



RCP, Inc

801 Louisiana, Ste.200
Houston, Texas 77002

Redacted

September 23, 2011

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

| | |
|--------------------------|---|
| Test Contractor: | Milbar Hydro-Test Inc. -- FY12-112 |
| Asset Owner: | Pacific Gas and Electric Company -- 414197305-T65 |
| Construction Contractor: | Snelson -- 41474005 -T65B |
| Test Section: | PG&E T-65B L-300B, MP 445.5937 - 446.4777 |
| Test Date: | September 23, 2011 |
| Certificate Number: | RCP 61362 - T-65B L-300B, MP 445.5937 - 446.4777 |

To whom it may concern,

This letter is to certify that the hydrostatic test performed on pipe owned by Pacific Gas and Electric Company and tested by Milbar Hydro-Test Inc. met the requirements of the Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 2).

The test segment was subjected to a spike pressure test of 1038 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 8.65 hour test duration period.

This hydrostatic test was completed successfully. Pressure was maintained on the test facilities in excess of 8.65 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 968 psig and the established MAOP is 774 psig.

Pressure decreased 64 psi during the test. 11,481.60 ounces of fluid was intentionally released from the test section. Net corrected volumetric change from beginning of the test to the end of the test is calculated to be 239.53 ounces, gain, which is equivalent to a 0.06 °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 gain is attributed to the error characteristic of the temperature measurement instrumentation utilized.

Sincerely,

Redacted

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C:\1__PG&E FILES\TESTS\Test T-65B Redacted
Test T-65B version 8.30.2011
Letter



Hydrostatic Test Certification

| | | | |
|------------------|--|-------------|---------------|
| Company | Pacific Gas and Electric Company | Job Number | 414197305-T65 |
| Construction Co. | Snelson | Job Number | 41474005-T65B |
| Hydro. Test Co. | Milbar Hydro-Test Inc. | Project No. | FY12-112 |
| Test Section | PG&E T-65B L-300B, MP 445.5937 - 446.4777 | | |
| File Name | RCP 61362 - T-65B L-300B, MP 445.5937 - 446.4777 | | |

Hydrostatic Test Pressure

APPLICABLE CODE FOR CERTIFICATION: _____ Test Date: 23-Sep-11

Code of Federal Regulations, Title 49, Part 192, Subpart J (Class 2)

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-65B L-300B, MP 445.5937 - 446.4777
 From: 45+74 To: 0+00

Pipe Data

| Segment | Length | Diameter | Wall Thickness | Specification | 100% SMYS |
|---------|----------|------------|----------------|----------------------------------|-----------|
| 1 | 63 ft | 34.000 in. | 0.375 in. | API5L-X65, DSAW, Arc Weld, Steel | 1,434 psi |
| 2 | 4,782 ft | 34.000 in. | 0.344 in. | API5L-X52, DSAW, Arc Weld, Steel | 1,052 psi |
| 3 | 39 ft | 34.000 in. | 0.500 in. | API5L-X65, DSAW, Arc Weld, Steel | 1,912 psi |
| 4 | 44 ft | 34.000 in. | 0.505 in. | API5L-X65, DSAW, Arc Weld, Steel | 1,931 psi |

Initial Test Conditions

| | | | | | |
|--------------------------------------|------------|-------------------------|------------------|------------------|---------|
| Pressure at Test Point: | 1,038 psig | Date/Time: | 9/23/11 11:36 AM | Pipe Temperature | |
| Ambient Temperature: | 84.0 °F | Elevation @ Test Point: | 555.0 ft | Unrestrained: | 81.0 °F |
| Pressure @ High Point (Cal/Measure): | 1,032 psig | Elevation @ High Point: | 568.0 ft | Restrained: | 75.0 °F |
| Pressure @ Low Point (Cal/Measure): | 1,046 psig | Elevation @ Low Point: | 537.0 ft | Location: | 45+74 |
| | | | | Location: | 0+00 |
| | | | | Location: | 26+71 |

Final Test Conditions

| | | | | | |
|--|-----------------------|-------------------------|-----------------|---------------------|---------|
| Pressure at Test Point: | 974 psig | Date/Time: | 9/23/11 8:15 PM | Pipe Temperature | |
| Ambient Temperature: | 71.0 °F | Elevation @ Test Point: | 555.0 ft | Unrestrained: | 83.0 °F |
| Pressure @ High Point (Cal/Measure): | 968 psig | Elevation @ High Point: | 568.0 ft | Restrained: | 75.0 °F |
| Pressure @ Low Point (Cal/Measure): | 982 psig | Elevation @ Low Point: | 537.0 ft | Location: | 45+74 |
| | | | | Location: | 0+00 |
| | | | | Location: | 26+71 |
| Total Fluid Injected: | | | Volume gain | | |
| Total Fluid Withdrawn: | 11481.60 fluid ounces | | | | |
| Net Change in Volume of the Test Section ± (+ Gain, - Loss): | 239.53 oz | gain | 0.0008% | 0.064 °F equivalent | |

Test Duration: 8.65 hours

| | | | | |
|--------------------------------|------------|------------|------------|-------|
| Minimum Test Pressure: | 969 psig | 963 psig | 977 psig | |
| Maximum Test Pressure: | 1,038 psig | 1,032 psig | 1,046 psig | |
| % SMYS : | | 98.1% | 99.4% | |
| Test Segment Observed % SMYS : | Minimum | 53.8% | Maximum | 99.4% |

Minimum Test Pressure (Calculated/Measured): 968 psig

Maximum Allowable Operating Pressure: DOT Part 192 Test Factor= 1.25 774 psig

Were leaks observed? **No** Explain:

Acceptable Hydrostatic Test? Yes

The test segment was subjected to a spike pressure test of 1038 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 8.65 hour test duration period.

