RCP

RCP, Inc

Redacted

May 30, 2011

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

Test Contractor:	Contra Costa Inspection Company – PG&E 5-21-11
Asset Owner:	Pacific Gas and Electric Company -- 41474079
Construction Contractor:	ARB -- 0629-53-3500-96
Test Section:	PG&E Line SP-5 T-96B (West) Retest
Test Date:	May 21, 2011
Certificate Number:	RCP 61362 - 96B (West) Retest

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 Company met the requirements of the Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 3).

On May 19th, this pipe segment was subjected to a spike pressure of 645 psig for 30 minutes, without observed leakage or yielding of the pipe segment. An 8 hour hydrostatic test was initiated immediately following the spike test. That test was terminated when the buried pipe temperature recorder appeared to be unstable and did not track with ground temperature. The recorder and probe was relocated to ensure an accurate plot of buried pipe temperature. The re-test began at ~~3:45~~ 12:45 AM on May 21, 2011. RSL QA

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8 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 604 psig and the established MAOP is 402 psig.

Pressure decreased 1 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 62.27 ounces, gain, which is equivalent to a 0.03 °F change in pipe temperature and within the error attributed to the temperature measurement instrumentation utilized.

Test pressure remained steady and no leaks were observed. The volumetric gain is attributed to the error characteristic of the temperature measurement instrumentation utilized.

Sincerely,

Redacted

Corrections per QA review
by Redacted 6/23/11

cc. file

C:\Redac Excel\RCP, Inc. Projects\PG&E\
RCP 61362-96B West retest(2).xlsm
Letter

5/30/2011

Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500-93
Hydro. Test Co.	Contra Costa Inspection Company	Project No.	PG&E 5.21.11
Test Section	PG&E Line SP-5 T-90B (West) Retest		
File Name	RCP 61362 - 90B (West) Retest		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Test Date: 21-May-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 Line SP-5 T-90B (West) Retest		
From:	127+76	To:	206+00

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	105.00 ft	24.000 in.	0.375 in.	API5L X60, SM, Arc Weld, Steel	1,675 psi
2	3,423.00 ft	24.000 in.	0.313 in.	API5L X42, DSAW, Arc Weld, Steel	1,094 psi
3	16.00 ft	24.000 in.	0.313 in.	API5L X42, DSAW, Arc Weld, Steel	1,094 psi
4	78 ft	24.000 in.	0.344 in.	API5L-X42, DSAW, Arc Weld, Steel	1,204 psi
5	4,228 ft	24.000 in.	0.271 in.	API5L-X42, DSAW, Arc Weld, Steel	949 psi
6	22 ft	24.000 in.	0.500 in.	API5L X52, SM, Arc Weld, Steel	2,167 psi

Initial Test Conditions

Pressure at Test Point:	613 psig	Date/Time:	5/21/11 12:45 AM	Pipe Temperature Unrestrained:	69.0 °F
Ambient Temperature:	67.0 °F			Restrained:	65.0 °F
		Elevation @ Test Point:	49.0 ft	Location:	127+76
Pressure @ High Point (Cal/Measure):	605 psig	Elevation @ High Point:	67.0 ft	Location:	206+00
Pressure @ Low Point (Cal/Measure):	620 psig	Elevation @ Low Point:	19.0 ft	Location:	138+00

Final Test Conditions

Pressure at Test Point:	612 psig	Date/Time:	5/21/11 8:45 AM	Pipe Temperature Unrestrained:	64.0 °F
Ambient Temperature:	66.0 °F			Restrained:	66.0 °F
		Elevation @ Test Point:	49.0 ft	Location:	127+76
Pressure @ High Point (Cal/Measure):	604 psig	Elevation @ High Point:	67.0 ft	Location:	206+00
Pressure @ Low Point (Cal/Measure):	625 psig	Elevation @ Low Point:	19.0 ft	Location:	138+00
	Total Fluid Injected:			Volume gain	
	Total Fluid Withdrawn:				
Net Change in Volume of the Test Section + (= Gain, - Loss):	62.27 oz	gain		0.0003%	0.028 °F equivalent

Test Duration: 8 hours

Maximum Test Pressure:	613 psig					
% SMYS @:	64.6%	Test Point	63.8%	High Point	66.0%	Low Point
					Minimum Test Pressure (Calculated/Measured):	604 psig
	Maximum Allowable Operating Pressure:			DOT Part 192	Test Factor= 1.50	402 psig

Were leaks observed?	No	Explain:
Acceptable Hydrostatic Test?	Yes	Prior to initiation of the hydrostatic test period, the test segment was subjected to a spike pressure of 645 psig for 30 minutes, without observed leakage or yielding of the pipe segment. No leaks were observed during the test period. The test section included 7,729 feet of buried and 143 feet of exposed pipe. Pressure lost 1 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment lost 0°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 62.27 ounces, gain, which is equivalent to a 0.03 °F change in pipe temperature and within the error attributed to the temperature measurement instrumentation utilized. Test pressure remained steady and no leaks were observed. The volumetric gain is attributed to the error characteristic of the temperature measurement instrumentation utilized.

