



RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002

Redacted

August 4, 2011

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

Test Contractor:	Milbar Hydro-test Incorporated -- FY12-112
Asset Owner:	Pacific Gas and Electric Company -- 41497309
Construction Contractor:	Snelson -- 41474005-T74
Test Section:	PG&E T-74 Line 300A, MP 499.77 - 502.23
Test Date:	August 4, 2011
Certificate Number:	RCP 61362 - T-74, L-300A

To whom it may concern,

This letter is to certify that the hydrostatic test performed on pipe owned by Pacific Gas and Electric Company and tested by Milbar Hydro-test Incorporated met the requirements of the Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 3).

The test segment was subjected to a spike pressure test of 1090 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 8.72 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.72 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 1023 psig and the established MAOP is 682 psig.

Pressure decreased 67 psi during the test. 22,272.00 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 7,082.09 ounces, loss, which is equivalent to a 0.66 °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.

Sincerely,

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RCP 61362 - T-74, L-300A, MP 499.77 - 502.23
Letter



Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41497309
Construction Co.	Snelson	Job Number	41474005-T74
Hydro. Test Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-74 Line 300A, MP 499.77 - 502.23		
File Name	RCP 61362 - T-74, L-300A		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: _____ Test Date: 4-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-74 Line 300A, MP 499.77 - 502.23
From:	0+00 To: 184+08

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	60 ft	34.000 in.	0.505 in.	API5L-X60, DSAW, Arc Weld, Steel	1,782 psi
2	1,867 ft	36.000 in.	0.500 in.	API5L-X60, DSAW, Arc Weld, Steel	1,667 psi
3	918 ft	36.000 in.	0.432 in.	API5L-X60, DSAW, Arc Weld, Steel	1,440 psi
4	2,000 ft	36.000 in.	0.414 in.	API5L-X65, DSAW, Arc Weld, Steel	1,495 psi
5	7 ft	34.000 in.	0.562 in.	API5L-X60, DSAW, Arc Weld, Steel	1,984 psi
6	362 ft	34.000 in.	0.505 in.	API5L-X60, DSAW, Arc Weld, Steel	1,782 psi
7	6,876 ft	34.000 in.	0.500 in.	API5L-X46, DSAW, Arc Weld, Steel	1,353 psi
8	1,532 ft	34.000 in.	0.383 in.	API5L-X60, DSAW, Arc Weld, Steel	1,352 psi
9	40 ft	34.000 in.	0.500 in.	API5L-X65, DSAW, Arc Weld, Steel	1,912 psi
10	22 ft	30.000 in.	0.375 in.	API5L-X60, DSAW, Arc Weld, Steel	1,500 psi
12	49 ft	6.625 in.	0.280 in.	API5L-Grade B, SM, Arc Weld, Steel	2,958 psi

Initial Test Conditions

Pressure at Test Point:	1,090 psig	Date/Time:	8/4/11 3:02 AM	Pipe Temperature	
Ambient Temperature:	68.0 °F	Elevation @ Test Point:	55.0 ft	Unrestrained:	73.0 °F
Pressure @ High Point (Cal/Measure):	1,090 psig	Elevation @ High Point:	55.0 ft	Restrained:	75.0 °F
Pressure @ Low Point (Cal/Measure):	1,105 psig	Elevation @ Low Point:	20.0 ft	Location:	0+00
				Location:	135+00

Final Test Conditions

Pressure at Test Point:	1,023 psig	Date/Time:	8/4/11 11:45 AM	Pipe Temperature	
Ambient Temperature:	72.0 °F	Elevation @ Test Point:	55.0 ft	Unrestrained:	78.0 °F
Pressure @ High Point (Cal/Measure):	1,023 psig	Elevation @ High Point:	55.0 ft	Restrained:	75.0 °F
Pressure @ Low Point (Cal/Measure):	1,038 psig	Elevation @ Low Point:	20.0 ft	Location:	0+00
				Location:	0+00
				Location:	135+00

Total Fluid Injected:		Total Fluid Withdrawn:	22,272.00 fluid ounces	Volume loss	
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	(7,082.09) oz	loss	(0.0087)%	(0.665) °F equivalent	

Test Duration: 8.72 hours

Minimum Test Pressure:	1,023 psig	1,023 psig	1,038 psig
Maximum Test Pressure:	1,090 psig	1,090 psig	1,105 psig
% SMYS:	80.6%	80.6%	81.8%

Minimum Test Pressure (Calculated/Measured): 1,023 psig

Maximum Allowable Operating Pressure: DOT Part 192 Test Factor= 1.50 682 psig

Were leaks observed?	No	Explain:	
Acceptable Hydrostatic Test?	Yes	<p>The test segment was subjected to a spike pressure test of 1090 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 8.72 hour test duration period.</p> <p>No leaks were observed during the test period. The test section included 13,562 feet of buried and 171 feet of exposed pipe. Pressure lost 67 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment gained 5°F.</p> <p>22,272.00 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 7,082.09 ounces, loss, which is equivalent to a 0.66 °F change in pipe temperature and within the error attributed to the temperature measurement instrumentation utilized.</p> <p>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.</p>	

