RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002
Redacted

May 30, 2011

Pacific Gas and Electric Company
3600 Adobe Rd
Petaluma, Ca 94954
Attention: Joel 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 AM on May 21, 2011.

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

cc. file

Hydrostatic Test Certification

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		
File Name	RCP 61362 - 96B (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-96B (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	1,875 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:	57.0 °F			Restrained:	66.0 °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):	626 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 5°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

30-May-11

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500-96
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	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	68 °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	Vtp1	Vtp2
	3,147.28 gal 402,851 oz.	3,155.68 gal 403,927 oz.	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			1.001175
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		357.76 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	Vtp1	Vtp2
	172,961.34 gal 22,139,052 oz.	173,462.78 gal 22,203,236 oz.	173,461.82 gal 22,203,113 oz.

Vo Unrestrained		76,308 gal	1,729 gal	94,924 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	95,209 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	95,208 gal		

Combined Pipe

Sum:	Vo	Vtp1	Vtp2
	176,108.62 gal 22,541,903 oz.	176,618.46 gal 22,607,163 oz.	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	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 Unstrained	105.00 ft		16.00 ft			22 ft
Length Restrained		3,423 ft		78 ft	4,228 ft	
Temperature -- On Test	66 °F	65 °F	66 °F	65 °F	65 °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	Vtp1	Vtp2
	3,147.28 gal 402,851 oz.	3,145.79 gal 402,661 oz.	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
Vtp 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
Vtp = Vo(Fwp)(Fpp)(Fpwt)	2,314.48 gal		356.49 gal			474.57 gal

Restrained Pipe

Sum:	Vo	Vtp1	Vtp2
	172,961.34 gal 22,139,052 oz.	172,894.11 gal 22,130,446 oz.	172,876.97 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	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		76,278 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	
Vtp = Vo(Fwp)(Fpp)(Fpwt)		76,271 gal		1,729 gal	94,878 gal	

Combined Pipe

Sum:	Vo	Vtp1	Vtp2
	176,108.62 gal 22,541,903 oz.	176,039.90 gal 22,533,107 oz.	176,022.51 gal 22,530,881 oz.
1 °F Change	17.39 gal 2,226.35 oz.		

