



PART 1 – TEST DESIGN DATA (TO BE PREPARED BY PROJECT ENGINEER/ESTIMATOR)

Test Description													
Line Number or Station Name L-191-1						Division/District Diablo			Job Number 31079361				
Purpose of Test Test New 12" MLV Assembly						MAOP to be Established by this Test <u>600</u> PSIG							
Description of Pipe being Tested (include reference drawings, field stationing, and mile points) T-022A-12, Hydrostatically Test New MLV-26.53 Assembly to be Tested in Conjunction with Order #41919143, Test 1 and Installed at [REDACTED] (Refer to DWG 41919143 - Sheets 1-6 of 6)													
<input checked="" type="checkbox"/> New Facility (no spike test required) <input type="checkbox"/> Existing Facility Will spike test be performed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (explain on right)						If no spike test for existing facility, explain:							
Static Head Calculation													
Maximum Elevation <u>231</u> FT						For Water <u>4</u> (Elev. Diff.) x 0.433 = <u>2</u> PSIG							
Minimum Elevation <u>235</u> FT						For Other Test Medium _____							
Elevation Difference <u>4</u> FT						Contact the responsible engineer for guidance on completing this field.							
Pipe to be Tested													
Size		API or ASTM Spec	SMYS (psi)	Long Seam (ERW, DSAW, SMLS etc.)	JF (E)	Footage to be Tested	Actual Footage	Location Class	Most Restrictive Design Factor	% of SMYS			
OD (in.)	WT (in.)									At MAOP	At Min. Test Press.	At Max. Test Press.	
12.750	0.375	API 5L	35000	SMLS	1.0	10'-3"	14.20'	3	0.5	29.14	43.71	53.19	
12.750	0.281	API 5L	52000	HFWS	1.0	2'-0"	5.0'	3	0.5	26.18	39.27	47.77	
3.500	0.216	API 5L	35000	SMLS	1.0	22'-2"	22.16'	3	0.5	13.89	20.83	25.35	
1.050	0.154	API 5L	35000	SMLS	1.0	7'-6"	8.22'	3	0.5	5.84	8.77	10.67	
All fittings included in the test (except those listed above) are the same wall thickness and grade as the pipe <input checked="" type="checkbox"/>													
Pipe specs verified in field <input checked="" type="checkbox"/> Signature of person supervising test <i>Luiz Tsani EXT0</i>													
Component(s) limiting test pressure/Control Point exceptions ANSI 300 Fittings													
Test Specifications (include a spike test when testing existing facilities)													
Test Factor <u>1.5</u>	[1A]	Min. Test Pressure at Max. Elev. <u>900</u> PSIG					[1B]	Max. Test Pressure at Min. Elev. <u>1095</u> PSIG					
Spike Test (complete only for spike test)	[1C]	Spike Factor					[1D]	Spike Pressure at Max. Elev. Box [1A] X [1C] = ____ PSIG					
	[1E]	Spike Pressure at Min. Elev. ____ PSIG					[1F]	Max. Post-Spike Pressure at Min. Elev. Box [1E] X 0.90 = ____ PSIG					
Test Medium to be Used <u>Water</u>			Minimum Test Duration <u>1</u> Hour			<ul style="list-style-type: none"> ▪ Under 30% SMYS: 1 hour minimum ▪ 30%.SMYS and over: 8 hours minimum ▪ Pre-installation Test: Refer to A-34, Attachment A ▪ Spike Test: 30 minutes minimum (included in test) 							
Signatures													
Prepared by (signature) <i>Dirk Ayala</i>				Print Name and Phone Number DIRK AYALA 530-635-2423				Date <u>8/11/14</u>		LAN ID D1A8			
Approved by (signature) <i>Ed Stracke</i>				Print Name ED STRACKE 925-788-6755				Date <u>8/11/14</u>		LAN ID EAS4			
Test Supervised by (signature) <i>Luiz Tsani</i>				Time and Date Test Pressure Reached (from Part 2) <u>0920 8/12/14</u>			Time and Date Test Ended (from Part 2) <u>1025 8/12/14</u>			Actual Duration of Test (from Part 2) <u>1 hr 5 min</u>			



PART 2 – TEST DATA (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)

Test Elevation			
Elevation at Test Point <u>4</u> FT		Max. Elevation in Test Section <u>3</u> FT	Min. Elevation in Test Section <u>0</u> FT
[2A]	Static Head b/t Test Point and Max. Elev. <u>2</u> PSIG	[2B]	Static Head b/t Test Point and Min. Elev. <u>4</u> PSIG
No Spike Test: Calculations and Test Results (complete for strength test without a spike test)			
Min. Required Test Pressure at Test Point Box [1A] + Box [2A] = <u>902</u> PSIG		Max. Allowable Test Pressure at Test Point Box [1B] – Box [2B] = <u>1095</u> PSIG	
[2C]	Min. Test Pressure Indicated <u>1000</u> PSIG	[2D]	Max. Test Pressure Indicated <u>1003</u> PSIG
Calculated Min. Test Pressure at Max. Elev. Box [2C] – Box [2A] = <u>998</u> PSIG		Calculated Max. Test Pressure at Min. Elev. Box [2D] + Box [2B] = <u>1063</u> PSIG	
Spike Test: Calculations and Test Results (complete for strength test with a spike test)			
Spike Pressure at Test Point Box [1E] – Box [2B] = _____ PSIG		Min. Required Test Pressure at Test Point Box [1A] + Box [2A] = _____ PSIG	
[2E] Spike Pressure Indicated _____ PSIG		[2F] Min. Test Pressure Indicated _____ PSIG	
Calculated Spike Pressure at Min. Elev. Box [2E] + Box [2B] = _____ PSIG		Calculated Min. Test Pressure at Max. Elev. Box [2F] – Box [2A] = _____ PSIG	
Max. Post-Spike Pressure at Test Point Box [1F] – Box [2B] = _____ PSIG		Pressure Range After Spike Test _____ PSIG	
[2G] Max. Post-Spike Test Pressure Indicated _____ PSIG		Calculated Max. Post-Spike Pressure at Min. Elev. Box [2G] + Box [2B] = _____ PSIG	
Test Acceptance			
Were Leaks Observed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, explain:	
Acceptable Strength Test? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If no, explain:	
Report strength test failures to Regulatory Compliance			
Test Medium Used <u>Water</u>	Time and Date Test Pressure Reached <u>0920 8/12/14</u>	Time and Date Test Ended <u>1025 8/12/14</u>	Actual Duration of Test <u>1hr 5min</u>
Test Instruments			
Make, Range, and Serial No. of Pressure Recording Device <u>TechCal 0-2000 psig S/N 02098</u>			Date Last Calibrated <u>5/28/14</u>
Make, Range and Serial No. of Dead Weight Tester A dead weight tester and/or an electronic pressure recorder is required for tests of any pipe segment equal to or greater than 90% of SMYS. <u>Dmetek 25-3000 psig S/N HLG406</u>			Date Last Calibrated <u>3/18/14</u>
Signatures			
Test Supervised by (signature) <u>[Signature]</u>		Print Name <u>ERIC TSAI</u>	Date <u>8/12/14</u>
Testing Contractor (if third party)		LAN ID <u>EXTD</u>	
Approved by (signature) <u>[Signature]</u>		Print Name <u>AZRA TARIN</u>	Date <u>8-23-14</u>
		LAN ID <u>AXT03</u>	