No leaks were observed during the test period. The test section included 4,782 feet of buried and 146 feet of exposed pipe. Pressure lost 64 psi during the test. The buried pipe segment fluid temperature remained steady and the exposed pipe segment gained 2°F.

11,481.60 ounces of fluid was intentionally released from the test section. Net corrected volumetric change from beginning of the test to the end of the test is calculated to be 239.53 ounces, gain, which is equivalent to a 0.06 °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 gain is attributed to the error characteristic of the temperature measurement instrumentation utilized.

Remarks
 Redacted

23-Sep-11



Dead Weight Log Sheet

| | | | |
|------------------|--|-------------|-----------------|
| Owner Company | Pacific Gas and Electric Company | Job Number | 414197305-T65 |
| Construction Co. | Snelson | Job Number | 41474005 - T65B |
| Testing Co. | Milbar Hydro-Test Inc. | Project No. | FY12-112 |
| Test Section | PG&E T-65B L-300B, MP 445.5937 - 446.4777 | | |
| File Name | RCP 61362 - T-65B L-300B, MP 445.5937 - 446.4777 | | |

| | | |
|------|-----------|----------|
| Date | 23-Sep-11 | Test Log |
|------|-----------|----------|

| Log No. | Test Period | | Test Pressure | Temperature °F | | | Remarks | | |
|---------|-------------|----------|---------------|----------------|--------------|------------|-----------|-----------|-----------|
| | Date | Time | | Ambient | Pipe | | Comment | Bleed | Inject |
| | | | | | Unrestrained | Restrained | | | |
| 1 | 9/23/11 | 11:02 AM | 715 psig | 79 °F | 78 °F | 75 °F | | | |
| 2 | 9/23/11 | 11:03 AM | 725 psig | 79 °F | 78 °F | 75 °F | Inject | | 1,696 oz. |
| 3 | 9/23/11 | 11:04 AM | 735 psig | 79 °F | 78 °F | 75 °F | Inject | | 1,696 oz. |
| 4 | 9/23/11 | 11:05 AM | 745 psig | 79 °F | 78 °F | 75 °F | Inject | | 1,631 oz. |
| 5 | 9/23/11 | 11:06 AM | 755 psig | 79 °F | 78 °F | 75 °F | Inject | | 1,631 oz. |
| 6 | 9/23/11 | 11:07 AM | 765 psig | 79 °F | 78 °F | 75 °F | Inject | | 1,631 oz. |
| 7 | 9/23/11 | 11:08 AM | 775 psig | 79 °F | 78 °F | 75 °F | Inject | | 1,696 oz. |
| 8 | 9/23/11 | 11:09 AM | 785 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 9 | 9/23/11 | 11:10 AM | 795 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 10 | 9/23/11 | 11:11 AM | 805 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 11 | 9/23/11 | 11:12 AM | 815 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 12 | 9/23/11 | 11:13 AM | 825 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 13 | 9/23/11 | 11:14 AM | 835 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 14 | 9/23/11 | 11:15 AM | 845 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 15 | 9/23/11 | 11:16 AM | 855 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 16 | 9/23/11 | 11:17 AM | 865 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,565 oz. |
| 17 | 9/23/11 | 11:18 AM | 875 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 18 | 9/23/11 | 11:19 AM | 885 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 19 | 9/23/11 | 11:20 AM | 895 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 20 | 9/23/11 | 11:21 AM | 905 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 21 | 9/23/11 | 11:22 AM | 915 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 22 | 9/23/11 | 11:23 AM | 925 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 23 | 9/23/11 | 11:24 AM | 935 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 24 | 9/23/11 | 11:25 AM | 945 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 25 | 9/23/11 | 11:26 AM | 955 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 26 | 9/23/11 | 11:27 AM | 965 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 27 | 9/23/11 | 11:28 AM | 975 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 28 | 9/23/11 | 11:29 AM | 985 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 29 | 9/23/11 | 11:30 AM | 995 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 30 | 9/23/11 | 11:31 AM | 1,005 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 31 | 9/23/11 | 11:32 AM | 1,015 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 32 | 9/23/11 | 11:33 AM | 1,025 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,696 oz. |
| 33 | 9/23/11 | 11:34 AM | 1,035 psig | 79 °F | 79 °F | 75 °F | Inject | | 1,631 oz. |
| 34 | 9/23/11 | 11:35 AM | 1,038 psig | 79 °F | 79 °F | 75 °F | Inject | | 587 oz. |
| 35 | 9/23/11 | 11:36 AM | 1,038 psig | 84 °F | 81 °F | 75 °F | On Test | | |
| 36 | 9/23/11 | 11:46 AM | 1,038 psig | 84 °F | 82 °F | 75 °F | | | |
| 37 | 9/23/11 | 11:56 AM | 1,038 psig | 86 °F | 82 °F | 75 °F | | | |
| 38 | 9/23/11 | 12:06 PM | 1,038 psig | 87 °F | 83 °F | 75 °F | End Spike | | |
| 39 | 9/23/11 | 12:07 PM | 1,028 psig | 87 °F | 83 °F | 75 °F | Bleed | 1,664 oz. | |
| 40 | 9/23/11 | 12:08 PM | 1,018 psig | 87 °F | 83 °F | 75 °F | Bleed | 1,664 oz. | |
| 41 | 9/23/11 | 12:09 PM | 1,008 psig | 87 °F | 83 °F | 75 °F | Bleed | 1,664 oz. | |
| 42 | 9/23/11 | 12:10 PM | 998 psig | 87 °F | 83 °F | 75 °F | Bleed | 1,664 oz. | |
| 43 | 9/23/11 | 12:11 PM | 988 psig | 87 °F | 83 °F | 75 °F | Bleed | 1,664 oz. | |
| 44 | 9/23/11 | 12:12 PM | 978 psig | 87 °F | 83 °F | 75 °F | Bleed | 1,664 oz. | |



