RCP

RCP, Inc

Redacted

August 31, 2011

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

Test Contractor:	Milbar Hydro-test inc. -- FY12-112
Asset Owner:	Pacific Gas and Electric Company -- 414197333-5
Construction Contractor:	Snelson -- 41474005 -T90C
Test Section:	PG&E T-90C L-300B, MP 496.37-499.33
Test Date:	August 30, 2011
Certificate Number:	RCP 61362 - T-90C, L-300B, MP 496.37-499.33

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 inc. 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 1115 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 8.52 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.52 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 1020 psig and the established MAOP is 680 psig.

Pressure decreased 83 psi during the test. 37,945.60 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 4,071.99 ounces, loss, which is equivalent to a 0.4 °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 loss is attributed to the error characteristic of the temperature measurement instrumentation utilized.

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Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	414197333-5
Construction Co.	Snelson	Job Number	41474005 -T90C
Hydro. Test Co.	Milbar Hydro-test inc.	Project No.	FY12-112
Test Section	PG&E T-90C L-300B, MP 496.37-499.33		
File Name	RCP 61362 - T-90C, L-300B, MP 496.37-499.33		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Test Date: 30-Aug-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-90C L-300B, MP 496.37-499.33		
From:	287+87	To:	447+27

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	50 ft	34.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,912 psi
2	17 ft	36.000 in.	0.576 in.	API5L-X60, DSAW, Arc Weld, Steel	1,920 psi
3	23 ft	34.000 in.	0.500 in.	API5L-X60, DSAW, Arc Weld, Steel	1,765 psi
4	12,445 ft	34.000 in.	0.438 in.	API5L-X52, DSAW, Arc Weld, Steel	1,336 psi
5	3,678 ft	34.000 in.	0.380 in.	API5L-X60, DSAW, Arc Weld, Steel	1,341 psi
6	25 ft	6.625 in.	0.280 in.	API5L-Grade B, SM, Arc Weld, Steel	2,958 psi
7	3 ft	4.500 in.	0.237 in.	API5L-Grade B, SM, Arc Weld, Steel	3,687 psi
8	40 ft	34.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,912 psi

Initial Test Conditions

Pressure at Test Point:	1,115 psig	Date/Time:	8/30/11 9:29 PM	Pipe Temperature Restrained:	76.0 °F
Ambient Temperature:	66.0 °F	Elevation @ Test Point:	134.0 ft	Location:	287+78
Pressure @ High Point (Cal/Measure):	1,104 psig	Elevation @ High Point:	160.0 ft	Location:	343+00
Pressure @ Low Point (Cal/Measure):	1,143 psig	Elevation @ Low Point:	69.0 ft	Location:	447+27

Final Test Conditions

Pressure at Test Point:	1,032 psig	Date/Time:	8/31/11 6:00 AM	Pipe Temperature Unrestrained:	68.0 °F
Ambient Temperature:	59.0 °F			Restrained:	76.0 °F
		Elevation @ Test Point:	134.0 ft	Location:	287+78
Pressure @ High Point (Cal/Measure):	1,021 psig	Elevation @ High Point:	160.0 ft	Location:	343+00
Pressure @ Low Point (Cal/Measure):	1,060 psig	Elevation @ Low Point:	69.0 ft	Location:	447+27
Total Fluid Injected:				Volume loss	
Total Fluid Withdrawn:	37945.60 fluid ounces				
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	(4,071.99) oz	loss		(0.0043)%	(0.399) °F equivalent

Test Duration: 8.52 hours

Minimum Test Pressure:	Test Point	1,032 psig	Max Elevation	1,021 psig	Min Elevation	1,060 psig
Maximum Test Pressure:		1,115 psig		1,104 psig		1,143 psig
% SMYS :		30.3%		82.3%		85.4%
Test Segment Observed % SMYS :			Minimum	30.3%	Maximum	85.4%
					Minimum Test Pressure (Calculated/Measured):	1,021 psig
Maximum Allowable Operating Pressure:				DOT Part 192	Test Factor= 1.50	680 psig

Were leaks observed?	No	Explain:
Acceptable Hydrostatic Test?	Yes	The test segment was subjected to a spike pressure test of 1115 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 8.52 hour test duration period. No leaks were observed during the test period. The test section included 16,191 feet of buried and 90 feet of exposed pipe. Pressure lost 83 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment lost 5°F. 37,945.60 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 4,071.99 ounces, loss, which is equivalent to a 0.4 °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 loss is attributed to the error characteristic of the temperature measurement instrumentation utilized.
Remarks		

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31-Aug-11

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	414197333-5
Construction Co.	Snelson	Job Number	41474005 - T90C
Testing Co.	Milbar Hydro-test inc.	Project No.	FY12-112
Test Section	PG&E T-90C L-300B, MP 496.37-499.33		
File Name	RCP 61362 - T-90C, L-300B, MP 496.37-499.33		