Attachments

- Test chart
- Schematic piping sketch
- Test log with pressure noted every 5 minutes

Distribution

- Gas Job Closeout Desk, 6121 Bollinger Canyon Road, Building Z1, San Ramon, CA 94583



PART 1 – TEST DESIGN DATA (TO BE PREPARED BY PROJECT ENGINEER/ESTIMATOR)

Test Description													
Line Number or Station Name L-191-1						Division/District Diablo			Job Number 41919143				
Purpose of Test Test Tie-in Pieces						MAOP to be Established by this Test <u>283</u> PSIG							
Description of Pipe being Tested (include reference drawings, field stationing, and mile points) T-022A-12, Hydrostatically Test Tie-in Pieces for Location D in Conjunction with Order #31079361, Test 1B. Rev 1 - New 12" Pipe Required was Reduced due to the Addition of a PCF at Location B. Rev 2 - Existing Pipe Removed from Test. Test Duration changed to 1 hour. (Refer to DWG 41919143 - Sheets 1-6 of 6)													
<input checked="" type="checkbox"/> New Facility (no spike test required) <input type="checkbox"/> Existing Facility Will spike test be performed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (explain on right)						If no spike test for existing facility, explain:							
Static Head Calculation													
Maximum Elevation <u>231</u> FT						For Water <u>0</u> (Elev. Diff.) x 0.433 = <u>0</u> PSIG							
Minimum Elevation <u>231</u> FT						For Other Test Medium _____							
Elevation Difference <u>0</u> FT						Contact the responsible engineer for guidance on completing this field.							
Pipe to be Tested													
Size		API or ASTM Spec	SMYS (psi)	Long Seam (ERW, DSAW, SMLS etc.)	JF (E)	Footage to be Tested	Actual Footage	Location Class	Most Restrictive Design Factor	% of SMYS			
OD (in.)	WT (in.)									At MAOP	At Min. Test Press.	At Max. Test Press.	
12.750	0.281	API 5L	52000	HFW	1.0	33'-5"	<u>28.38'</u>	3	0.5	12.35	39.27	47.77	
All fittings included in the test (except those listed above) are the same wall thickness and grade as the pipe <input checked="" type="checkbox"/>													
Pipe specs verified in field <input checked="" type="checkbox"/> Signature of person supervising test <u>Curt Tsaw EXTD</u>													
Component(s) limiting test pressure/Control Point exceptions													
Test Specifications (include a spike test when testing existing facilities)													
Test Factor <u>3.18</u>	[1A]	Min. Test Pressure at Max. Elev. <u>900</u> PSIG					[1B]	Max. Test Pressure at Min. Elev. <u>1095</u> PSIG					
Spike Test (complete only for spike test)	[1C]	Spike Factor					[1D]	Spike Pressure at Max. Elev. Box [1A] x [1C] = ____ PSIG					
	[1E]	Spike Pressure at Min. Elev. ____ PSIG					[1F]	Max. Post-Spike Pressure at Min. Elev. Box [1E] x 0.90 = ____ PSIG					
Test Medium to be Used <u>Water</u>			Minimum Test Duration <u>1</u> Hour			<ul style="list-style-type: none"> Under 30% SMYS: 1 hour minimum 30% SMYS and over: 8 hours minimum Pre-installation Test: Refer to A-34, Attachment A Spike Test: 30 minutes minimum (included in test) 							
Signatures													
Prepared by (signature) <u>Dirk Ayala</u>				Print Name and Phone Number DIRK AYALA 530-635-2423				Date <u>8/12/14</u>		LAN ID D1A8			
Approved by (signature) <u>Ian Hom</u>				Print Name IAN HOM 925-808-1086				Date <u>8/12/14</u>		LAN ID IXH8			
Test Supervised by (signature) <u>Curt Tsaw</u>				Time and Date Test Pressure Reached (from Part 2) <u>0920 8/12/14</u>			Time and Date Test Ended (from Part 2) <u>1025 8/12/14</u>		Actual Duration of Test (from Part 2) <u>1 hr 5 min</u>				



PART 2 – TEST DATA (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST)