Remarks

Redacted

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0620-53-3500-96
Testing Co.	Contra Costa Inspection Company	Project No.	PG&E 5-21-11
Test Section	PG&E Line SP-5 T-96B (West) Retest		
File Name	RCP 61362 - 96B (West) Retest		

Date: **21-May-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe Unrestrained	Pipe Restrained	Comment	Bleed	Inject
1	5/21/11	12:45 AM	613 psig	57 °F	69 °F	66 °F	On Test		
2	5/21/11	12:55 AM	613 psig	57 °F	69 °F	66 °F			
3	5/21/11	1:05 AM	613 psig	57 °F	69 °F	66 °F			
4	5/21/11	1:15 AM	613 psig	57 °F	68 °F	66 °F			
5	5/21/11	1:25 AM	613 psig	57 °F	68 °F	66 °F			
6	5/21/11	1:35 AM	613 psig	57 °F	68 °F	66 °F			
7	5/21/11	1:45 AM	613 psig	57 °F	67 °F	66 °F			
8	5/21/11	2:00 AM	613 psig	57 °F	67 °F	66 °F			
9	5/21/11	2:15 AM	613 psig	57 °F	66 °F	66 °F			
10	5/21/11	2:30 AM	613 psig	56 °F	66 °F	66 °F			
11	5/21/11	2:45 AM	613 psig	56 °F	66 °F	66 °F			
12	5/21/11	3:00 AM	613 psig	56 °F	66 °F	66 °F			
13	5/21/11	3:15 AM	613 psig	56 °F	66 °F	66 °F			
14	5/21/11	3:30 AM	613 psig	56 °F	66 °F	66 °F			
15	5/21/11	3:45 AM	613 psig	56 °F	66 °F	66 °F			
16	5/21/11	4:00 AM	612 psig	56 °F	65 °F	66 °F			
17	5/21/11	4:15 AM	612 psig	56 °F	65 °F	66 °F			
18	5/21/11	4:30 AM	612 psig	57 °F	65 °F	66 °F			
19	5/21/11	4:45 AM	612 psig	56 °F	65 °F	66 °F			
20	5/21/11	5:00 AM	612 psig	56 °F	65 °F	66 °F			
21	5/21/11	5:15 AM	612 psig	57 °F	65 °F	66 °F			
22	5/21/11	5:30 AM	612 psig	57 °F	64 °F	66 °F			
23	5/21/11	5:45 AM	612 psig	56 °F	64 °F	66 °F			
24	5/21/11	6:00 AM	612 psig	55 °F	64 °F	66 °F			
25	5/21/11	6:15 AM	612 psig	55 °F	64 °F	66 °F			
26	5/21/11	6:30 AM	612 psig	55 °F	64 °F	66 °F			
27	5/21/11	6:45 AM	612 psig	55 °F	64 °F	66 °F			
28	5/21/11	7:00 AM	612 psig	58 °F	64 °F	66 °F			
29	5/21/11	7:15 AM	612 psig	61 °F	64 °F	66 °F			
30	5/21/11	7:30 AM	612 psig	61 °F	64 °F	66 °F			
31	5/21/11	7:45 AM	612 psig	64 °F	64 °F	66 °F			
32	5/21/11	8:00 AM	612 psig	64 °F	64 °F	66 °F			
33	5/21/11	8:15 AM	612 psig	65 °F	64 °F	66 °F			
34	5/21/11	8:30 AM	612 psig	66 °F	64 °F	66 °F			
35	5/21/11	8:45 AM	612 psig	66 °F	64 °F	66 °F	End of Test		
							Spike Test		
							Hydrostatic Test		

Were leaks observed during the test period?	Exposed and buried pipe, no leaks observed.	High Test Pressure:	613 psig
		Low Test Pressure:	612 psig

Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500-96
Hydro. Test Co.	Contra Costa Inspection Company	Project No.	PG&E 5-21-11
Test Section	PG&E Line SP-5 T-96B (West) Retest		WATER
File Name	RCP 61362 - 96B (West) Retest		

