



RCP, Inc

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

Redacted

August 3, 2011

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

Test Contractor: Milbar Hydro-test Incorporated -- FY12-112
Asset Owner: Pacific Gas and Electric Company -- 41497308
Construction Contractor: Snelson -- 41474005-T73
Test Section: PG&E T-73 Line 300A, MP 496.36 - 499.77
Test Date: August 3, 2011
Certificate Number: RCP 61362 - T-73, L-300A MP 496.36 - 499.77

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 Milbar Hydro-test Incorporated 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 1113 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 8.83 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.83 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 1031 psig and the established MAOP is 687 psig.

Pressure decreased 77 psi during the test. 45,465.60 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 13,440.86 ounces gain, which is equivalent to a 1.15 °F change in pipe temperature and larger than the anticipated 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 inherent error associated with physically attempting to measure the average temperature of 18,605 feet of buried and 124 feet of exposed pipe from a single point on the line.

Sincerely,

Redacted

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Hydrostatic_Test_Plan_T-73
Letter



Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41497308
Construction Co.	Sneison	Job Number	41474005-T73
Hydro. Test Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-73 Line 300A, MP 496.36 - 499.77		
File Name	RCP 61362 - T-73, L-300A MP 496.36 - 499.77		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 3) Test Date: 3-Aug-11

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-73 Line 300A, MP 496.36 - 499.77

From: 0+00

To: 184+08

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	73 ft	34.000 in.	0.505 in.	API5L-X60, DSAW, Arc Weld, Steel	1,782 psi
2	2,055 ft	34.000 in.	0.380 in.	API5L-X60, DSAW, Arc Weld, Steel	1,341 psi
3	16,246 ft	34.000 in.	0.500 in.	API5L-X46, DSAW, Arc Weld, Steel	1,353 psi
4	304 ft	34.000 in.	0.562 in.	API5L-X60, DSAW, Arc Weld, Steel	1,984 psi
5	40 ft	34.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,912 psi
6	5 ft	34.000 in.	0.375 in.	API5L-X60, DSAW, Arc Weld, Steel	1,324 psi

Initial Test Conditions

Pressure at Test Point:	1,113 psig	Date/Time:	8/3/11 5:55 AM	Pipe Temperature	
Ambient Temperature:	57.0 °F	Elevation @ Test Point:	130.0 ft	Unrestrained:	70.0 °F
Pressure @ High Point (Cal/Measure):	1,109 psig	Elevation @ High Point:	140.0 ft	Restrained:	76.0 °F
Pressure @ Low Point (Cal/Measure):	1,146 psig	Elevation @ Low Point:	55.0 ft	Location:	0+00
				Location:	55+90
				Location:	184+08

Final Test Conditions

Pressure at Test Point:	1,036 psig	Date/Time:	8/3/11 2:45 PM	Pipe Temperature	
Ambient Temperature:	82.0 °F	Elevation @ Test Point:	130.0 ft	Unrestrained:	84.0 °F
Pressure @ High Point (Cal/Measure):	1,032 psig	Elevation @ High Point:	140.0 ft	Restrained:	75.0 °F
Pressure @ Low Point (Cal/Measure):	1,069 psig	Elevation @ Low Point:	55.0 ft	Location:	0+00
				Location:	55+90
				Location:	184+08

Total Fluid Injected:			Volume gain	
Total Fluid Withdrawn:	45465.60 fluid ounces			
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	13,440.86 oz	gain	0.0125%	1.152 °F equivalent

Test Duration: 8.83 hours

Minimum Test Pressure:	Test Point	1,036 psig	Max Elevation	1,032 psig	Min Elevation	1,069 psig
Maximum Test Pressure:		1,113 psig		1,109 psig		1,146 psig
% SMYS:		84.1%		83.8%		86.5%

Minimum Test Pressure (Calculated/Measured): 1,032 psig

Maximum Allowable Operating Pressure: DOT Part 192 Test Factor= 1.50 687 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 1113 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 8.83 hour test duration period.</p> <p>No leaks were observed during the test period. The test section included 18,605 feet of buried and 124 feet of exposed pipe. Pressure lost 77 psi during the test. The buried pipe segment lost 1°F fluid temperature and the exposed pipe segment gained 14°F.</p> <p>45,465.60 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 13,440.86 ounces, gain, which is equivalent to a 1.15 °F change in pipe temperature and larger than the anticipated 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 inherent error associated with physically attempting to measure the average temperature of 18,605 feet of buried and 124 feet of exposed pipe from a single point on the line.</p>
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Remarks	Redacted
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Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497308
Construction Co.	Snelson	Job Number	41474005-T73
Testing Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-73 Line 300A, MP 496.36 - 499.77		
File Name	RCP 61362 - T-73, L-300A MP 496.36 - 499.77		

