RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002
(713)655-8080
Redacted

June 23, 2011

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

Test Contractor:	Akri – PG&E 6-13-11
Asset Owner:	Pacific Gas and Electric Company – 41474079
Construction Contractor:	ARB – 0629-53-3500
Test Section:	PG&E T-36B, Line 132
Test Date:	June 13, 2011
Certificate Number:	RCP 61362 - T-36B, L-132

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

Prior to initiation of the hydrostatic test period, the test segment was subjected to a spike pressure of 582 psig for 30 minutes.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 9 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 460 psig and the established MAOP is 307 psig.

Pressure decreased 45 psi during the test. 7,507.20 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 2,135.36 ounces, loss, which is equivalent to a 0.93 °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,

Redacted

cc. file

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RCP 61362,T-36B, L-132RB (1).xlsm
Letter

Hydrostatic Test Certification

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co	ARB	Job Number	0629-53-3500
Hydro. Test Co	Akrl	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		
File Name	RCP 61362 - T-36B, L-132		

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: Test Date: 13-Jun-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-36B, Line 132		
From:	125+00	To:	190+82

Pipe Data

Segment	Length	Diameter	Wall Thickness	Specification	100% SMYS
1	38.00 ft	30.000 in.	0.375 in.	API5L-X65, DSAW, Arc Weld, Steel	1,625 psi
2	6,608.00 ft	30.000 in.	0.375 in.	API5L-X52, DSAW, Arc Weld, Steel	1,300 psi
3	1.00 ft	6.625 in.	0.432 in.	API5L-Grade B, SM, Arc Weld, Steel	4,565 psi
4	8 ft	30.000 in.	0.375 in.	API5L-X65, DSAW, Arc Weld, Steel	1,625 psi
5	22 ft	30.000 in.	0.375 in.	API5L-X52, DSAW, Arc Weld, Steel	1,300 psi

Initial Test Conditions

Pressure at Test Point:	582 psig	Date/Time:	6/13/11 6:45 AM	Pipe Temperature	
				Unrestrained:	63.0 °F
Ambient Temperature:	54.0 °F			Restrained:	64.0 °F
		Elevation @ Test Point:	44.0 ft	Location:	125+00
Pressure @ High Point (Cal/Measure):	506 psig	Elevation @ High Point:	220.0 ft	Location:	190+25
Pressure @ Low Point (Cal/Measure):	585 psig	Elevation @ Low Point:	38.0 ft	Location:	129+50

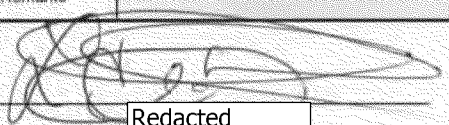
Final Test Conditions

Pressure at Test Point:	537 psig	Date/Time:	6/13/11 3:15 PM	Pipe Temperature	
				Unrestrained:	65.0 °F
Ambient Temperature:	64.0 °F			Restrained:	65.0 °F
		Elevation @ Test Point:	44.0 ft	Location:	125+00
Pressure @ High Point (Cal/Measure):	461 psig	Elevation @ High Point:	220.0 ft	Location:	190+25
Pressure @ Low Point (Cal/Measure):	540 psig	Elevation @ Low Point:	38.0 ft	Location:	129+50
Total Fluid Injected:				Volume loss	
Total Fluid Withdrawn:	7507.20 fluid ounces				
Net Change in Volume of the Test Section ± (+ Gain, - Loss):	(2,135.36) oz	loss		(0.0071)%	(0.928) °F equivalent

Test Duration: 9 hours

Maximum Test Pressure:		582 psig				
% SMYS @:	44.8%	Test Point	38.9%	High Point	45.0%	Low Point
					Minimum Test Pressure (Calculated/Measured):	461 psig
	Maximum Allowable Operating Pressure:			DOT Part 192	Test Factor= 1.50	307 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 582 psig for 30 minutes. No leaks were observed during the test period. The test section included 6,608 feet of buried and 69 feet of exposed pipe. Pressure lost 45 psi during the test. The buried pipe segment gained 1°F fluid temperature and the exposed pipe segment gained 2°F. 7,507.20 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 2,135.36 ounces, loss, which is equivalent to a 0.93 °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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23-Jun-11

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		
File Name	RCP 61362 - T-36B, L-132		

Date **13-Jun-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe				
					Unrestrained	Restrained	**Comment**	**Bleed**	**Inject**
1	6/13/11	6:24 AM	387 psig	54 °F	62 °F	64 °F	Start Spike		
2	6/13/11	6:25 AM	397 psig						2,029 oz.
3	6/13/11	6:26 AM	407 psig						1,812 oz.
4	6/13/11	6:27 AM	417 psig						1,676 oz.
5	6/13/11	6:28 AM	427 psig						1,526 oz.
6	6/13/11	6:29 AM	437 psig						1,504 oz.
7	6/13/11	6:30 AM	447 psig						1,318 oz.
8	6/13/11	6:31 AM	457 psig						1,467 oz.
9	6/13/11	6:32 AM	467 psig						1,571 oz.
10	6/13/11	6:33 AM	477 psig						1,490 oz.
11	6/13/11	6:34 AM	487 psig						1,544 oz.
12	6/13/11	6:35 AM	497 psig						1,617 oz.
13	6/13/11	6:36 AM	507 psig						1,694 oz.
14	6/13/11	6:37 AM	517 psig						1,721 oz.
15	6/13/11	6:38 AM	527 psig						1,245 oz.
16	6/13/11	6:39 AM	537 psig						2,106 oz.
17	6/13/11	6:40 AM	547 psig						1,128 oz.
18	6/13/11	6:41 AM	557 psig						1,698 oz.
19	6/13/11	6:42 AM	567 psig						1,522 oz.
20	6/13/11	6:43 AM	577 psig						1,033 oz.
21	6/13/11	6:44 AM	582 psig	54 °F	63 °F	64 °F			2,124 oz.
22	6/13/11	6:45 AM	582 psig	54 °F	63 °F	64 °F	On Test		
23	6/13/11	6:55 AM	582 psig	54 °F	64 °F	64 °F			
24	6/13/11	7:05 AM	582 psig	54 °F	64 °F	64 °F			
25	6/13/11	7:15 AM	582 psig	54 °F	63 °F	64 °F	End Spike		
26	6/13/11	7:25 AM	572 psig	54 °F	63 °F	64 °F	Bleed	1,632 oz.	
27	6/13/11	7:30 AM	562 psig	54 °F	62 °F	64 °F		1,632 oz.	
28	6/13/11	7:45 AM	536 psig	54 °F	63 °F	64 °F		4,243 oz.	
29	6/13/11	8:00 AM	536 psig	54 °F	63 °F	64 °F	Cloud Cover		
30	6/13/11	8:15 AM	536 psig	54 °F	63 °F	64 °F			
31	6/13/11	8:30 AM	536 psig	55 °F	62 °F	64 °F			
32	6/13/11	8:45 AM	536 psig	56 °F	62 °F	64 °F			
33	6/13/11	9:00 AM	536 psig	57 °F	62 °F	64 °F			
34	6/13/11	9:15 AM	536 psig	57 °F	62 °F	64 °F			
35	6/13/11	9:30 AM	536 psig	58 °F	62 °F	64 °F			
36	6/13/11	9:45 AM	536 psig	58 °F	62 °F	64 °F			
37	6/13/11	10:00 AM	536 psig	59 °F	62 °F	64 °F			
38	6/13/11	10:15 AM	536 psig	59 °F	62 °F	64 °F			
39	6/13/11	10:30 AM	536 psig	59 °F	62 °F	64 °F			
40	6/13/11	10:45 AM	536 psig	60 °F	62 °F	64 °F			
41	6/13/11	11:00 AM	536 psig	60 °F	62 °F	64 °F			
42	6/13/11	11:15 AM	536 psig	60 °F	62 °F	64 °F			
43	6/13/11	11:30 AM	536 psig	60 °F	62 °F	64 °F	Cloud Cover		