General Pipe Data

Description	Segment 1	2	3	4	5	6
Restrained or Unrestrained?	Unrestrained	Restrained	Unrestrained	Restrained	Restrained	Unrestrained
Outside Diameter	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.
Wall Thickness	0.375 in.	0.313 in.	0.313 in.	0.344 in.	0.271 in.	0.500 in.
Inside Diameter	23.250 in.	23.375 in.	23.375 in.	23.312 in.	23.458 in.	23.000 in.
Spec./Grade	API5L X60	API5L X42	API5L-X42	API5L-X42	API5L-X42	API5L-X52
Length Unrestrained	105 ft		16 ft			22 ft
Length Restrained		3,423 ft		78 ft	4,228 ft	
Temperature -- On Test	69 °F	66 °F	69.0 °F	66.0 °F	66.0 °F	69.0 °F
Temperature -- End of Test	64 °F	66 °F	64.0 °F	66.0 °F	66.0 °F	64.0 °F
Pressure -- On Test	613 psig	613 psig	613 psig	613 psig	613 psig	613 psig
Pressure -- End of Test	612 psig	612 psig	612 psig	612 psig	612 psig	612 psig

Unrestrained Pipe

Sum:	Vo	3,147.28 gal / 402,951 oz.	Vtp1	3,155.68 gal / 403,927 oz.	Vtp2	3,157.13 gal / 404,112 oz.
Vo Unrestrained	2,316 gal	357 gal			475 gal	
Fwp 1	1.001876	1.001876			1.001876	
Fpp 1	1.001584	1.001911			1.001179	
Fpt 1	1.000164	1.000164			1.000164	
Fwt 1	1.000929	1.000929			1.000929	
Fpwt 1 = Fpt/Fwt	0.999236	0.999236			0.999236	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	2,322.01 gal	357.78 gal			475.91 gal	
Fwp 2	1.001873	1.001873			1.001873	
Fpp 2	1.001581	1.001907			1.001173	
Fpt 2	1.000073	1.000073			1.000073	
Fwt 2	1.000375	1.000375			1.000375	
Fpwt = Fpt/Fwt	0.999698	0.999698			0.999698	
Vtp = Vo(Fwp)(Fpp)(Fpwt)	2,323.07 gal	357.92 gal			476.13 gal	

Restrained Pipe

Sum:	Vo	172,961.34 gal / 22,139,052 oz.	Vtp1	173,462.78 gal / 22,203,236 oz.	Vtp2	173,461.82 gal / 22,203,113 oz.
Vo Unrestrained		76,308 gal	1,729 gal	84,924 gal		
Fwp 1		1.001876	1.001876	1.001876		
Fpp 1		1.001412	1.001282	1.001631		
Fpt 1		1.000073	1.000073	1.000073		
Fwt 1		1.000582	1.000582	1.000582		
Fpwt 1 = Fpt/Fwt		0.999491	0.999491	0.999491		
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		76,520 gal	1,734 gal	85,209 gal		
Fwp 2		1.001873	1.001873	1.001873		
Fpp 2		1.001410	1.001280	1.001629		
Fpt 2		1.000073	1.000073	1.000073		
Fwt 2		1.000582	1.000582	1.000582		
Fpwt = Fpt/Fwt		0.999491	0.999491	0.999491		
Vtp = Vo(Fwp)(Fpp)(Fpwt)		76,520 gal	1,734 gal	85,209 gal		

Combined Pipe

Sum:	Vo	176,108.62 gal / 22,541,903 oz.	Vtp1	176,618.46 gal / 22,607,163 oz.	Vtp2	176,618.95 gal / 22,607,226 oz.

Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0828-53-3500-96
Hydro. Test Co.	Contra Costa Inspection Company	Project No.	PG&E 5-21-11
Test Section	PG&E Line SP-5 T-06B (West) Retest		WATER
File Name	RCP 61362 - 06B (West) Retest		

General Pipe Data

Description	Segment 1	2	3	4	5	6
Restrained or Unrestrained?	Unrestrained	Restrained	Unrestrained	Restrained	Restrained	Unrestrained
Outside Diameter	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.
Wall Thickness	0.375 in	0.313 in.	0.313 in.	0.344 in.	0.271 in.	0.500 in.
Inside Diameter	23.250 in	23.375 in.	23.375 in.	23.312 in.	23.458 in.	23.000 in.
Spec/Grade	API5L-X60	API5L-X42	API5L-X42	API5L-X42	API5L-X42	API5L-X52
Length Unstrained	105.00 ft		18.00 ft			22 ft
Length Restrained		3,423 ft		78 ft	4,228 ft	
Temperature -- On Test	66 °F	66 °F	66 °F	66 °F	66 °F	66 °F
Temperature -- End of Test	67 °F	66 °F	67 °F	66 °F	66 °F	67 °F
Pressure -- On Test						
Pressure -- End of Test						