Date 30-Aug-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
1	8/30/11	8:25 PM	761 psig	66 °F	73 °F	76 °F	Start Spike		
2	8/30/11	8:27 PM	771 psig	66 °F	73 °F	76 °F	Inject		5,006 oz.
3	8/30/11	8:29 PM	781 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
4	8/30/11	8:31 PM	791 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
5	8/30/11	8:33 PM	801 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
6	8/30/11	8:35 PM	811 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
7	8/30/11	8:37 PM	821 psig	66 °F	73 °F	76 °F	Inject		5,147 oz.
8	8/30/11	8:39 PM	831 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
9	8/30/11	8:41 PM	841 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
10	8/30/11	8:43 PM	851 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
11	8/30/11	8:45 PM	861 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
12	8/30/11	8:47 PM	871 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
13	8/30/11	8:49 PM	881 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
14	8/30/11	8:51 PM	891 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
15	8/30/11	8:53 PM	901 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
16	8/30/11	8:55 PM	911 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
17	8/30/11	8:57 PM	921 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
18	8/30/11	8:59 PM	931 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
19	8/30/11	9:01 PM	941 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
20	8/30/11	9:03 PM	951 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
21	8/30/11	9:05 PM	961 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
22	8/30/11	9:07 PM	971 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
23	8/30/11	9:09 PM	981 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
24	8/30/11	9:11 PM	991 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
25	8/30/11	9:13 PM	1,001 psig	66 °F	73 °F	76 °F	Inject		5,429 oz.
26	8/30/11	9:14 PM	1,011 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
27	8/30/11	9:15 PM	1,021 psig	66 °F	73 °F	76 °F	Inject		5,147 oz.
28	8/30/11	9:16 PM	1,031 psig	66 °F	73 °F	76 °F	Inject		5,429 oz.
29	8/30/11	9:17 PM	1,041 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
30	8/30/11	9:18 PM	1,051 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
31	8/30/11	9:19 PM	1,061 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
32	8/30/11	9:20 PM	1,071 psig	66 °F	73 °F	76 °F	Inject		5,217 oz.
33	8/30/11	9:21 PM	1,081 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
34	8/30/11	9:22 PM	1,091 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
35	8/30/11	9:24 PM	1,101 psig	66 °F	73 °F	76 °F	Inject		5,288 oz.
36	8/30/11	9:25 PM	1,111 psig	66 °F	73 °F	76 °F	Inject		5,358 oz.
37	8/30/11	9:27 PM	1,115 psig	66 °F	73 °F	76 °F	Inject		1,763 oz.
38	8/30/11	9:29 PM	1,115 psig	66 °F	73 °F	76 °F	On Test		
39	8/30/11	9:39 PM	1,115 psig	66 °F	73 °F	76 °F			
40	8/30/11	9:49 PM	1,115 psig	65 °F	73 °F	76 °F			
41	8/30/11	9:59 PM	1,114 psig	65 °F	72 °F	76 °F	End Spike		
42	8/30/11	10:13 PM	1,104 psig	66 °F	73 °F	76 °F	Bleed	4,928 oz.	
43	8/30/11	10:28 PM	1,037 psig	64 °F	72 °F	76 °F	Bleed	33,018 oz.	
44	8/30/11	10:30 PM	1,037 psig	64 °F	73 °F	76 °F			

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	414197333-5
Construction Co.	Snelson	Job Number	41474005 - T90C
Testing Co.	Milbar Hydro-test inc.	Project No.	FY12-112
Test Section	PG&E T-90C L-300B, MP 496.37-499.33		
File Name	RCP 61362 - T-90C, L-300B, MP 496.37-499.33		

Date **30-Aug-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
45	8/30/11	10:45 PM	1,036 psig	63 °F	72 °F	76 °F			
46	8/30/11	11:00 PM	1,036 psig	62 °F	72 °F	76 °F			
47	8/30/11	11:15 PM	1,036 psig	63 °F	72 °F	76 °F			
48	8/30/11	11:30 PM	1,036 psig	63 °F	71 °F	76 °F			
49	8/30/11	11:45 PM	1,036 psig	63 °F	71 °F	76 °F			
50	8/31/11	12:00 AM	1,036 psig	63 °F	71 °F	76 °F			
51	8/31/11	12:15 AM	1,036 psig	63 °F	71 °F	76 °F			
52	8/31/11	12:30 AM	1,035 psig	63 °F	71 °F	76 °F			
53	8/31/11	12:45 AM	1,035 psig	61 °F	70 °F	76 °F			
54	8/31/11	1:00 AM	1,035 psig	62 °F	70 °F	76 °F			
55	8/31/11	1:15 AM	1,035 psig	61 °F	70 °F	76 °F			
56	8/31/11	1:30 AM	1,035 psig	61 °F	69 °F	76 °F			
57	8/31/11	1:45 AM	1,035 psig	60 °F	69 °F	76 °F			
58	8/31/11	2:00 AM	1,034 psig	60 °F	69 °F	76 °F			
59	8/31/11	2:15 AM	1,034 psig	60 °F	69 °F	76 °F			
60	8/31/11	2:30 AM	1,034 psig	61 °F	69 °F	76 °F			
61	8/31/11	2:45 AM	1,034 psig	60 °F	69 °F	76 °F			
62	8/31/11	3:00 AM	1,034 psig	60 °F	69 °F	76 °F			
63	8/31/11	3:15 AM	1,034 psig	60 °F	69 °F	76 °F			
64	8/31/11	3:30 AM	1,034 psig	59 °F	69 °F	76 °F			
65	8/31/11	3:45 AM	1,033 psig	59 °F	68 °F	76 °F			
66	8/31/11	4:00 AM	1,033 psig	59 °F	68 °F	76 °F			
67	8/31/11	4:15 AM	1,033 psig	59 °F	68 °F	76 °F			
68	8/31/11	4:30 AM	1,033 psig	59 °F	68 °F	76 °F			
69	8/31/11	4:45 AM	1,033 psig	59 °F	68 °F	76 °F			
70	8/31/11	5:00 AM	1,032 psig	59 °F	68 °F	76 °F			
71	8/31/11	5:15 AM	1,032 psig	59 °F	68 °F	76 °F			
72	8/31/11	5:30 AM	1,032 psig	59 °F	68 °F	76 °F			
73	8/31/11	5:45 AM	1,032 psig	59 °F	68 °F	76 °F			
74	8/31/11	6:00 AM	1,032 psig	59 °F	68 °F	76 °F	End of Test		
							Spike Test		186,266.9 oz.
							Hydrostatic Test	37,945.6 oz.	

