/Fwt	0.999491							
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	24,669 gal							
Fwp 2	1.001077							
Fpp 2	1.000741							
Fpt 2	1.000073							
Fwt 2	1.000582							
Fpwt = Fpt/Fwt	0.999491							
Vtp = Vo(Fwp)(Fpp)(Fpwt)	24,666 gal							

### Combined Pipe

Sum:	Vo	26,778.73 gal		Vlp1	26,818.02 gal		Vtp2	26,814.48 gal
		3,427,677 oz.			3,432,706 oz.			3,432,253 oz.

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# Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41497369-T15
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-15 9/11/2011
Test Section	PG&E T-15 L-105N, MP 27.94 - 28.13		
File Name	RCP 61362 - T-15, L-105N, MP 27.94 - 28.13		

WATER

Description	Segment						
	1	2	3	4	5	6	7
Restrained or Unrestrained?	Restrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	26.000 in.	26.000 in.	24.000 in.	8.625 in.	6.625 in.	1.315 in.	26.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.375 in.	0.322 in.	0.280 in.	0.154 in.	0.500 in.
Inside Diameter	25.250 in.	25.250 in.	23.250 in.	7.981 in.	6.065 in.	1.007 in.	25.000 in.
Spec./Grade	33ksmys	API5L-X65	API5L-X60	API5L-Grade B	API5L-Grade B	API5L-Grade B	API5L-X65
Length Unstrained		30.00 ft	35.00 ft	14 ft	30 ft	29 ft	20 ft
Length Restrained	947 ft						
Temperature -- On Test	65 °F	62 °F	62 °F	62 °F	62 °F	62 °F	62 °F
Temperature -- End of Test	66 °F	63 °F	63 °F	63 °F	63 °F	63 °F	63 °F
Pressure -- On Test	363 psig	363 psig	363 psig	363 psig	363 psig	363 psig	363 psig
Pressure -- End of Test	363 psig	363 psig	363 psig	363 psig	363 psig	363 psig	363 psig

### Unrestrained Pipe

Sum:	Vo			Vtp1	2,148.91 gal 275,080 oz.		Vtp2	2,148.76 gal 275,041 oz.	
Vo Unrestrained	2,144.90 gal 274,547 oz.	780 gal	772 gal	36 gal	45 gal	1 gal	510 gal		
Fwp 1	1.001110	1.001110	1.001110	1.001110	1.001110	1.001110	1.001110		
Fpp 1	1.001018	1.000938	1.000375	1.000328	1.000099	1.000756			
Fpt 1	1.000036	1.000036	1.000036	1.000036	1.000036	1.000036			
Fwt 1	1.000181	1.000181	1.000181	1.000181	1.000181	1.000181			
Fpwt 1 = Fpt/Fwt	0.999856	0.999856	0.999856	0.999856	0.999856	0.999856			
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	781.92 gal	773.39 gal	36.43 gal	45.08 gal	1.20 gal	510.88 gal			
Fwp 2		1.001110	1.001110	1.001110	1.001110	1.001110	1.001110		
Fpp 2		1.001018	1.000938	1.000375	1.000328	1.000099	1.000756		
Fpt 2		1.000055	1.000055	1.000055	1.000055	1.000055	1.000055		
Fwt 2		1.000267	1.000267	1.000267	1.000267	1.000267	1.000267		
Fpwt = Fpt/Fwt		0.999788	0.999788	0.999788	0.999788	0.999788	0.999788		
Vtp 2 = Vo(Fwp)(Fpp)(Fpwt)		781.87 gal	773.34 gal	36.43 gal	45.08 gal	1.20 gal	510.84 gal		

### Restrained Pipe

Sum:	Vo			Vtp1	24,669.87 gal 3,157,743 oz.		Vtp2	24,667.42 gal 3,157,430 oz.	
Vo Restrained	24,634 gal								
Fwp 1	1.001110								
Fpp 1	1.000759								
Fpt 1	1.000061								
Fwt 1	1.000467								
Fpwt 1 = Fpt/Fwt	0.999593								
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	24,670 gal								
Fwp 2	1.001110								
Fpp 2	1.000763								
Fpt 2	1.000073								
Fwt 2	1.000582								
Fpwt = Fpt/Fwt	0.999491								
Vtp 2 = Vo(Fwp)(Fpp)(Fpwt)	24,667 gal								

### Combined Pipe

Sum:	Vo			Vtp1	26,818.77 gal 3,432,803 oz.		Vtp2	26,816.18 gal 3,432,471 oz.	
1 °F Change	2.59 gal		331.86 oz.						