Dead Weight Log Sheet

| | | | |
|------------------|--|-------------|-----------------|
| Owner Company | Pacific Gas and Electric Company | Job Number | 414197305-T65 |
| Construction Co. | Snelson | Job Number | 41474005 - T65B |
| Testing Co. | Milbar Hydro-Test Inc. | Project No. | FY12-112 |
| Test Section | PG&E T-65B L-300B, MP 445.5937 - 446.4777 | | |
| File Name | RCP 61362 - T-65B L-300B, MP 445.5937 - 446.4777 | | |

| | | |
|------|-----------|-----------------|
| Date | 23-Sep-11 | Test Log |
|------|-----------|-----------------|

| Log No. | Test Period | | Test Pressure | Temperature °F | | | Remarks | | |
|---------|-------------|----------|---------------|----------------|--------------|------------|-------------|-----------|--------|
| | Date | Time | | Ambient | Pipe | | Comment | Bleed | Inject |
| | | | | | Unrestrained | Restrained | | | |
| 45 | 9/23/11 | 12:15 PM | 969 psig | 87 °F | 83 °F | 75 °F | Bleed | 1,498 oz. | |
| 46 | 9/23/11 | 12:30 PM | 969 psig | 89 °F | 84 °F | 75 °F | | | |
| 47 | 9/23/11 | 12:45 PM | 970 psig | 90 °F | 85 °F | 75 °F | | | |
| 48 | 9/23/11 | 1:00 PM | 970 psig | 92 °F | 86 °F | 75 °F | | | |
| 49 | 9/23/11 | 1:15 PM | 970 psig | 93 °F | 86 °F | 75 °F | | | |
| 50 | 9/23/11 | 1:30 PM | 971 psig | 93 °F | 87 °F | 75 °F | | | |
| 51 | 9/23/11 | 1:45 PM | 971 psig | 95 °F | 88 °F | 75 °F | | | |
| 52 | 9/23/11 | 2:00 PM | 972 psig | 96 °F | 88 °F | 75 °F | | | |
| 53 | 9/23/11 | 2:15 PM | 972 psig | 97 °F | 89 °F | 75 °F | | | |
| 54 | 9/23/11 | 2:30 PM | 972 psig | 98 °F | 89 °F | 75 °F | | | |
| 55 | 9/23/11 | 2:45 PM | 973 psig | 98 °F | 90 °F | 75 °F | | | |
| 56 | 9/23/11 | 3:00 PM | 973 psig | 99 °F | 90 °F | 75 °F | | | |
| 57 | 9/23/11 | 3:15 PM | 974 psig | 98 °F | 91 °F | 75 °F | | | |
| 58 | 9/23/11 | 3:30 PM | 974 psig | 97 °F | 91 °F | 75 °F | | | |
| 59 | 9/23/11 | 3:45 PM | 975 psig | 96 °F | 90 °F | 75 °F | | | |
| 60 | 9/23/11 | 4:00 PM | 975 psig | 95 °F | 90 °F | 75 °F | | | |
| 61 | 9/23/11 | 4:15 PM | 975 psig | 93 °F | 89 °F | 75 °F | | | |
| 62 | 9/23/11 | 4:30 PM | 975 psig | 90 °F | 89 °F | 75 °F | | | |
| 63 | 9/23/11 | 4:45 PM | 975 psig | 89 °F | 89 °F | 75 °F | | | |
| 64 | 9/23/11 | 5:00 PM | 976 psig | 89 °F | 89 °F | 75 °F | | | |
| 65 | 9/23/11 | 5:15 PM | 976 psig | 88 °F | 89 °F | 75 °F | | | |
| 66 | 9/23/11 | 5:30 PM | 976 psig | 86 °F | 89 °F | 75 °F | | | |
| 67 | 9/23/11 | 5:45 PM | 976 psig | 83 °F | 88 °F | 75 °F | | | |
| 68 | 9/23/11 | 6:00 PM | 976 psig | 82 °F | 87 °F | 75 °F | | | |
| 69 | 9/23/11 | 6:15 PM | 976 psig | 80 °F | 86 °F | 75 °F | | | |
| 70 | 9/23/11 | 6:30 PM | 976 psig | 78 °F | 86 °F | 75 °F | | | |
| 71 | 9/23/11 | 6:45 PM | 975 psig | 76 °F | 85 °F | 75 °F | | | |
| 72 | 9/23/11 | 7:00 PM | 975 psig | 73 °F | 84 °F | 75 °F | | | |
| 73 | 9/23/11 | 7:15 PM | 975 psig | 72 °F | 83 °F | 75 °F | | | |
| 74 | 9/23/11 | 7:30 PM | 974 psig | 72 °F | 82 °F | 75 °F | | | |
| 75 | 9/23/11 | 7:45 PM | 974 psig | 71 °F | 82 °F | 75 °F | | | |
| 76 | 9/23/11 | 8:00 PM | 974 psig | 71 °F | 82 °F | 75 °F | | | |
| 77 | 9/23/11 | 8:15 PM | 974 psig | 71 °F | 83 °F | 75 °F | End of Test | | |

| | | |
|-------------------------|--------------|--------------|
| Spike Test | | 53,747.2 oz. |
| Hydrostatic Test | 11,481.6 oz. | |

| | | | |
|---|---|--------------------------------|-----------------------------|
| Were leaks observed during the test period? | Exposed and buried pipe, no leaks observed. | High Test Pressure: 1,038 psig | Low Test Pressure: 969 psig |
|---|---|--------------------------------|-----------------------------|



