RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002
Redacted

September 5, 2011

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

Test Contractor:	Contra Costa Inspection Co. -- T-27 9/05/2011
Asset Owner:	Pacific Gas and Electric Company -- 41497354
Construction Contractor:	ARB -- 0629-53-3500 T-27
Test Section:	PG&E T-27 L-132, MP 7.10 - 8.54
Test Date:	September 5, 2011
Certificate Number:	RCP 61362 - T-27, L-132, MP 7.10 - 8.54

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 665 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 621 psig and the established MAOP is 414 psig.

Pressure decreased 38 psi during the test. 8,447.80 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 3,573.54 ounces, gain, which is equivalent to a 1.73 °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 7,771 feet of buried and 150 feet of exposed pipe from a single point on the line.

Sincerely,

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cc. file

SB_GT&S_0492044

Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41497354
Construction Co.	ARB	Job Number	0629-53-3500 T-27
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-27 9/05/2011
Test Section	PG&E T-27 L-132, MP 7.10 - 8.54		
File Name	RCP 61362 - T-27, L-132, MP 7.10 - 8.54		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Test Date: 5-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-27 L-132, MP 7.10 - 8.54		
From:	76+08	To:	0+00

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	4 ft	24.000 in.	0.500 in.	API5L-X60, DSAW, Arc Weld, Steel	2,500 psi
2	52 ft	24.000 in.	0.375 in.	API5L-X60, DSAW, Arc Weld, Steel	1,875 psi
3	100 ft	24.000 in.	0.313 in.	API5L-Grade B, SM, Arc Weld, Steel	911 psi
4	312 ft	24.000 in.	0.313 in.	API5L-X60, DSAW, Arc Weld, Steel	1,563 psi
5	7,359 ft	24.000 in.	0.281 in.	40ksmys, SM, Arc Weld, Steel	937 psi
6	22 ft	24.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	2,708 psi
7	57 ft	2.375 in.	0.154 in.	API5L-Grade B, SM, Arc Weld, Steel	4,539 psi
8	4 ft	12.750 in.	0.375 in.	API5L-Grade B, SM, Arc Weld, Steel	2,059 psi
9	11 ft	6.625 in.	0.280 in.	API5L-Grade B, SM, Arc Weld, Steel	2,958 psi

Initial Test Conditions

Pressure at Test Point:	665 psig	Date/Time:	9/5/11 12:00 PM	Pipe Temperature Unrestrained:	62.0 °F
Ambient Temperature:	68.0 °F			Restrained:	64.0 °F
		Elevation @ Test Point:	43.0 ft	Location:	0+00
Pressure @ High Point (Cal/Measure):	660 psig	Elevation @ High Point:	55.0 ft	Location:	76+08
Pressure @ Low Point (Cal/Measure):	665 psig	Elevation @ Low Point:	43.0 ft	Location:	0+00

Final Test Conditions

Pressure at Test Point:	627 psig	Date/Time:	9/5/11 8:15 PM	Pipe Temperature Unrestrained:	67.0 °F
Ambient Temperature:	66.0 °F			Restrained:	64.0 °F
		Elevation @ Test Point:	43.0 ft	Location:	0+00
Pressure @ High Point (Cal/Measure):	622 psig	Elevation @ High Point:	55.0 ft	Location:	76+08
Pressure @ Low Point (Cal/Measure):	627 psig	Elevation @ Low Point:	43.0 ft	Location:	0+00
Total Fluid Injected:				Volume gain	
Total Fluid Withdrawn:	8447.80 fluid ounces				
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	3,573.54 oz	gain		0.0158%	1.727 °F equivalent

Test Duration: 8.25 hours

Minimum Test Pressure:	Test Point	615 psig	Max Elevation	610 psig	Min Elevation	615 psig
Maximum Test Pressure:		667 psig		662 psig		667 psig
% SMYS :		14.7%		24.4%		71.2%
Test Segment Observed % SMYS :			Minimum	14.7%	Maximum	72.8%
Minimum Test Pressure (Calculated/Measured):						622 psig
Maximum Allowable Operating Pressure:				DOT Part 192	Test Factor= 1.50	414 psig