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## 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	947 ft	Restrained	26.000 in.	0.3750 in.	33ksmys	952 psig	Steel	Arc Weld	SAW
2	30 ft	Unrestrained	26.000 in.	0.3750 in.	API5L-X65	1,875 psig	Steel	Arc Weld	DSAW
3	35 ft	Unrestrained	24.000 in.	0.3750 in.	API5L-X60	1,875 psig	Steel	Arc Weld	DSAW
4	14 ft	Unrestrained	8.625 in.	0.3220 in.	API5L-Grade B	2,613 psig	Steel	Arc Weld	SM
5	30 ft	Unrestrained	6.625 in.	0.2800 in.	API5L-Grade B	2,958 psig	Steel	Arc Weld	SM
6	29 ft	Unrestrained	1.315 in.	0.1540 in.	API5L-Grade B	8,198 psig	Steel	Arc Weld	SM
7	20 ft	Unrestrained	26.000 in.	0.5000 in.	API5L-X65	2,500 psig	Steel	Arc Weld	DSAW

### Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget Wainut Creek, CA 94598 Attention Redacted	41497369-T15
Construction Company	ARB	Job Number
Address	1875 Loveridge Road Antioch, CA 94565 Attention Redacted	0629-53-3500
Hydrostatic Test Co.	Contra Costa Inspection Co.	Project No.
Address	2820 LaJolla Drive Antioch, CA 94565 Attention Redacted	T-15 9/11/2011
Test Section	PG&E T-15 L-105N, MP 27.94 - 28.13 From: 0+00 To: 9+49	
File Name	RCP 61362 - T-15, L-105N, MP 27.94 - 28.13	

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	9/11/11 9:30 AM	Elevation at Test Point	25 ft	Min. Required Test Press At Test Point (1)	340.03 psig	Max. Allowable Test Press at Test Point (4)	380.00 psig
Time and Date Test Ended	9/11/11 5:45 PM	Max. Elevation in Test Section	32 ft	Min. Indicated Test Pressure (2)	348.00 psig	Max. Indicated Test Pressure (5)	374.00 psig
Actual Duration of Test	8 hours 15 minutes	Min. Elevation in Test Section	25 ft	Min. Test Pressure at Max. Elevation (3)	344.97 psig	Max. Test Pressure at Min. Elevation (6)	374.00 psig

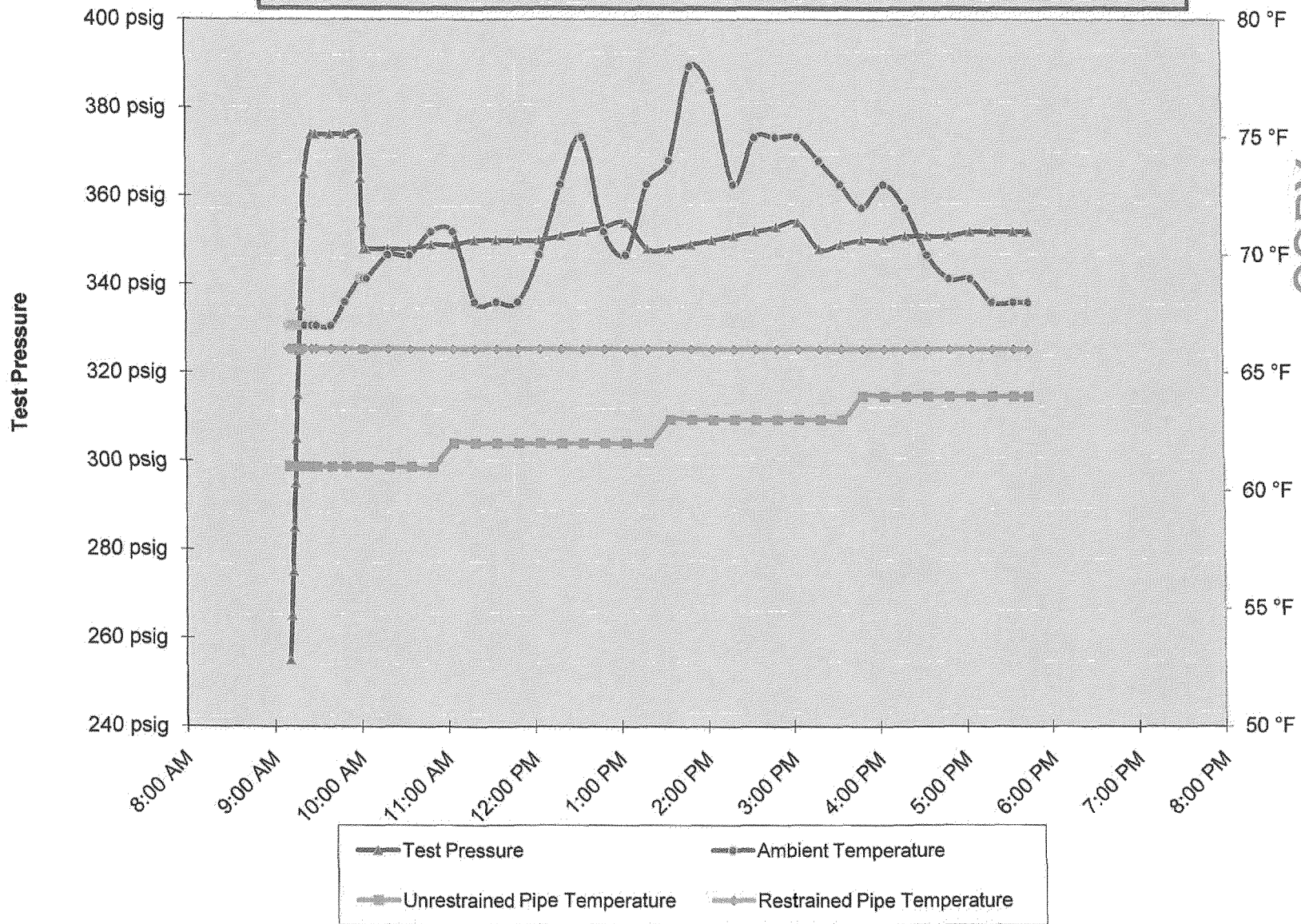
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PG&E T-15 L-105N, MP 27.94 - 28.13