Were leaks observed during the test period?	Exposed and buried pipe, no leaks observed.	High Test Pressure:	1,115 psig
		Low Test Pressure:	1,032 psig

Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	414197333-5
Construction Co.	Snelson	Job Number	41474005 -T90C
Hydro. Test Co.	Milbar Hydro-test inc.	Project No.	FY12-112
Test Section	PG&E T-90C L-300B, MP 496.37-499.33	WATER	
File Name	RCP 61362 - T-90C, L-300B, MP 496.37-499.33		

General Pipe Data

Description	Segment										
	1	2	3	4	5	6	7	8			
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Unrestrained			
Outside Diameter	34.000 in.	36.000 in.	34.000 in.	34.000 in.	34.000 in.	6.625 in.	4.500 in.	34.000 in.			
Inside Diameter	33.000 in.	34.848 in.	33.000 in.	33.125 in.	33.240 in.	6.065 in.	4.026 in.	33.000 in.			
Spec./Grade	API5L-X65	API5L-X60	API5L-X60	API5L-X52	API5L-X60	API5L-Grade B	API5L-Grade B	API5L-X65			
Length Unrestrained	50 ft							40 ft			
Length Restrained		17 ft	23 ft	12,445 ft	3,678 ft	25 ft	3 ft				
Temperature – On Test	73 °F	76 °F	76.0 °F	76.0 °F	76.0 °F	76.0 °F	76.0 °F	73.0 °F			
Temperature – End of Test	68 °F	76 °F	76.0 °F	76.0 °F	76.0 °F	76.0 °F	76.0 °F	68.0 °F			
Pressure – On Test	1,115 psig	1,115 psig	1,115 psig	1,115 psig	1,115 psig	1,115 psig	1,115 psig	1,115 psig			
Pressure – End of Test	1,032 psig	1,032 psig	1,032 psig	1,032 psig	1,032 psig	1,032 psig	1,032 psig	1,032 psig			

Unrestrained Pipe

Sum:	Vo	3,998.60 gal 511,846 oz.	Vtp1	4,020.00 gal 514,560 oz.	Vtp2	4,020.19 gal 514,584 oz.
Vo Unrestrained	2,222 gal				1,777 gal	
Fwp 1	1.003418				1.003418	
Fpp 1	1.003066				1.003066	
Fpt 1	1.000237				1.000237	
Fwt 1	1.001423				1.001423	
Fpwt 1 = Fpt/Fwt	0.998815				0.998815	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	2,233.33 gal				1,786.67 gal	
Fpp 2	1.002838				1.002838	
Fpt 2	1.000146				1.000146	
Fwt 2	1.000803				1.000803	
Fpwt = Fpt/Fwt	0.999343				0.999343	
Vtp = Vo(Fwp)(Fpp)(Fpwt)	2,233.44 gal				1,786.75 gal	

Restrained Pipe

Sum:	Vo	724,848.81 gal 92,780,648 oz.		Vtp1	728,117.17 gal 93,198,998 oz.		Vtp2	727,788.73 gal 93,156,957 oz.
Vo Unrestrained		842 gal	1,022 gal	557,142 gal	165,803 gal	38 gal	2 gal	
Fwp 1		1.003418	1.003418	1.003418	1.003418	1.003418	1.003418	
Fpp 1		1.002104	1.002290	1.002618	1.003016	1.000790	1.000632	
Fpt 1		1.000194	1.000194	1.000194	1.000194	1.000194	1.000194	
Fwt 1		1.001813	1.001813	1.001813	1.001813	1.001813	1.001813	
Fpwt 1 = Fpt/Fwt		0.998384	0.998384	0.998384	0.998384	0.998384	0.998384	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		846 gal	1,026 gal	559,604 gal	166,602 gal	38 gal	2 gal	
Fwp 2		1.003163	1.003163	1.003163	1.003163	1.003163	1.003163	
Fpp 2		1.001951	1.002124	1.002428	1.002796	1.000736	1.000589	
Fpt 2		1.000194	1.000194	1.000194	1.000194	1.000194	1.000194	
Fwt 2		1.001813	1.001813	1.001813	1.001813	1.001813	1.001813	
Fpwt = Fpt/Fwt		0.998384	0.998384	0.998384	0.998384	0.998384	0.998384	
Vtp = Vo(Fwp)(Fpp)(Fpwt)		845 gal	1,026 gal	559,355 gal	166,523 gal	38 gal	2 gal	

Combined Pipe

Sum:	Vo	728,847.61 gal 93,292,494 oz.	Vtp1	732,137.18 gal 93,713,558 oz.	Vtp2	731,808.91 gal 93,671,541 oz.

Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	414197333-5
Construction Co.	Snelson	Job Number	41474005 -T90C
Hydro. Test Co.	Milbar Hydro-test inc.	Project No.	FY12-112
Test Section	PG&E T-90C L-300B, MP 496.37-499.33		WATER
File Name	RCP 61362 - T-90C, L-300B, MP 496.37-499.33		

General Pipe Data

Description	Segment 1	2	3	4	5	6	7	8
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Unrestrained
Outside Diameter	34.000 in.	36.000 in.	34.000 in.	34.000 in.	34.000 in.	6.625 in.	4.500 in.	34.000 in.
Inside Diameter	33.000 in.	34.848 in.	33.000 in.	33.125 in.	33.240 in.	6.065 in.	4.026 in.	33.000 in.
Spec./Grade	API5L-X65	API5L-X60	API5L-X60	API5L-X52	API5L-X60	API5L-Grade B	API5L-Grade B	API5L-X65
Length Unstrained	50.00 ft							40 ft
Length Restrained		17 ft	23 ft	12,445 ft	3,678 ft	25 ft	3 ft	
Temperature – On Test	70 °F	75 °F	75 °F	75 °F	75 °F	75 °F	75 °F	70 °F
Temperature – End of Test	71 °F	76 °F	76 °F	76 °F	76 °F	76 °F	76 °F	71 °F
Pressure – On Test	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig
Pressure – End of Test	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig	1,073 psig

Unrestrained Pipe

Sum:	Vo	3,998.80 gal / 511,846 oz.	Vtp1	4,020.35 gal / 514,605 oz.	Vtp2	4,019.89 gal / 514,546 oz.
Vo Unrestrained	2,222 gal					1,777 gal
Fwp 1	1.003289					1.003289
Fpp 1	1.002951					1.002951
Fpt 1	1.000182					1.000182
Fwt 1	1.001036					1.001036
Fpwt 1 = Fpt/Fwt	0.999146					0.999146
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	2,233.53 gal					1,787 gal
Fpp 2	1.002951					1.002951
Fpt 2	1.000200					1.000200
Fwt 2	1.001170					1.001170
Fpwt = Fpt/Fwt	0.999032					0.999032
Vtp = Vo(Fwp)(Fpp)(Fpwt)	2,233.27 gal					1,787 gal

Restrained Pipe

Sum:	Vo	724,848.81 gal / 92,780,648 oz.		Vtp1	728,030.15 gal / 93,187,859 oz.		Vtp2	727,950.95 gal / 93,177,722 oz.
Vo Restrained		842 gal	1,022 gal	557,142 gal	165,803 gal	38 gal	2 gal	
Fwp 1		1.003289	1.003289	1.003289	1.003289	1.003289	1.003289	
Fpp 1		1.002023	1.002202	1.002518	1.002901	1.000759	1.000607	
Fpt 1		1.000182	1.000182	1.000182	1.000182	1.000182	1.000182	
Fwt 1		1.001688	1.001688	1.001688	1.001688	1.001688	1.001688	
Fpwt 1 = Fpt/Fwt		0.998496	0.998496	0.998496	0.998496	0.998496	0.998496	
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		846 gal	1,026 gal	559,539 gal	166,580 gal	38 gal	2 gal	
Fwp 2		1.003289	1.003289	1.003289	1.003289	1.003289	1.003289	
Fpp 2		1.002027	1.002206	1.002522	1.002905	1.000763	1.000610	
Fpt 2		1.000194	1.000194	1.000194	1.000194	1.000194	1.000194	
Fwt 2		1.001813	1.001813	1.001813	1.001813	1.001813	1.001813	
Fpwt = Fpt/Fwt		0.998384	0.998384	0.998384	0.998384	0.998384	0.998384	
Vtp = Vo(Fwp)(Fpp)(Fpwt)		845 gal	1,026 gal	559,478 gal	166,562 gal	38 gal	2 gal	

Combined Pipe

Sum:	Vo	728,847.61 gal / 93,292,494 oz.	Vtp1	732,050.50 gal / 93,702,465 oz.	Vtp2	731,970.84 gal / 93,692,268 oz.
1 °F Change	79.66 gal	10,196.80 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	50 ft	Unrestrained	34.000 in.	0.5000 in.	API5L-X65	1,912 psig	Steel	Arc Weld	DSAW
2	17 ft	Restrained	36.000 in.	0.5760 in.	API5L-X60	1,920 psig	Steel	Arc Weld	DSAW
3	23 ft	Restrained	34.000 in.	0.5000 in.	API5L-X60	1,765 psig	Steel	Arc Weld	DSAW
4	12,445 ft	Restrained	34.000 in.	0.4375 in.	API5L-X52	1,338 psig	Steel	Arc Weld	DSAW
5	3,678 ft	Restrained	34.000 in.	0.3800 in.	API5L-X60	1,341 psig	Steel	Arc Weld	DSAW
6	25 ft	Restrained	6.625 in.	0.2800 in.	API5L-Grade B	2,958 psig	Steel	Arc Weld	SM
7	3 ft	Restrained	4.500 in.	0.2370 in.	API5L-Grade B	3,687 psig	Steel	Arc Weld	SM
8	40 ft	Unrestrained	34.000 in.	0.5000 in.	API5L-X65	1,912 psig	Steel	Arc Weld	DSAW