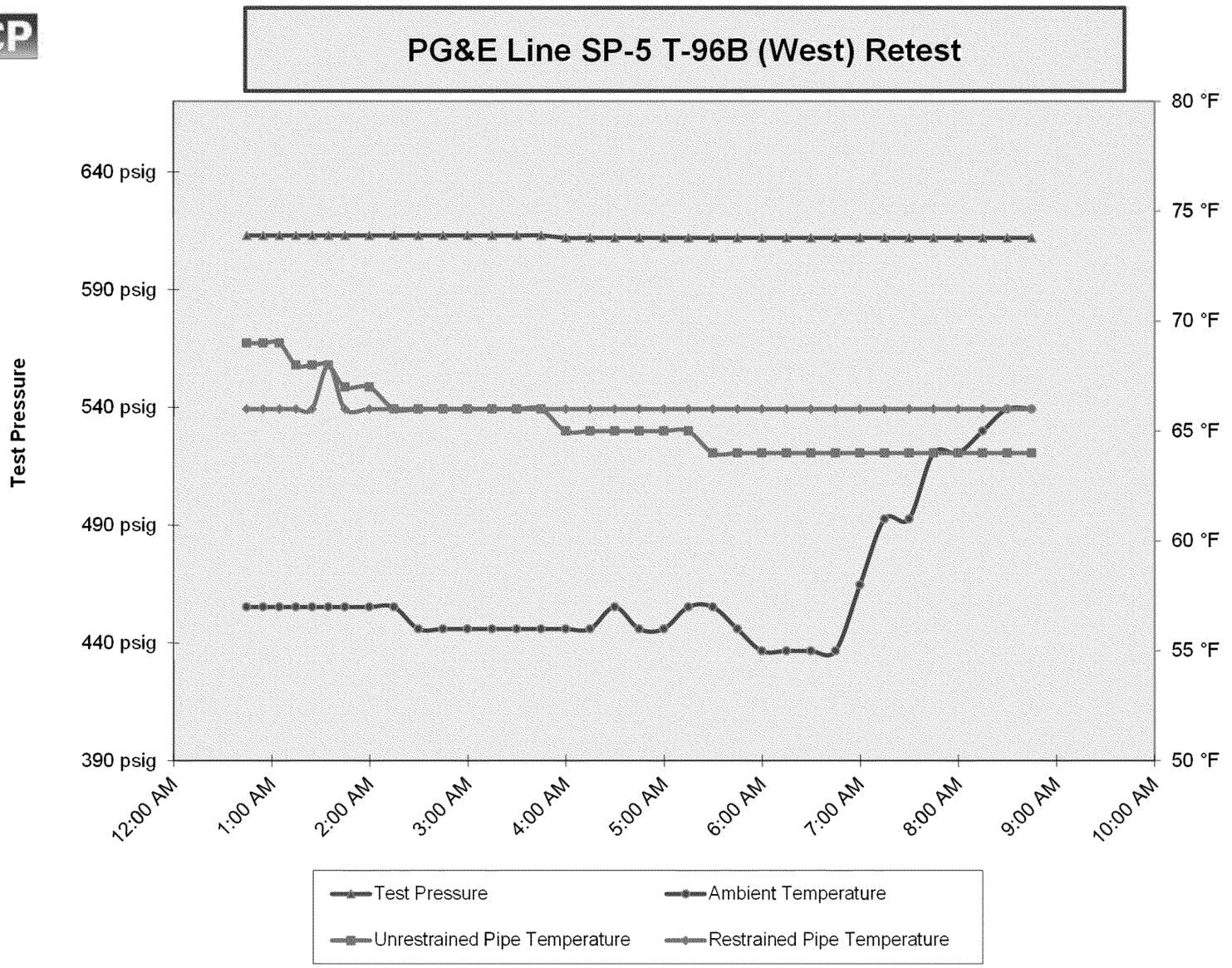
RCP

Hydrostatic Test Pipe Data Table

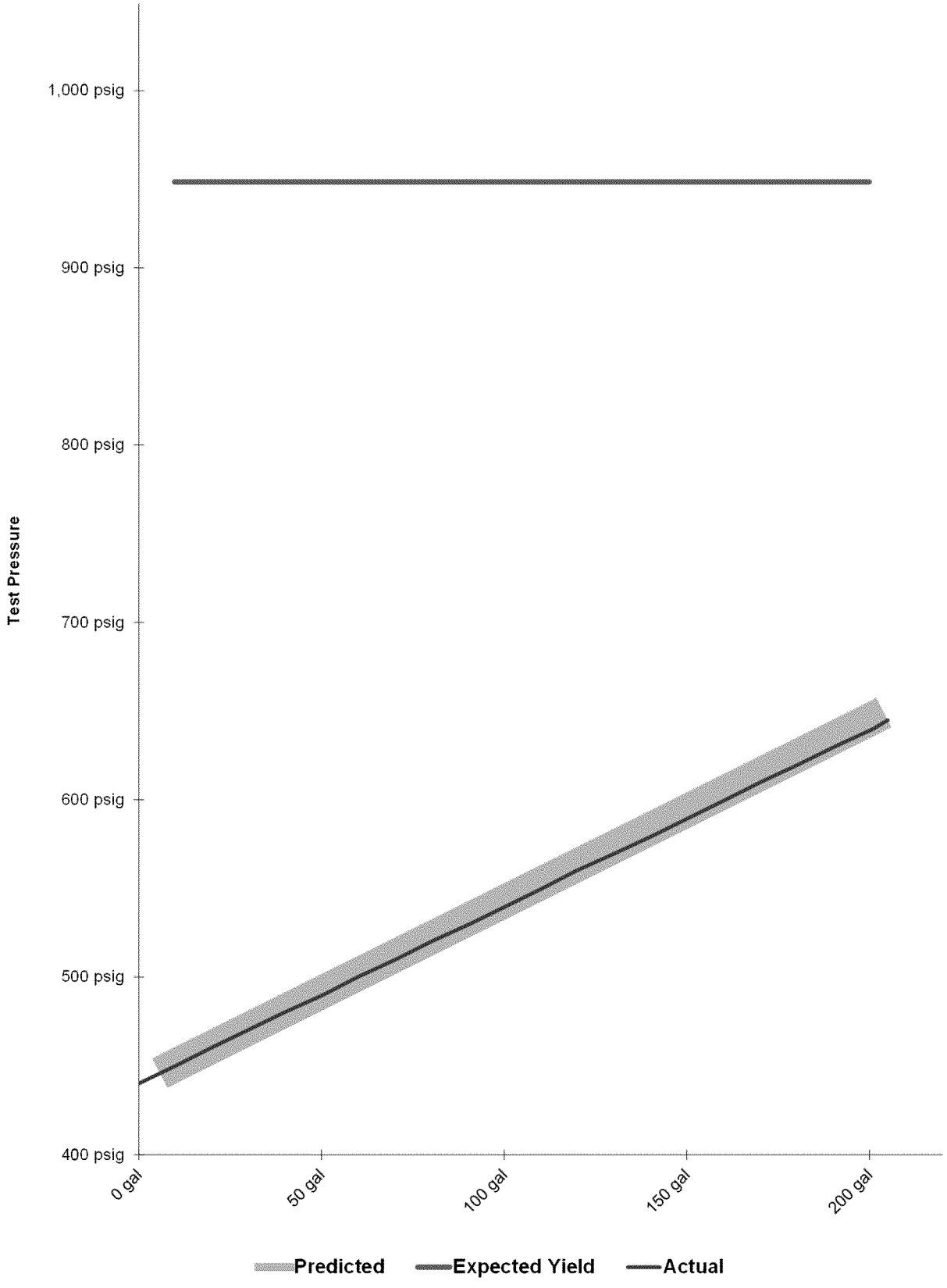
Pipe Type	Length	Restrained / Unrestrained	Outside Diameter	Wall Thickness	Specification & Grade	Pipe Yield Pressure	Material	Joint Type	Seam Type
1	105 ft	Unrestrained	24.000 in.	0.3750 in.	API5L-X60	1,875 psig	Steel	Arc Weld	SM
2	3,423 ft	Restrained	24.000 in.	0.3125 in.	API5L-X42	1,094 psig	Steel	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	