Dead Weight Log Sheet

Owner Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		
File Name	RCP 61362 - T-36B, L-132		

Date **13-Jun-11**

Test Log

Log No.	Test Period		Test Pressure	Temperature °F			Remarks		
	Date	Time		Ambient	Pipe Unrestrained	Pipe Restrained	**Comment**	**Bleed**	**Inject**
44	6/13/11	11:45 AM	536 psig	60 °F	62 °F	65 °F			
45	6/13/11	12:00 PM	536 psig	60 °F	63 °F	65 °F			
46	6/13/11	12:15 PM	536 psig	65 °F	63 °F	65 °F			
47	6/13/11	12:30 PM	536 psig	65 °F	63 °F	65 °F			
48	6/13/11	12:45 PM	536 psig	66 °F	63 °F	65 °F			
49	6/13/11	1:00 PM	536 psig	66 °F	63 °F	65 °F			
50	6/13/11	1:15 PM	536 psig	66 °F	63 °F	65 °F			
51	6/13/11	1:30 PM	536 psig	66 °F	64 °F	66 °F			
52	6/13/11	1:45 PM	536 psig	67 °F	64 °F	66 °F			
53	6/13/11	2:00 PM	536 psig	67 °F	65 °F	66 °F			
54	6/13/11	2:15 PM	537 psig	66 °F	65 °F	66 °F			
55	6/13/11	2:30 PM	537 psig	66 °F	65 °F	66 °F			
56	6/13/11	2:45 PM	537 psig	65 °F	65 °F	66 °F			
57	6/13/11	3:00 PM	537 psig	63 °F	65 °F	65 °F			
58	6/13/11	3:15 PM	537 psig	64 °F	65 °F	65 °F	Cloud Cover End of Test		
							Spike Test	7,507 oz.	31,824 oz.
							Hydrostatic Test	7,507 oz.	

Were leaks observed during the test period? Exposed and buried pipe, no leaks observed.

High Test Pressure:	582 psig
Low Test Pressure:	536 psig

Pipe Segment Volume Calculations

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		**WATER**
File Name	RCP 61362 - T-36B, L-132		

General Pipe Data

Description	Segment 1	2	3	4	5
Restrained or Unrestrained?	Unrestrained	Restrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	30.000 in.	30.000 in.	6.625 in.	30.000 in.	30.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.432 in.	0.375 in.	0.375 in.
Inside Diameter	29.250 in.	29.250 in.	5.761 in.	29.250 in.	29.250 in.
Spec./Grade	API5L-X65	API5L-X52	API5L-Grade B	API5L-X65	API5L-X52
Length Unrestrained	38 ft		1 ft	8 ft	22 ft
Length Restrained		6,608 ft			
Temperature -- On Test	63 °F	64 °F	63.0 °F	63.0 °F	63.0 °F
Temperature -- End of Test	65 °F	65 °F	65.0 °F	65.0 °F	65.0 °F
Pressure -- On Test	582 psig	582 psig	582 psig	582 psig	582 psig
Pressure -- End of Test	537 psig	537 psig	537 psig	537 psig	537 psig

Unrestrained Pipe

Sum:	Vo	Vtp1	Vtp2
	2,375.02 gal	2,383.24 gal	2,382.18 gal
	304,003 oz.	305,055 oz.	304,919 oz.

	Segment 1	2	3	4	5
Vo Unrestrained	1,326 gal		1 gal	279 gal	768 gal
Fwp 1	1.001781		1.001781	1.001781	1.001781
Fpp 1	1.001892		1.000323	1.001892	1.001892
Fpt 1	1.000055		1.000055	1.000055	1.000055
Fwt 1	1.000267		1.000267	1.000267	1.000267
Fpwt 1 = Fpt/Fwt	0.999788		0.999788	0.999788	0.999788
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	1,331.05 gal		1.36 gal	280.22 gal	770.61 gal
Fwp 2	1.001643		1.001643	1.001643	1.001643
Fpp 2	1.001745		1.000298	1.001745	1.001745
Fpt 2	1.000091		1.000091	1.000091	1.000091
Fwt 2	1.000467		1.000467	1.000467	1.000467
Fpwt = Fpt/Fwt	0.999624		0.999624	0.999624	0.999624
Vtp = Vo(Fwp)(Fpp)(Fpwt)	1,330.46 gal		1.36 gal	280.10 gal	770.27 gal

Restrained Pipe

Sum:	Vo	Vtp1	Vtp2
	230,664.59 gal	231,321.51 gal	231,247.24 gal
	29,525,067 oz.	29,609,153 oz.	29,599,647 oz.

	Segment 1	2	3	4	5
Vo Unrestrained		230,665 gal			
Fwp 1		1.001781			
Fpp 1		1.001391			
Fpt 1		1.000048			
Fwt 1		1.000375			
Fpwt 1 = Fpt/Fwt		0.999674			
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)		231,322 gal			
Fwp 2		1.001643			
Fpp 2		1.001289			
Fpt 2		1.000061			
Fwt 2		1.000467			
Fpwt = Fpt/Fwt		0.999593			
Vtp = Vo(Fwp)(Fpp)(Fpwt)		231,247 gal			

Combined Pipe

Sum:	Vo	Vtp1	Vtp2
	233,039.61 gal	233,704.75 gal	233,629.42 gal
	29,829,070 oz.	29,914,208 oz.	29,904,565 oz.

Pipe Segment Volume Allowance Calculations

Company	Pacific Gas and Electric Company	Job Number	41474079
Construction Co.	ARB	Job Number	0629-53-3500
Hydro. Test Co.	Akri	Project No.	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132		**WATER**
File Name	RCP 61362 - T-36B, L-132		

General Pipe Data

Description	Segment 1	2	3	4	5
Restrained or Unrestrained?	Unrestrained	Restrained	Unrestrained	Unrestrained	Unrestrained
Outside Diameter	30.000 in.	30.000 in.	6.625 in.	30.000 in.	30.000 in.
Wall Thickness	0.375 in.	0.375 in.	0.432 in.	0.375 in.	0.375 in.
Inside Diameter	29.250 in.	29.250 in.	5.761 in.	29.250 in.	29.250 in.
Spec./Grade	API5L-X65	API5L-X52	API5L-Grade B	API5L-X65	API5L-X52
Length Unstrained	38.00 ft		1.00 ft	8 ft	22 ft
Length Restrained		6,608 ft			
Temperature -- On Test	63 °F	64 °F	63 °F	63 °F	63 °F
Temperature -- End of Test	64 °F	65 °F	64 °F	64 °F	64 °F
Pressure -- On Test					
Pressure -- End of Test					

Unrestrained Pipe

Sum:	Vo	Vtp1	Vtp2
	2,375.02 gal 304,003 oz.	2,374.52 gal 303,938 oz.	2,374.30 gal 303,911 oz.