Remarks: Additional pipe included in this test segment. 9'-3.5", .216 wall, GrB, SMLS, 9'-3.5", .141 wall, GrA, 25,000 SMYS

Redacted

4-Aug-11



Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41497309
Construction Co.	Snelson	Job Number	41474005-T74
Testing Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-74 Line 300A, MP 499.77 - 502.23		
File Name	RCP 61362 - T-74, L-300A		

Date 4-Aug-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
1	8/4/11	2:29 AM	760 psig	66 °F	73 °F	75 °F	Start Spike		
2	8/4/11	2:30 AM	770 psig	66 °F	73 °F	75 °F	Inject		4,583 oz.
3	8/4/11	2:31 AM	780 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
4	8/4/11	2:32 AM	790 psig	66 °F	73 °F	75 °F	Inject		4,371 oz.
5	8/4/11	2:33 AM	800 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
6	8/4/11	2:34 AM	810 psig	66 °F	73 °F	75 °F	Inject		4,724 oz.
7	8/4/11	2:35 AM	820 psig	66 °F	73 °F	75 °F	Inject		4,230 oz.
8	8/4/11	2:36 AM	830 psig	66 °F	73 °F	75 °F	Inject		4,653 oz.
9	8/4/11	2:37 AM	840 psig	66 °F	73 °F	75 °F	Inject		4,512 oz.
10	8/4/11	2:38 AM	850 psig	66 °F	73 °F	75 °F	Inject		4,512 oz.
11	8/4/11	2:39 AM	860 psig	66 °F	73 °F	75 °F	Inject		4,653 oz.
12	8/4/11	2:40 AM	870 psig	66 °F	73 °F	75 °F	Inject		4,512 oz.
13	8/4/11	2:41 AM	880 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
14	8/4/11	2:42 AM	890 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
15	8/4/11	2:43 AM	900 psig	66 °F	73 °F	75 °F	Inject		4,583 oz.
16	8/4/11	2:44 AM	910 psig	66 °F	73 °F	75 °F	Inject		4,512 oz.
17	8/4/11	2:45 AM	920 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
18	8/4/11	2:46 AM	930 psig	66 °F	73 °F	75 °F	Inject		4,512 oz.
19	8/4/11	2:47 AM	940 psig	66 °F	73 °F	75 °F	Inject		4,301 oz.
20	8/4/11	2:48 AM	950 psig	66 °F	73 °F	75 °F	Inject		4,583 oz.
21	8/4/11	2:49 AM	960 psig	66 °F	73 °F	75 °F	Inject		4,583 oz.
22	8/4/11	2:50 AM	970 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
23	8/4/11	2:51 AM	980 psig	66 °F	73 °F	75 °F	Inject		4,301 oz.
24	8/4/11	2:52 AM	990 psig	66 °F	73 °F	75 °F	Inject		4,583 oz.
25	8/4/11	2:53 AM	1,000 psig	66 °F	73 °F	75 °F	Inject		4,583 oz.
26	8/4/11	2:54 AM	1,010 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
27	8/4/11	2:55 AM	1,020 psig	66 °F	73 °F	75 °F	Inject		4,512 oz.
28	8/4/11	2:56 AM	1,030 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
29	8/4/11	2:57 AM	1,040 psig	66 °F	73 °F	75 °F	Inject		4,512 oz.
30	8/4/11	2:58 AM	1,050 psig	66 °F	73 °F	75 °F	Inject		4,653 oz.
31	8/4/11	2:59 AM	1,060 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
32	8/4/11	3:00 AM	1,070 psig	66 °F	73 °F	75 °F	Inject		4,442 oz.
33	8/4/11	3:01 AM	1,080 psig	66 °F	73 °F	75 °F	Inject		4,583 oz.
34	8/4/11	3:01 AM	1,090 psig	66 °F	73 °F	75 °F	Inject		4,653 oz.
35	8/4/11	3:02 AM	1,090 psig	66 °F	73 °F	75 °F	On Test		
36	8/4/11	3:12 AM	1,089 psig	66 °F	74 °F	75 °F			
37	8/4/11	3:22 AM	1,089 psig	66 °F	73 °F	75 °F			
38	8/4/11	3:32 AM	1,089 psig	66 °F	73 °F	75 °F	End Spike		
39	8/4/11	3:42 AM	1,079 psig	66 °F	73 °F	75 °F	Bleed	3,840 oz.	
40	8/4/11	3:52 AM	1,069 psig	66 °F	73 °F	75 °F	Bleed	3,840 oz.	
41	8/4/11	4:02 AM	1,059 psig	66 °F	73 °F	75 °F	Bleed	3,840 oz.	
42	8/4/11	4:15 AM	1,031 psig	65 °F	73 °F	75 °F	Bleed	10,752 oz.	
43	8/4/11	4:30 AM	1,030 psig	65 °F	73 °F	75 °F	Cool		