Were leaks observed?	No	Explain:
Acceptable Hydrostatic Test?	Yes	The test segment was subjected to a spike pressure test of 665 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 7,771 feet of buried and 150 feet of exposed pipe. *Pressure lost 38 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment gained 5°F.* 8,447.80 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 3,573.54 ounces, gain, which is equivalent to a 1.73 °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 7,771 feet of buried and 150 feet of exposed pipe from a single point on the line.
Remarks		

Redacted

5-Sep-11

SB_GT&S_0492045

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Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497354
Construction Co.	ARB	Job Number	0629-53-3500 T-27
Testing Co.	Contra Costa Inspection Co.	Project No.	T-27 9/05/2011
Test Section	PG&E T-27 L-132, MP 7.10 - 8.54		
File Name	RCP 61362 - T-27, L-132, MP 7.10 - 8.54		

Date **5-Sep-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	Comment	Bleed	Inject
1	9/5/11	11:30 AM	454 psig	70 °F	62 °F	64 °F	Start Spike		
2	9/5/11	11:32 AM	464 psig	70 °F	62 °F	64 °F	Inject		821 oz.
3	9/5/11	11:34 AM	474 psig	70 °F	62 °F	64 °F	Inject		1,331 oz.
4	9/5/11	11:36 AM	484 psig	70 °F	62 °F	64 °F	Inject		1,350 oz.
5	9/5/11	11:38 AM	494 psig	70 °F	62 °F	64 °F	Inject		1,368 oz.
6	9/5/11	11:40 AM	504 psig	70 °F	62 °F	64 °F	Inject		1,368 oz.
7	9/5/11	11:42 AM	514 psig	70 °F	62 °F	64 °F	Inject		1,386 oz.
8	9/5/11	11:44 AM	524 psig	70 °F	62 °F	64 °F	Inject		1,350 oz.
9	9/5/11	11:45 AM	534 psig	70 °F	62 °F	64 °F	Inject		1,386 oz.
10	9/5/11	11:46 AM	544 psig	70 °F	62 °F	64 °F	Inject		1,368 oz.
11	9/5/11	11:47 AM	554 psig	70 °F	62 °F	64 °F	Inject		1,386 oz.
12	9/5/11	11:48 AM	564 psig	70 °F	62 °F	64 °F	Inject		1,368 oz.
13	9/5/11	11:49 AM	574 psig	70 °F	62 °F	64 °F	Inject		1,386 oz.
14	9/5/11	11:50 AM	584 psig	70 °F	62 °F	64 °F	Inject		1,368 oz.
15	9/5/11	11:51 AM	594 psig	70 °F	62 °F	64 °F	Inject		1,368 oz.
16	9/5/11	11:52 AM	604 psig	70 °F	62 °F	64 °F	Inject		1,404 oz.
17	9/5/11	11:53 AM	614 psig	70 °F	62 °F	64 °F	Inject		1,386 oz.
18	9/5/11	11:54 AM	624 psig	70 °F	62 °F	64 °F	Inject		1,404 oz.
19	9/5/11	11:55 AM	634 psig	70 °F	62 °F	64 °F	Inject		1,368 oz.
20	9/5/11	11:56 AM	644 psig	70 °F	62 °F	64 °F	Inject		1,404 oz.
21	9/5/11	11:57 AM	654 psig	70 °F	62 °F	64 °F	Inject		1,331 oz.
22	9/5/11	11:58 AM	664 psig	69 °F	62 °F	64 °F	Inject		1,313 oz.
23	9/5/11	11:59 AM	665 psig	69 °F	62 °F	64 °F	Inject		146 oz.
24	9/5/11	12:00 PM	665 psig	68 °F	62 °F	64 °F	On Test		
25	9/5/11	12:10 PM	665 psig	69 °F	62 °F	64 °F	Cloud Cover		
26	9/5/11	12:20 PM	666 psig	69 °F	63 °F	64 °F			
27	9/5/11	12:30 PM	667 psig	69 °F	63 °F	64 °F	End Spike		
28	9/5/11	12:34 PM	657 psig	69 °F	63 °F	64 °F	Bleed	1,344 oz.	
29	9/5/11	12:36 PM	647 psig	69 °F	63 °F	64 °F	Bleed	1,344 oz.	
30	9/5/11	12:38 PM	637 psig	69 °F	63 °F	64 °F	Bleed	1,344 oz.	
31	9/5/11	12:40 PM	627 psig	69 °F	63 °F	64 °F	Bleed	1,344 oz.	
32	9/5/11	12:42 PM	617 psig	69 °F	63 °F	64 °F	Bleed	1,344 oz.	
33	9/5/11	12:44 PM	615 psig	69 °F	63 °F	64 °F	End Spike	269 oz.	
34	9/5/11	12:45 PM	615 psig	69 °F	64 °F	64 °F	Sun Shine		
35	9/5/11	1:00 PM	616 psig	69 °F	64 °F	64 °F			
36	9/5/11	1:15 PM	617 psig	69 °F	65 °F	64 °F			
37	9/5/11	1:30 PM	618 psig	69 °F	65 °F	64 °F			
38	9/5/11	1:45 PM	619 psig	69 °F	65 °F	64 °F			
39	9/5/11	2:00 PM	620 psig	69 °F	65 °F	64 °F			
40	9/5/11	2:15 PM	621 psig	70 °F	65 °F	64 °F			
41	9/5/11	2:30 PM	622 psig	70 °F	66 °F	64 °F			
42	9/5/11	2:45 PM	623 psig	71 °F	66 °F	64 °F			
43	9/5/11	3:00 PM	624 psig	71 °F	67 °F	64 °F			