Test Elevation			
Elevation at Test Point <u>4</u> FT	Max. Elevation in Test Section <u>3</u> FT		Min. Elevation in Test Section <u>0</u> FT
[2A]	Static Head b/t Test Point and Max. Elev. <u>2</u> PSIG		[2B] Static Head b/t Test Point and Min. Elev. <u>0</u> PSIG
No Spike Test: Calculations and Test Results (complete for strength test without a spike test)			
Min. Required Test Pressure at Test Point Box [1A] + Box [2A] = <u>902</u> PSIG		Max. Allowable Test Pressure at Test Point Box [1B] – Box [2B] = <u>1095</u> PSIG	
[2C] Min. Test Pressure Indicated <u>1000</u> PSIG	[2D] Max. Test Pressure Indicated <u>1063</u> PSIG	Pressure Range During Test <u>193</u> PSIG	
Calculated Min. Test Pressure at Max. Elev. Box [2C] – Box [2A] = <u>998</u> PSIG		Calculated Max. Test Pressure at Min. Elev. Box [2D] + Box [2B] = <u>1063</u> PSIG	
Spike Test: Calculations and Test Results (complete for strength test with a spike test)			
Spike Pressure at Test Point Box [1E] – Box [2B] = _____ PSIG		Min. Required Test Pressure at Test Point Box [1A] + Box [2A] = _____ PSIG	
[2E] Spike Pressure Indicated _____ PSIG	[2F] Min. Test Pressure Indicated _____ PSIG	Max. Post-Spike Pressure at Test Point Box [1F] – Box [2B] = _____ PSIG	Pressure Range After Spike Test _____ PSIG
Calculated Spike Pressure at Min. Elev. Box [2E] + Box [2B] = _____ PSIG		Calculated Min. Test Pressure at Max. Elev. Box [2F] – Box [2A] = _____ PSIG	
		Calculated Max. Post-Spike Pressure at Min. Elev. Box [2G] + Box [2B] = _____ PSIG	
Test Acceptance			
Were Leaks Observed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		If yes, explain:	
Acceptable Strength Test? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If no, explain:	
Report strength test failures to Regulatory Compliance			
Test Medium Used <u>Water</u>	Time and Date Test Pressure Reached <u>0920 8/12/14</u>	Time and Date Test Ended <u>1025 8/12/14</u>	Actual Duration of Test <u>1 hr 5 min</u>
Test Instruments			
Make, Range, and Serial No. of Pressure Recording Device <u>TechCal 0-2000 psig S/N 02098</u>			Date Last Calibrated <u>5/28/14</u>
Make, Range and Serial No. of Dead Weight Tester A dead weight tester and/or an electronic pressure recorder is required for tests of any pipe segment equal to or greater than 90% of SMYS. <u>Ametek 25-3000 psig S/N HL 6A06</u>			Date Last Calibrated <u>3/18/14</u>
Signatures			
Test Supervised by (signature) <u>[Signature]</u>	Print Name <u>ERIC TSONI</u>	Date <u>8/12/14</u>	LAN ID <u>ZXTD</u>
Testing Contractor (if third party)			
Approved by (signature) <u>[Signature]</u>	Print Name <u>AZIZA TARIN</u>	Date <u>8-23-14</u>	LAN ID <u>AXTB</u>

- Attachments**
- Test chart
 - Schematic piping sketch
 - Test log with pressure noted every 5 minutes

- Distribution**
- Gas Job Closeout Desk, 6121 Bollinger Canyon Road, Building Z1, San Ramon, CA 94583



J/N 41914143 TEST 2004
 J/N 31071361 TEST 18 of 18
 CHART NO. MC MP-2000
 TECHNICAL METER 02098
 CHART PUT ON 0920 HRS M
 LOCATION T-022A-12 L-191-1
 REMARKS Loc. D Tie In Pieces & New MLV 26.53 Assembly LAFAYETTE, CA
 8.12.2014
 TAKEN OFF 1025 HRS M