Unrestrained Pipe

Sum:	Vo	3,147.28 gal / 402,651 oz.		Vp1	3,145.79 gal / 402,661 oz.		Vp2	3,145.54 gal / 402,628 oz.				
Vo Unrestrained	2,316 gal		357 gal			475 gal						
Fwp 1	1.000000		1.000000			1.000000						
Fpp 1	1.000000		1.000000			1.000000						
Fpt 1	1.000109		1.000109			1.000109						
Fwt 1	1.000582		1.000582			1.000582						
Fpwt 1 = Fpt/Fwt	0.999527		0.999527			0.999527						
Vp 1 = Vo(Fwp)(Fpp)(Fpwt)	2,314.67 gal		356.51 gal			474.60 gal						
Fwp 2	1.000000		1.000000			1.000000						
Fpp 2	1.000000		1.000000			1.000000						
Fpt 2	1.000127		1.000127			1.000127						
Fwt 2	1.000681		1.000681			1.000681						
Fpwt = Fpt/Fwt	0.999447		0.999447			0.999447						
Vp = Vo(Fwp)(Fpp)(Fpwt)	2,314.49 gal		356.49 gal			474.57 gal						

Restrained Pipe

Sum:	Vo	172,961.34 gal / 22,139,052 oz.		Vp1	172,894.11 gal / 22,130,446 oz.		Vp2	172,876.07 gal / 22,128,252 oz.				
Vo Restrained		76,308 gal		1,729 gal	94,924 gal							
Fwp 1		1.000000		1.000000	1.000000							
Fpp 1		1.000018		1.000018	1.000018							
Fpt 1		1.000061		1.000061	1.000061							
Fwt 1		1.000467		1.000467	1.000467							
Fpwt 1 = Fpt/Fwt		0.999593		0.999593	0.999593							
Vp 1 = Vo(Fwp)(Fpp)(Fpwt)		76,276 gal		1,729 gal	94,887 gal							
Fwp 2		1.000000		1.000000	1.000000							
Fpp 2		1.000022		1.000022	1.000022							
Fpt 2		1.000073		1.000073	1.000073							
Fwt 2		1.000582		1.000582	1.000582							
Fpwt = Fpt/Fwt		0.999491		0.999491	0.999491							
Vp = Vo(Fwp)(Fpp)(Fpwt)		76,271 gal		1,729 gal	94,878 gal							

Combined Pipe

Sum:	Vo	176,108.62 gal / 22,541,903 oz.		Vp1	176,039.50 gal / 22,533,107 oz.		Vp2	176,022.51 gal / 22,530,881 oz.
1 °F Change	17.39 gal	2,226.35 oz.						