Vo Unrestrained	1,326 gal	1 gal	279 gal	768 gal
Fwp 1	1.000000	1.000000	1.000000	1.000000
Fpp 1	1.000000	1.000000	1.000000	1.000000
Fpt 1	1.000055	1.000055	1.000055	1.000055
Fwt 1	1.000267	1.000267	1.000267	1.000267
Fpwt 1 = Fpt/Fwt	0.999788	0.999788	0.999788	0.999788
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	1,326.18 gal	1.35 gal	279.20 gal	767.79 gal
Fwp 2	1.000000	1.000000	1.000000	1.000000
Fpp 2	1.000000	1.000000	1.000000	1.000000
Fpt 2	1.000073	1.000073	1.000073	1.000073
Fwt 2	1.000375	1.000375	1.000375	1.000375
Fpwt = Fpt/Fwt	0.999698	0.999698	0.999698	0.999698
Vtp = Vo(Fwp)(Fpp)(Fpwt)	1,326.06 gal	1.35 gal	279.17 gal	767.72 gal

Restrained Pipe

Sum:	Vo	Vtp1	Vtp2
	230,664.59 gal 29,525,067 oz.	230,592.69 gal 29,515,865 oz.	230,574.92 gal 29,513,590 oz.

Vo Restrained	230,665 gal
Fwp 1	1.000000
Fpp 1	1.000014
Fpt 1	1.000048
Fwt 1	1.000375
Fpwt 1 = Fpt/Fwt	0.999674
Vtp 1 = Vo(Fwp)(Fpp)(Fpwt)	230,593 gal
Fwp 2	1.000000
Fpp 2	1.000018
Fpt 2	1.000061
Fwt 2	1.000467
Fpwt = Fpt/Fwt	0.999593
Vtp = Vo(Fwp)(Fpp)(Fpwt)	230,575 gal

Combined Pipe

Sum:	Vo	Vtp1	Vtp2
	233,039.61 gal 29,829,070 oz.	232,967.21 gal 29,819,803 oz.	232,949.23 gal 29,817,501 oz.
1 °F Change	17.98 gal	2,301.58 oz.	