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Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497354
Construction Co.	ARB	Job Number	0629-53-3500 T-27
Testing Co.	Contra Costa Inspection Co.	Project No.	T-27 9/05/2011
Test Section	PG&E T-27 L-132, MP 7.10 - 8.54		
File Name	RCP 61362 - T-27, L-132, MP 7.10 - 8.54		

Date **5-Sep-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	**Comment**	**Bleed**	**Inject**
44	9/5/11	3:15 PM	625 psig	72 °F	67 °F	64 °F			
45	9/5/11	3:30 PM	626 psig	72 °F	68 °F	64 °F			
46	9/5/11	3:45 PM	627 psig	71 °F	68 °F	64 °F			
47	9/5/11	4:00 PM	628 psig	70 °F	68 °F	64 °F			
48	9/5/11	4:15 PM	628 psig	71 °F	68 °F	64 °F	Sun Shine		
49	9/5/11	4:30 PM	629 psig	71 °F	68 °F	64 °F			
50	9/5/11	4:45 PM	630 psig	70 °F	68 °F	64 °F			
51	9/5/11	5:00 PM	631 psig	70 °F	68 °F	64 °F			
52	9/5/11	5:15 PM	620 psig	70 °F	68 °F	64 °F		1,459.00 oz.	
53	9/5/11	5:30 PM	621 psig	70 °F	68 °F	64 °F			
54	9/5/11	5:45 PM	621 psig	69 °F	68 °F	64 °F	Sun Shine		
55	9/5/11	6:00 PM	622 psig	68 °F	68 °F	64 °F			
56	9/5/11	6:15 PM	623 psig	68 °F	68 °F	64 °F			
57	9/5/11	6:30 PM	624 psig	66 °F	68 °F	64 °F			
58	9/5/11	6:45 PM	624 psig	65 °F	68 °F	64 °F			
59	9/5/11	7:00 PM	625 psig	66 °F	68 °F	64 °F	Cool		
60	9/5/11	7:15 PM	625 psig	66 °F	67 °F	64 °F			
61	9/5/11	7:30 PM	626 psig	66 °F	67 °F	64 °F			
62	9/5/11	7:45 PM	626 psig	66 °F	67 °F	64 °F			
63	9/5/11	8:00 PM	627 psig	67 °F	67 °F	64 °F			
64	9/5/11	8:15 PM	627 psig	66 °F	67 °F	64 °F	End of Test		
							Spike Test		28,358.4 oz.
							Hydrostatic Test	8,447.8 oz.	