Hydrostatic Test Project Owner & Participants

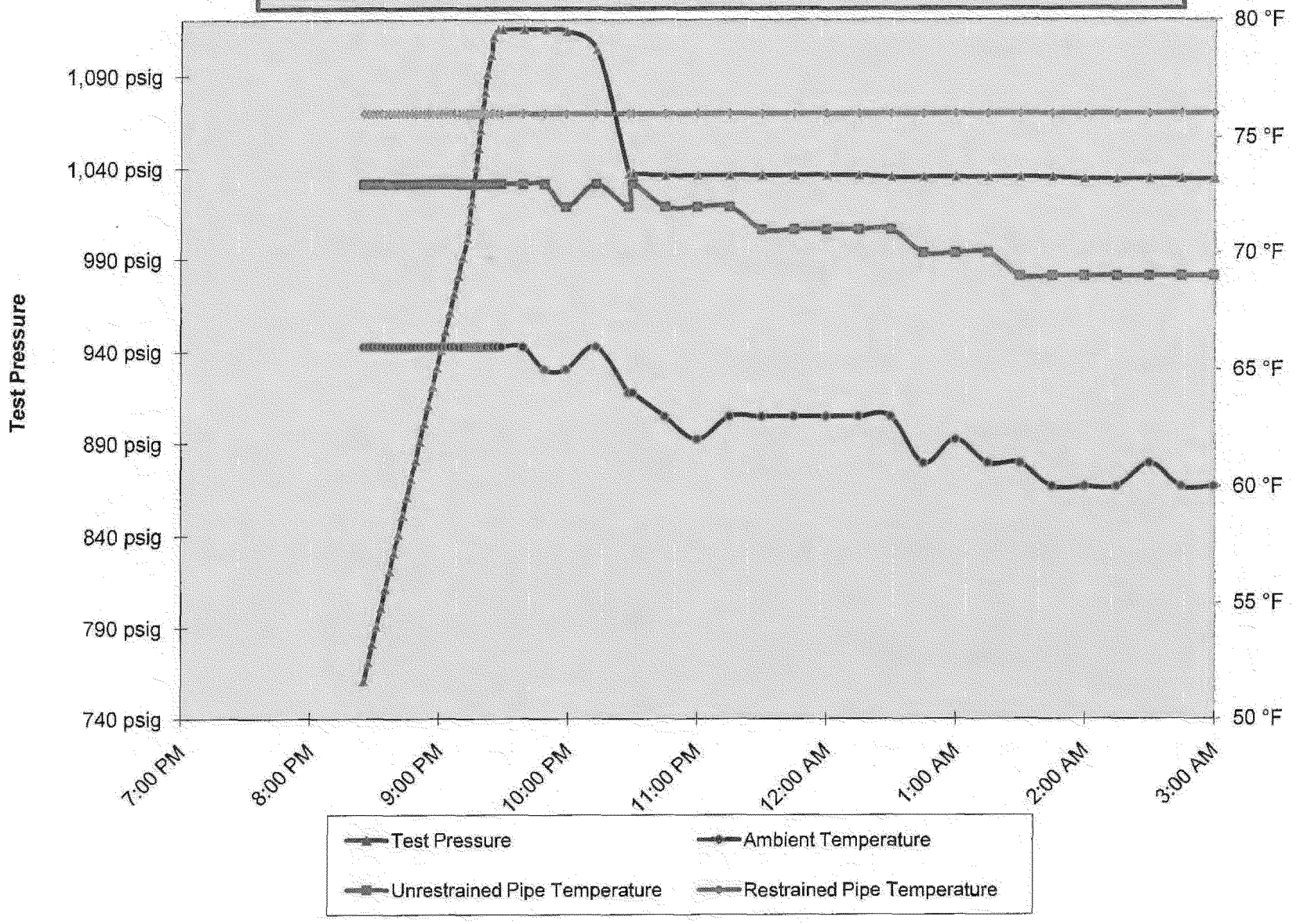
Owner Company	Pacific Gas and Electric Company	Job Number
Address	350 N. Wiget	
	Walnut Creek, CA 94598	414197333-5
	Attention: Redacted	
Construction Company	Snelson	Job Number
Address	601 West State Street	
	Sedro-Wooley, WA 98284	41474005 -T90C
	Attention: Redacted	
Hydrostatic Test Co.	Milbar Hydro-test inc.	Project No.
Address	P O Box 7701	
	Shreveport, La. 71137-7701	FY12-112
Test Section	PG&E T-90C L-300B, MP 496.37-499.33	
	From: 287+87	
	To: 447+27	
File Name	RCP 61362 - T-90C, L-300B, MP 496.37-499.33	