Pipe Segment Volume Calculations

| | | | |
|------------------|--|--------------|-----------------|
| Company | Pacific Gas and Electric Company | Job Number | 414197305-T65 |
| Construction Co. | Snelson | Job Number | 41474005 - T65B |
| Hydro. Test Co. | Milbar Hydro-Test Inc. | Project No. | FY12-112 |
| Test Section | PG&E T-65B L-300B, MP 445.5937 - 446.4777 | WATER | |
| File Name | RCP 61362 - T-65B L-300B, MP 445.5937 - 446.4777 | | |

General Pipe Data

| Description | Segment | | | |
|-----------------------------|--------------|------------|--------------|--------------|
| | 1 | 2 | 3 | 4 |
| Restrained or Unrestrained? | Unrestrained | Restrained | Unrestrained | Unrestrained |
| Outside Diameter | 34.000 in. | 34.000 in. | 34.000 in. | 34.000 in. |
| Wall Thickness | 0.375 in. | 0.344 in. | 0.500 in. | 0.505 in. |
| Inside Diameter | 33.250 in. | 33.312 in. | 33.000 in. | 32.990 in. |
| Spec./Grade | API5L-X65 | API5L-X52 | API5L-X65 | API5L-X65 |
| Length Unrestrained | 63 ft | | 39 ft | 44 ft |
| Length Restrained | | 4.782 ft | | |
| Temperature – On Test | 81 °F | 75 °F | 81.0 °F | 81.0 °F |
| Temperature – End of Test | 83 °F | 75 °F | 83.0 °F | 83.0 °F |
| Pressure – On Test | 1,038 psig | 1,038 psig | 1,038 psig | 1,038 psig |
| Pressure – End of Test | 974 psig | 974 psig | 974 psig | 974 psig |

Unrestrained Pipe

| Sum: | Vo | 6,528.33 gal | | Vtp1 | 6,556.28 gal | | Vtp2 | 6,551.87 gal | |
|----------------------------|--------------|--------------|--------------|--------------|--------------|--|------|--------------|--|
| | | 835,626 oz. | | | 839,204 oz. | | | 838,640 oz. | |
| Vo Unrestrained | 2,842 gal | | 1,733 gal | 1,954 gal | | | | | |
| Fwp 1 | 1.003181 | | 1.003181 | 1.003181 | | | | | |
| Fpp 1 | 1.003835 | | 1.002855 | 1.002825 | | | | | |
| Fpt 1 | 1.000382 | | 1.000382 | 1.000382 | | | | | |
| Fwt 1 | 1.002556 | | 1.002556 | 1.002556 | | | | | |
| Fpwt 1 = Fpt/Fwt | 0.997832 | | 0.997832 | 0.997832 | | | | | |
| Vtp 1 = Vo(Fwp)(Fpp)(Fpwt) | 2,855.50 gal | | 1,739.51 gal | 1,961.27 gal | | | | | |
| Fwp 2 | 1.002984 | | 1.002984 | 1.002984 | | | | | |
| Fpp 2 | 1.003598 | | 1.002679 | 1.002651 | | | | | |
| Fpt 2 | 1.000419 | | 1.000419 | 1.000419 | | | | | |
| Fwt 2 | 1.002868 | | 1.002868 | 1.002868 | | | | | |
| Fpwt = Fpt/Fwt | 0.997557 | | 0.997557 | 0.997557 | | | | | |
| Vtp 2 = Vo(Fwp)(Fpp)(Fpwt) | 2,853.48 gal | | 1,738.38 gal | 1,960.01 gal | | | | | |

Restrained Pipe

| Sum: | Vo | 216,506.10 gal | | Vtp1 | 217,541.07 gal | | Vtp2 | 217,457.65 gal | |
|----------------------------|----|----------------|--|------|----------------|--|------|----------------|--|
| | | 27,712,781 oz. | | | 27,845,257 oz. | | | 27,834,579 oz. | |
| Vo Unrestrained | | 216,506 gal | | | | | | | |
| Fwp 1 | | 1.003181 | | | | | | | |
| Fpp 1 | | 1.003103 | | | | | | | |
| Fpt 1 | | 1.000182 | | | | | | | |
| Fwt 1 | | 1.001688 | | | | | | | |
| Fpwt 1 = Fpt/Fwt | | 0.998496 | | | | | | | |
| Vtp 1 = Vo(Fwp)(Fpp)(Fpwt) | | 217,541 gal | | | | | | | |
| Fwp 2 | | 1.002984 | | | | | | | |
| Fpp 2 | | 1.002915 | | | | | | | |
| Fpt 2 | | 1.000182 | | | | | | | |
| Fwt 2 | | 1.001688 | | | | | | | |
| Fpwt = Fpt/Fwt | | 0.998496 | | | | | | | |
| Vtp 2 = Vo(Fwp)(Fpp)(Fpwt) | | 217,458 gal | | | | | | | |

Combined Pipe

| Sum: | Vo | 223,034.43 gal | | Vtp1 | 224,097.35 gal | | Vtp2 | 224,009.52 gal | |
|------|----|----------------|--|------|----------------|--|------|----------------|--|
| | | 28,548,407 oz. | | | 28,684,461 oz. | | | 28,673,219 oz. | |



Pipe Segment Volume Allowance Calculations

| | | | |
|------------------|--|-------------|----------------|
| Company | Pacific Gas and Electric Company | Job Number | 414197305-T65 |
| Construction Co. | Snelson | Job Number | 41474005 -T65B |
| Hydro. Test Co. | Milbar Hydro-Test Inc. | Project No. | FY12-112 |
| Test Section | PG&E T-65B L-300B, MP 445.5937 - 446.4777 | WATER | |
| File Name | RCP 61362 - T-65B L-300B, MP 445.5937 - 446.4777 | | |