START TEST
 1000 PSF
 0920 HRS 8.12.2014
 ARB, INC
 2nd Flr

END TEST
 1025 PSF
 1025 HRS 8.12.2014
 ARB, INC
 2nd Flr

STRENGTH TEST INFORMATION REV. 1

1. JOB # 41919143 Test 2 of 4 # 31079361 Test 18 of 18

2. LOCATION F-0221-12 L-191-1 Loc. D Tie In Pieces & New MLV 26.53 ASSEMBLY LAFAYETTE

3. DATE 8-12-2014 MIN. PRESSURE 1000 PSI

4. TIME 0920 HRS - 1025 HRS DURATION 1 hr & 05 MINS

5. RECORDING GA. MFG. TECH CAL SER.# 02098

6. RANGE 0-2000 PSI LAST CALIBRATED 5-28-2014

7. DEAD WGT MFG. AMETEK SER.# HL-6406

8. RANGE 25-3000 PSI LAST CALIBRATED 3-18-2014

9. TEST FLUID WATER PIPE SPEC. API 5L 52,000 HFW LENGTH 28.38'

10. SIZE 12.750" W.T. 0.281" PIPE SPEC. API 5L 35,000 SMLS LENGTH 14.20'

11. SIZE 12.750" W.T. 0.375" PIPE SPEC. API 5L 35,000 SMLS DATE 8/12/14

12. SUPERVISED [Signature] DATE 8-23-14

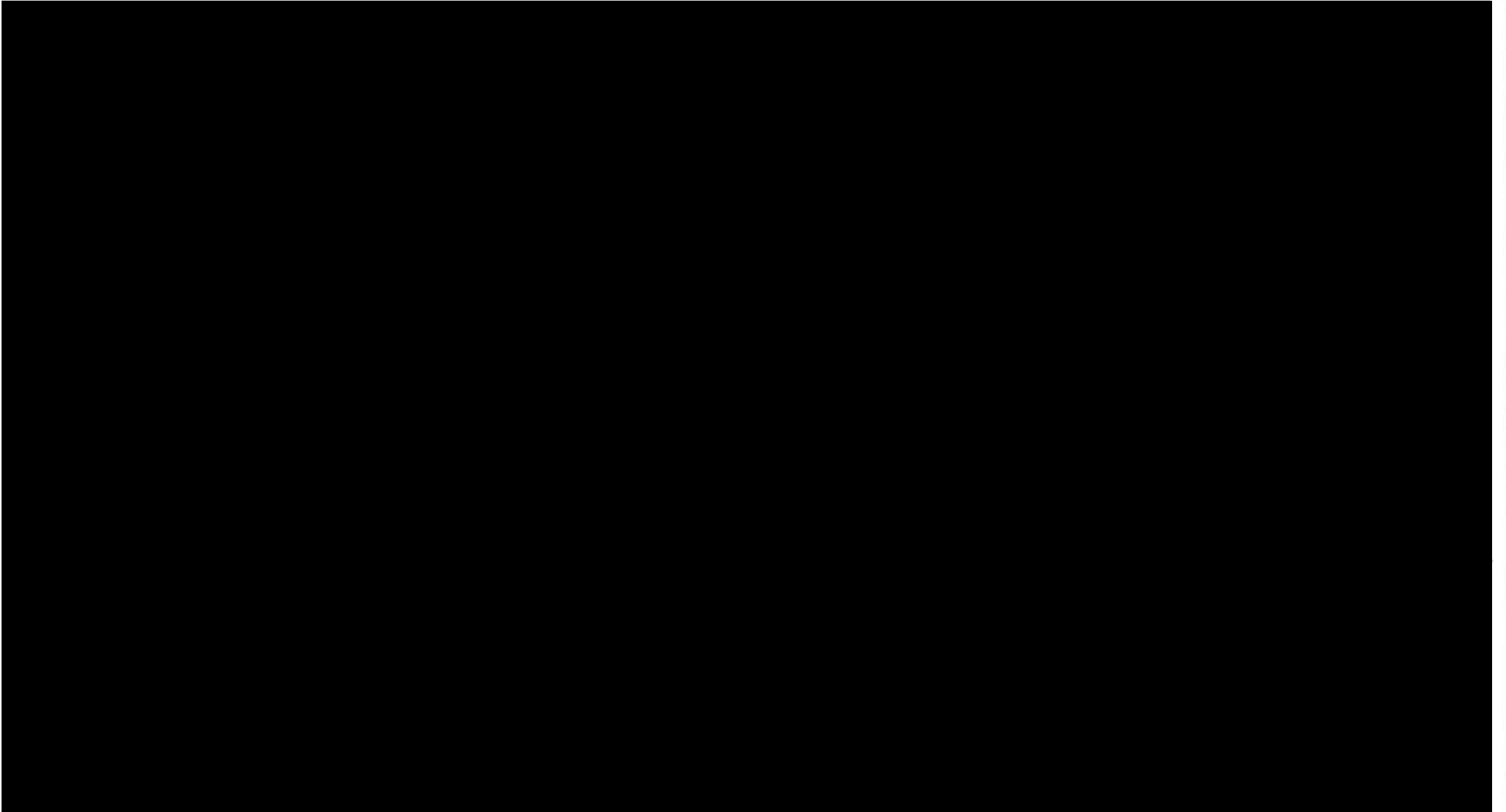
13. APPROVED [Signature] DATE 8-23-14

- 14. SIZE 3.500" W.T. 0.216" PIPE SPEC. API 5L 35,000 LENGTH 5.00'
- 15. SIZE 12.750" W.T. 0.281" PIPE SPEC. API 5L 52,000 HFW LENGTH 22.16'
- 16. SIZE 3.500" W.T. 0.216" PIPE SPEC. API 5L 35,000 SMLS LENGTH 8.22'
- 17. SIZE 1.050" W.T. 0.154" PIPE SPEC. API 5L 35,000 SMLS LENGTH _____
- 18. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 19. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 20. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 21. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 22. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 23. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 24. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 25. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 26. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____
- 27. SIZE _____ W.T. _____ PIPE SPEC. _____ LENGTH _____



4896 Chabot Suite 115
Pleasanton, CA 94588
(925) 298-0905
EMAIL: at@guidasurveying.com

PROJECT DESCRIPTION: T-022A CONTRACTOR: ARB PG&E JOB #: 41919143 SKETCH PREPARED DATE: 8/11/2014 SHEET: 1 OF 1
JOB NAME: T-022A, L-191-1, MP 25.30 - 26.73 GSI J.N.: 0214-00199.0001 CREW NAME: JOHN LANFRANKI





HYDROSTATIC TEST LOG SHEET

Date

8-12-2014

Owner Company: PG&E

Job Number: 41919143 TEST 2 of 4

Construction Co: ARB, Inc.

Job Number:

Testing Co: ARB, Inc.

Job Number: 31079361 TEST 1B of 1B

Test Section

Name: T-022A-12 L-191-1 Loc.D TIEIN Pieces & NEW MLV 26.53 ASSEMBLY

Station (0+00)

Elevation (Feet)

Test Location:

Begin:

End:

High Elevation:

Low Elevation:

Pipe Data

Section	Length (ft.)	O.D. (in.)	W.T. (in.)	Restrained (ft.)	Unrestrained (ft.)	Grade	Seam/Joint Type	
1.	28.38	12.750"	0.281		28.38	52,000	HFW	ARC WELD
2.	14.20	12.750"	0.375		14.20	35,000	SMLS	ARC WELD
3.	5.00	12.750"	0.281		5.00	52,000	HFW	ARC WELD
4.	22.16	3.500	0.216		22.16	35,000	SMLS	ARC WELD
5.	8.22	1.050	0.154		8.22	35,000	SMLS	ARC WELD
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								

Test Period

Date

Time

Test Medium

Water:

Nitrogen:

Other:

Begin: 8-12-2014

0920 HRS

End: 8-12-2014

1025 HRS

Test Instrumentation

Description

Calibration Checked

Serial Number

Date Calibrated/Certified

Installation Correct?

Dead Weight Pressure Tester:	<input checked="" type="checkbox"/> Yes	HL-6406	3-18-2014	<input checked="" type="checkbox"/> Yes
Pressure Recorder:	<input checked="" type="checkbox"/> Yes	02098	5-28-2014	<input checked="" type="checkbox"/> Yes
Ambient Temperature Recorder:	<input checked="" type="checkbox"/> Yes	04350	5-23-2014	<input checked="" type="checkbox"/> Yes
Restrained Pipe Temperature Recorder:	<input type="checkbox"/> Yes	N/A		<input type="checkbox"/> Yes
Unrestrained Pipe Temperature Recorder:	<input checked="" type="checkbox"/> Yes	04352	5-1-2014	<input checked="" type="checkbox"/> Yes

Comments:

HYDROSTATIC TEST LOG

Log No.	Time (Hrs)	Test Pressure (psig)	Temperature (°F)		Volume		Comments:	Model Check: Test Good?	
			Ambient	Pipe		<input type="checkbox"/> Ounces			<input type="checkbox"/> Gallons
				Restrained	Unrestrained	Bleed			Inject
1.	0920	1000	69		72			START TEST	<input type="checkbox"/> Y <input type="checkbox"/> N
2.	0925	1004	69		73				<input type="checkbox"/> Y <input type="checkbox"/> N
3.	0930	1008	69		73				<input type="checkbox"/> Y <input type="checkbox"/> N
4.	0935	1011	69		73				<input type="checkbox"/> Y <input type="checkbox"/> N
5.	0940	1015	69		74				<input type="checkbox"/> Y <input type="checkbox"/> N
6.	0945	1019	70		74				<input type="checkbox"/> Y <input type="checkbox"/> N
7.	0950	1025	70		75				<input type="checkbox"/> Y <input type="checkbox"/> N
8.	0955	1029	71		75				<input type="checkbox"/> Y <input type="checkbox"/> N
9.	1000	1035	71		75				<input type="checkbox"/> Y <input type="checkbox"/> N
10.	1005	1040	71		75				<input type="checkbox"/> Y <input type="checkbox"/> N
11.	1010	1046	71		76				<input type="checkbox"/> Y <input type="checkbox"/> N
12.	1015	1051	72		76				<input type="checkbox"/> Y <input type="checkbox"/> N
13.	1020	1057	72		76				<input type="checkbox"/> Y <input type="checkbox"/> N
14.	1025	1063	72		76			END TEST	<input type="checkbox"/> Y <input type="checkbox"/> N
15.									<input type="checkbox"/> Y <input type="checkbox"/> N
16.									<input type="checkbox"/> Y <input type="checkbox"/> N
17.									<input type="checkbox"/> Y <input type="checkbox"/> N
18.									<input type="checkbox"/> Y <input type="checkbox"/> N
19.									<input type="checkbox"/> Y <input type="checkbox"/> N
20.									<input type="checkbox"/> Y <input type="checkbox"/> N
21.									<input type="checkbox"/> Y <input type="checkbox"/> N
22.									<input type="checkbox"/> Y <input type="checkbox"/> N
23.									<input type="checkbox"/> Y <input type="checkbox"/> N
24.									<input type="checkbox"/> Y <input type="checkbox"/> N
25.									<input type="checkbox"/> Y <input type="checkbox"/> N
26.									<input type="checkbox"/> Y <input type="checkbox"/> N
27.									<input type="checkbox"/> Y <input type="checkbox"/> N
28.									<input type="checkbox"/> Y <input type="checkbox"/> N
29.									<input type="checkbox"/> Y <input type="checkbox"/> N
30.									<input type="checkbox"/> Y <input type="checkbox"/> N
31.									<input type="checkbox"/> Y <input type="checkbox"/> N
32.									<input type="checkbox"/> Y <input type="checkbox"/> N
33.									<input type="checkbox"/> Y <input type="checkbox"/> N
34.									<input type="checkbox"/> Y <input type="checkbox"/> N
35.									<input type="checkbox"/> Y <input type="checkbox"/> N
36.									<input type="checkbox"/> Y <input type="checkbox"/> N
37.									<input type="checkbox"/> Y <input type="checkbox"/> N
38.									<input type="checkbox"/> Y <input type="checkbox"/> N
39.									<input type="checkbox"/> Y <input type="checkbox"/> N
40.									<input type="checkbox"/> Y <input type="checkbox"/> N

Was a leak observed during Test Period?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
If "Yes", Explain:				High Test Pressure:	1063
				Low Test Pressure:	1000
Certification:			Date: 8-12-2014		
Test Supervisor:		<i>[Signature]</i>		Company Representative: <i>[Signature]</i>	





51N4191943
 51N31079361
 CHART NO. MC MP-150
 TECH CAL Test 18 of 18
 METER 04352
 CHART PUT ON 0920 HRS M
 LOCATION T-022A-12
 REMARKS Loc D Tie/Pieces & New MLV 26-S3 Assembly LAFAYETTE, CA "UNRESTRAINED"
 TAKEN OFF 1025 HRS M
 L-191-1
 8/12/14

START TEST
0920 HRS 8-12-2014

END TEST
1025 HRS 8-12-2014
AKB, WLC
S-1100

MADE IN U.S.A.

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 DEAD WEIGHT
TESTER

Range 25-3000

Units PSIG

Resolution AS RATED

Mfg. AMETEK

Model HL36

Cal By R.K. STRAHL

Curent Cal Cycle (Months) 12

Previous Cal Cycle 12

Standards Used AMETEK DM-T-150 S/N 8681
DUE 3/3/2015 NIST 40568.001

Certificate Number: **2802598**

Rated Accuracy .1%

Pass/Fail as Found PASS

Pass/Fail as Left PASS

1st (Mfg) S/N **HL6406**

2nd S/N **N/A**

Cal Date **3/18/2014**

Cal Due **3/18/2015**

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
MEASUREMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE
OR 1 MINOR DIVISION.



CALIBRATION DATA SHEET

PRESSURE / TEMPERATURE

LAST REVISION: 9/24/2013

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

CUSTOMER **ARB** TSG JOB **3773** TSG ITEM _____ CUST. P. O. # _____ SHIPPING # **41725** DESCRIPTION: PRESS TEMP TEST GAGE ASSIGNED C.T. # _____
 RECORDER OTHER **DMAD WT TST**

1ST SERIAL # **HC6406** 2ND SERIAL # _____ MANUFACTURER **AMETEK** MODEL **HL 36** RANGE **25-3000** RESOLUTION _____ DIGITAL _____ ANALOG _____

CASE SIZE _____ CONNECTION TYPE **BOTTOM** BACK CONNECTION SIZE **1/8"** 1/4" 1/2" OTHER _____ THREAD TYPE **NPT** TUBE UN ISO RATED ACCURACY % **0.1** NIST TRACEABLE # _____
 PRESSURE: 40568.001 TEMPERATURE: TE188, TE192, TE195

EXISTING CAL CYCLE _____ CAL CYCLE UPDATE **UP** LAST CAL DATE **8/13** CAL DATE **3/18/14** RECALIBRATE **3/18/15**

TECHNICIAN **R.K. STRANK** BADGE # **1502** TEMPERATURE DEG. F **68-72** RELATIVE HUMIDITY % **< 60 %** CALIBRATION PROCEDURE **G-A1, SCP-01, SCP-02, SCP-03**