RCP

Hydrostatic Test Pipe Data Table

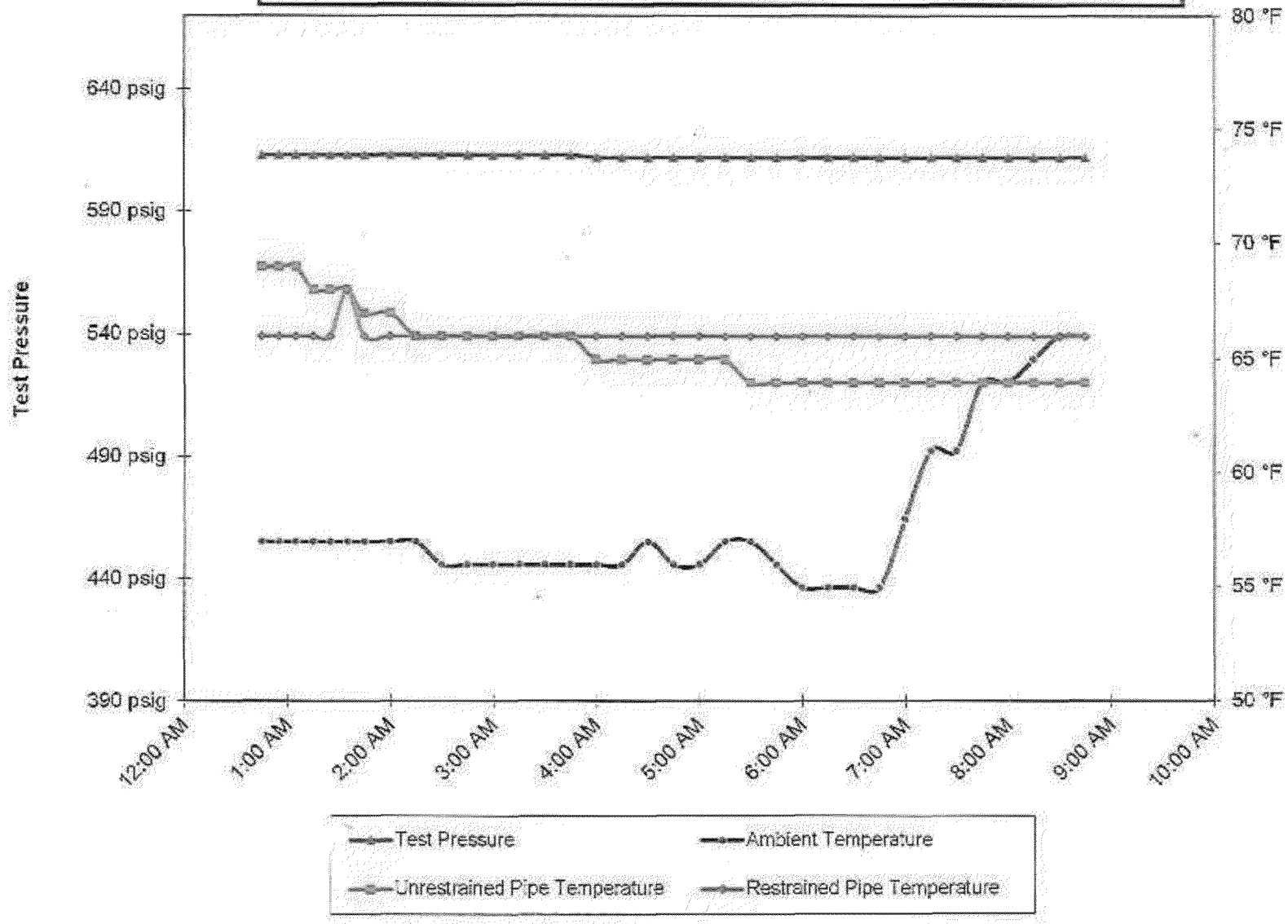
Pipe Type	Length	Restrained / Unrestrained	Outside Diameter	Wall Thickness	Specification & Grade	Pipe Yield Pressure	Material	Joint Type	Seam Type
1	105 ft	Unrestrained	24.000 in.	0.3750 in.	API5L-X60	1,875 psig	Steel	Arc Weld	SM
2	3,423 ft	Restrained	24.000 in.	0.3125 in.	API5L-X42	1,094 psig	Steel	Arc Weld	DSAW
3	16 ft	Unrestrained	24.000 in.	0.3125 in.	API5L-X42	1,094 psig	Steel	Arc Weld	DSAW
4	78 ft	Restrained	24.000 in.	0.3440 in.	API5L-X42	1,204 psig	Steel	Arc Weld	DSAW
5	4,228 ft	Restrained	24.000 in.	0.2710 in.	API5L-X42	949 psig	Steel	Arc Weld	DSAW
6	22 ft	Unrestrained	24.000 in.	0.5000 in.	API5L-X52	2,167 psig	Steel	Arc Weld	SM

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	ARB	Job Number
Address	1875 Loveridge Road Pittsburg, CA 94565 Attention: Redacted	0629-53-3500-96
Hydrostatic Test Co.	Contra Costa Inspection Company	Project No.
Address	2820 La Jolla Drive Antioch, California 94531 Attention: Redacted	PG&E 5-21-11
Test Section	PG&E Line SP-5 T-96B (West) Retest From: 127+76 To: 206+00	
File Name	RCP 61362 - 96B (West) Retest	