General Pipe Data

| Description | Segment | | | |
|-----------------------------|--------------|------------|--------------|--------------|
| | 1 | 2 | 3 | 4 |
| Restrained or Unrestrained? | Unrestrained | Restrained | Unrestrained | Unrestrained |
| Outside Diameter | 34.000 in. | 34.000 in. | 34.000 in. | 34.000 in. |
| Wall Thickness | 0.375 in. | 0.344 in. | 0.500 in. | 0.505 in. |
| Inside Diameter | 33.250 in. | 33.312 in. | 33.000 in. | 32.990 in. |
| Spec./Grade | API5L-X65 | API5L-X52 | API5L-X65 | API5L-X65 |
| Length Unrestrained | 63.00 ft | | 39.00 ft | 44 ft |
| Length Restrained | | 4.782 ft | | |
| Temperature -- On Test | 81 °F | 74 °F | 81 °F | 81 °F |
| Temperature -- End of Test | 82 °F | 75 °F | 82 °F | 82 °F |
| Pressure -- On Test | 1,006 psig | 1,006 psig | 1,006 psig | 1,006 psig |
| Pressure -- End of Test | 1,006 psig | 1,006 psig | 1,006 psig | 1,006 psig |

Unrestrained Pipe

| Sum: | Vo | 6,528.33 gal 835,626 oz. | Vtp1 | 6,554.98 gal 839,037 oz. | Vtp2 | 6,553.99 gal 838,911 oz. |
|----------------------------|--------------|-----------------------------|--------------|-----------------------------|------|-----------------------------|
| Vo Unrestrained | 2,842 gal | | 1,733 gal | 1,954 gal | | |
| Fwp 1 | 1.003083 | | 1.003083 | 1.003083 | | |
| Fpp 1 | 1.003717 | | 1.002767 | 1.002738 | | |
| Fpt 1 | 1.000382 | | 1.000382 | 1.000382 | | |
| Fwt 1 | 1.002556 | | 1.002556 | 1.002556 | | |
| Fpwt 1 = Fpt/Fwt | 0.997832 | | 0.997832 | 0.997832 | | |
| Vtp 1 = Vo(Fwp)(Fpp)(Fpwt) | 2,854.88 gal | | 1,739.18 gal | 1,960.91 gal | | |
| Fwp 2 | 1.003083 | | 1.003083 | 1.003083 | | |
| Fpp 2 | 1.003717 | | 1.002767 | 1.002738 | | |
| Fpt 2 | 1.000400 | | 1.000400 | 1.000400 | | |
| Fwt 2 | 1.002725 | | 1.002725 | 1.002725 | | |
| Fpwt = Fpt/Fwt | 0.997682 | | 0.997682 | 0.997682 | | |
| Vtp = Vo(Fwp)(Fpp)(Fpwt) | 2,854.45 gal | | 1,738.92 gal | 1,960.62 gal | | |

Restrained Pipe

| Sum: | Vo | 216,506.10 gal 27,712,781 oz. | Vtp1 | 217,527.71 gal 27,843,547 oz. | Vtp2 | 217,499.35 gal 27,839,917 oz. |
|----------------------------|-------------|----------------------------------|------|----------------------------------|------|----------------------------------|
| Vo Restrained | 216,506 gal | | | | | |
| Fwp 1 | 1.003083 | | | | | |
| Fpp 1 | 1.003005 | | | | | |
| Fpt 1 | 1.000169 | | | | | |
| Fwt 1 | 1.001542 | | | | | |
| Fpwt 1 = Fpt/Fwt | 0.998630 | | | | | |
| Vtp 1 = Vo(Fwp)(Fpp)(Fpwt) | 217,528 gal | | | | | |
| Fwp 2 | 1.003083 | | | | | |
| Fpp 2 | 1.003009 | | | | | |
| Fpt 2 | 1.000182 | | | | | |
| Fwt 2 | 1.001688 | | | | | |
| Fpwt = Fpt/Fwt | 0.998496 | | | | | |
| Vtp = Vo(Fwp)(Fpp)(Fpwt) | 217,499 gal | | | | | |