PG&E Line SP-5 T-96B (West) Retest
Test Pressure
640 psig
590 psig
540 psig
490 psig
440 psig
390 psig
80 °F
75 °F
70 °F
65 °F
60 °F
55 °F
50 °F
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
Test Pressure
Ambient Temperature
Unrestrained Pipe Temperature
Restrained Pipe Temperature

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



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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	136.49 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	0.976
640 psig	1527	200.92 gal	195.02 gal	1.053	0.976
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

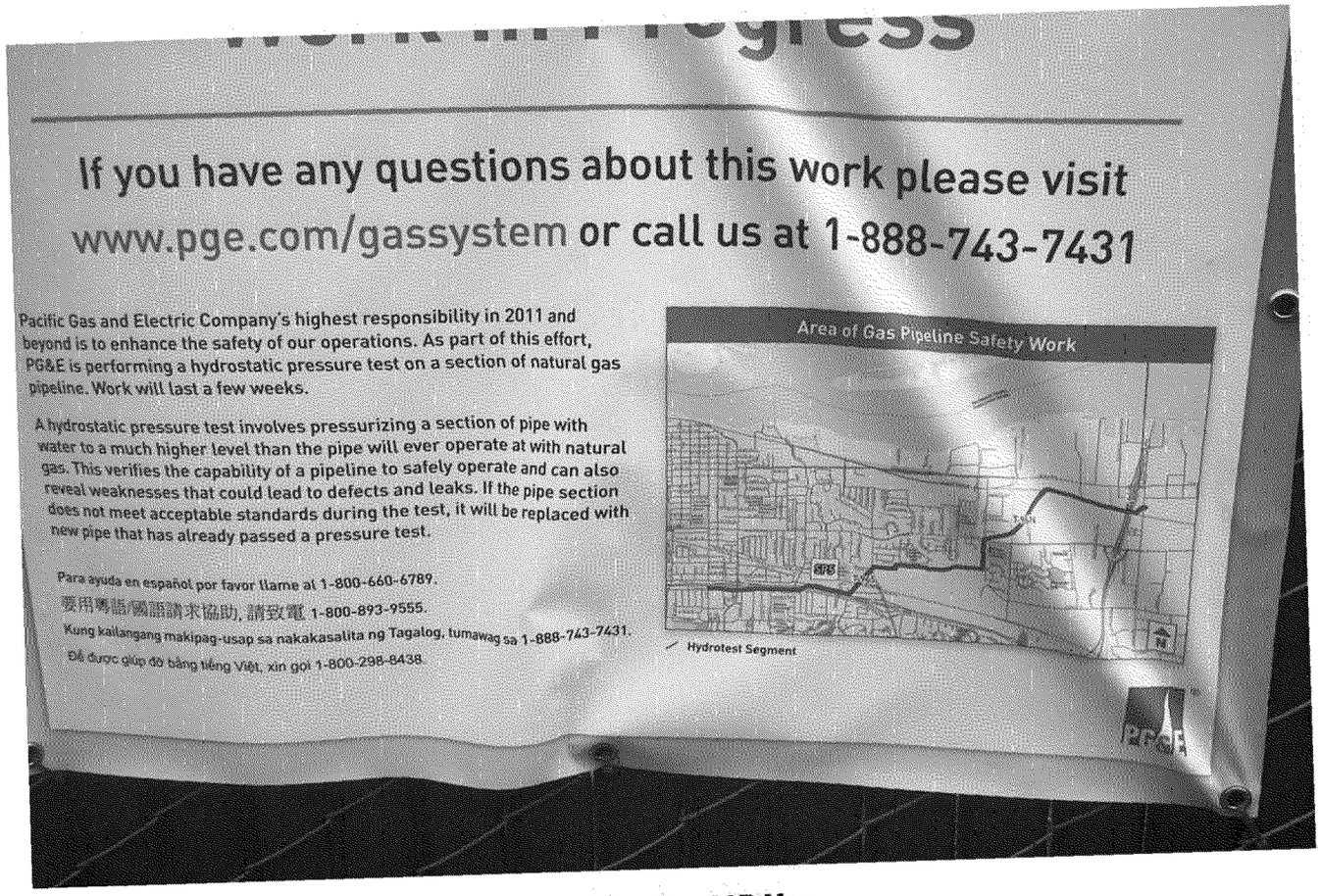
Pump gal per stroke	0.080 gal/stroke
Pump Piston Diameter	1.375 in
Pump Piston Stroke	4.15 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.132 gal/stroke
Volume Released (gallons)	10.00 gal
Pressure Reduced (psi)	10 psi
Maximum2	220 gal
Minimum2	0 gal
Maximum1	1,049 psig
Minimum1	400 psig
Gallons/Stroke 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

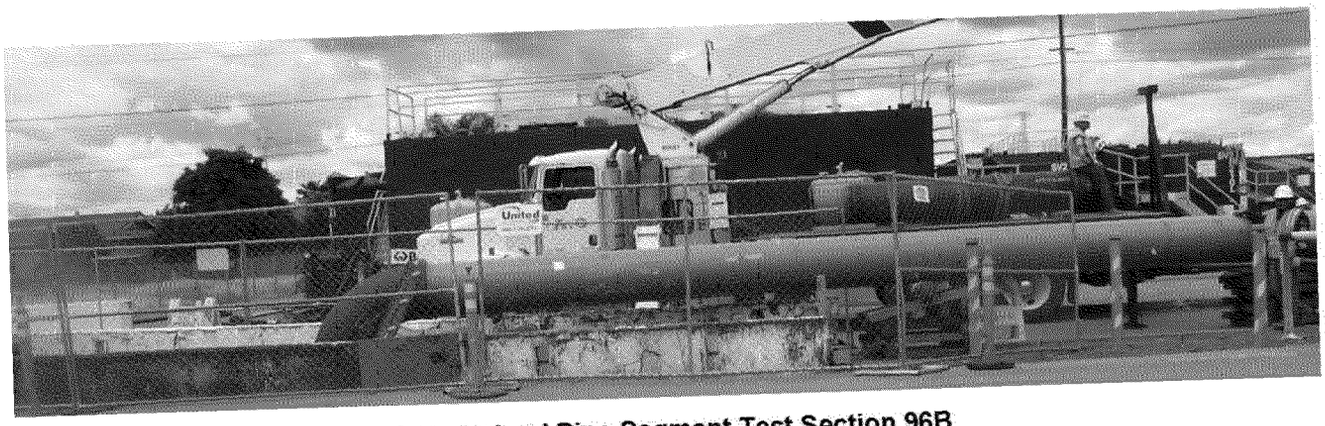
Average Actual Elastic Slope	0.995
Average Predicted Elastic Slope	0.975
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	1.891
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	645 psig
Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2)	418 gal
Volume (After Slope Deviation) B31.8 N-5 (c)(2)	0 gal