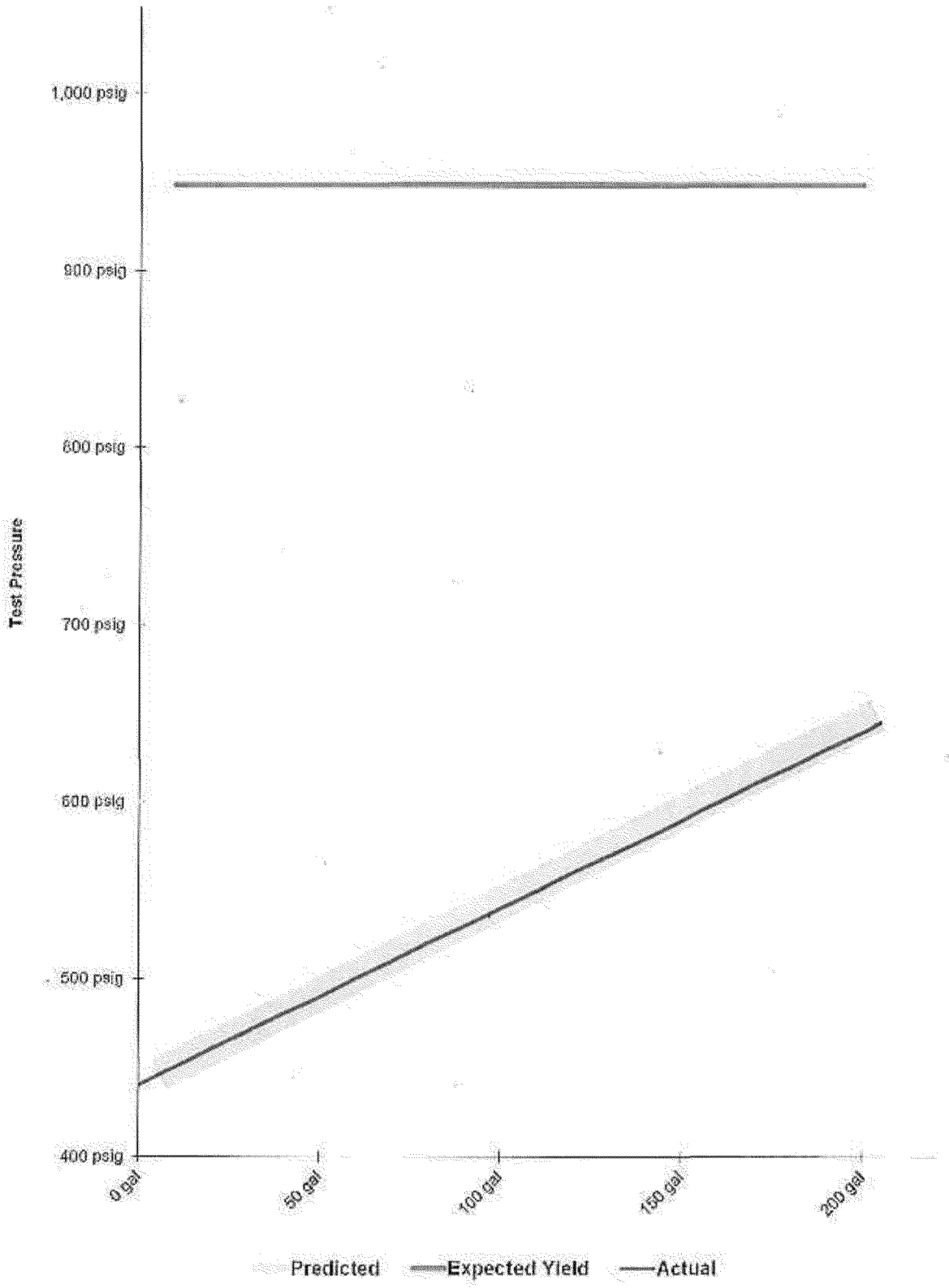
RCP

PG&E Line SP-5 T-96B (West) Retest



RCP

Spike Pressure Test
Stress Strain Curve – PG&E Line SP-5 T-96B (West) Retest



RCP

Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted
440 psig	0	0.00 gal		0	0.00 gal
450 psig	77	10.13 gal	9.75 gal	1.013	0.975
460 psig	150	19.74 gal	19.49 gal	0.961	0.975
470 psig	226	29.74 gal	29.24 gal	1.000	0.975
480 psig	302	39.74 gal	38.98 gal	1.000	0.975
490 psig	384	50.53 gal	48.73 gal	1.079	0.975
500 psig	455	59.87 gal	58.48 gal	0.934	0.975
510 psig	535	70.39 gal	68.23 gal	1.053	0.975
520 psig	608	80.00 gal	77.98 gal	0.961	0.975
530 psig	689	90.66 gal	87.73 gal	1.066	0.975
540 psig	764	100.53 gal	97.48 gal	0.987	0.975
550 psig	839	110.39 gal	107.23 gal	0.987	0.975
560 psig	910	119.74 gal	116.98 gal	0.934	0.975
570 psig	992	130.53 gal	126.73 gal	1.079	0.975
580 psig	1071	140.92 gal	136.48 gal	1.039	0.975
590 psig	1145	150.66 gal	146.24 gal	0.974	0.975
600 psig	1220	160.53 gal	156.00 gal	0.987	0.975
610 psig	1293	170.13 gal	165.75 gal	0.961	0.975
620 psig	1372	180.53 gal	175.51 gal	1.039	0.976
630 psig	1447	190.39 gal	185.26 gal	0.987	0.978
640 psig	1527	200.92 gal	195.02 gal	1.053	0.978
645 psig	1558	205.00 gal	199.90 gal	0.816	0.976
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000
645 psig		205.00 gal	199.90 gal	0.000	0.000