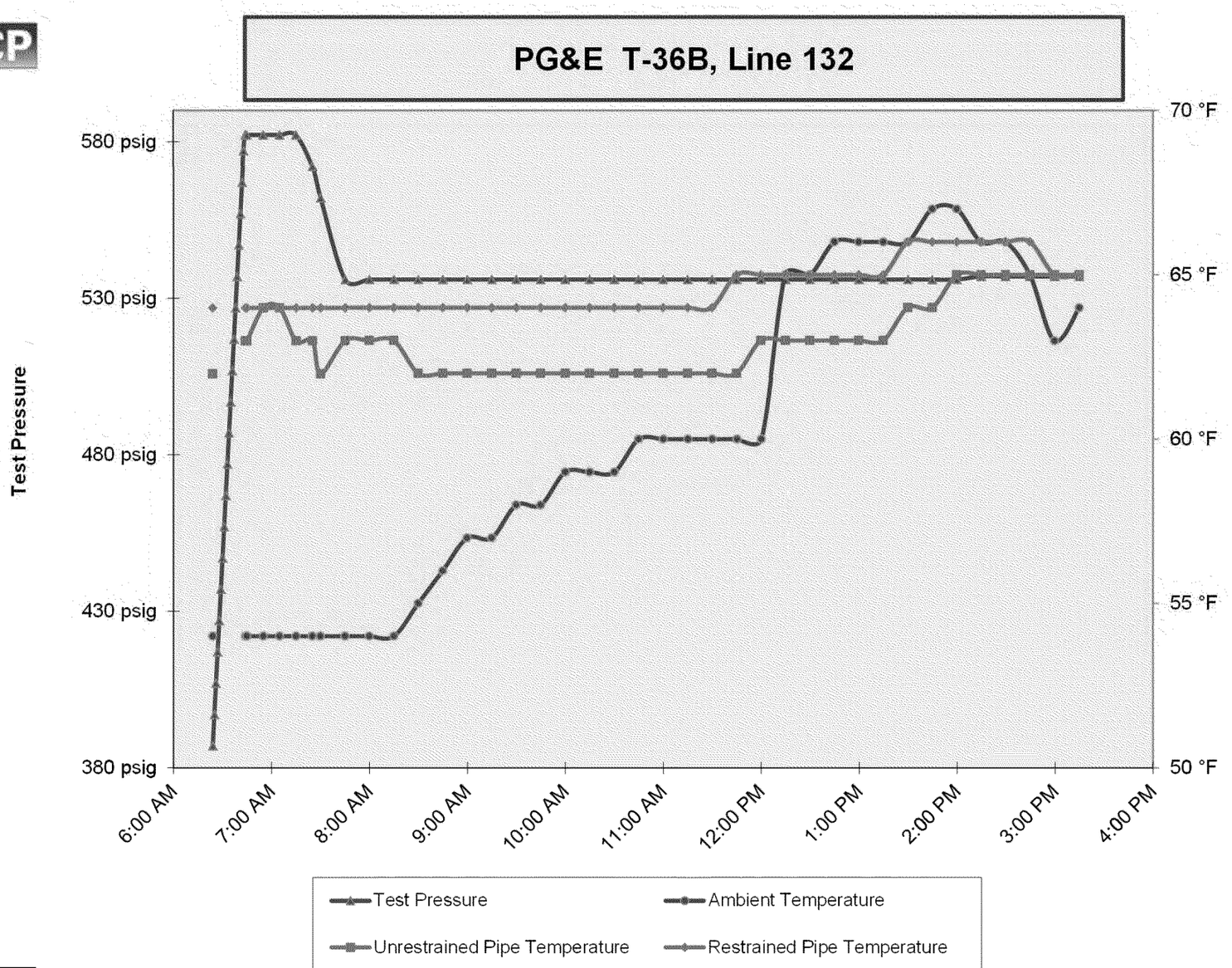
RCP

Hydrostatic Test Pipe Data Table

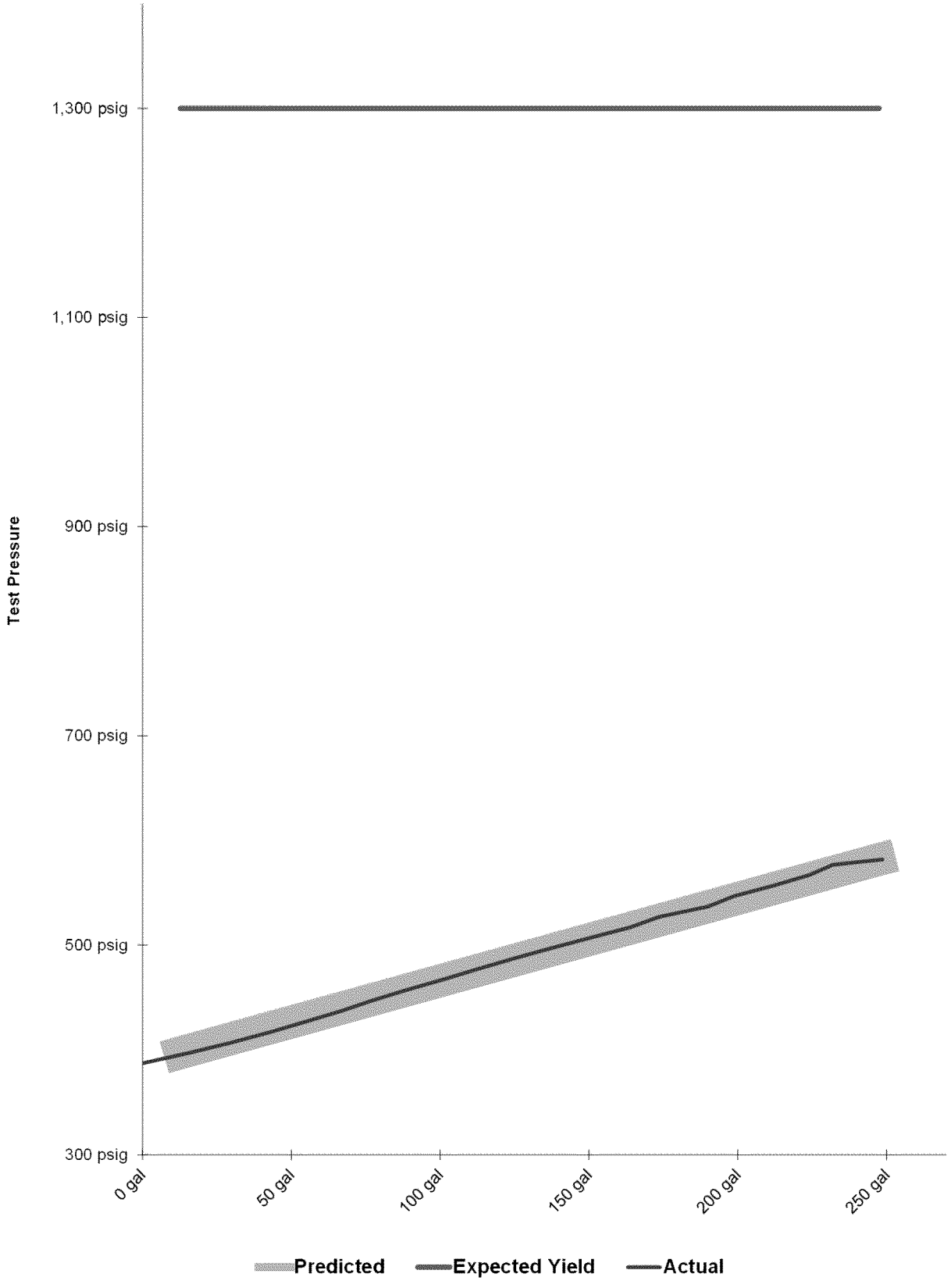
Pipe Type	Length	Restrained / Unrestrained	Outside Diameter	Wall Thickness	Specification & Grade	Pipe Yield Pressure	Material	Joint Type	Seam Type
1	38 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X65	1,625 psig	Steel	Arc Weld	DSAW
2	6,608 ft	Restrained	30.000 in.	0.3750 in.	API5L-X52	1,300 psig	Steel	Arc Weld	DSAW
3	1 ft	Unrestrained	6.625 in.	0.4320 in.	API5L-Grade B	4,565 psig	Steel	Arc Weld	SM
4	8 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X65	1,625 psig	Steel	Arc Weld	DSAW
5	22 ft	Unrestrained	30.000 in.	0.3750 in.	API5L-X52	1,300 psig	Steel	Arc Weld	DSAW

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
Hydrostatic Test Co.	Akri	Project No.
Address	1414 ValhallaDrive Bakerfield, CA 93309 Attention: Redacted	PG&E 6-13-11
Test Section	PG&E T-36B, Line 132 From: 125+00 To: 190+82	
File Name	RCP 61362 - T-36B, L-132	


PG&E T-36B, Line 132
Test Pressure
580 psig
530 psig
480 psig
430 psig
380 psig
70 °F
65 °F
60 °F
55 °F
50 °F
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
Test Pressure
Ambient Temperature
Unrestrained Pipe Temperature
Restrained Pipe Temperature

Spike Pressure Test
Stress Strain Curve -- PG&E T-36B, Line 132



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Spike Pressure Test
Stress Strain Curve – PG&E T-36B, Line 132

Actual Pressure Volume Plot Data			Predicted Pressure Volume Plot Data	Slope	
Pressure	Strokes	Gallons	Gallons	Actual	Predicted
387 psig	0	0.00 gal		0	0.00 gal
397 psig	448	15.85 gal	12.68 gal	1.585	1.268
407 psig	848	30.00 gal	25.37 gal	1.415	1.268
417 psig	1218	43.09 gal	38.05 gal	1.309	1.269
427 psig	1555	55.02 gal	50.74 gal	1.192	1.269
437 psig	1887	66.76 gal	63.43 gal	1.175	1.269
447 psig	2178	77.06 gal	76.11 gal	1.030	1.269
457 psig	2502	88.52 gal	88.80 gal	1.146	1.269
467 psig	2849	100.80 gal	101.49 gal	1.228	1.269
477 psig	3178	112.44 gal	114.18 gal	1.164	1.269
487 psig	3519	124.51 gal	126.87 gal	1.207	1.269
497 psig	3876	137.14 gal	139.56 gal	1.263	1.269
507 psig	4250	150.37 gal	152.25 gal	1.323	1.269
517 psig	4630	163.82 gal	164.95 gal	1.344	1.269
527 psig	4905	173.55 gal	177.64 gal	0.973	1.269
537 psig	5370	190.00 gal	190.33 gal	1.645	1.269
547 psig	5619	198.81 gal	203.03 gal	0.881	1.270
557 psig	5994	212.08 gal	215.73 gal	1.327	1.270
567 psig	6330	223.96 gal	228.42 gal	1.189	1.270
577 psig	6558	232.03 gal	241.12 gal	0.807	1.270
582 psig	7027	248.63 gal	247.47 gal	3.319	1.270
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000
582 psig		248.63 gal	247.47 gal	0.000	0.000

Pump gal per stroke	0.056 gal/stroke
Pump Piston Diameter	1.250 in
Pump Piston Stroke	3.50 in
Pump Cylinders	3 ea
Volume check gal per stroke	0.035 gal/stroke
Volume Released (gallons)	12.75 gal
Pressure Reduced (psi)	10 psi
Maximum2	270 gal
Minimum2	0 gal
Maximum1	1,400 psig
Minimum1	300 psig
Gallons/Stroke Used	0.035 gal/stroke
Predicted Gallons/Stroke	0.035 gal/stroke
Pressure Increment	10 psi
Max Pressure	582 psig
Ground Temperature	62 °F
Ambient Temperature	54 °F

ASME B31.8 Appendix N-5

Average Actual Elastic Slope	1.198
Average Predicted Elastic Slope	1.269
Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2)	2.276
Established Minimum Yield Pressure B31.8 N-5 (c)(2)	577 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

6/23/2011
Date

Exposed Pipe and Test Header

Test Pump Name Plate

Pressure Recording Chart

Dead Wiight Pressure Gage

Buried Pipe Temperature Recorder

Exposed Pipe Temperature Recorder

RCP

Hydrostatic Test Log Sheet

Owner Company	PACIFIC GAS & ELECTRIC	Job Number	41474078-T36B
Construction Co.	ARB	Job Number	0629-53-3500
Testing Co.	AKRI	Job Number	PG&E 6-13-11