Combined Pipe

| Sum: | Vo | 223,034.43 gal 28,548,407 oz. | Vtp1 | 224,082.69 gal 28,682,584 oz. | Vtp2 | 224,053.35 gal 28,678,828 oz. |
|-------------|-----------|----------------------------------|------|----------------------------------|------|----------------------------------|
| 1 °F Change | 29.34 gal | | | | | 3,756.07 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 | 63 ft | Unrestrained | 34.000 in. | 0.3750 in. | API5L-X65 | 1,434 psig | Steel | Arc Weld | DSAW |
| 2 | 4,782 ft | Restrained | 34.000 in. | 0.3440 in. | API5L-X52 | 1,052 psig | Steel | Arc Weld | DSAW |
| 3 | 39 ft | Unrestrained | 34.000 in. | 0.5000 in. | API5L-X65 | 1,912 psig | Steel | Arc Weld | DSAW |
| 4 | 44 ft | Unrestrained | 34.000 in. | 0.5050 in. | API5L-X65 | 1,931 psig | Steel | Arc Weld | DSAW |
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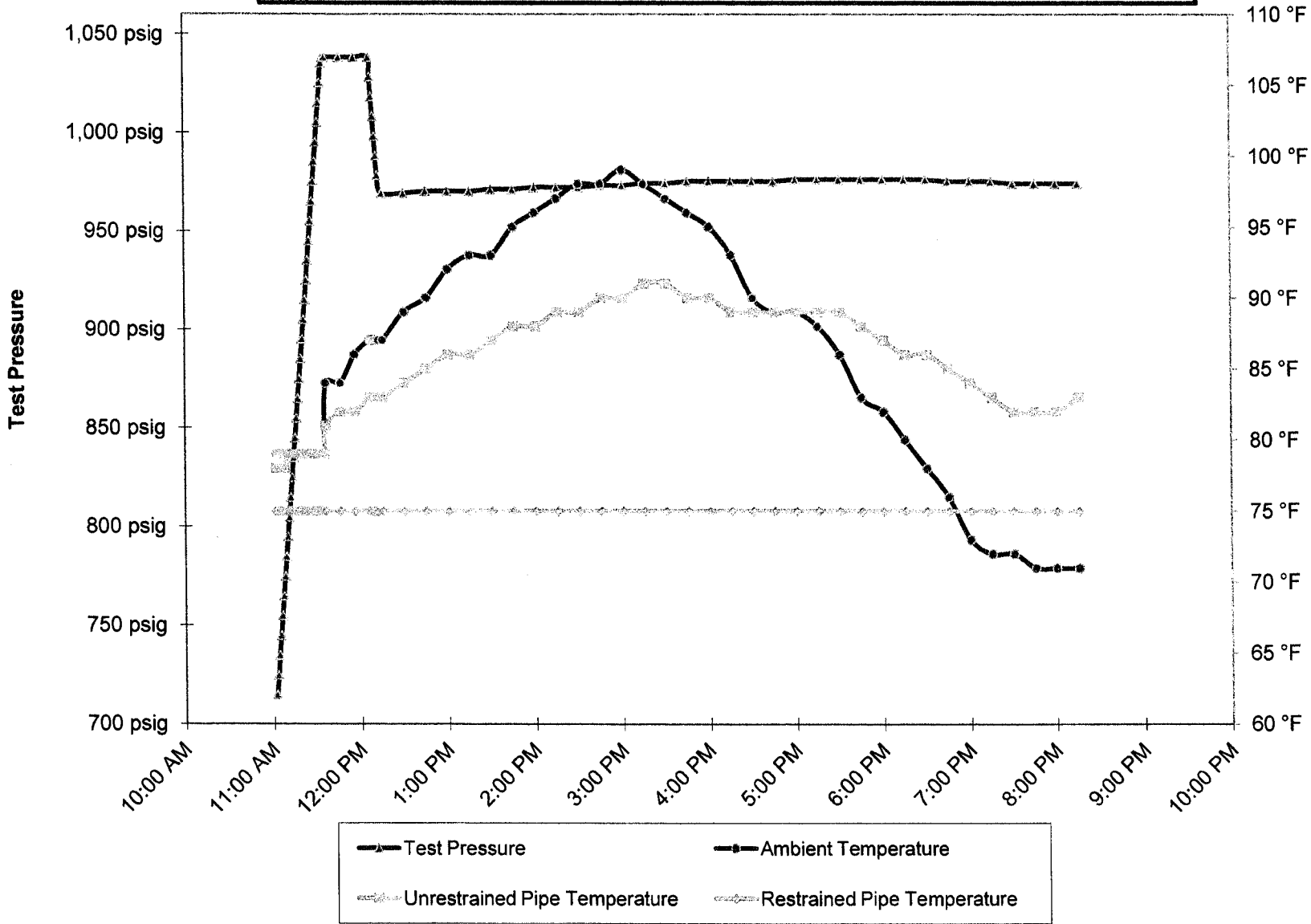
Hydrostatic Test Project Owner & Participants

| | | |
|----------------------|--|----------------|
| Owner Company | Pacific Gas and Electric Company | Job Number |
| Address | 350 N. Wiget Walnut Creek, CA 94598 Attention: Redacted | 414197305-T65 |
| Construction Company | Snelson | Job Number |
| Address | 601 West State Street Sedro-Wooley, WA 98284 Attention: Redacted | 41474005 -T65B |
| Hydrostatic Test Co. | Milbar Hydro-Test Inc. | Project No. |
| Address | P O Box 7701 Shreveport, La. 71137-7701 | FY12-112 |
| Test Section | PG&E T-65B L-300B, MP 445.5937 - 446.4777 | |
| | From: 45+74 | |
| | To: 0+00 | |
| File Name | RCP 61362 - T-65B L-300B, MP 445.5937 - 446.4777 | |