CONDITION				STANDARDS USED				TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO 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
AS RECEIVED		AS RETURNED		MFG.	MODEL	SERIAL #	RECALIBRATE	
GOOD <input checked="" type="checkbox"/>	DAMAGED <input type="checkbox"/>	IN TOL. <input type="checkbox"/>	OUT OF TOL. <input checked="" type="checkbox"/>	AMETEK	DM-T-50	8681	3/3/2015	
IN TOL. <input checked="" type="checkbox"/>	OUT OF TOL. <input type="checkbox"/>	LIMITED <input type="checkbox"/>	R.R.R. <input type="checkbox"/>	EUTECHNICS	4600	100049	7/31/2014	
		REPAIRED BEFORE TEST <input type="checkbox"/>	PCS. CALIB. <input type="checkbox"/>					

PARAMETER	RANGE	STANDARD VALUE	OBSERVED INDICATION	CORRECTED INDICATION	TOLERANCE	PASS	FAIL
PRESSURE :							
PSIG <input checked="" type="checkbox"/>							
PSID _____							
PSIA _____							
IN Hg _____							
IN H2O _____							
OTHER _____							
VACUUM :							
IN Hg _____							
OTHER _____							
TEMPERATURE :							
DEG F _____							
DEG C _____							
OTHER _____							
	25-3000	500.0 PSI	500.0 PSI			<input checked="" type="checkbox"/>	
	25 PSI	1000.0 PSI	999.9 PSI			<input checked="" type="checkbox"/>	
		2000.0 PSI	1999.9 PSI			<input checked="" type="checkbox"/>	
		2500.0 PSI	2499.8 PSI			<input checked="" type="checkbox"/>	
		3000.0 PSI	2999.7 PSI			<input checked="" type="checkbox"/>	

DETERMINATION OF IMPACT / NOTES :

TSG CALIBRATION SUP. / QUALITY ASSURANCE SUP.



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 **RECORDER, PRESSURE**

Range **0-2000**

Units **PSIG**

Resolution **20**

Mfg **TECH CAL**

Model **1B100**

Cal By **MIKE MCCONNELL
90765**

Current Cal Cycle (Months) **12**

Previous Cal Cycle **12**

Standards Used **AMETEK DM-T-150 S/N 8681
DUE 3/29/2016 NIST 45209.001**

Certificate Number **2401778**

Rated Accuracy **1%**

Pass/Fail as Found **PASS**

Pass/Fail as Left **PASS**

1st (Mfg) S/N **02098**

2nd S/N **PC-01**

Cal Date **5/28/2014**

Cal Due **5/28/2015**

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 MEASUREMENT 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

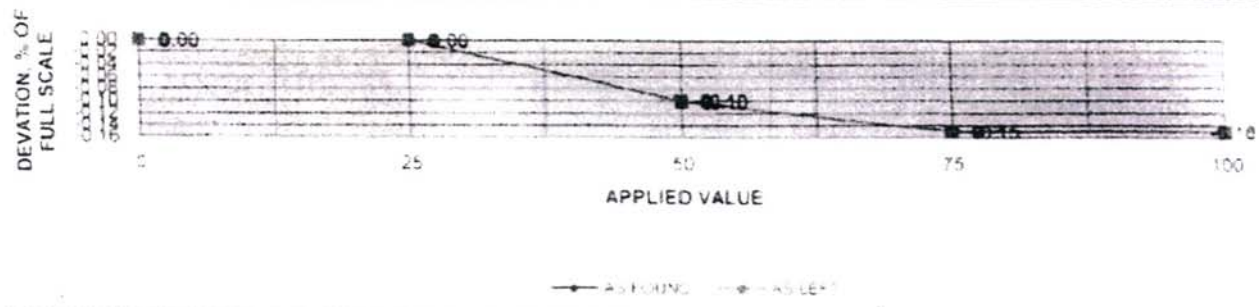
CUSTOMER: ARB
 TSG JOB & ITEM #: 3773
 CERTIFICATE NUMBER: 240778
 CAL DATE: 5/28/2014
 CAL DUE: 5/28/2015
 MFG: TECH CAL
 MODEL: 1B100
 CAL BY: Mike McConnell
 MFG S/N: 02098
 RANGE: MIN 0 MAX 2.000
 UNITS: PSIG
 RESOLUTION: 20
 RATED ACCURACY % OF FULL SCALE: 1.00 %
 END S/N: PC-01

INSTRUMENT DESCRIPTION

PROV: X
 TEMP: X
 VALUUM: X
 CASE SIZE: 11"
 CONN SIZE: 25"
 CONN LOCATION: BACK
 THREAD TYPE: NPT
 STANDARDS USED:
 MFG: AMETEK
 MODEL: DM-T-150
 S/N: 8681
 REC CAL: 6/4/2014
 N.I.S. # : 40568 001
 X: EUTECHNICS
 MODEL: 139200-1.2
 S/N: 10049
 REC CAL: 7/31/2014
 TE188, TE192, TE195

CALIBRATION DETAIL

SPAN	APPLIED VALUE	OBSERVED INDICATION		ERROR		% DEVIATION		PASS / FAIL	
		AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	PASS	PASS
25	500.00	500.00	500.00	0.00	0.00	0.00	0.00	PASS	PASS
50	1,000.00	998.00	998.00	-2.00	-2.00	-0.10	-0.10	PASS	PASS
75	1,500.00	1497.00	1497.00	-3.00	-3.00	-0.15	-0.15	PASS	PASS
100	2,000.00	1997.00	1997.00	-3.00	-3.00	-0.15	-0.15	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/ISO 2540 UNLESS OTHERWISE SPECIFIED MEASUREMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE OR 1 MINOR DIVISION, LABORATORY CONDITIONS AT TECHNICAL SERVICES GROUP 68.72 DEGREE + 40% RH

[Signature]
 TSG CALIBRATION / Q.A. SUPERVISOR



TECHNICAL SERVICES GROUP

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

Certificate of Calibration

ARB, INC. PITTSEURG
1875 LOVRIDGE ROAD
PITTSBURG
CALIFORNIA 94565

Customer ID # 3773

File # 1329

Instrument Type **RECORDER,
PRESSURE**

Range **0-2000**

Units **PSIG**

Resolution **40**

Mfg. **TECHCAL**

Model **1B200**

Cal By **J.P. 082277**

Current Cal Cycle (Month) **12**

Previous Cal Cycle **12**

Standards Used **AMETEK DM-T-150 S/N 8681
DUE 3/29/2016 NIST 45209.001**

Certificate Number: **2802960**

Rated Accuracy **1%**

Pass/Fail as Found **PASS**

Pass/Fail as Left **PASS**

1st (Mfg) S.N. **03399**

2nd S.N. **N/A**

Cal Date **5/23/2014**

Cal Due **5/23/2015**

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
MEASUREMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE
OR 1 MINOR DIVISION.**