Test Section

	Name	RCP 6132 -T36B, L-132	
		Station (0+00)	Elevation (Feet)
	Test Location	125+00	44 FT
	Begin	125+00	44FT.
	End	190+82	220 FT.
	High Elevation	190+52	220 FT.
	Low Elevation	129+50	38 FT

Pipe Data

Section	Length (ft.)	O. D. (in.)	W.T. (in.)	Restrained (ft.)	Unrestrained (ft.)	Grade	Seam/Joint Type
1	38	30	0.375		38	X65	DSAW / ARC WELD
2	6,608	30	0.375	6,608		X52	DSAW/ ARC WELD
3	1	6.625	0.430		1	GRD-B	SM / ARC WELD
4	8	30	0.375		8	X65	DSAW/ ARC WELD
5	22	30	0.375		22	X52	DSAW/ ARC WELD
6							
7							
8							
9							
10							
11							

Test Period	Date	Time	Test Medium	
Begin	6 | 13 | 11	6:45 A.M.	Water	☑
End	6 | 13 | 11	3:15 P.M	Nitrogen	☐
			Other	☐

Test Instrumentation

Description	Calibration Checked	Serial Number	Date Calibrated/Certified	Installation Correct
Dead Weight Pressure Tester		21495	10-26-10	☑ Yes
Pressure Recorder	☑ Yes	242E-39611	6-7-11	☑ Yes
Ambient Temperature Recorder	☑ Yes	L98002476	9-16-10	☑ Yes
Restrained Pipe Temperature Recorder	☑ Yes	3561	2-4-11	☑ Yes
Unrestrained Pipe Temperature Recorder	☑ Yes	242E-441018	6-7-11	☑ Yes

Hydrostatic Test Log

Log No.	Time	Test Pressure (psig)	Temperature (°F)			Volume ☑ Ounces ☐ Gallons		Comments	Model Check: Is test good?
			Ambient	Pipe					
				Restrained	Unrestrained	Bleed	Inject		
1	6:45 AM	582	54	64	63				
2	6:55	582	54	64	64				☑ Yes ☐ No
3	7:05	582	54	64	64				☑ Yes ☐ No
4	7:15	582	54	64	63	1632 oz			☑ Yes ☐ No
5	7:30	562	54	64	63	1632 oz			☑ Yes ☐ No
6	7:45	536	54	64	63	4243 oz			☑ Yes ☐ No
7	8:00	536	55	64	63				☑ Yes ☐ No
8	8:15	536	55	64	63				☑ Yes ☐ No
9	8:30	536	55	64	62				☑ Yes ☐ No
10	8:45	536	56	64	62				☑ Yes ☐ No
11	9:00	536	57	64	62				☑ Yes ☐ No

RCP

Hydrostatic Test Log

Log No.	Time	Test Pressure (psig)	Temperature (°F)			Volume ☐ Ounces ☐ Gallons		Comments	Model Check: Is test good?
			Ambient	Pipe					
				Restrained	Unrestrained	Bleed	Inject		
12	9:15	536	57	64	62				☑ Yes ☐ No
13	9:30	536	58	64	62				☑ Yes ☐ No
14	9:45	536	58	64	62				☑ Yes ☐ No
15	10:00	536	59	64	62				☑ Yes ☐ No
16	10:15	536	59	64	62				☑ Yes ☐ No
17	10:30	536	59	64	62				☑ Yes ☐ No
18	10:45	536	60	64	62				☑ Yes ☐ No
19	11:00	536	61	64	62				☑ Yes ☐ No
20	11:15	536	61	64	62				☑ Yes ☐ No
21	11:30	536	62	~~64~~65	62				☑ Yes ☐ No
22	11:45	536	62	65	62				☑ Yes ☐ No
23	12:00 A.M.	536	62	65	63				☑ Yes ☐ No
24	12:15	536	65	65	63				☑ Yes ☐ No
25	12:30	536	65	65	63				☑ Yes ☐ No
26	12:45	536	66	65	63				☑ Yes ☐ No
27	1:00	536	66	65	63				☑ Yes ☐ No
28	1:15	536	67	65	63				☑ Yes ☐ No
29	1:30	536	67	66	~~63~~64				☑ Yes ☐ No
30	1:45	536	67	66	64				☑ Yes ☐ No
31	2:00	536	67	66	65				☑ Yes ☐ No
32	2:15	537	66	66	65				☑ Yes ☐ No
33	2:30	537	66	66	65				☑ Yes ☐ No
34	2:45	537	65	66	65				☑ Yes ☐ No
35	3:00	537	63	65	65				☑ Yes ☐ No
36	3:15	537	64	65	65				☑ 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

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

If "Yes", Explain:

High Test Pressure: 582

Low Test Pressure: 536

Certification:

Test Supervisor: _____ Signature

Date: 6-13-11

Company Representative: _____ Signature

HYDROSTATIC TEST RESULTS

PIPELINE DATA

Test Date	Line #	Test ID #	Test #
6-13-11	LINE 132		AKRI TEST # 13-102

Pipeline Operator	Independent Testing Firm
PACIFIC GAS & ELECTRIC COMPANY	**Akri Hydrotesting**

Kind of Test

[ ] Annual [ ] 2 year [ ] 3 year [ ] 5 year [ ] 10 year

[ ] Pre-tested pipe [ ] New [ ] Replacement [ ] Station Piping [X] Other

Pipeline Identification (description, line number, name, pre-tested pipe, etc.)

LINE 132 TEST 36 B

SOUTH SAN FRANCISCO, CA.

Pipeline Location (mile post, street, station, etc.)

From: LOCATION B STA. # 125+00

To: LOCATION C STA. # 190+82

Normal Product Transported

NATURAL GAS

Test Medium

[X] Water [ ] Diesel [ ] Fuel Oil [ ] JP-5 [ ] Other

Location of Deadweight Tester	Elevation
LOCATION B	44'

Elevation of Pipeline - High Point	Elevation of Pipeline - Low Point
220'	38'

PIPE DATA

FURNISHED BY Redacted

Pipe O.D.	Wall Thickness	Specification & Grade (SYMS)	Length of Pipe Being tested (Ft.)	Volume (Barrels)
SEE	AKRI	PIPE ~~MATL~~ DATA	SHEET	

TEST EQUIPMENT

Make of Deadweight Tester	Serial #	Date Last Calibrated
CHANDLER ENGINEERING	21495	10-26-10
Make of Pressure Chart Recorder	Serial #	Date Last Calibrated
BARTON	242E-36911	6-7-11
Make of Temperature Recorder	Serial #	Date Last Calibrated
CLIF-MOCK (RESTRAINED)	3561	2-4-11

COMMENTS (Additional Information)