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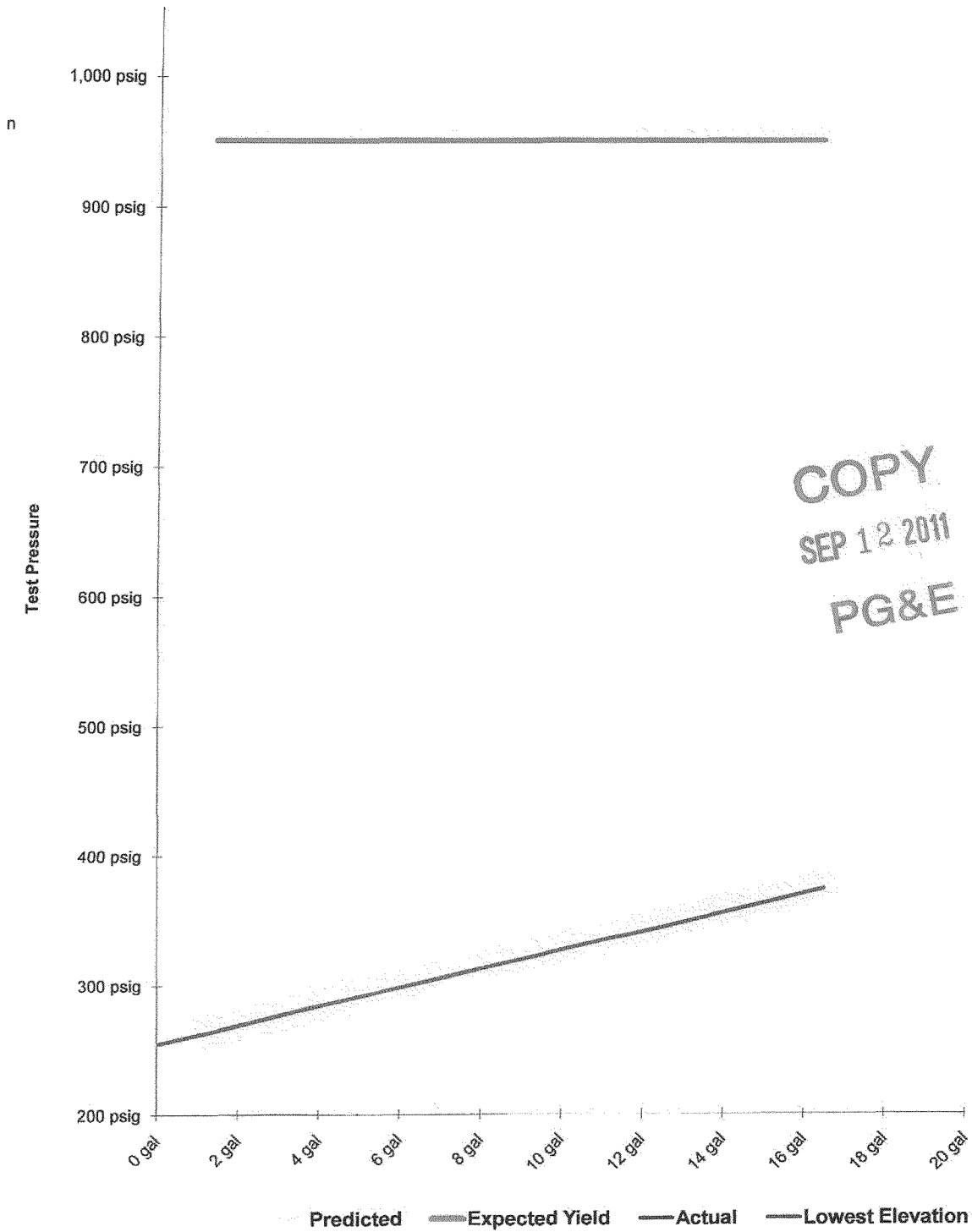
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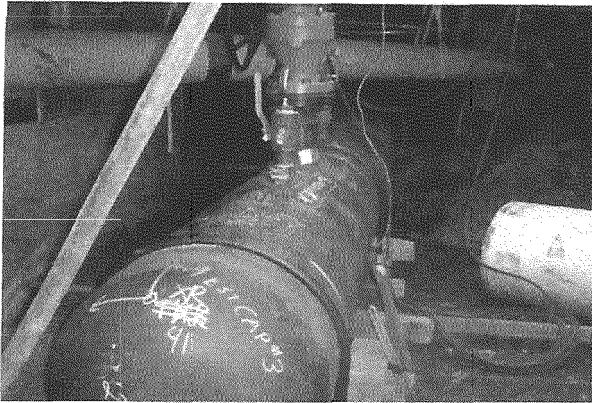