CALIBRATION DATA SHEET

PRESSURE / TEMPERATURE

LAST REVISION: 4/16/2014

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

CUSTOMER ARB		TSG JOB	TSG ITEM	CUST. P. O. #	SHIPPING #	DESCRIPTION: PRESSURE <input checked="" type="checkbox"/> TEMP <input type="checkbox"/> TEST GAGE <input type="checkbox"/>	ASSIGNED G-T # 2802960
1ST SERIAL # 03399	2ND SERIAL #	MANUFACTURER TechCal		MODEL 1B200	RANGE 0-2000	RESOLUTION 40	DIGITAL <input type="checkbox"/> ANALOG <input checked="" type="checkbox"/>
CASE SIZE n/a	CONNECTION TYPE BOTTOM <input type="checkbox"/> BACK <input type="checkbox"/> <input checked="" type="checkbox"/>	CONNECTION SIZE 1/8" <input type="checkbox"/> 1/4" <input type="checkbox"/> 1/2" <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	THREAD TYPE NPT <input checked="" type="checkbox"/> TUBE <input type="checkbox"/> UN <input type="checkbox"/> ISO <input type="checkbox"/>	RATED ACCURACY % 1%	NIST TRACEABLE # PRESSURE: 45209.001 TEMPERATURE: 1E188, 1E192, 1E195		
EXISTING CAL CYCLE 12mo	CAL CYCLE UPDATE	LAST CAL DATE 12/13	CAL DATE 5-22-14	RECALIBRATE 5-22-15			

TECHNICIAN J.P.	BADGE # 082277	TEMPERATURE DEG. F 68 - 72	RELATIVE HUMIDITY % < 60 %	CALIBRATION PROCEDURE G-A1, SCP-01, SCP-02, SCP-03
---------------------------	--------------------------	--------------------------------------	---	--

CONDITION				STANDARDS USED				TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO 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
AS RECEIVED		AS RETURNED		MFG.	MODEL	SERIAL #	RECALIBRATE	
GOOD <input checked="" type="checkbox"/>	DAMAGED <input type="checkbox"/>	IN TOL. <input checked="" type="checkbox"/>	OUT OF TOL. <input type="checkbox"/>	AMETEK	DM-T-50	8681	3/29/2016	
IN TOL. <input checked="" type="checkbox"/>	OUT OF TOL. <input type="checkbox"/>	LIMITED <input type="checkbox"/>	B.E.R. <input type="checkbox"/>	EUTECHNICS	4600	100049	7/31/2014	
		REPAIRED BEFORE TEST <input type="checkbox"/>	PCS. CALIB. <input checked="" type="checkbox"/>					

PARAMETER	RANGE .	STANDARD VALUE	OBSERVED INDICATION	CORRECTED INDICATION	TOLERANCE	PASS	FAIL
PRESSURE							
PSIG <input checked="" type="checkbox"/>					1%		
PSID <input type="checkbox"/>	0	0	0	—		<input checked="" type="checkbox"/>	
PSIA <input type="checkbox"/>							
IN Hg <input type="checkbox"/>	520	520	516	—		<input checked="" type="checkbox"/>	
IN H2O <input type="checkbox"/>	1000	1000	989	—		<input checked="" type="checkbox"/>	
OTHER <input type="checkbox"/>							
VACUUM:							
IN Hg <input type="checkbox"/>	1520	1520	1510	—		<input checked="" type="checkbox"/>	
OTHER <input type="checkbox"/>	2000	2000	1990	—		<input checked="" type="checkbox"/>	
TEMPERATURE:							
DEG F <input type="checkbox"/>							
DEG C <input type="checkbox"/>							
OTHER <input type="checkbox"/>							

DETERMINATION OF IMPACT / NOTES :

TSG CALIBRATION SUP. / QUALITY ASSURANCE SUP.

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
**RECORDER,
TEMPERATURE**

Range 0-150

Units DEG F

Resolution 2

Mfg. TECHCAL

Model 1BT00

Cal By: J.P. 082277

Current Cal Cycle (Months) 12

Previous Cal Cycle 12

Standards Used
**EUTECHNICS 139200-1.2 S/N
100049 DUE 7/31/2014 NIST
TE188, TE192, TE195**

Certificate Number: **2802952**

Rated Accuracy 1%

Pass/Fail as Found **PASS**

Pass/Fail as Left **PASS**

1st (Mfg) S.N. **04350**

2nd S.N. **N/A**

Cal Date **5/23/2014**

Cal Due **5/23/2015**

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
MEASUREMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE
OR 1 MINOR DIVISION.**



CALIBRATION DATA SHEET PRESSURE / TEMPERATURE

LAST REVISION: 4/16/2014

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

CUSTOMER ARB		TSG JOB	TSG ITEM	CUST. P. O. #	SHIPPING #	DESCRIPTION: PRESS. <input type="checkbox"/> TEMP. <input checked="" type="checkbox"/> TEST GAGE	ASSIGNED C.T.# 2802952
1ST SERIAL # 04350	2ND SERIAL #	MANUFACTURER Tech Cal		MODEL 1BT00	RANGE 0-150	RESOLUTION 2	DIGITAL <input type="checkbox"/> ANALOG <input checked="" type="checkbox"/>
CASE SIZE	CONNECTION TYPE BOTTOM <input type="checkbox"/> BACK <input type="checkbox"/>	CONNECTION SIZE 1/8" <input type="checkbox"/> 1/4" <input type="checkbox"/> 1/2" <input type="checkbox"/> OTHER	THREAD TYPE NPT <input type="checkbox"/> TUBE <input type="checkbox"/> UN <input type="checkbox"/> ISO <input type="checkbox"/>	RATED ACCURACY %	NIST TRACEABLE # PRESSURE: 45209.001 TEMPERATURE: TE188, TE192, TE195		
EXISTING CAL CYCLE ARM	CAL CYCLE UPDATE		LAST CAL DATE 12/13	CAL DATE 5-23-14	RECALIBRATE 5-23-15		
TECHNICIAN J.P.		BADGE # 082277	TEMPERATURE DEG. F 68 - 72	RELATIVE HUMIDITY % < 60 %	CALIBRATION PROCEDURE G-A1, SCP-01, SCP-02, SCP-03		