Spike Pressure Test
Stress Strain Curve -- PG&E Line SP-5 T-96B (West) Retest

Pump gal per stroke	0.080 gal/stroke
Pump Piston Diameter	1.375 in
Pump Piston Stroke	4.15 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.132 gal/stroke
Volume Released (gallons)	10.00 gal
Pressure Reduced (psi)	10 psi
Maximum2	220 gal
Minimum2	0 gal
Maximum1	1,049 psig
Minimum1	400 psig
Gallons/Stroke Used	0.132 gal/stroke
Predicted Gallons/Stroke	0.128 gal/stroke
Pressure Increment	10 psi
Max Pressure	645 psig
Ground Temperature	58 °F
Ambient Temperature	55 °F

ASME B31.8 Appendix N-5	
Average Actual Elastic Slope	0.995
Average Predicted Elastic Slope	0.975
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	1.891
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	645 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

5/30/2011

Date

Redacted

Redacted

RCP

Redacted

Hydrostatic Test Log Sheet

Owner Company	PG+E	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500-916
Testing Co.	Contra Costa Inspection	Job Number	5-21-11

Test Section

Name	T96-SP5-B
Test Location	SP-5 From 0.00 - 2.40, 127+26
Begin	127+26
End	206+00
High Elevation	206+00
Low Elevation	49 138+00

	Station (0+00)	Elevation (Feet)
Test Location	SP-5 From 0.00 - 2.40, 127+26	49'
Begin	127+26	49
End	206+00	67
High Elevation	206+00	67
Low Elevation	49 138+00	19

Pipe Data

Section	Length (ft.)	O. D. (in.)	W.T. (in.)	Restrained (ft.)	Unrestrained (ft.)	Grade	Seam/Joint Type
1	105	24	.375		105	X-60	SM / ARC WELD
2	3423	24	.312	3423		X-42	DSAW / ARC WELD
3	16	24	.312		16	X-42	DSAW / ARC WELD
4	78	24	.344	78		X-42	DSAW / ARC WELD
5	4228	24	.271	4228		X-42	DSAW / ARC WELD
6	22	24	.500		22	X-52	SM / ARC WELD
7							
8							
9							
10							
11							

Test Period

	Date	Time
Begin	5/21/11	12:45 A.m
End	5/21/11	8:45 AM

Test Medium

- [x] Water
- [ ] Nitrogen
- [ ] Other

Test Instrumentation

Description	Calibration Checked	Serial Number	Date Calibrated/Certified	Installation Correct
Dead Weight Pressure Tester		S/N 2845	11-29-10	[x] Yes
Pressure Recorder	[x] Yes	S/N 1703	5-2-11	[x] Yes
Ambient Temperature Recorder	[x] Yes	FLUKE 54	S.I.F CAL.	[x] Yes
Restrained Pipe Temperature Recorder	[x] Yes	S/N 1701	5-2-11	[x] Yes
Unrestrained Pipe Temperature Recorder	[x] Yes	S/N 5959	3-2-11	[x] Yes

Hydrostatic Test Log

Log No.	Time	Test Pressure (psig)	Temperature (°F) Ambient	Pipe Restrained	Pipe Unrestrained	Volume (Ounces / Gallons) Bleed	Volume Inject	Comments	Model Check: Is test good?
1	0045	613	57	66	70				
2	0055	613	57	66	69				[x] Yes [ ] No
3	0105	613	57	66	69				[x] Yes [ ] No
4	0115	613	57	66	68				[x] Yes [ ] No
5	0125	613	57	66	68				[x] Yes [ ] No
6	0135	613	57	66	68				[x] Yes [ ] No
7	0145	613	57	66	67				[x] Yes [ ] No
8	0200	613	57	66	67				[x] Yes [ ] No
9	0215	613	57	66	66				[x] Yes [ ] No
10	0230	613	56	66	66				[x] Yes [ ] No
11	0245	613	56	66	66				[x] Yes [ ] No