Dead Weight Log Sheet

Owner Company: Pacific Gas and Electric Company

Job Number: 41497309

Construction Co.: Snelson

Job Number: 41474005-T74

Testing Co.: Milbar Hydro-test Incorporated

Project No.: FY12-112

Test Section: PG&E T-74 Line 300A, MP 499.77 - 502.23

File Name: RCP 61362 - T-74, L-300A

Date: 4-Aug-11

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe		Comment	Bleed	Inject
					Unrestrained	Restrained			
44	8/4/11	4:45 AM	1,030 psig	65 °F	73 °F	75 °F			
45	8/4/11	5:00 AM	1,030 psig	65 °F	73 °F	75 °F			
46	8/4/11	5:15 AM	1,029 psig	65 °F	73 °F	75 °F			
47	8/4/11	5:30 AM	1,029 psig	65 °F	73 °F	75 °F			
48	8/4/11	5:45 AM	1,029 psig	65 °F	73 °F	75 °F			
49	8/4/11	6:00 AM	1,029 psig	65 °F	73 °F	75 °F			
50	8/4/11	6:15 AM	1,028 psig	65 °F	73 °F	75 °F	Cloud Cover		
51	8/4/11	6:30 AM	1,028 psig	65 °F	73 °F	75 °F			
52	8/4/11	6:45 AM	1,027 psig	65 °F	73 °F	75 °F			
53	8/4/11	7:00 AM	1,027 psig	65 °F	73 °F	75 °F			
54	8/4/11	7:15 AM	1,027 psig	65 °F	73 °F	75 °F			
55	8/4/11	7:30 AM	1,027 psig	66 °F	73 °F	75 °F			
56	8/4/11	7:45 AM	1,026 psig	65 °F	73 °F	75 °F			
57	8/4/11	8:00 AM	1,026 psig	66 °F	73 °F	75 °F			
58	8/4/11	8:15 AM	1,026 psig	67 °F	73 °F	75 °F			
59	8/4/11	8:30 AM	1,025 psig	66 °F	73 °F	75 °F			
60	8/4/11	8:45 AM	1,025 psig	68 °F	73 °F	75 °F			
61	8/4/11	9:00 AM	1,025 psig	66 °F	74 °F	75 °F			
62	8/4/11	9:15 AM	1,025 psig	66 °F	75 °F	75 °F			
63	8/4/11	9:30 AM	1,024 psig	69 °F	75 °F	75 °F			
64	8/4/11	9:45 AM	1,024 psig	71 °F	75 °F	75 °F			
65	8/4/11	10:00 AM	1,024 psig	69 °F	75 °F	75 °F			
66	8/4/11	10:15 AM	1,024 psig	69 °F	76 °F	75 °F	Partly Cloudy		
67	8/4/11	10:30 AM	1,024 psig	68 °F	76 °F	75 °F			
68	8/4/11	10:45 AM	1,024 psig	70 °F	77 °F	75 °F			
69	8/4/11	11:00 AM	1,023 psig	70 °F	77 °F	75 °F			
70	8/4/11	11:15 AM	1,023 psig	71 °F	77 °F	75 °F			
71	8/4/11	11:30 AM	1,023 psig	71 °F	78 °F	75 °F			
72	8/4/11	11:45 AM	1,023 psig	72 °F	78 °F	75 °F	End of Test		
							Spike Test		148,618.7 oz.
							Hydrostatic Test	22,272.0 oz.	

Were leaks observed during the test period?

Exposed and buried pipe,
no leaks observed.

High Test Pressure:	1,090 psig
Low Test Pressure:	1,023 psig



Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41497309
Construction Co.	Snelson	Job Number	41474005-T74
Hydro. Test Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-74 Line 300A, MP 499.77 - 502.23	WATER	
File Name	RCP 61362 - T-74, L-300A		

General Pipe Data

Description	Segment											
	1	2	3	4	5	6	7	8	9	10	12	
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained	
Outside Diameter	34.000 in.	36.000 in.	36.000 in.	36.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.	30.000 in.	6.625 in.	
Wall Thickness	0.505 in.	0.500 in.	0.432 in.	0.414 in.	0.562 in.	0.505 in.	0.500 in.	0.383 in.	0.500 in.	0.375 in.	0.280 in.	
Inside Diameter	32.990 in.	35.000 in.	35.136 in.	35.172 in.	32.876 in.	32.990 in.	33.000 in.	33.234 in.	33.000 in.	29.250 in.	6.065 in.	
Spec./Grade	API5L-X60	API5L-X60	API5L-X60	API5L-X65	API5L-X60	API5L-X60	API5L-X46	API5L-X60	API5L-X65	API5L-X60	API5L-Grade B	
Length Unrestrained	60 ft								40 ft	22 ft	49 ft	
Length Restrained		1,867 ft	918 ft	2,000 ft	7 ft	362 ft	6,876 ft	1,532 ft				
Temperature -- On Test	73 °F	75 °F	75.0 °F	75.0 °F	75.0 °F	75.0 °F	75.0 °F	75.0 °F	73.0 °F	73.0 °F	73.0 °F	
Temperature -- End of Test	78 °F	75 °F	75.0 °F	75.0 °F	75.0 °F	75.0 °F	75.0 °F	75.0 °F	78.0 °F	78.0 °F	78.0 °F	
Pressure -- On Test	1,090 psig	1,090 psig	1,090 psig	1,090 psig	1,090 psig	1,090 psig	1,090 psig	1,090 psig	1,090 psig	1,090 psig	1,090 psig	
Pressure -- End of Test	1,023 psig	1,023 psig	1,023 psig	1,023 psig	1,023 psig	1,023 psig	1,023 psig	1,023 psig	1,023 psig	1,023 psig	1,023 psig	