Date	3-Aug-11	Test Log
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Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	8/3/11	5:15 AM	764 psig	57 °F	70 °F	76 °F	Start Spike		
2	8/3/11	5:16 AM	770 psig	57 °F	70 °F	76 °F	Inject		4,230 oz.
3	8/3/11	5:17 AM	780 psig	57 °F	70 °F	76 °F	Inject		4,583 oz.
4	8/3/11	5:18 AM	790 psig	57 °F	70 °F	76 °F	Inject		5,499 oz.
5	8/3/11	5:19 AM	800 psig	57 °F	70 °F	76 °F	Inject		5,852 oz.
6	8/3/11	5:20 AM	810 psig	57 °F	70 °F	76 °F	Inject		5,922 oz.
7	8/3/11	5:21 AM	820 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
8	8/3/11	5:22 AM	830 psig	57 °F	70 °F	76 °F	Inject		5,781 oz.
9	8/3/11	5:23 AM	844 psig	57 °F	70 °F	76 °F	Inject		5,499 oz.
10	8/3/11	5:24 AM	854 psig	57 °F	70 °F	76 °F	Inject		5,852 oz.
11	8/3/11	5:25 AM	864 psig	57 °F	70 °F	76 °F	Inject		5,640 oz.
12	8/3/11	5:26 AM	874 psig	57 °F	70 °F	76 °F	Inject		5,499 oz.
13	8/3/11	5:27 AM	884 psig	57 °F	70 °F	76 °F	Inject		5,640 oz.
14	8/3/11	5:28 AM	894 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
15	8/3/11	5:30 AM	904 psig	57 °F	70 °F	76 °F	Inject		5,852 oz.
16	8/3/11	5:31 AM	914 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
17	8/3/11	5:32 AM	924 psig	57 °F	70 °F	76 °F	Inject		5,570 oz.
18	8/3/11	5:33 AM	934 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
19	8/3/11	5:34 AM	944 psig	57 °F	70 °F	76 °F	Inject		5,781 oz.
20	8/3/11	5:35 AM	954 psig	57 °F	70 °F	76 °F	Inject		5,993 oz.
21	8/3/11	5:37 AM	964 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
22	8/3/11	5:38 AM	974 psig	57 °F	70 °F	76 °F	Inject		5,781 oz.
23	8/3/11	5:39 AM	984 psig	57 °F	70 °F	76 °F	Inject		5,852 oz.
24	8/3/11	5:41 AM	994 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
25	8/3/11	5:42 AM	1,004 psig	57 °F	70 °F	76 °F	Inject		5,922 oz.
26	8/3/11	5:43 AM	1,014 psig	57 °F	70 °F	76 °F	Inject		5,781 oz.
27	8/3/11	5:45 AM	1,024 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
28	8/3/11	5:46 AM	1,034 psig	57 °F	70 °F	76 °F	Inject		5,781 oz.
29	8/3/11	5:47 AM	1,044 psig	57 °F	70 °F	76 °F	Inject		5,852 oz.
30	8/3/11	5:48 AM	1,054 psig	57 °F	70 °F	76 °F	Inject		5,570 oz.
31	8/3/11	5:49 AM	1,064 psig	57 °F	70 °F	76 °F	Inject		5,852 oz.
32	8/3/11	5:50 AM	1,074 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
33	8/3/11	5:51 AM	1,084 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
34	8/3/11	5:52 AM	1,094 psig	57 °F	70 °F	76 °F	Inject		5,922 oz.
35	8/3/11	5:53 AM	1,104 psig	57 °F	70 °F	76 °F	Inject		5,640 oz.
36	8/3/11	5:54 AM	1,113 psig	57 °F	70 °F	76 °F	Inject		5,711 oz.
37	8/3/11	5:55 AM	1,113 psig	57 °F	70 °F	76 °F	On Test		
38	8/3/11	6:05 AM	1,112 psig	57 °F	70 °F	76 °F			
39	8/3/11	6:15 AM	1,112 psig	57 °F	69 °F	76 °F			
40	8/3/11	6:25 AM	1,112 psig	57 °F	69 °F	76 °F	End Spike		
41	8/3/11	6:31 AM	1,102 psig	57 °F	69 °F	76 °F	Bleed	6,144 oz.	
42	8/3/11	6:36 AM	1,092 psig	57 °F	69 °F	76 °F		6,144 oz.	
43	8/3/11	6:41 AM	1,082 psig	57 °F	69 °F	76 °F		6,144 oz.	



Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497308
Construction Co.	Snelson	Job Number	41474005-T73
Testing Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-73 Line 300A, MP 496.36 - 499.77		
File Name	RCP 61362 - T-73, L-300A MP 496.36 - 499.77		

Date **3-Aug-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
44	8/3/11	6:47 AM	1,072 psig	57 °F	69 °F	76 °F		6,144 oz.	
45	8/3/11	6:53 AM	1,062 psig	57 °F	69 °F	76 °F		6,144 oz.	
46	8/3/11	6:59 AM	1,052 psig	57 °F	69 °F	76 °F		6,144 oz.	
47	8/3/11	7:05 AM	1,042 psig	57 °F	69 °F	76 °F		6,144 oz.	
48	8/3/11	7:10 AM	1,038 psig	57 °F	69 °F	76 °F		2,458 oz.	
49	8/3/11	7:15 AM	1,038 psig	59 °F	70 °F	76 °F			
50	8/3/11	7:30 AM	1,037 psig	59 °F	70 °F	76 °F			
51	8/3/11	7:45 AM	1,037 psig	60 °F	70 °F	76 °F			
52	8/3/11	8:00 AM	1,037 psig	61 °F	70 °F	75 °F			
53	8/3/11	8:15 AM	1,037 psig	61 °F	70 °F	75 °F			
54	8/3/11	8:30 AM	1,037 psig	62 °F	71 °F	75 °F			
55	8/3/11	8:45 AM	1,037 psig	62 °F	71 °F	75 °F			
56	8/3/11	9:00 AM	1,036 psig	63 °F	71 °F	75 °F			
57	8/3/11	9:15 AM	1,036 psig	63 °F	71 °F	75 °F			
58	8/3/11	9:30 AM	1,036 psig	63 °F	71 °F	75 °F			
59	8/3/11	9:45 AM	1,036 psig	66 °F	72 °F	75 °F			
60	8/3/11	10:00 AM	1,036 psig	67 °F	72 °F	75 °F			
61	8/3/11	10:15 AM	1,036 psig	68 °F	72 °F	75 °F			
62	8/3/11	10:30 AM	1,036 psig	69 °F	73 °F	75 °F			
63	8/3/11	10:45 AM	1,036 psig	70 °F	73 °F	75 °F			
64	8/3/11	11:00 AM	1,036 psig	71 °F	73 °F	75 °F			
65	8/3/11	11:15 AM	1,036 psig	71 °F	74 °F	75 °F			
66	8/3/11	11:30 AM	1,036 psig	73 °F	75 °F	75 °F			
67	8/3/11	11:45 AM	1,036 psig	74 °F	75 °F	75 °F			
68	8/3/11	12:00 PM	1,036 psig	75 °F	76 °F	75 °F			
69	8/3/11	12:15 PM	1,036 psig	78 °F	77 °F	75 °F			
70	8/3/11	12:30 PM	1,036 psig	77 °F	78 °F	75 °F			
71	8/3/11	12:45 PM	1,036 psig	79 °F	78 °F	75 °F			
72	8/3/11	1:00 PM	1,036 psig	83 °F	80 °F	75 °F			
73	8/3/11	1:15 PM	1,036 psig	82 °F	80 °F	75 °F			
74	8/3/11	1:30 PM	1,036 psig	82 °F	81 °F	75 °F			
75	8/3/11	1:45 PM	1,036 psig	85 °F	82 °F	75 °F			
76	8/3/11	2:00 PM	1,036 psig	84 °F	82 °F	75 °F			
77	8/3/11	2:15 PM	1,036 psig	84 °F	83 °F	75 °F			
78	8/3/11	2:30 PM	1,036 psig	83 °F	84 °F	75 °F			
79	8/3/11	2:45 PM	1,036 psig	82 °F	84 °F	75 °F	End of Test		
80	8/3/11	3:00 PM	1,036 psig	81 °F	85 °F	75 °F			
							Spike Test		198,252.3 oz.
							Hydrostatic Test	45,465.6 oz.	
Were leaks observed during the test period?				Exposed and buried pipe, no leaks observed.		High Test Pressure: 1,113 psig		Low Test Pressure: 1,036 psig	



Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41497308
Construction Co.	Snelson	Job Number	41474005-T73
Hydro. Test Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-73 Line 300A, MP 496.36 - 499.77	WATER	
File Name	RCP 61362 - T-73, L-300A MP 496.36 - 499.77		

General Pipe Data

Description	Segment							
	1	2	3	4	5	6	7	
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained	
Outside Diameter	34.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.	
Wall Thickness	0.505 in.	0.380 in.	0.500 in.	0.562 in.	0.500 in.	0.375 in.	0.375 in.	
Inside Diameter	32.990 in.	33.240 in.	33.000 in.	32.876 in.	33.000 in.	33.250 in.	33.250 in.	
Spec./Grade	API5L-X60	API5L-X60	API5L-X46	API5L-X60	API5L-X65	API5L-X60	API5L-X65	
Length Unrestrained	73 ft				40 ft	5 ft	6 ft	
Length Restrained		2,055 ft	16,246 ft	304 ft				
Temperature -- On Test	70 °F	76 °F	76.0 °F	76.0 °F	70.0 °F	70.0 °F	70.0 °F	
Temperature -- End of Test	84 °F	75 °F	75.0 °F	75.0 °F	84.0 °F	84.0 °F	84.0 °F	
Pressure -- On Test	1,113 psig	1,113 psig	1,113 psig	1,113 psig	1,113 psig	1,113 psig	1,113 psig	
Pressure -- End of Test	1,036 psig	1,036 psig	1,036 psig	1,036 psig	1,036 psig	1,036 psig	1,036 psig	

Unrestrained Pipe

Sum:	Vo	5,514.92 gal		Vtp1	5,546.36 gal		Vtp2	5,534.17 gal	
		705,910 oz.			709,934 oz.			708,374 oz.	
Vo Unrestrained	3,242 gal				1,777 gal	226 gal	271 gal		
Fwp 1	1.003412				1.003412	1.003412	1.003412		
Fpp 1	1.003030				1.003061	1.004112	1.004112		
Fpt 1	1.000182				1.000182	1.000182	1.000182		
Fwt 1	1.001036				1.001036	1.001036	1.001036		
Fpwt 1 = Fpt/Fwt	0.999146				0.999146	0.999146	0.999146		
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	3,259.63 gal				1,787.24 gal	227.04 gal	272.45 gal		
Fwp 2	1.003175				1.003175	1.003175	1.003175		
Fpp 2	1.002820				1.002849	1.003827	1.003827		
Fpt 2	1.000437				1.000437	1.000437	1.000437		
Fwt 2	1.003044				1.003044	1.003044	1.003044		
Fpwt = Fpt/Fwt	0.997401				0.997401	0.997401	0.997401		
Vtp = Vo(Fwp)(Fpp)(Fpwt)	3,252.49 gal				1,783.32 gal	226.53 gal	271.83 gal		

Restrained Pipe

Sum:	Vo	827,872.14 gal		Vtp1	831,313.52 gal		Vtp2	831,075.52 gal	
		105,967,634 oz.			106,408,131 oz.			106,377,667 oz.	
Vo Unrestrained		92,639 gal	721,828 gal	13,406 gal					
Fwp 1		1.003412	1.003412	1.003412					
Fpp 1		1.003011	1.002286	1.002033					
Fpt 1		1.000194	1.000194	1.000194					
Fwt 1		1.001813	1.001813	1.001813					
Fpwt 1 = Fpt/Fwt		0.998384	0.998384	0.998384					
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		93,084 gal	724,772 gal	13,457 gal					
Fwp 2		1.003175	1.003175	1.003175					
Fpp 2		1.002803	1.002128	1.001892					
Fpt 2		1.000182	1.000182	1.000182					
Fwt 2		1.001688	1.001688	1.001688					
Fpwt = Fpt/Fwt		0.998496	0.998496	0.998496					
Vtp = Vo(Fwp)(Fpp)(Fpwt)		93,053 gal	724,569 gal	13,453 gal					

Combined Pipe

Sum:	Vo	833,387.07 gal		Vtp1	836,859.88 gal		Vtp2	836,609.69 gal	
		106,673,544 oz.			107,118,065 oz.			107,086,040 oz.	