Were leaks observed during the test period?	Exposed and buried pipe, no leaks observed.	High Test Pressure:	667 psig
		Low Test Pressure:	615 psig

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Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41497354
Construction Co.	ARB	Job Number	0629-53-3500 T-27
Hydro. Test Co.	Contra Costa Inspection Co.	Project No.	T-27 9/05/2011
Test Section	PG&E T-27 L-132, MP 7.10 - 8.54	WATER	
File Name	RCP 61362 - T-27, L-132, MP 7.10 - 8.54		

General Pipe Data

Description	Segment										
	1	2	3	4	5	6	7	8	9		
Restrained or Unrestrained?	Unrestrained	Unrestrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained	nrestrained		
Outside Diameter	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	24.000 in.	2.375 in.	12.750 in.	6.625 in.		
Wall Thickness	0.500 in.	0.375 in.	0.313 in.	0.313 in.	0.281 in.	0.500 in.	0.154 in.	0.375 in.	0.280 in.		
Inside Diameter	23.000 in.	23.250 in.	23.375 in.	23.375 in.	23.438 in.	23.000 in.	2.067 in.	12.000 in.	6.065 in.		
Spec./Grade	API5L-X60	API5L-X60	API5L-Grade B	API5L-X60	40ksmys	API5L-X65	API5L-Grade B	API5L-Grade B	API5L-Grade B		
Length Unrestrained	4 ft	52 ft				22 ft	57 ft	4 ft	11 ft		
Length Restrained			100 ft	312 ft	7,359 ft						
Temperature -- On Test	62 °F	62 °F	64.0 °F	64.0 °F	64.0 °F	62.0 °F	62.0 °F	62.0 °F	62.0 °F		
Temperature -- End of Test	67 °F	67 °F	64.0 °F	64.0 °F	64.0 °F	67.0 °F	67.0 °F	67.0 °F	67.0 °F		
Pressure -- On Test	665 psig	665 psig	665 psig	665 psig	665 psig	665 psig	665 psig	665 psig	665 psig		
Pressure -- End of Test	627 psig	627 psig	627 psig	627 psig	627 psig	627 psig	627 psig	627 psig	627 psig		

Unrestrained Pipe

Sum:	Vo	1,757.96 gal / 225,019 oz.		Vtp1	1,764.01 gal / 225,794 oz.		Vtp2		1,762.93 gal / 225,655 oz.		
Vo Unrestrained	86 gal	1,147 gal				475 gal	10 gal	24 gal	17 gal		
Fwp 1	1.002036	1.002036				1.002036	1.002036	1.002036	1.002036		
Fpp 1	1.001275	1.001718				1.001275	1.000372	1.000887	1.000600		
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)	86.61 gal	1,151.00 gal				476.33 gal	9.96 gal	23.57 gal	16.55 gal		
Fwp 2	1.001919	1.001919				1.001919	1.001919	1.001919	1.001919		
Fpp 2	1.001202	1.001620				1.001202	1.000351	1.000836	1.000566		
Fpt 2	1.000127	1.000127				1.000127	1.000127	1.000127	1.000127		
Fwt 2	1.000681	1.000681				1.000681	1.000681	1.000681	1.000681		
Fpwt = Fpt/Fwt	0.999447	0.999447				0.999447	0.999447	0.999447	0.999447		
Vtp = Vo(Fwp)(Fpp)(Fpwt)	86.55 gal	1,150.28 gal				476.05 gal	9.95 gal	23.55 gal	16.54 gal		

Restrained Pipe

Sum:	Vo	174,121.95 gal / 22,287,610 oz.		Vtp1	174,713.89 gal / 22,363,378 oz.		Vtp2		174,676.90 gal / 22,358,643 oz.		
Vo Unrestrained			2,229 gal	6,955 gal	164,937 gal						
Fwp 1			1.002036	1.002036	1.002036						
Fpp 1			1.001523	1.001523	1.001697						
Fpt 1			1.000048	1.000048	1.000048						
Fwt 1			1.000375	1.000375	1.000375						
Fpwt 1 = Fpt/Fwt			0.999674	0.999674	0.999674						
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)			2,236 gal	6,978 gal	165,500 gal						
Fwp 2			1.001919	1.001919	1.001919						
Fpp 2			1.001437	1.001437	1.001601						
Fpt 2			1.000048	1.000048	1.000048						
Fwt 2			1.000375	1.000375	1.000375						
Fpwt = Fpt/Fwt			0.999674	0.999674	0.999674						
Vtp = Vo(Fwp)(Fpp)(Fpwt)			2,236 gal	6,976 gal	165,464 gal						

Combined Pipe

Sum:	Vo	175,879.91 gal / 22,512,629 oz.	Vtp1	176,477.91 gal / 22,589,172 oz.	Vtp2	176,439.83 gal / 22,584,298 oz.