Unrestrained Pipe

Sum:	Vo	5,282.98 gal 676,222 oz.		Vip1	5,310.41 gal 679,733 oz.		Vip2	5,305.12 gal 679,055 oz.		
Vo Unrestrained	2,664 gal							1,777 gal	768 gal	73.5 gal
Fwp 1	1.003341							1.003341	1.003341	1.003341
Fpp 1	1.002967							1.002998	1.003543	1.000984
Fpt 1	1.000237							1.000237	1.000237	1.000237
Fwt 1	1.001423							1.001423	1.001423	1.001423
Fpwt 1 = Fpt/Fwt	0.998815							0.998815	0.998815	0.998815
Vip 1 = Vo(Fwp)(Fpp)(Fpwt)	2,677.91 gal							1,786.41 gal	772.33 gal	73.77 gal
Fwp 2	1.003135							1.003135	1.003135	1.003135
Fpp 2	1.002785							1.002813	1.003325	1.000923
Fpt 2	1.000328							1.000328	1.000328	1.000328
Fwt 2	1.002122							1.002122	1.002122	1.002122
Fpwt = Fpt/Fwt	0.998209							0.998209	0.998209	0.998209
Vip = Vo(Fwp)(Fpp)(Fpwt)	2,675.25 gal							1,784.63 gal	771.54 gal	73.71 gal

Restrained Pipe

Sum:	Vo	631,424.28 gal 80,822,308 oz.		Vip1	634,141.78 gal 81,170,147 oz.		Vip2	633,917.75 gal 81,141,472 oz.		
Vo Unrestrained		93,312 gal	46,239 gal	100,945 gal	309 gal	16,074 gal	305,508 gal	69,037 gal		
Fwp 1		1.003341	1.003341	1.003341	1.003341	1.003341	1.003341	1.003341		
Fpp 1		1.002368	1.002743	1.002863	1.001988	1.002214	1.002236	1.002923		
Fpt 1		1.000182	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	1.001688		
Fpwt 1 = Fpt/Fwt		0.998496	0.998496	0.998496	0.998496	0.998496	0.998496	0.998496		
Vip 1 = Vo(Fwp)(Fpp)(Fpwt)		93,705 gal	46,451 gal	101,419 gal	310 gal	16,139 gal	306,752 gal	69,366 gal		
Fwp 2		1.003135	1.003135	1.003135	1.003135	1.003135	1.003135	1.003135		
Fpp 2		1.002226	1.002578	1.002690	1.001869	1.002081	1.002102	1.002747		
Fpt 2		1.000182	1.000182	1.000182	1.000182	1.000182	1.000182	1.000182		
Fwt 2		1.001688	1.001688	1.001688	1.001688	1.001688	1.001688	1.001688		
Fpwt = Fpt/Fwt		0.998496	0.998496	0.998496	0.998496	0.998496	0.998496	0.998496		
Vip = Vo(Fwp)(Fpp)(Fpwt)		93,672 gal	46,433 gal	101,381 gal	310 gal	16,134 gal	306,648 gal	69,339 gal		

Combined Pipe

Sum:	Vo	636,707.27 gal 81,498,530 oz.		Vip1	639,452.19 gal 81,849,881 oz.		Vip2	639,222.86 gal 81,820,526 oz.		
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Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41497309
Construction Co.	Snelson	Job Number	41474005-T74
Hydro. Test Co.	Milbar Hydro-test Incorporated	Project No.	FY12-112
Test Section	PG&E T-74 Line 300A, MP 499.77 - 502.23	WATER	
File Name	RCP 61362 - T-74, L-300A		

General Pipe Data

Description	Segment											
	1	2	3	4	5	6	7	8	9	10	12	
Restrained or Unrestrained?	Unrestrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Restrained	Unrestrained	Unrestrained	Unrestrained	
Outside Diameter	34.000 in.	36.000 in.	36.000 in.	36.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.	34.000 in.	30.000 in.	6.625 in.	
Wall Thickness	0.505 in.	0.500 in.	0.432 in.	0.414 in.	0.562 in.	0.505 in.	0.500 in.	0.383 in.	0.500 in.	0.375 in.	0.280 in.	
Inside Diameter	32.990 in.	35.000 in.	35.136 in.	35.172 in.	32.876 in.	32.990 in.	33.000 in.	33.234 in.	33.000 in.	29.250 in.	6.065 in.	
Spec./Grade	API5L-X60	API5L-X60	API5L-X60	API5L-X65	API5L-X60	API5L-X60	API5L-X46	API5L-X60	API5L-X65	API5L-X60	API5L-Grade B	
Length Unstrained	60.00 ft								40 ft	22 ft	49 ft	
Length Restrained		1,867 ft	918 ft	2,000 ft	7 ft	362 ft	6,876 ft	1,532 ft				
Temperature -- On Test	75 °F	74 °F	74 °F	74 °F	74 °F	74 °F	74 °F	74 °F	75 °F	75 °F	75 °F	
Temperature -- End of Test	76 °F	75 °F	75 °F	75 °F	75 °F	75 °F	75 °F	75 °F	76 °F	76 °F	76 °F	
Pressure -- On Test	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	
Pressure -- End of Test	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	1,056 psig	