BARTON (UNRESTRAINED)	242E-441018	6-7-11

MINIMUM PRESSURE ON THE DWT = 536 PSIG 1ST 4HR & 536 PSIG 2ND 4HR

Akri Test # 13-102

TEST DATA

Date	Time	Dead-weight Pressure (psig)	Chart Pressure (psig)	RESTRAINED ~~Pipe Wall~~ Temp (°F)	Ambient Air Temp (°F)	UNRESTRAINED ~~Medium~~ Temp (°F)	Test Medium Change (+) Added (-) Drained	Comments
6-13-11	11:00	536	540	64	61	62	0	
	11:15	536	540	64	61	62		
	11:30	536	540	~~6465~~	62	62		
	11:45	536	540	65	62	62		
	12:00 P.M	536	540	65	62	63		
	12:15	536	540	65	65	63		
	12:30	536	540	65	65	63		
	12:45	536	540	65	66	63		
	1:00	536	540	65	66	63		
	1:15	536	540	65	67	63		
	1:30	536	540	66	67	64		
	1:45	536	540	66	67	64		
	2:00	536	540	66	67	65		
	2:15	537	540	66	66	65		
	2:30	537	540	66	66	65		
	2:45	537	540	66	65	65		
	3:00	537	540	65	63	65		
	3:15	537	540	65	64	65		
Net Change:		-45	-43	+1	+10	+2	0	

FAILURES DURING TEST

Location	Cause
NONE DETECTED	

CERTIFICATION

Name of Company Conducting Test

ARB, INC

Name of Independent Testing Firm Witnessing Test

Akri Hydrotesting

Redacted

Date: 6-13-11

Date: 6-13-11

Name of Person Certifying ~~Test~~ Data for Witnessing Firm

Date

Akri Test # 13-102

TEST DATA

Date	Time	Dead-weight Pressure (psig)	Chart Pressure (psig)	~~Pipe Wall~~ RESTRAINED Temp (°F)	Ambient Air Temp (°F)	~~Medium~~ UNRESTRAINED Temp (°F)	Test Medium Change (+) Added (-) Drained	Comments
6-13-11	6:45 AM	582	585	64	54	63	0	
	6:55	582	585	64	54	64		
	7:05	582	585	64	54	64		
	7:15	582	585	64	54	63		
	7:30	562	565	64	54	63		
	7:45	536	542	64	54	63		
	8:00	536	542	64	55	63		
	8:15	536	542	64	55	63		
	8:30	536	542	64	55	62		
	8:45	536	542	64	56	62		
	9:00	536	542	64	57	62		
	9:15	536	542	64	57	62		
	9:30	536	542	64	58	62		
	9:45	536	542	64	58	62		
	10:00	536	542	64	59	62		
	10:15	536	542	64	59	62		
	10:30	536	542	64	59	62		
	10:45	536	542	64	60	62		
Net Change:								

FAILURES DURING TEST

Location	Cause
NONE DETECTED	

CERTIFICATION

Name of Company Conducting Test

ARB, INC

Name of Independent Testing Firm Witnessing Test

Akri Hydrotesting

Redacted

Date 6-13-11

Date 6-13-11

Name of Person Certifying Test ~~Data~~ for Witnessing Firm

Date

HYDROSTATIC TEST RESULTS

PIPELINE DATA

Test Date	Line #	Test ID #	Test #
6-13-11	LINE 132		AKRI TEST # 13-102

Pipeline Operator	Independent Testing Firm
PACIFIC GAS & ELECTRIC COMPANY	**Akri Hydrotesting**

Kind of Test

[ ] Annual [ ] 2 year [ ] 3 year [ ] 5 year [ ] 10 year

[ ] Pre-tested pipe [ ] New [ ] Replacement [ ] Station Piping [X] Other

Pipeline Identification (description, line number, name, pre-tested pipe, etc.)

Pipeline Location (mile post, street, station, etc.)

From:

To:

Normal Product Transported

Test Medium

[ ] Water [ ] Diesel [ ] Fuel Oil [ ] JP-5 [ ] Other

Location of Deadweight Tester	Elevation

Elevation of Pipeline - High Point	Elevation of Pipeline - Low Point

SEE WORKSHEET 1 OF 1

PIPE DATA FURNISHED BY

Pipe O.D.	Wall Thickness	Specification & Grade (SYMS)	Length of Pipe Being tested (Ft.)	Volume (Barrels)