Redacted

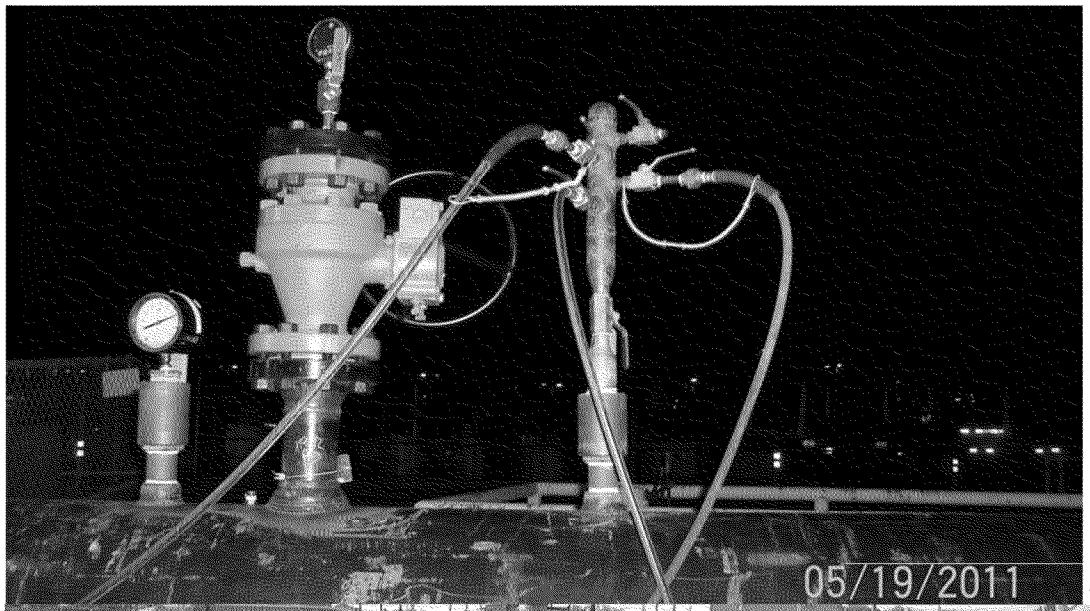
5/30/2011
Date



Test Section 96B Map

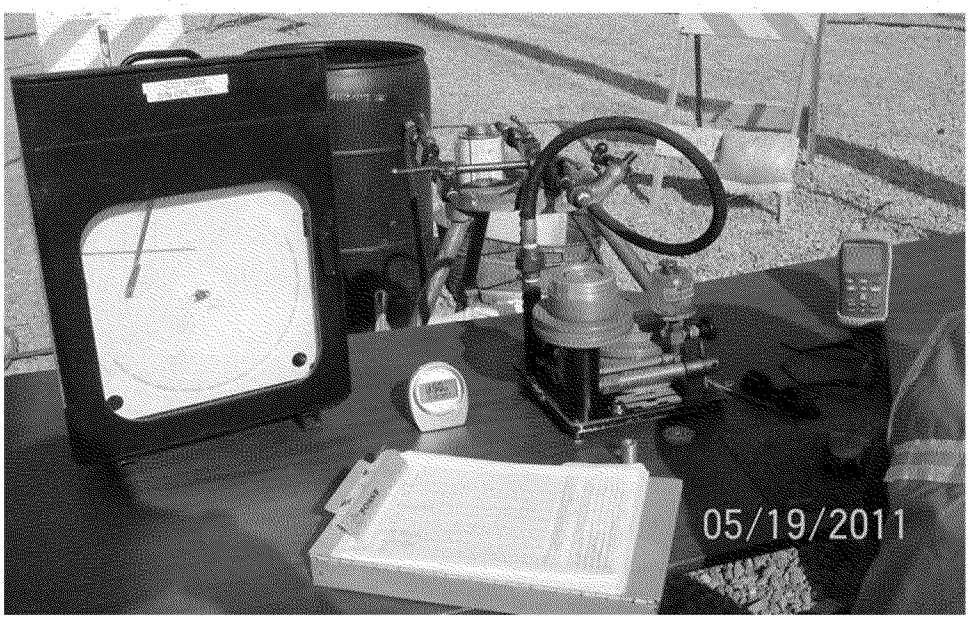


Unrestrained Pipe Segment Test Section 96B

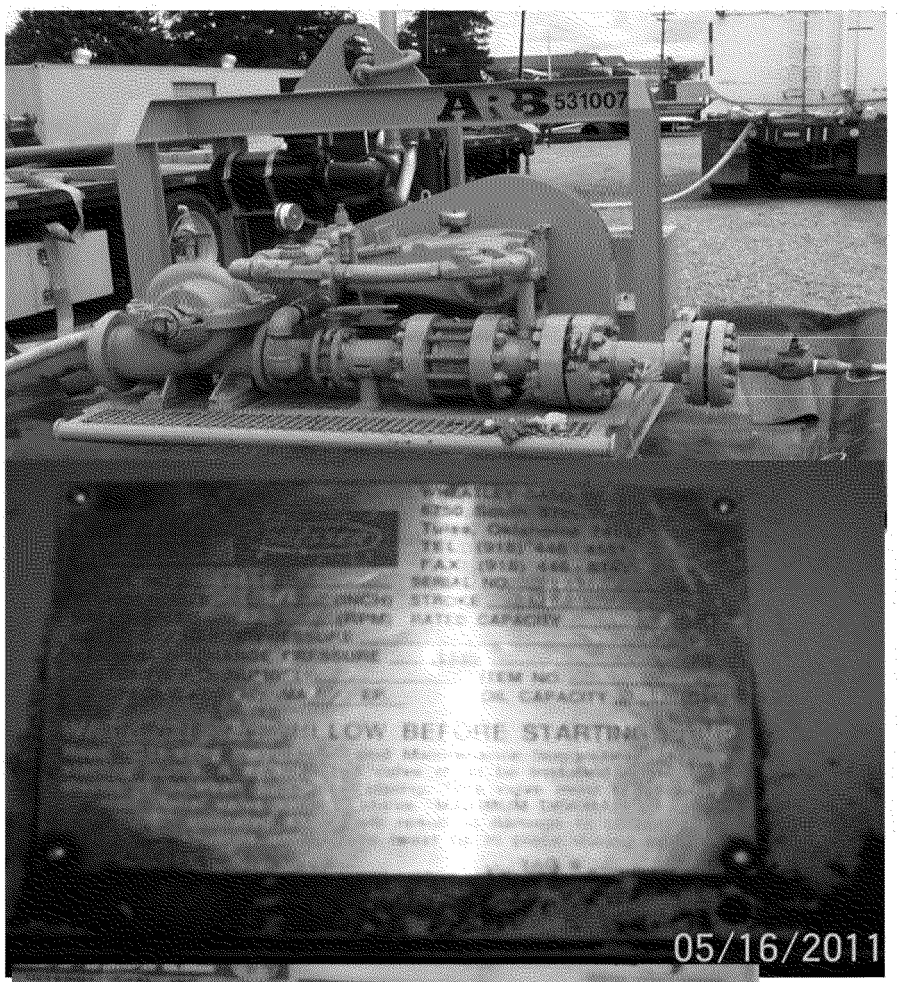


Test Segment 96B Test Header and pressure Monitor Connection

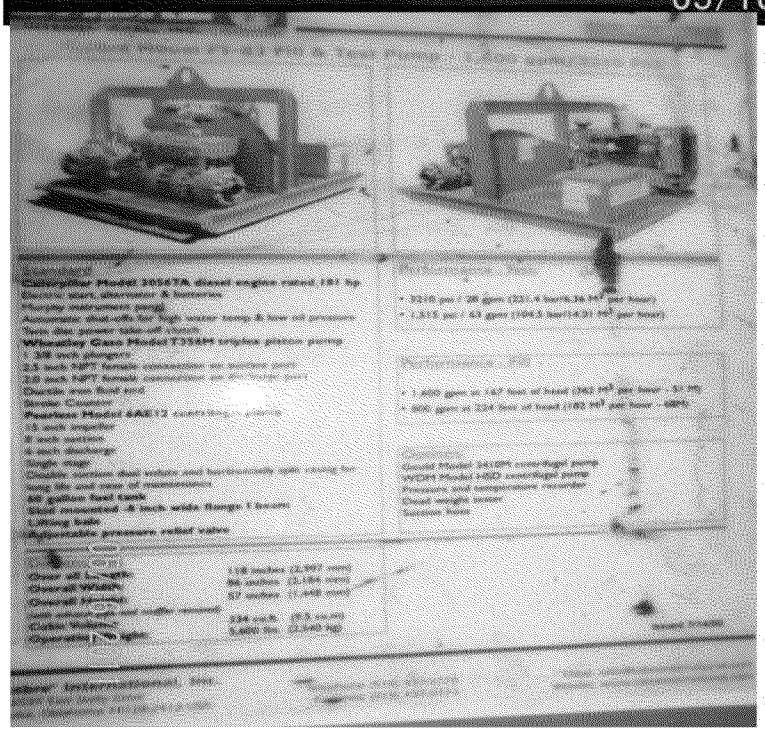
Unrestrained Pipe Temperature Recorder Chart



Test Segment 96B Pressure Chart Recorder, Dead Weight Tester and Fluke Ambient Temperature Electronic Thermometer



Test Segment 96B Pressure Pump with Documentation



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	
		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	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	Self 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		Comments	Model Check: Is test good?
			Ambient	Pipe		☐ Ounces ☐ Gallons			
				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: Redacted

Date: 5-21-11

Test Witness: Redacted

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 Heads

Venter.

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.

NOTE: The following sequence of operations shall commence following the HOLD POINT on Page 17 of 20 of PG&E Line SP-5 T-96 Hydrostatic Test Form.