**Spike Pressure Test  
Stress Strain Curve -- PG&E T-15 L-105N, MP 27.94 - 28.13**



Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope		Spike Pressure Test Stress Strain Curve -- PG&E T-15 L-105N, MP 27.94 - 28.13	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted		
255 psig	0	0.00 gal		0	0.000	Pump gal per stroke	0.056 gal/stroke
265 psig	131	1.39 gal	1.38 gal	0.139	0.138	Pump Piston Diameter	1.250 in
275 psig	266	2.81 gal	2.75 gal	0.143	0.138	Pump Piston Stroke	3.50 in
285 psig	395	4.18 gal	4.13 gal	0.136	0.138	Pump Cylinders	3 ea
295 psig	523	5.53 gal	5.51 gal	0.135	0.138	Volume check gal per stroke	0.011 gal/stroke
305 psig	655	6.93 gal	6.88 gal	0.140	0.138	Volume Released (gallons)	3.60 gal
315 psig	787	8.32 gal	8.26 gal	0.140	0.138	Pressure Reduced (psi)	26 psi
325 psig	920	9.73 gal	9.64 gal	0.141	0.138	Maximum2	20 gal
335 psig	1050	11.10 gal	11.01 gal	0.137	0.138	Minimum2	0 gal
345 psig	1187	12.55 gal	12.39 gal	0.145	0.138	Maximum1	1,052 psig
355 psig	1318	13.94 gal	13.77 gal	0.139	0.138	Minimum1	200 psig
365 psig	1444	15.27 gal	15.15 gal	0.133	0.138	Gallons/Stroke Used	0.011 gal/stroke
374 psig	1558	16.48 gal	16.39 gal	0.134	0.138	Predicted Gallons/Stroke	0.011 gal/stroke
374 psig		16.48 gal	16.39 gal	0.000	0.000	Pressure Increment	10 psi
374 psig		16.48 gal	16.39 gal	0.000	0.000	Max Pressure	374 psig
374 psig		16.48 gal	16.39 gal	0.000	0.000	Buried Pipe Temperature	61 °F
374 psig		16.48 gal	16.39 gal	0.000	0.000	Exposed Pipe Temperature	66 °F
374 psig		16.48 gal	16.39 gal	0.000	0.000	<b>ASME B31.8 Appendix N-5</b>	
374 psig		16.48 gal	16.39 gal	0.000	0.000	Average Actual Elastic Slope	0.138
374 psig		16.48 gal	16.39 gal	0.000	0.000	Average Predicted Elastic Slope	0.138
374 psig		16.48 gal	16.39 gal	0.000	0.000	Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	0.263
374 psig		16.48 gal	16.39 gal	0.000	0.000	Established Minimum Yield Pressure B31.8 N-5 (c)(2)	374 psig
374 psig		16.48 gal	16.39 gal	0.000	0.000	Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2)	418 gal
374 psig		16.48 gal	16.39 gal	0.000	0.000	Volume (After Slope Deviation) B31.8 N-5 (c)(2)	0 gal
374 psig		16.48 gal	16.39 gal	0.000	0.000	<div style="border: 1px solid black; width: 200px; height: 100px; display: flex; align-items: center; justify-content: center;">                     Redacted                 </div>	
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000		
374 psig		16.48 gal	16.39 gal	0.000	0.000	9/11/2011 Date	