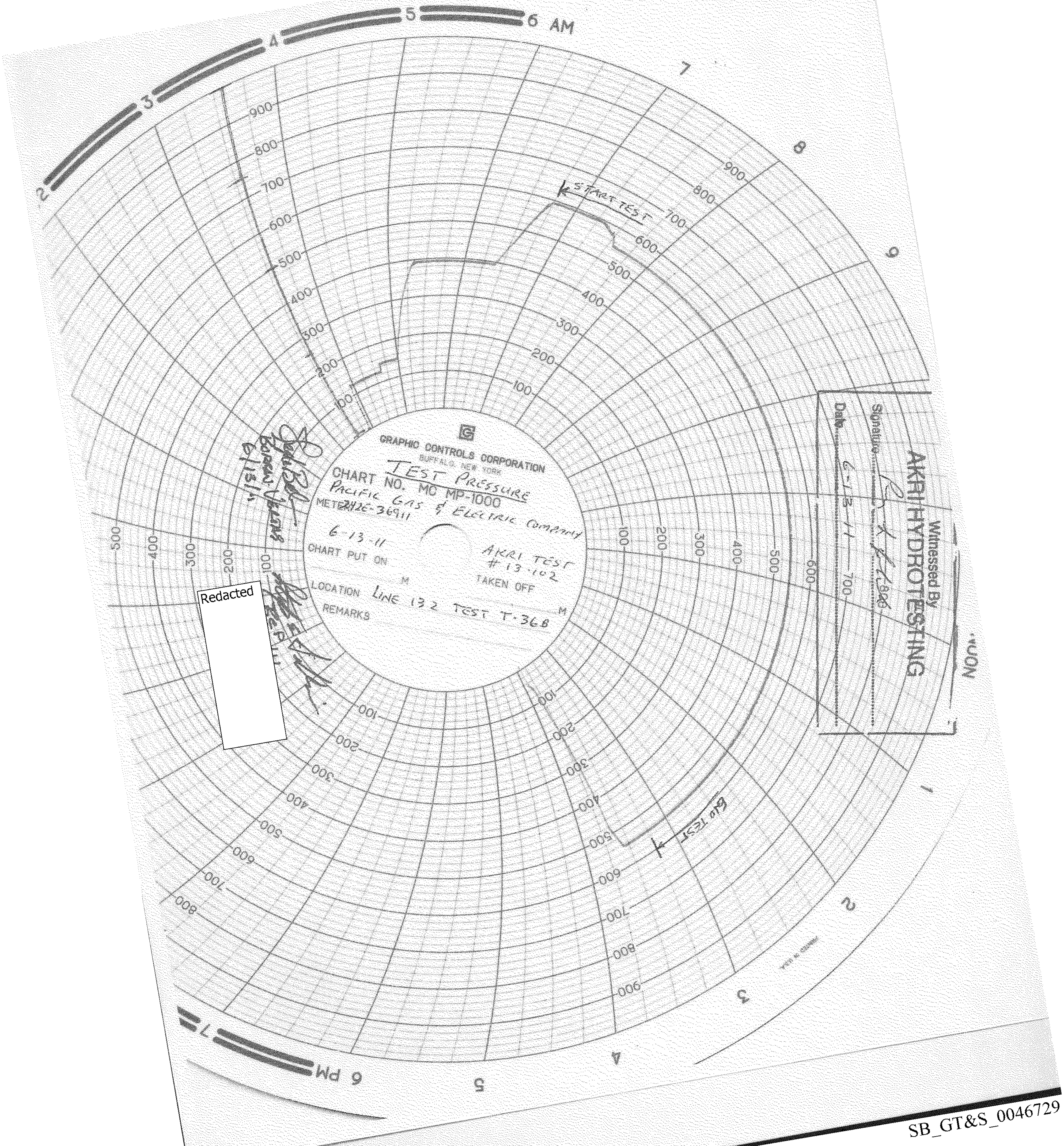
TEST EQUIPMENT

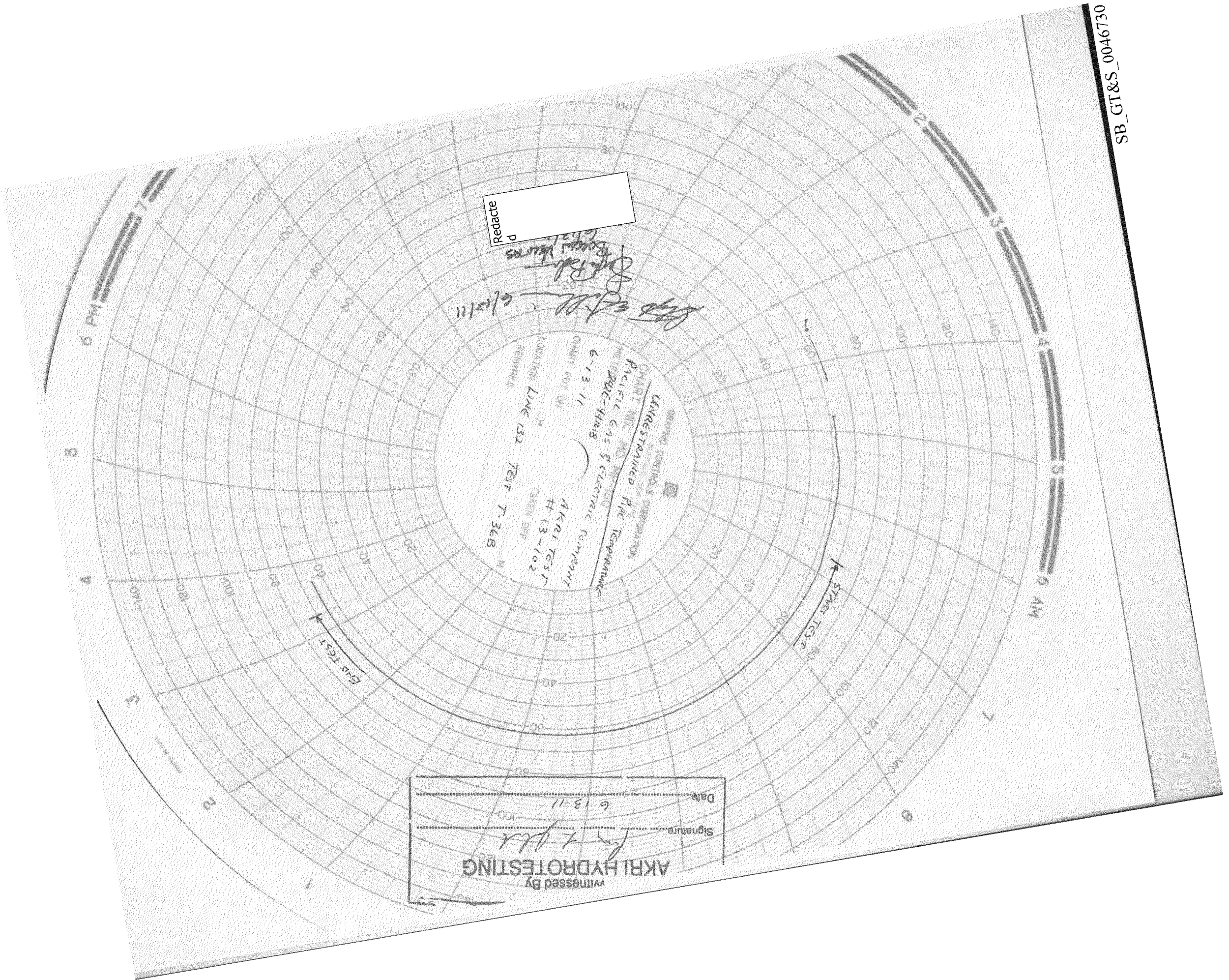
Make of Deadweight Tester	Serial #	Date Last Calibrated

Make of Pressure Chart Recorder	Serial #	Date Last Calibrated

Make of Temperature Recorder	Serial #	Date Last Calibrated

COMMENTS (Additional Information)


GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
TEST PRESSURE
CHART NO. MC MP-1000
PACIFIC GAS & ELECTRIC COMPANY
METER 2426-36911
6-13-11
CHART PUT ON
M
AKRI TEST
13-102
TAKEN OFF
LOCATION LINE 132 TEST T-368
M
REMARKS
START TEST
END TEST
Witnessed By
AKRI HYDROTESTING
Signature
Date 6-13-11
Redacted
6 AM
NOON
6 PM



Witnessed By
AKRI HYDROTESTING
Signature
Date
6-13-11
NOON
6 PM
6 AM
END TEST
START TEST
AKRI TEST
13-102
Line 132 TEST T36B
CHART NO. MC MP-150
6-13-11
Redacted

VALLEY INSTRUMENT

CERTIFICATE OF CALIBRATION

VALLEY INSTRUMENT SERVICE, INC. Hereby certifies that the instrument listed below has been calibrated to meet all published manufacturer's specifications using standards whose accuracies are traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY. Records pertaining to these standards are on file and available for examination.

CALIBRATION STANDARD (Traceable to NIST)
FLUKE MODEL 5500 **A**
Cert. # 945162-8840001:1264779099
SERIAL # 8840001
Date of Calibration: JANUARY 29, 2010
Due Date : JANUARY 29, 2011

UNIT UNDER CALIBRATION

COMPANY NAME: AKRI HYDROTESTING	
BRAND NAME: COLE-PARMER	UNIT MODEL: **91100-50**
SERIAL NO.: **L98002476**	CALIBRATION DATE: September 16, 2010
TEMPERATURE : 80 DEG. F.	DUE DATE: September 16, 2011

SERVICE MANAGER

VALLEY INSTRUMENT
3536 BRIAN WAY
BAKERSFIELD, CA 93308
(661)327-8681 (800)638-3774 FAX(661)327-1660
e-mail: valleyin@valleyinstrument.com

TECHNICAL SERVICES GROUP

2900 Main St Alameda CA 94501 Phone (510)522-8326 Fax (510)522-3136

Certificate of Calibration

ARB, INC. PITTSBURG
1875 LOVRIDGE ROAD
PITTSBURG
CALIFORNIA 94565

Customer ID #	3773
File #	1329
Instrument Type	TEMPERATURE RECORDER
Range	0-150
Units	DEG F
Resolution	2
Mfg.	CLIF-MOCK
Model	N/A
Cal By	Redacted
Curent Cal Cycle (Months)	12
Previous Cal Cycle	12
Standards Used	FLUKE 515A SN 10520 6/24/2012 NIST F25325

Rated Accuracy	2%
Pass/Fail as Found	PASS
Pass/Fail as Left	PASS
1st (Mfg) S/N	3561
2nd S/N	AC-25
Cal Date	2/4/2011
Cal Due	2/4/2012
Notes	

TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND CONFORMS TO ISO 10012 AND ANSI / NCSL Z-540. UNLESS OTHERWISE SPECIFIED MEASURMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE OR 1 MINOR DIVISION.