RE-TEST SEQUENCE OF OPERATIONS (WEST)

1.	The official test site is Hillcrest Yard (Location B).		
2.	The verification station is located at Antioch Town Station (Location A).		
3.	Confirm barriers and related signage placed along the test section to prevent public access within 50-feet of the test head and exposed pipe during line pressurization.		
4.	Confirm that barriers are located at Hillcrest Yard (Location B) and Antioch Town Station (Location A).		
5.	Limit test sites to the testing crew, third party witness, and Company inspector. The test site must be located a minimum of 50-feet from any exposed portion of the pipeline under test. Caution ribbon shall delineate the test area.		
6.	Deadweight tester, pressure gauges, and 24-hour recorder shall be connected to the test section at Hillcrest Yard (Location B). The manifold must be capable of isolating all the instruments from the pipeline and each other. The pressure recorder must be calibrated against the dead weight prior to the start of the test in accordance with Numbered Document A-37.		
7.	Dig a post hole next to the pipe, down to the level of the bottom of the pipe and a minimum of 100-feet from the test location. Place the temperature sensor in the hole near the bottom of the pipe and backfill with sand. Additionally, a thermometer or other temperature measuring instrument must be positioned at the location for recording ambient temperature. Allow for the temperature to stabilize.		
8.	Additional pressure and temperature recorders shall be connected at Antioch Town Station (Location A). The recorders shall be positioned low to the ground and shaded to limit the ambient effects on the measurements. Insulation shall be provided as appropriate.		
9.	Visually inspect pressurizing equipment, hoses, and other associated equipment before pressurization. Make sure the equipment is properly sized and rated for the maximum test pressure and document as required.		
10.	Determine the volume associated with each stroke of the test pump. Count strokes to validate the amount of water added or subtracted to the pipeline while under test. A graduated cylinder may be used as an alternate to counting pumps strokes. Confirm the method and system is in place prior to starting the test.		