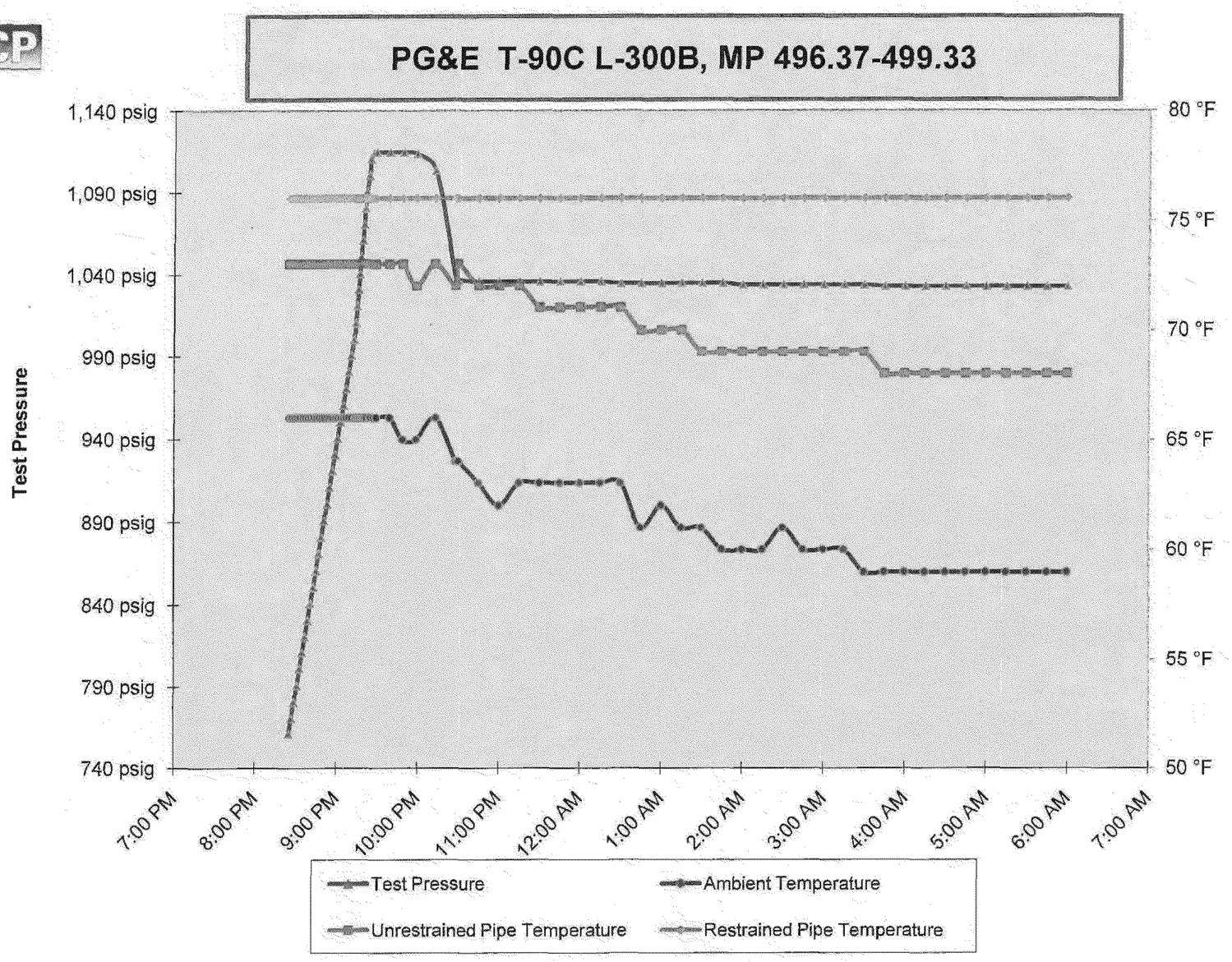
Part II – Test Data (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)

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

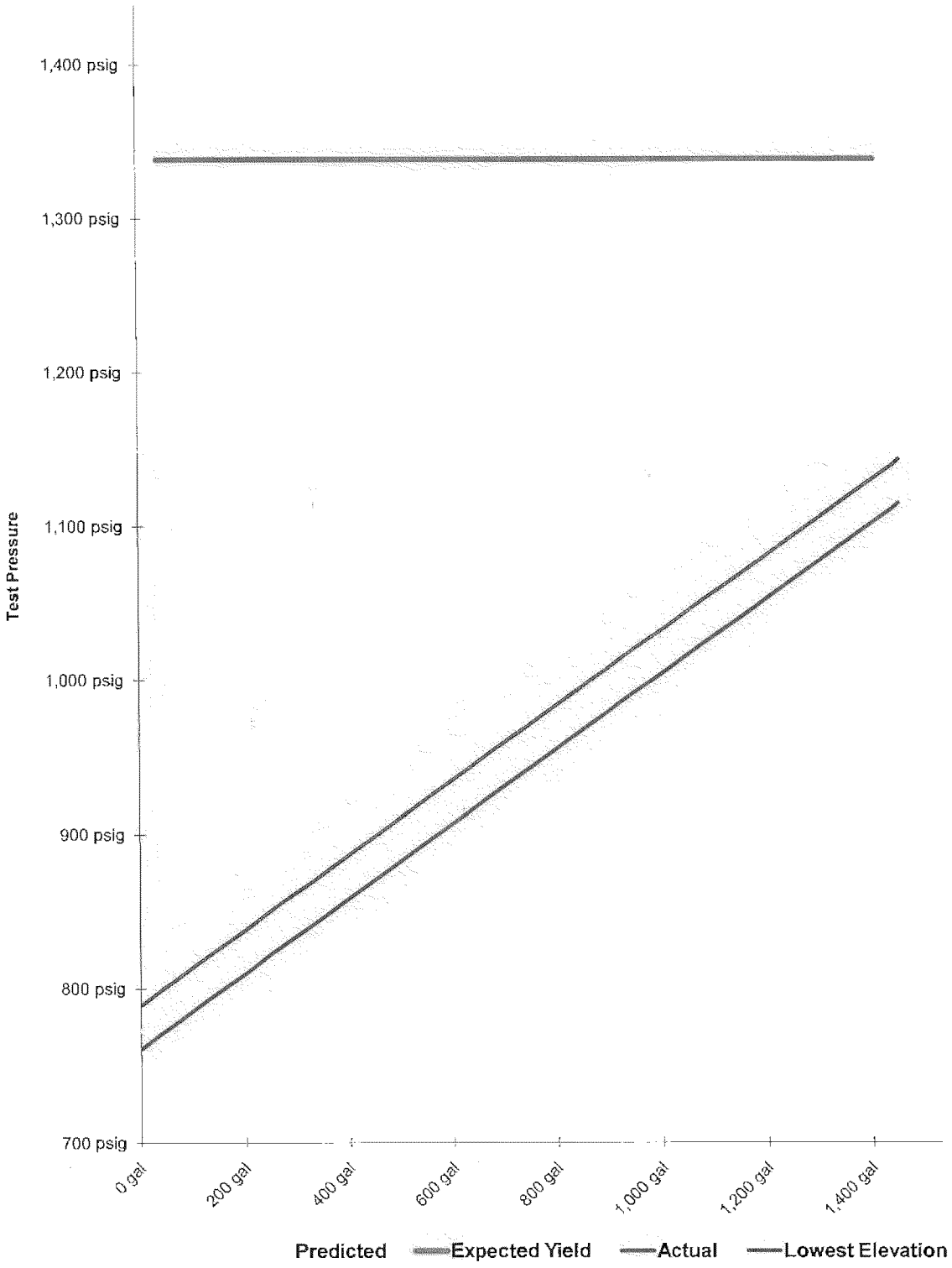
Time and Date Test Pressure Reached	8/30/11 9:29 PM	Elevation at Test Point	134 ft	Min. Required Test Press At Test Point (1)	1,015.27 psig	Max. Allowable Test Press at Test Point (4)	1,116.83 psig
Time and Date Test Ended	8/31/11 6:00 AM	Max. Elevation in Test Section	160 ft	Min. Indicated Test Pressure (2)	1,032.00 psig	Max. Indicated Test Pressure (5)	1,115.00 psig
Actual Duration of Test	8 hours 31 minutes	Min. Elevation in Test Section	69 ft	Min. Test Pressure at Max. Elevation (3)	1,020.73 psig	Max. Test Pressure at Min. Elevation (6)	1,143.17 psig