AC 25

TECHNICAL SERVICES GROUP

2900 Main St Alameda CA 94501 Phone (510)522-8326 Fax (510)522-3136

Certificate of Calibration

AKRI CORPORATION
1414 VALHALLA DRIVE
BAKERSFIELD
CA 93309

Customer ID #	4276	*Rated Accuracy*	2%
File #	0	*Pass/Fail as Found*	PASS
Instrument Type	PRESSURE RECORDER	*Pass/Fail as Left*	PASS
		1st (Mfg) S/N	242E-39611
Range	0-1,000		
Units	PSIG		
Resolution	20	*2nd S/N*	N/A
Mfg.	ITT BARTON		
Model	N/A	*Cal Date*	6/7/2011
Cal By	Redacted	*Cal Due*	6/7/2012
		Notes	
Curent Cal Cycle (Months)	12		
Previous Cal Cycle	N/A		
Standards Used	AMETEK PK-654WC S/N73272 DUE 1.28.2012		

TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND CONFORMS TO ISO 10012 AND ANSI / NCSL Z-540. UNLESS OTHERWISE SPECIFIED MEASURMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE OR 1 MINOR DIVISION.

TECHNICAL SERVICES GROUP

2900 Main St Alameda CA 94501 Phone (510)522-8326 Fax (510)522-3136

Certificate of Calibration

AKRI CORPORATION
1414 VALHALLA DRIVE
BAKERSFIELD
CA 93309

Customer ID #	4276	*Rated Accuracy*	2%
File #	0	*Pass/Fail as Found*	PASS
Instrument Type	PRESSURE RECORDER	*Pass/Fail as Left*	PASS
		1st (Mfg) S/N	242E-39611
Range	0-1,000		
Units	PSIG		
Resolution	20	*2nd S/N*	N/A
Mfg.	ITT BARTON		
Model	N/A	*Cal Date*	6/7/2011
Cal By	Redacted	*Cal Due*	6/7/2012
		Notes	
Curent Cal Cycle (Months)	12		
Previous Cal Cycle	N/A		
Standards Used	AMETEK PK-654WC S/N73272 DUE 1.28.2012		

TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND CONFORMS TO ISO 10012 AND ANSI / NCSL Z-540. UNLESS OTHERWISE SPECIFIED MEASURMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE OR 1 MINOR DIVISION.

TECHNICAL SERVICES GROUP

2900 Main St Alameda CA 94501 Phone (510)522-8326 Fax (510)522-3136

Certificate of Calibration

AKRI CORPORATION
1414 VALHALLA DRIVE
BAKERSFIELD
CA 93309

Customer ID #	4276
File #	0
Instrument Type	TEMPERATURE RECORDER
Range	0-150
Units	DEG F
Resolution	2
Mfg.	ITT BARTON
Model	N/A
Cal By	Redacted
Curent Cal Cycle (Months)	12
Previous Cal Cycle	N/A
Standards Used	EUTECHNICS 139200-1.2 DUE 2/2/2012 TE 188.192.195

Rated Accuracy	2%
Pass/Fail as Found	PASS
Pass/Fail as Left	PASS
1st (Mfg) S/N	2685E-27758
2nd S/N	N/A
Cal Date	6/7/2011
Cal Due	6/7/2012
Notes	

TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY AND CONFORMS TO ISO 10012 AND ANSI / NCSL Z-540. UNLESS OTHERWISE SPECIFIED MEASURMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE OR 1 MINOR DIVISION.

CALIBRATION DATA SHEET
PRESSURE / TEMPERATURE

2900 MAIN ST ALAMEDA, CA 94501 PHONE (510) 522-8326 FAX (510) 522-3136

CUSTOMER	TSG JOB & ITEM #	CAL DATE	CAL DUE
AKRI CORPORATION	4276	6/7/2011	6/7/2012

MFG.	MODEL	CAL BY	MFG S/N
ITT BARTON	N/A	Redacted	2685E-27758

RANGE MIN	MAX	UNITS	RESOLUTION	RATED ACCURACY, % FULL SCALE	2ND S/N
0	150	DEG F	2	2.00 %	N/A

INSTRUMENT DISCRIPTION

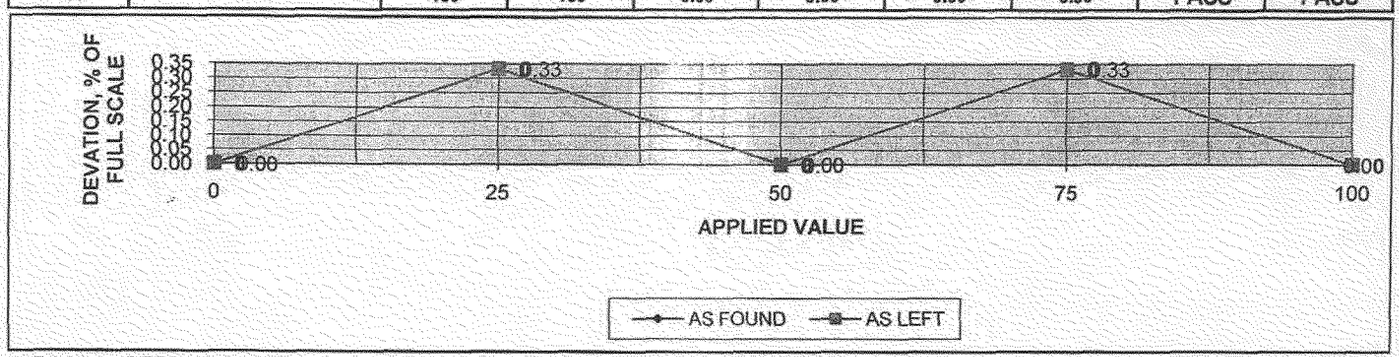
PRESS.	TEMP.	VACUUM	CASE SIZE	CONN. SIZE	CONN. LOCATION	THREAD TYPE
	X		RECORDER	N/A	BACK	N/A

STANDARDS USED

	MFG.	MODEL	S/N	RECAL	N.I.S.T #
X	AMETEK	PK-654WC	73272	1/28/2012	35817.001
X	EUTECHN ICS	139200-1.2.5	100049	2/2/2012	TE188.192.195

CALIBRATION DETAIL

% SPAN	APPLIED VALUE	OBSERVED INDICATION		ERROR		% DEVATION		PASS / FAIL	
	DEG F	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
0	0	0	0	0.00	0.00	0.00	0.00	PASS	PASS
25	38	38	38	0.50	0.50	0.33	0.33	PASS	PASS
50	75	75	75	0.00	0.00	0.00	0.00	PASS	PASS
75	113	113	113	0.50	0.50	0.33	0.33	PASS	PASS
100	150	150	150	0.00	0.00	0.00	0.00	PASS	PASS



IMPACT / NOTES :

TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY AND CONFORMS TO ISO 10012 AND ANSI / NCSL Z-540. UNLESS OTHERWISE SPECIFIED MEASUREMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE OR 1 MINOR DIVISION. LABRATORY CONDITIONS AT TECHNICAL SERVICES GROUP 68-72 DEG F. < 40% R.H.

TSG CALIBRATION / Q.A. SUPERVISOR