Unrestrained Pipe

Sum:	Vo	5,282.98 gal 676,222 oz.		Vtp1	5,308.15 gal 679,443 oz.		Vtp2	5,307.58 gal 679,371 oz.		
Vo Unrestrained	2,664 gal							1,777 gal	768 gal	74 gal
Fwp 1	1.003237							1.003237	1.003237	1.003237
Fpp 1	1.002874							1.002904	1.003432	1.000953
Fpt 1	1.000273							1.000273	1.000273	1.000273
Fwt 1	1.001688							1.001688	1.001688	1.001688
Fpwt 1 = Fpt/Fwt	0.998587							0.998587	0.998587	0.998587
Vip 1 = Vo(Fwp)(Fpp)(Fpwt)	2,676.77 gal							1,786 gal	772 gal	74 gal
Fwp 2	1.003237							1.003237	1.003237	1.003237
Fpp 2	1.002874							1.002904	1.003432	1.000953
Fpt 2	1.000291							1.000291	1.000291	1.000291
Fwt 2	1.001813							1.001813	1.001813	1.001813
Fpwt 2 = Fpt/Fwt	0.998481							0.998481	0.998481	0.998481
Vip 2 = Vo(Fwp)(Fpp)(Fpwt)	2,676.48 gal							1,785 gal	772 gal	74 gal

Restrained Pipe

Sum:	Vo	631,424.28 gal 80,822,308 oz.		Vtp1	634,110.75 gal 81,166,175 oz.		Vtp2	634,028.08 gal 81,155,594 oz.		
Vo Restrained		93,312 gal	46,239 gal	100,945 gal	309 gal	16,074 gal	305,508 gal	69,037 gal		
Fwp 1		1.003237	1.003237	1.003237	1.003237	1.003237	1.003237	1.003237		
Fpp 1		1.002293	1.002656	1.002772	1.001924	1.002143	1.002165	1.002830		
Fpt 1		1.000169	1.000169	1.000169	1.000169	1.000169	1.000169	1.000169		
Fwt 1		1.001542	1.001542	1.001542	1.001542	1.001542	1.001542	1.001542		
Fpwt 1 = Fpt/Fwt		0.998630	0.998630	0.998630	0.998630	0.998630	0.998630	0.998630		
Vip 1 = Vo(Fwp)(Fpp)(Fpwt)		93,700 gal	46,448 gal	101,413 gal	310 gal	16,139 gal	306,739 gal	69,361 gal		
Fwp 2		1.003237	1.003237	1.003237	1.003237	1.003237	1.003237	1.003237		
Fpp 2		1.002296	1.002659	1.002775	1.001928	1.002147	1.002168	1.002834		
Fpt 2		1.000182	1.000182	1.000182	1.000182	1.000182	1.000182	1.000182		
Fwt 2		1.001688	1.001688	1.001688	1.001688	1.001688	1.001688	1.001688		
Fpwt 2 = Fpt/Fwt		0.998496	0.998496	0.998496	0.998496	0.998496	0.998496	0.998496		
Vip 2 = Vo(Fwp)(Fpp)(Fpwt)		93,688 gal	46,442 gal	101,400 gal	310 gal	16,137 gal	306,699 gal	69,352 gal		

Combined Pipe

Sum:	Vo	636,707.27 gal 81,498,530 oz.		Vtp1	639,418.89 gal 81,845,618 oz.		Vtp2	639,335.66 gal 81,834,965 oz.		
1 °F Change	83.23 gal		10,653.55 oz.							



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	60 ft	Unrestrained	34.000 in.	0.5050 in.	API5L-X60	1,782 psig	Steel	Arc Weld	DSAW
2	1,867 ft	Restrained	36.000 in.	0.5000 in.	API5L-X60	1,667 psig	Steel	Arc Weld	DSAW
3	918 ft	Restrained	36.000 in.	0.4320 in.	API5L-X60	1,440 psig	Steel	Arc Weld	DSAW
4	2,000 ft	Restrained	36.000 in.	0.4140 in.	API5L-X65	1,495 psig	Steel	Arc Weld	DSAW
5	7 ft	Restrained	34.000 in.	0.5620 in.	API5L-X60	1,984 psig	Steel	Arc Weld	DSAW
6	362 ft	Restrained	34.000 in.	0.5050 in.	API5L-X60	1,782 psig	Steel	Arc Weld	DSAW
7	6,876 ft	Restrained	34.000 in.	0.5000 in.	API5L-X46	1,353 psig	Steel	Arc Weld	DSAW
8	1,532 ft	Restrained	34.000 in.	0.3830 in.	API5L-X60	1,352 psig	Steel	Arc Weld	DSAW
9	40 ft	Unrestrained	34.000 in.	0.5000 in.	API5L-X65	1,912 psig	Steel	Arc Weld	DSAW
10	22 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X60	1,500 psig	Steel	Arc Weld	DSAW
11	3 ft	Unrestrained	24.000 in.	0.3750 in.	API5L-X52	1,625 psig	Steel	Arc Weld	DSAW
12	49 ft	Unrestrained	6.625 in.	0.2800 in.	API5L-Grade B	2,958 psig	Steel	Arc Weld	SM