PG&E T-90C L-300B, MP 496.37-499.33





Spike Pressure Test
Stress Strain Curve -- PG&E T-90C L-300B, MP 496.37-499.33



RCP

Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted
761 psig	0	0.00 gal		0	0.000
771 psig	71	39.11 gal	39.79 gal	3.911	3.979
781 psig	146	80.42 gal	79.58 gal	4.131	3.979
791 psig	220	121.18 gal	119.38 gal	4.076	3.980
801 psig	296	163.04 gal	159.18 gal	4.186	3.980
811 psig	370	203.80 gal	198.98 gal	4.076	3.980
821 psig	443	244.00 gal	238.78 gal	4.021	3.980
831 psig	518	285.31 gal	278.59 gal	4.131	3.981
841 psig	593	326.62 gal	318.39 gal	4.131	3.981
851 psig	667	367.38 gal	358.20 gal	4.076	3.981
861 psig	742	408.69 gal	398.02 gal	4.131	3.981
871 psig	817	450.00 gal	437.83 gal	4.131	3.982
881 psig	891	490.76 gal	477.65 gal	4.076	3.982
891 psig	967	532.62 gal	517.47 gal	4.186	3.982
901 psig	1041	573.38 gal	557.29 gal	4.076	3.982
911 psig	1117	615.24 gal	597.12 gal	4.186	3.982
921 psig	1192	656.55 gal	636.94 gal	4.131	3.983
931 psig	1267	697.86 gal	676.77 gal	4.131	3.983
941 psig	1341	738.62 gal	716.61 gal	4.076	3.983
951 psig	1417	780.48 gal	756.44 gal	4.186	3.983
961 psig	1492	821.79 gal	796.28 gal	4.131	3.984
971 psig	1566	862.55 gal	836.12 gal	4.076	3.984
981 psig	1640	903.31 gal	875.96 gal	4.076	3.984
991 psig	1714	944.07 gal	915.80 gal	4.076	3.984
1,001 psig	1791	986.48 gal	955.65 gal	4.241	3.985
1,011 psig	1867	1,028.34 gal	995.50 gal	4.186	3.985
1,021 psig	1940	1,068.55 gal	1,035.35 gal	4.021	3.985
1,031 psig	2017	1,110.96 gal	1,075.21 gal	4.241	3.985
1,041 psig	2091	1,151.72 gal	1,115.06 gal	4.076	3.986
1,051 psig	2165	1,192.48 gal	1,154.92 gal	4.076	3.986
1,061 psig	2241	1,234.34 gal	1,194.78 gal	4.186	3.986
1,071 psig	2315	1,275.10 gal	1,234.65 gal	4.076	3.986
1,081 psig	2390	1,316.41 gal	1,274.51 gal	4.131	3.987
1,091 psig	2466	1,358.27 gal	1,314.38 gal	4.186	3.987
1,101 psig	2541	1,399.58 gal	1,354.25 gal	4.131	3.987
1,111 psig	2617	1,441.44 gal	1,394.13 gal	4.186	3.987
1,115 psig	2642	1,455.21 gal	1,410.08 gal	3.442	3.988
1,115 psig		1,455.21 gal	1,410.08 gal	0.000	0.000
1,115 psig		1,455.21 gal	1,410.08 gal	0.000	0.000
1,115 psig		1,455.21 gal	1,410.08 gal	0.000	0.000
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1,115 psig		1,455.21 gal	1,410.08 gal	0.000	0.000