SB_GT&S_0492048

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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	4 ft	Unrestrained	24.000 in.	0.5000 in.	API5L-X60	2,500 psig	Steel	Arc Weld	DSAW
2	52 ft	Unrestrained	24.000 in.	0.3750 in.	API5L-X60	1,875 psig	Steel	Arc Weld	DSAW
3	100 ft	Restrained	24.000 in.	0.3125 in.	API5L-Grade B	911 psig	Steel	Arc Weld	SM
4	312 ft	Restrained	24.000 in.	0.3125 in.	API5L-X60	1,563 psig	Steel	Arc Weld	DSAW
5	7,359 ft	Restrained	24.000 in.	0.2810 in.	40ksmys	937 psig	Steel	Arc Weld	SM
6	22 ft	Unrestrained	24.000 in.	0.5000 in.	API5L-X65	2,708 psig	Steel	Arc Weld	DSAW
7	57 ft	Unrestrained	2.375 in.	0.1540 in.	API5L-Grade B	4,539 psig	Steel	Arc Weld	SM
8	4 ft	Unrestrained	12.750 in.	0.3750 in.	API5L-Grade B	2,059 psig	Steel	Arc Weld	SM
9	11 ft	Unrestrained	6.625 in.	0.2800 in.	API5L-Grade B	2,958 psig	Steel	Arc Weld	SM

Hydrostatic Test Project Owner & Participants

Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget	41497354
	Walnut Creek, CA 94598	
	Attention: Redacted	
Construction Company	ARB	Job Number
Address	1875 Loveridge Road	0629-53-3500 T-27
	Antioch, CA 94565	
	Attention: Jeff Elliot	
Hydrostatic Test Co.	Contra Costa Inspection Co.	Project No.
Address	2820 LaJolla Drive	T-27 9/05/2011
	Antioch, CA 94565	
	Attention: D. Dawson	
Test Section	PG&E T-27 L-132, MP 7.10 - 8.54	
	From: 76+08	
	To: 0+00	
File Name	RCP 61362 - T-27, L-132, MP 7.10 - 8.54	