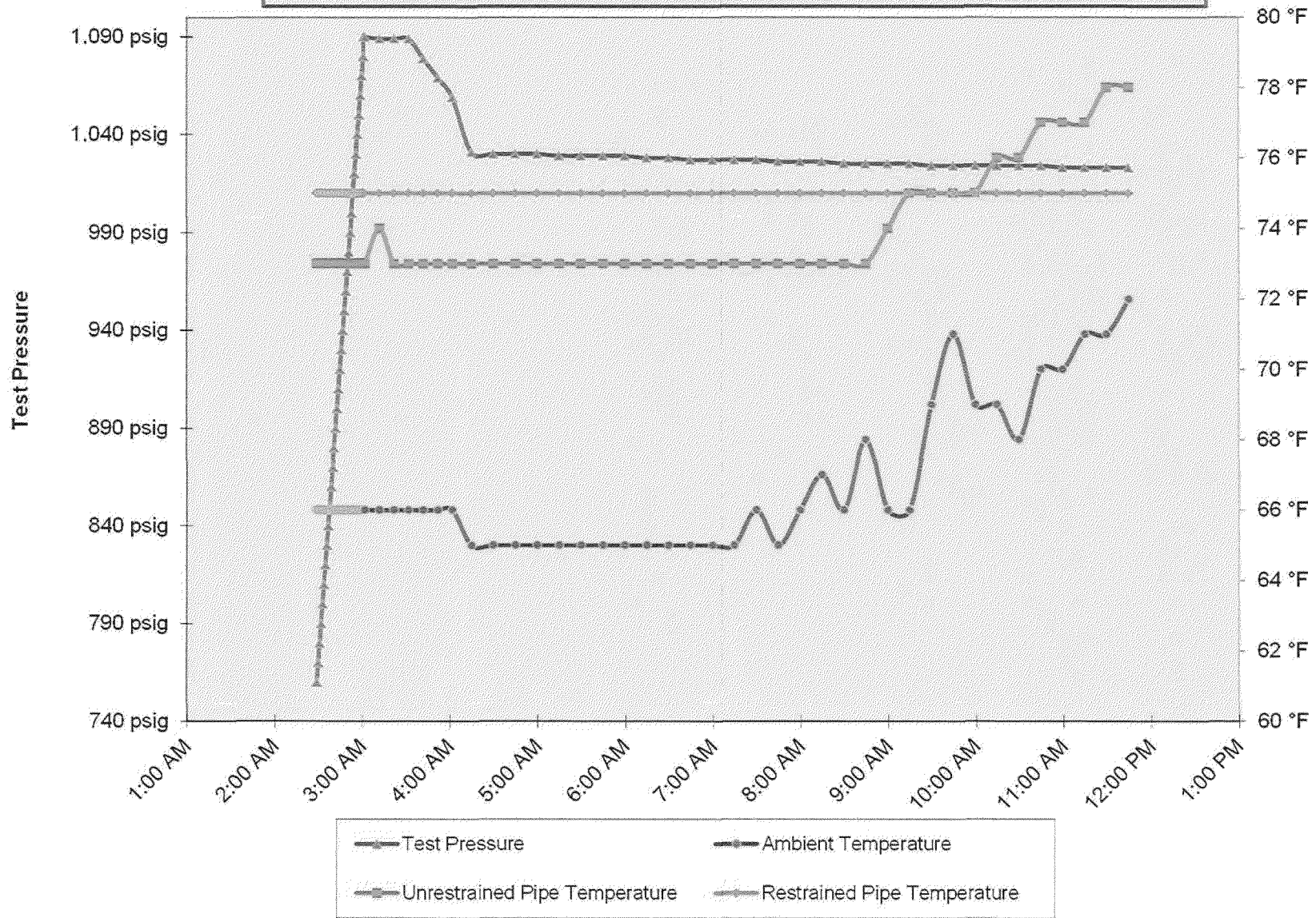
Hydrostatic Test Project Owner & Participants

Owner Company Address	Pacific Gas and Electric Company 350 N. Wiget Walnut Creek, CA 94598 Attention: Redacted	Job Number 41497309
Construction Company Address	Snelson 601 West State Street Sedro-Woolley, WA 98284 Attention: Redacted	Job Number 41474005-T74
Hydrostatic Test Co. Address	Milbar Hydro-test Incorporated P.O. Box 7701 Shreveport, Louisiana 71137-7701	Project No. FY12-112
Test Section	PG&E T-74 Line 300A, MP 499.77 - 502.23 From: 0+00 To: 184+08	
File Name	RCP 61362 - T-74, L-300A	