CONDITION				STANDARDS USED				TECHNICAL SERVICES GROUP CERTIFIES THAT THIS INSTRUMENT HAS BEEN CALIBRATED TRACEABLE TO NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY AND CONFORMS TO ISO 10012 AND ANSI / NCSL 7-540 UNLESS OTHERWISE SPECIFIED MEASUREMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE OR 1 MINOR DIVISION
AS RECEIVED		AS RETURNED		MFG.	MODEL	SERIAL #	RECALIBRATE	
GOOD <input checked="" type="checkbox"/>	DAMAGED <input type="checkbox"/>	IN TOL. <input checked="" type="checkbox"/>	OUT OF TOL. <input type="checkbox"/>	AMETEK	DM-T-50	8681	3/29/2016	
IN TOL. <input checked="" type="checkbox"/>	OUT OF TOL. <input type="checkbox"/>	LIMITED <input type="checkbox"/>	B.E.R. <input type="checkbox"/>	EUTECHNICS	4600	100049	7/31/2014	
		REPAIRED BEFORE TEST <input type="checkbox"/>	PCS. CALIB. <input type="checkbox"/>					

PARAMETER	RANGE	STANDARD VALUE	OBSERVED INDICATION	CORRECTED INDICATION	TOLERANCE	PASS	FAIL
PRESSURE :							
PSIG					1%		
PSID	0	32°	32°			<input checked="" type="checkbox"/>	
PSIA		70°	70°			<input checked="" type="checkbox"/>	
IN Hg		150°	150°			<input checked="" type="checkbox"/>	
IN H2O							
OTHER							
VACUUM :							
IN Hg							
OTHER							
TEMPERATURE :							
DEG F <input checked="" type="checkbox"/>							
DEG C <input checked="" type="checkbox"/>							
OTHER							

DETERMINATION OF IMPACT / NOTES :

TSG CALIBRATION SUP. / QUALITY ASSURANCE SUP.



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 **RECORDER,
TEMPERATURE**

Range 0-150

Units DEG F

Resolution 2

Mfg. TECH-CAL

Model 1BT00

Cal By R.K. STRAHL

Current Cal Cycle (Months) 12

Previous Cal Cycle N/A

Standards Used **FLUKE 515A SN 10520
6/13/14 NIST F26700**

Certificate Number: **2401712**

Rated Accuracy 1%

Pass Fail as Found **PASS**

Pass Fail as Left **PASS**

1st (Mfg) S.N. **04352**

2nd S.N. **N/A**

Cal Date **5/1/2014**

Cal Due **5/1/2015**

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
MEASUREMENT UNCERTAINTIES ARE LESS THAN 1/4 OF TOLERANCE
OR 1 MINOR DIVISION.**



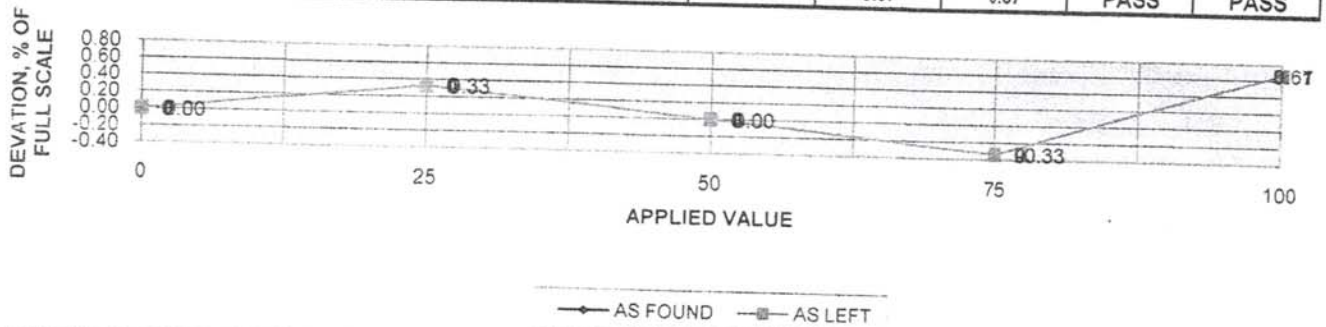
CALIBRATION DATA SHEET PRESSURE / TEMPERATURE

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

CUSTOMER: ARB
 MFG: TECH CAL
 RANGE: MIN 0 MAX 150
 PRESS: X TEMP: X VACUUM: X
 TSG JOB & ITEM #: 3773
 MODEL: 1BT00
 UNITS: DEG F
 RESOLUTION: 2
 RATED ACCURACY, % FULL SCALE: 1.00 %
 INSTRUMENT DESCRIPTION: CASE SIZE RECORDER
 CONN. SIZE: N/A
 STANDARDS USED: S/N 8681, 10520
 RECAL: 3/3/2014, 6/13/2014
 N.I.S.T #: 40568.001, F26700
 CERTIFICATE NO.: 2401712
 CAL BY: R.K. STRAHL
 CAL DATE: 5/1/2014
 MFG S/N: 04352
 CAL DUE: 5/1/2015

CALIBRATION DETAIL

% SPAN	APPLIED VALUE	OBSERVED INDICATION		ERROR		% DEVIATION		PASS / FAIL	
		AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT	AS FOUND	AS LEFT
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	PASS	PASS
25	37.50	38.00	38.00	0.50	0.50	0.33	0.33	PASS	PASS
50	75.00	75.00	75.00	0.00	0.00	0.00	0.00	PASS	PASS
75	112.50	112.00	112.00	-0.50	-0.50	-0.33	-0.33	PASS	PASS
100	150.00	151.00	151.00	1.00	1.00	0.67	0.67	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

[Signature]
 TSG CALIBRATION / Q.A. SUPERVISOR