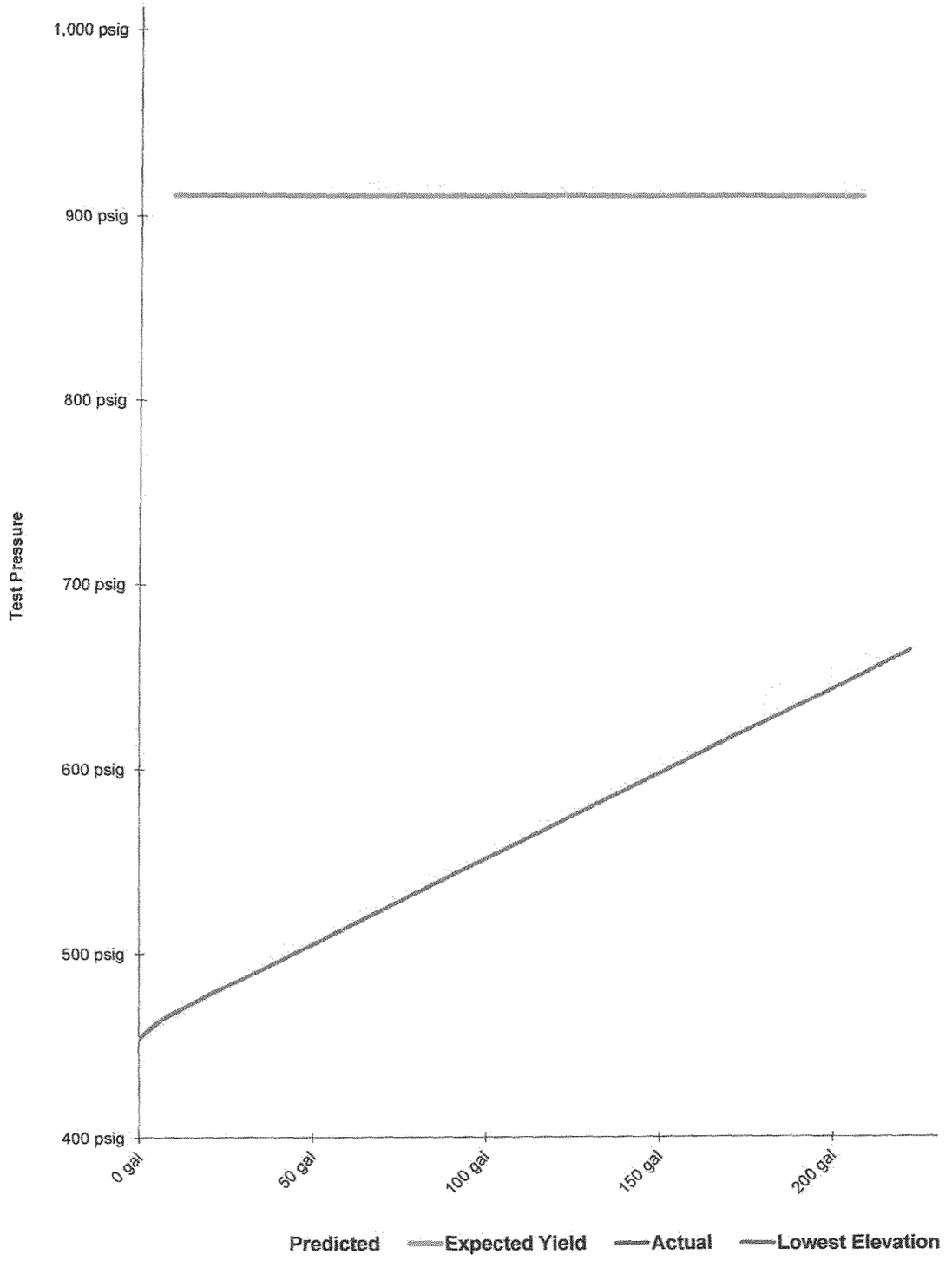
Part II – Test Data (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)

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

Time and Date Test Pressure Reached	9/5/11 12:00 PM	Elevation at Test Point	43 ft	Min. Required Test Press At Test Point (1)	605.20 psig	Max. Allowable Test Press at Test Point (4)	670.00 psig
Time and Date Test Ended	9/5/11 8:15 PM	Max. Elevation in Test Section	55 ft	Min. Indicated Test Pressure (2)	615.00 psig	Max. Indicated Test Pressure (5)	667.00 psig
Actual Duration of Test	8 hours 15 minutes	Min. Elevation in Test Section	43 ft	Min. Test Pressure at Max. Elevation (3)	609.80 psig	Max. Test Pressure at Min. Elevation (6)	667.00 psig