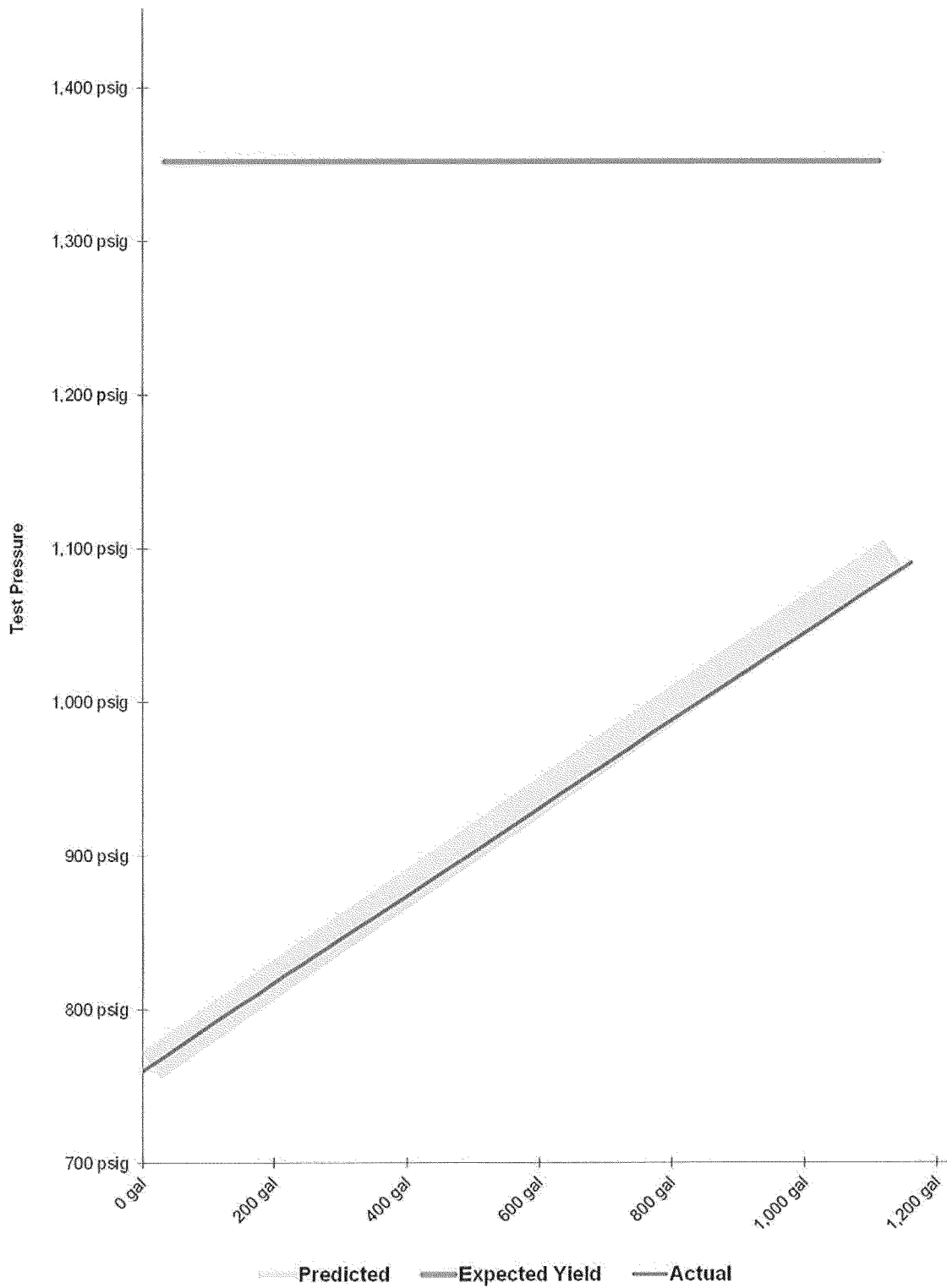
Part II – Test Data (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)				Note: Minimum test pressure and duration are not to be charged without written approval.			
Time and Date Test Pressure Reached	8/4/11 3:02 AM	Elevation at Test Point	55 ft	Min. Required Test Press At Test Point (1)	1,014.00 psig	Max. Allowable Test Press at Test Point (4)	1,089.83 psig
Time and Date Test Ended	8/4/11 11:45 AM	Max. Elevation in Test Section	55 ft	Min. Indicated Test Pressure (2)	1,023.00 psig	Max. Indicated Test Pressure (5)	1,090.00 psig
Actual Duration of Test	8 hours 43 minutes	Min. Elevation in Test Section	20 ft	Min. Test Pressure at Max. Elevation (3)	1,023.00 psig	Max. Test Pressure at Min. Elevation (6)	1,105.17 psig