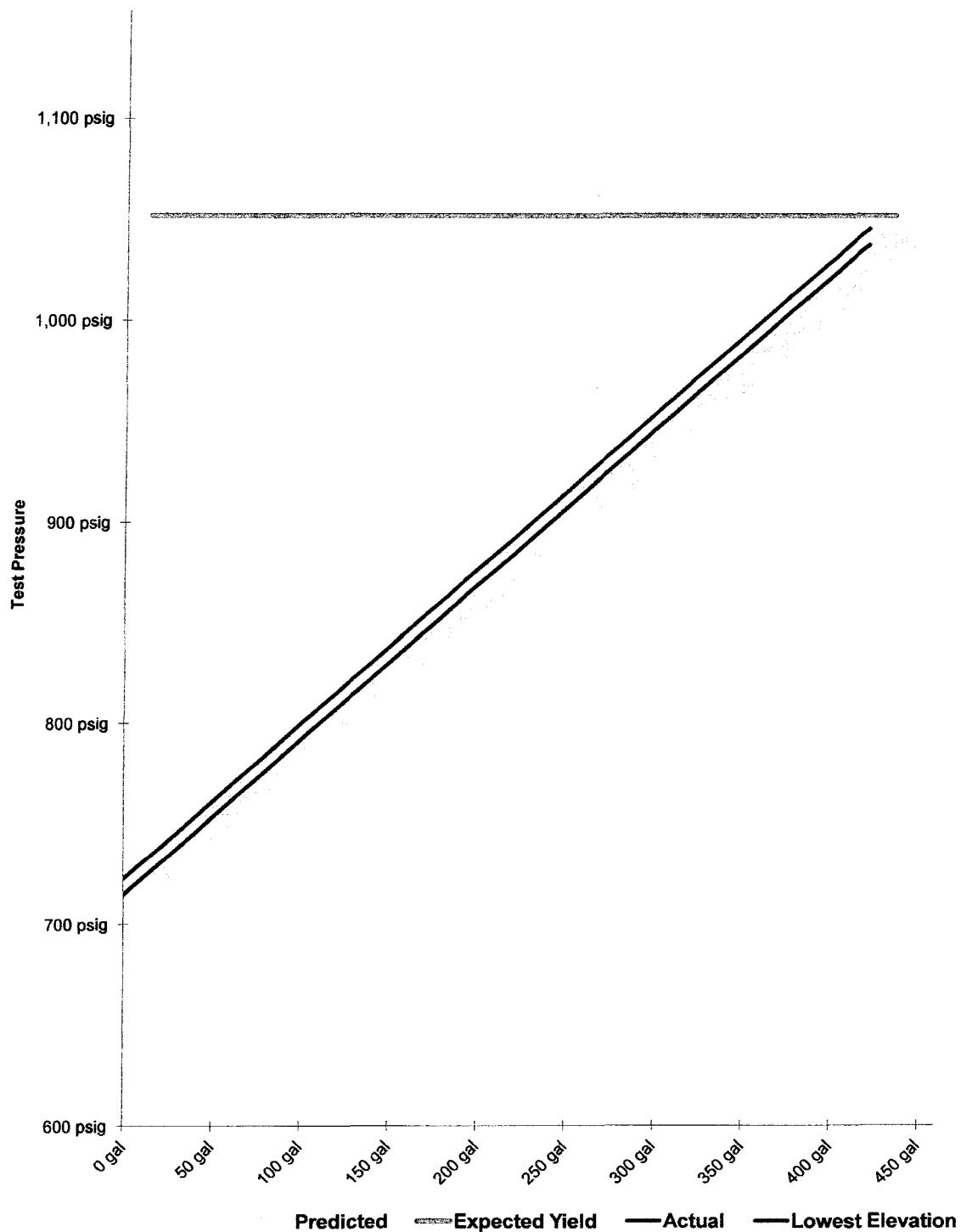
| | | | | | | | |
|--|--------------------|--------------------------------|--------|---|-------------|---|---------------|
| Part II – Test Data (TO BE PREPARED BY PERSON SUPERVISING TEST AT TIME OF TEST) | | | | Note: Minimum test pressure and duration are not to be changed without written approval. | | | |
| Time and Date Test Pressure Reached | 9/23/11 11:36 AM | Elevation at Test Point | 555 ft | Min. Required Test Press At Test Point (1) | 952.63 psig | Max. Allowable Test Press at Test Point (4) | 1,038.20 psig |
| Time and Date Test Ended | 9/23/11 8:15 PM | Max. Elevation in Test Section | 568 ft | Min. Indicated Test Pressure (2) | 969.00 psig | Max. Indicated Test Pressure (5) | 1,038.00 psig |
| Actual Duration of Test | 8 hours 39 minutes | Min. Elevation in Test Section | 537 ft | Min. Test Pressure at Max. Elevation (3) | 963.37 psig | Max. Test Pressure at Min. Elevation (6) | 1,045.80 psig |