SB_GT&S_0492049

Spike Pressure Test
Stress Strain Curve -- PG&E T-27 L-132, MP 7.10 - 8.54



SB_GT&S_0492050

RCP

Spike Pressure Test
Stress Strain Curve -- PG&E T-27 L-132, MP 7.10 - 8.54

Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted
454 psig	0	0.00 gal		0	0.000
464 psig	45	6.41 gal	9.82 gal	0.641	0.982
474 psig	118	16.81 gal	19.65 gal	1.040	0.982
484 psig	192	27.36 gal	29.47 gal	1.054	0.982
494 psig	267	38.04 gal	39.29 gal	1.069	0.982
504 psig	342	48.73 gal	49.12 gal	1.069	0.983
514 psig	418	59.55 gal	58.94 gal	1.083	0.983
524 psig	492	70.10 gal	68.77 gal	1.054	0.983
534 psig	568	80.93 gal	78.60 gal	1.083	0.983
544 psig	643	91.61 gal	88.43 gal	1.069	0.983
554 psig	719	102.44 gal	98.25 gal	1.083	0.983
564 psig	794	113.13 gal	108.08 gal	1.069	0.983
574 psig	870	123.95 gal	117.91 gal	1.083	0.983
584 psig	945	134.64 gal	127.74 gal	1.069	0.983
594 psig	1020	145.33 gal	137.57 gal	1.069	0.983
604 psig	1097	156.30 gal	147.40 gal	1.097	0.983
614 psig	1173	167.12 gal	157.23 gal	1.083	0.983
624 psig	1250	178.09 gal	167.07 gal	1.097	0.983
634 psig	1325	188.78 gal	176.90 gal	1.069	0.983
644 psig	1402	199.75 gal	186.73 gal	1.097	0.983
654 psig	1475	210.15 gal	196.57 gal	1.040	0.983
664 psig	1547	220.41 gal	206.40 gal	1.026	0.983
665 psig	1555	221.55 gal	207.38 gal	1.140	0.983
665 psig		221.55 gal	207.38 gal	0.000	0.000
665 psig		221.55 gal	207.38 gal	0.000	0.000
665 psig		221.55 gal	207.38 gal	0.000	0.000
665 psig		221.55 gal	207.38 gal	0.000	0.000
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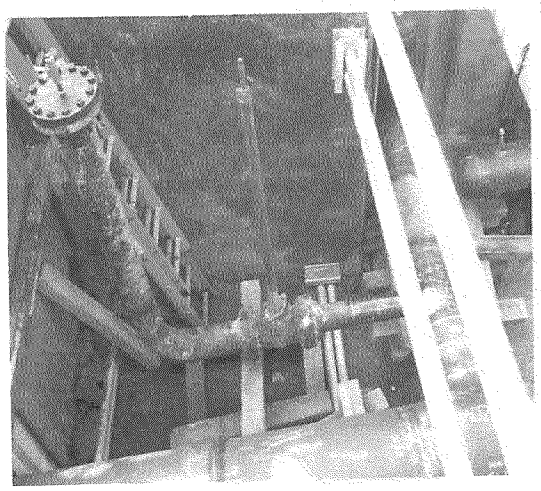
665 psig		221.55 gal	207.38 gal	0.000	0.000

Pump gal per stroke	0.067 gal/stroke
Pump Piston Diameter	1.375 in
Pump Piston Stroke	3.50 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.142 gal/stroke
Volume Released (gallons)	10.50 gal
Pressure Reduced (psi)	10 psi
Maximum2	240 gal
Minimum2	0 gal
Maximum1	1,012 psig
Minimum1	400 psig
Gallons/Stroke Used	0.142 gal/stroke
Predicted Gallons/Stroke	0.133 gal/stroke
Pressure Increment	10 psi
Max Pressure	665 psig
Buried Pipe Temperature	64 °F
Exposed Pipe Temperature	61 °F
ASME B31.8 Appendix N-5	
Average Actual Elastic Slope	0.641
Average Predicted Elastic Slope	0.983
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	1.218
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	665 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

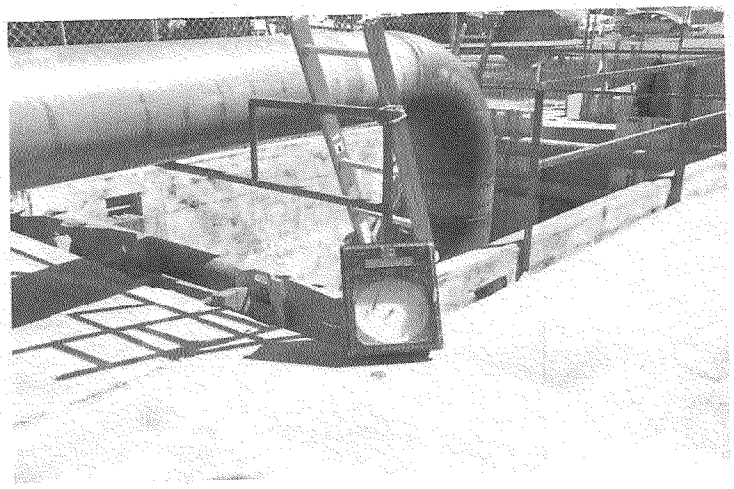
Redacted

Redacted

9/5/11
Date



Small Dia. Piping In test at Location A



Backup Restrained Temp. Recorder