PG&E T-74 Line 300A, MP 499.77 - 502.23



**Spike Pressure Test
Stress Strain Curve -- PG&E T-74 Line 300A, MP 499.77 - 502.23**





Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope		Spike Pressure Test Stress Strain Curve -- PG&E T-74 Line 300A, MP 499.77 - 502.23	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted		
760 psig	0	0.00 gal		0	0.00 gal	Pump gal per stroke	0.551 gal/stroke
770 psig	65	35.80 gal	33.70 gal	3.580	3.370	Pump Piston Diameter	3.000 in
780 psig	128	70.50 gal	67.40 gal	3.470	3.370	Pump Piston Stroke	6.00 in
790 psig	190	104.65 gal	101.10 gal	3.415	3.370	Pump Cylinders	3 ea
800 psig	253	139.35 gal	134.81 gal	3.470	3.370	Volume check gal per stroke	0.470 gal/stroke
810 psig	320	176.26 gal	168.51 gal	3.690	3.371	Volume Released (gallons)	30.00 gal
820 psig	380	209.30 gal	202.22 gal	3.305	3.371	Pressure Reduced (psi)	10 psi
830 psig	446	245.66 gal	235.93 gal	3.635	3.371	Maximum2	1,220 gal
840 psig	510	280.91 gal	269.65 gal	3.525	3.371	Minimum2	0 gal
850 psig	574	316.16 gal	303.36 gal	3.525	3.372	Maximum1	1,452 psig
860 psig	640	352.51 gal	337.08 gal	3.635	3.372	Minimum1	700 psig
870 psig	704	387.76 gal	370.80 gal	3.525	3.372	Gallons/Stroke Used	0.551 gal/stroke
880 psig	767	422.46 gal	404.52 gal	3.470	3.372	Predicted Gallons/Stroke	0.528 gal/stroke
890 psig	830	457.16 gal	438.24 gal	3.470	3.372		
900 psig	895	492.96 gal	471.97 gal	3.580	3.373	1160	10 psi
910 psig	959	528.22 gal	505.70 gal	3.525	3.373	Max Pressure	1,090 psig
920 psig	1022	562.92 gal	539.43 gal	3.470	3.373		
930 psig	1086	598.17 gal	573.16 gal	3.525	3.373	Buried Pipe Temperature	75 °F
940 psig	1147	631.77 gal	606.89 gal	3.360	3.373		
950 psig	1212	667.57 gal	640.63 gal	3.580	3.374	Exposed Pipe Temperature	73 °F
960 psig	1277	703.37 gal	674.36 gal	3.580	3.374		
970 psig	1340	738.07 gal	708.10 gal	3.470	3.374		
980 psig	1401	771.67 gal	741.85 gal	3.360	3.374		
990 psig	1466	807.47 gal	775.59 gal	3.580	3.374	ASME B31.8 Appendix N-5	
1,000 psig	1531	843.27 gal	809.34 gal	3.580	3.375	Average Actual Elastic Slope	3.520
1,010 psig	1594	877.97 gal	843.08 gal	3.470	3.375	Average Predicted Elastic Slope	3.373
1,020 psig	1658	913.22 gal	876.84 gal	3.525	3.375	Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	6.688
1,030 psig	1721	947.92 gal	910.59 gal	3.470	3.375	Established Minimum Yield Pressure B31.8 N-5 (c)(2)	1,090 psig
1,040 psig	1785	983.18 gal	944.34 gal	3.525	3.375	Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2)	418 gal
1,050 psig	1851	1,019.53 gal	978.10 gal	3.635	3.376	Volume (After Slope Deviation) B31.8 N-5 (c)(2)	0 gal
1,060 psig	1914	1,054.23 gal	1,011.86 gal	3.470	3.376		
1,070 psig	1977	1,088.93 gal	1,045.62 gal	3.470	3.376		
1,080 psig	2042	1,124.73 gal	1,079.38 gal	3.580	3.376		
1,090 psig	2108	1,161.08 gal	1,113.14 gal	3.635	3.376		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		
1,090 psig		1,161.08 gal	1,113.14 gal	0.000	0.000		

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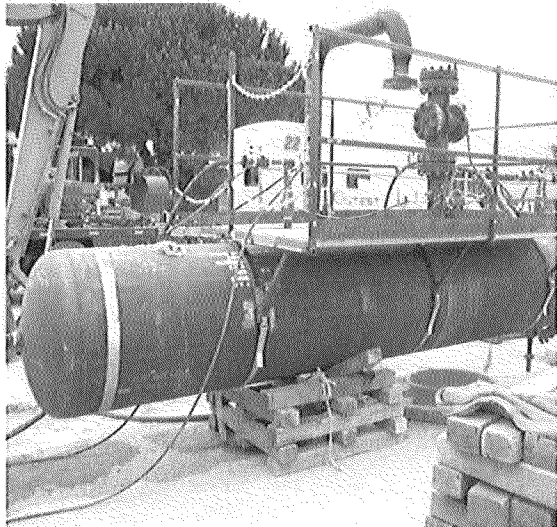
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Date



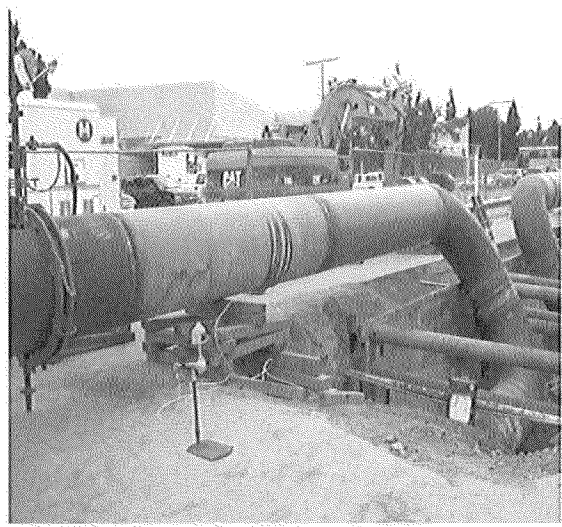
Test Pump and Trailer



Deadweight tester



Test Head B



Unrestrained temp Chart



3.5" and 6" part of test



30" Tie-in pipe in test