RCP

Hydrostatic Test Log

Log No.	Time	Test Pressure (psig)	Temperature (°F)			Volume ☐ Ounces ☐ Gallons		Comments	Model Check: Is test good?
			Ambient	Pipe					
				Restrained	Unrestrained	Bleed	Inject		
12	0300	613	56	66	66				☒ Yes ☐ No
13	0315	613	56	66	66				☒ Yes ☐ No
14	0330	613	56	66	66				☒ Yes ☐ No
15	0345	613	56	66	66				☒ Yes ☐ No
16	0400	612	56	66	65				☒ Yes ☐ No
17	0415	612	56	66	65				☒ Yes ☐ No
18	0430	612	57	66	65				☒ Yes ☐ No
19	0445	612	56	66	65				☒ Yes ☐ No
20	0500	612	56	66	65				☒ Yes ☐ No
21	0515	612	57	66	65				☒ Yes ☐ No
22	0530	612	57	66	64				☒ Yes ☐ No
23	0545	612	56	66	64				☒ Yes ☐ No
24	0600	612	55	66	64				☒ Yes ☐ No
25	0615	612	55	66	64				☒ Yes ☐ No
26	0630	612	55	66	64				☒ Yes ☐ No
27	0645	612	55	66	64				☒ Yes ☐ No
28	0700	612	58	66	64				☒ Yes ☐ No
29	0715	612	61	66	64				☒ Yes ☐ No
30	0730	612	61	66	64				☒ Yes ☐ No
31	0745	612	64	66	64				☒ Yes ☐ No
32	0800	612	64	66	64				☒ Yes ☐ No
33	0815	612	65	66	64				☒ Yes ☐ No
34	0830	612	66	66	64				☒ Yes ☐ No
35	0845	612	66	66	64				☒ Yes ☐ No
36									☐ Yes ☐ No
37									☐ Yes ☐ No
38									☐ Yes ☐ No
39									☐ Yes ☐ No
40									☐ Yes ☐ No
41									☐ Yes ☐ No
42									☐ Yes ☐ No
43									☐ Yes ☐ No
44									☐ Yes ☐ No
45									☐ Yes ☐ No
46									☐ Yes ☐ No
47									☐ Yes ☐ No
48									☐ Yes ☐ No
49									☐ Yes ☐ No
50									☐ Yes ☐ No

Was a leak observed during test Period? ☐ Yes ☒ No

If "Yes", Explain:

High Test Pressure: 613

Low Test Pressure: 612

Certification:

Test Supervisor: [signature]

Date: 5-21-11

Test Witness: Redacted RCP

Joel Mervine PG&E

OD	WT	Grade and Long Seam	Length	Exposed (included in total length)
24	0.375	API 5L, GR X-60, DSAW	104.6	104.6
24	0.3125	API 5L, Gr X-42, DSAW	3430	15.5
24	0.344	API 5L, Gr X-42, DSAW	78	
24	0.271	API 5L, Gr X-42, DSAW	4228	
24	0.500	API 5L, Gr X52 SM	22	22

Test Head S

Vendor →

RE-TEST SEQUENCE OF OPERATIONS (WEST)			
11.	Upon PG&E approval, pressuring shall begin to a pressure 20 psi above the minimum test pressure (613 psig at the test location). Isolate the test pump and plug/blind the valves on the test head. Upon notification from RCP the line will be considered on test.		
12.	The pipeline is on test and will be held until RCP certifies that the test has successfully passed (minimum of 8 hours). Test readings of pressure, temperature, and added/subtracted volume must be documented at 10 minute intervals for the first hour and at 15 minute intervals for the remainder of the test.		
HYDROSTATIC TEST CERTIFICATION			
16.	Pressure, temperature, and volume readings to be provided to the test certification company for test certification.		

HOLD POINT

TEST DOES NOT PROCEED UNTIL SUPERVISOR APPROVAL

SUPERVISOR HAS VERIFIED THAT PRESSURE, TEMPERATURE, AND VOLUME READINGS HAVE BEEN PROVIDED TO RCP FOR TEST CERTIFICATION.

TEST SUPERVISOR SIGNS NAME HERE FOR APPROVAL: _____

NOTE: Upon receiving the Test Supervisor Signature above, resume operations on Page 18 of 20 of PG&E Line SP-5 T-96 Hydrostatic Test Form.