Spike Pressure Test
Stress Strain Curve -- PG&E T-90C L-300B, MP 496.37-499.33

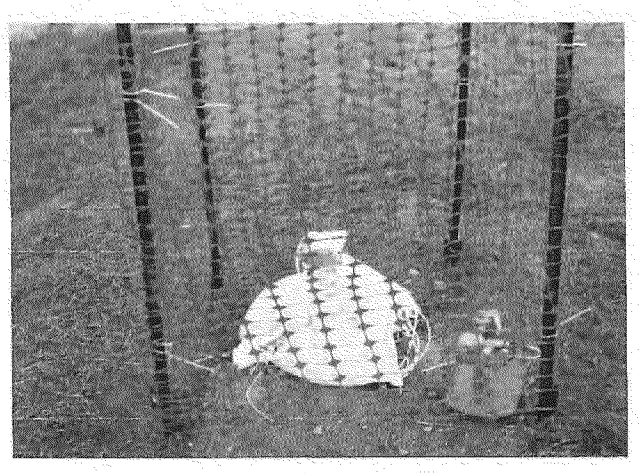
Pump gal per stroke	0.551 gal/stroke
Pump Piston Diameter	3.000 in
Pump Piston Stroke	6.00 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.516 gal/stroke
Volume Released (gallons)	38.50 gal
Pressure Reduced (psi)	10 psi
Maximum2	1,530 gal
Minimum2	0 gal
Maximum1	1,439 psig
Minimum1	700 psig
Gallons/Stroke Used	0.551 gal/stroke
Predicted Gallons/Stroke	0.534 gal/stroke
Pressure Increment	10 psi
Max Pressure	1,115 psig
Buried Pipe Temperature	64 °F
Exposed Pipe Temperature	71 °F

ASME B31.8 Appendix N-5

Average Actual Elastic Slope	4.100
Average Predicted Elastic Slope	3.983
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	7.789
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	1,115 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

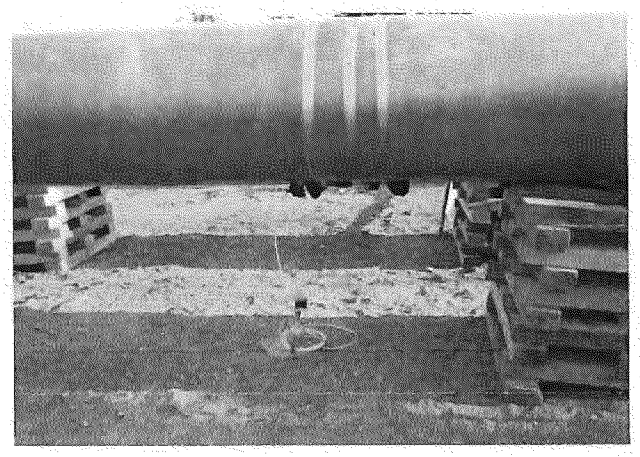
Redacted

8/31/11
Date



test 90C remote restrained temp. transmitter at Location C

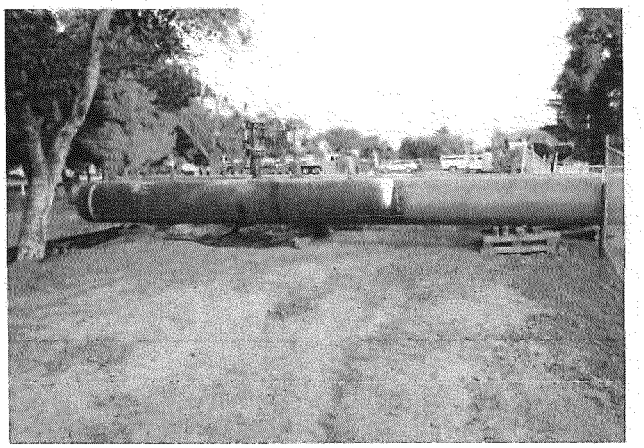
Test 90C pump truck and test trailer @ loc.C



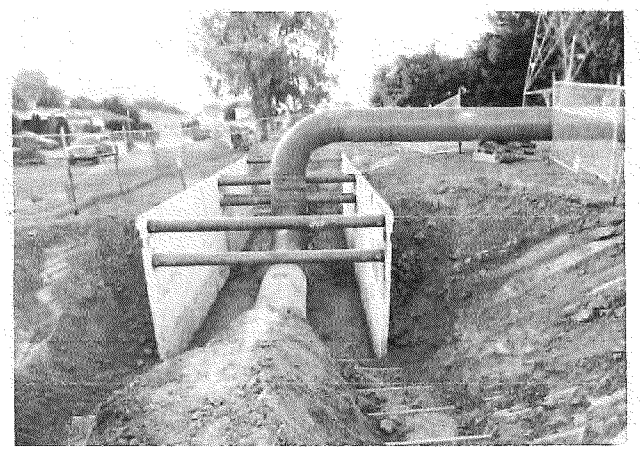
Test 90 C unrestrained pipe temp.transmitter at location C

test 90C testhead and excavation at Loc. C

Test 90C restrained temp. recorder at Loc. C



Test 90C -2 testheads side by side at loc.B



test 90C - excavation and risers at loc. B