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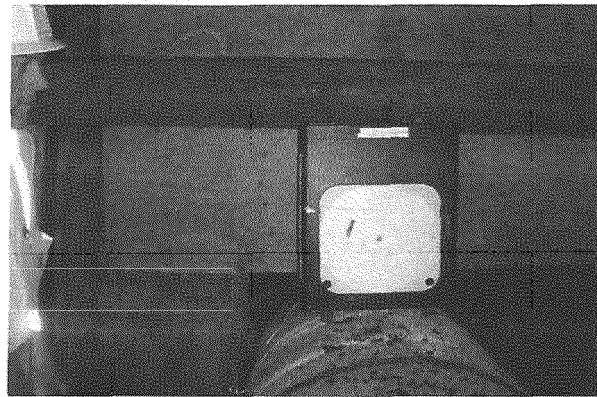
Test T-15 Test Head



Test T-15 Test Head Unrestrained  
Temp. Rec.



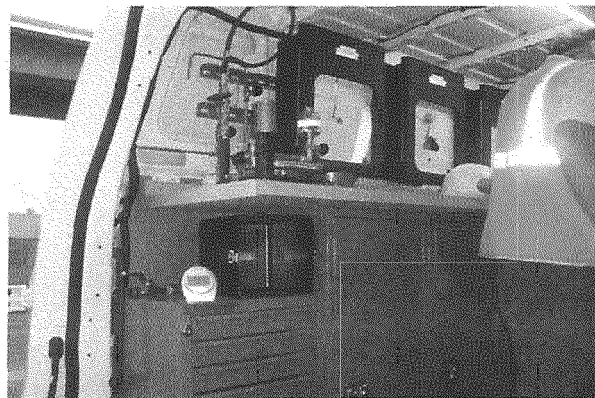
Test T-15 Test Head Connect



Test T-15 Test Head Restrained  
Temp. Rec.



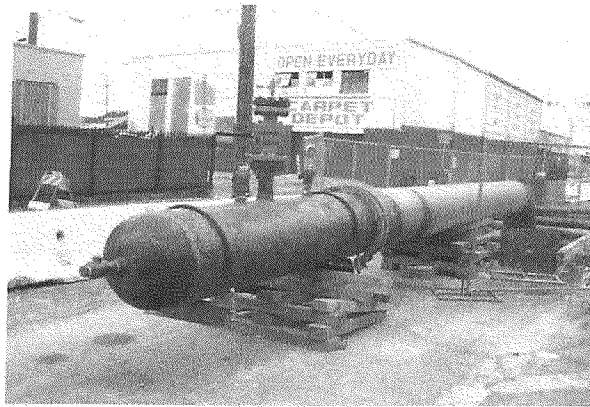
Test T-15 Pump Trailer



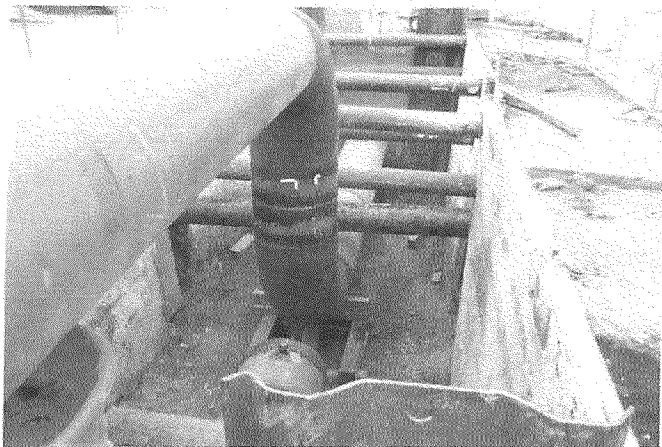
Test T-15 Deadweight & P&T Chart



Test T-15 Tie-In Piece



Test T-15 Test End



Test T-15 Test End Connect

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