PG&E T-65B L-300B, MP 445.5937 - 446.4777

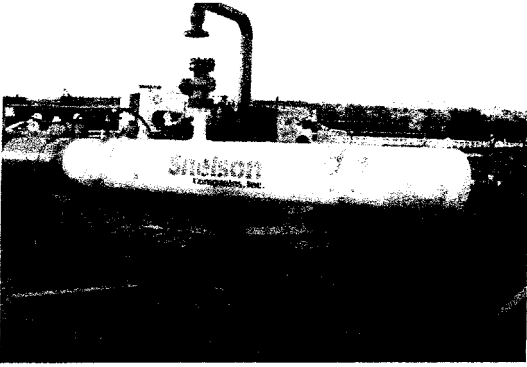


**Spike Pressure Test
Stress Strain Curve -- PG&E T-65B L-300B, MP 445.5937 -
446.4777**

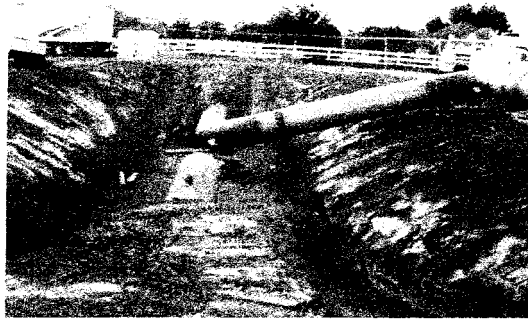




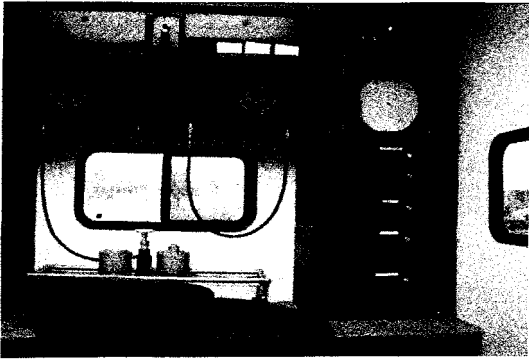
| Actual Pressure Volume Plot Data | | | Predicted Pressure Volume Plot Data | Slope | | Spike Pressure Test Stress Strain Curve -- PG&E T-65B L-300B, MP 445.5937 - 446.4777 | |
|----------------------------------|---------|------------|-------------------------------------|--------|-----------|---|------------------|
| Pressure | Strokes | Gallons | Gallons | Actual | Predicted | | |
| 715 psig | 0 | 0.00 gal | | 0 | 0.000 | Pump gal per stroke | 0.551 gal/stroke |
| 725 psig | 26 | 13.25 gal | 13.44 gal | 1.325 | 1.344 | Pump Piston Diameter | 3.000 in |
| 735 psig | 52 | 26.50 gal | 26.88 gal | 1.325 | 1.344 | Pump Piston Stroke | 6.00 in |
| 745 psig | 77 | 39.24 gal | 40.31 gal | 1.274 | 1.344 | Pump Cylinders | 3 ea |
| 755 psig | 102 | 51.98 gal | 53.75 gal | 1.274 | 1.344 | Volume check gal per stroke | 0.510 gal/stroke |
| 765 psig | 127 | 64.72 gal | 67.19 gal | 1.274 | 1.344 | Volume Released (gallons) | 13.00 gal |
| 775 psig | 153 | 77.97 gal | 80.64 gal | 1.325 | 1.344 | Pressure Reduced (psi) | 10 psi |
| 785 psig | 178 | 90.71 gal | 94.08 gal | 1.274 | 1.344 | Maximum2 | 460 gal |
| 795 psig | 203 | 103.45 gal | 107.52 gal | 1.274 | 1.344 | Minimum2 | 0 gal |
| 805 psig | 229 | 116.70 gal | 120.96 gal | 1.325 | 1.344 | Maximum1 | 1,153 psig |
| 815 psig | 254 | 129.44 gal | 134.41 gal | 1.274 | 1.344 | Minimum1 | 600 psig |
| 825 psig | 280 | 142.68 gal | 147.85 gal | 1.325 | 1.345 | Gallons/Stroke Used | 0.510 gal/stroke |
| 835 psig | 305 | 155.42 gal | 161.30 gal | 1.274 | 1.345 | Predicted Gallons/Stroke | 0.527 gal/stroke |
| 845 psig | 330 | 168.16 gal | 174.75 gal | 1.274 | 1.345 | Pressure Increment | 10 psi |
| 855 psig | 356 | 181.41 gal | 188.20 gal | 1.325 | 1.345 | Max Pressure | 1,038 psig |
| 865 psig | 380 | 193.64 gal | 201.64 gal | 1.223 | 1.345 | Buried Pipe Temperature | 75 °F |
| 875 psig | 406 | 206.89 gal | 215.09 gal | 1.325 | 1.345 | Exposed Pipe Temperature | 76 °F |
| 885 psig | 432 | 220.14 gal | 228.54 gal | 1.325 | 1.345 | ASME B31.8 Appendix N-5 | |
| 895 psig | 457 | 232.88 gal | 242.00 gal | 1.274 | 1.345 | | |
| 905 psig | 483 | 246.13 gal | 255.45 gal | 1.325 | 1.345 | Average Actual Elastic Slope | 1.305 |
| 915 psig | 508 | 258.87 gal | 268.90 gal | 1.274 | 1.345 | Average Predicted Elastic Slope | 1.345 |
| 925 psig | 533 | 271.61 gal | 282.35 gal | 1.274 | 1.345 | Code Prescribed Minimum Yield Slope (less 10%) B31.8 N-5 (c)(2) | 2.479 |
| 935 psig | 559 | 284.86 gal | 295.81 gal | 1.325 | 1.345 | Established Minimum Yield Pressure B31.8 N-5 (c)(2) | 1,038 psig |
| 945 psig | 584 | 297.60 gal | 309.26 gal | 1.274 | 1.346 | Maximum Allowed Volume (After Slope Deviation) B31.8 N-5 (c)(2) | 418 gal |
| 955 psig | 610 | 310.85 gal | 322.72 gal | 1.325 | 1.346 | Volume (After Slope Deviation) B31.8 N-5 (c)(2) | 0 gal |
| 965 psig | 635 | 323.59 gal | 336.18 gal | 1.274 | 1.346 | Redacted | |
| 975 psig | 661 | 336.84 gal | 349.63 gal | 1.325 | 1.346 | | |
| 985 psig | 687 | 350.09 gal | 363.09 gal | 1.325 | 1.346 | | |
| 995 psig | 713 | 363.34 gal | 376.55 gal | 1.325 | 1.346 | | |
| 1,005 psig | 738 | 376.08 gal | 390.01 gal | 1.274 | 1.346 | | |
| 1,015 psig | 764 | 389.32 gal | 403.47 gal | 1.325 | 1.346 | | |
| 1,025 psig | 790 | 402.57 gal | 416.94 gal | 1.325 | 1.346 | | |
| 1,035 psig | 815 | 415.31 gal | 430.40 gal | 1.274 | 1.346 | | |
| 1,038 psig | 824 | 419.90 gal | 434.44 gal | 1.529 | 1.346 | | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | 9/23/2011 | |
| 1,038 psig | | 419.90 gal | 434.44 gal | 0.000 | 0.000 | Date | |



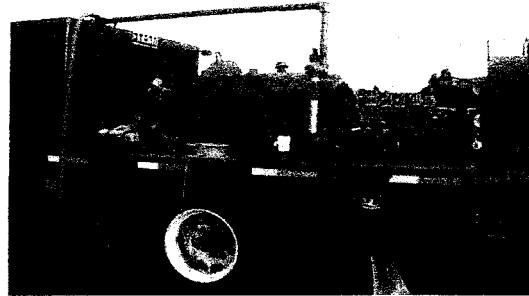
Test T-65B Test Head



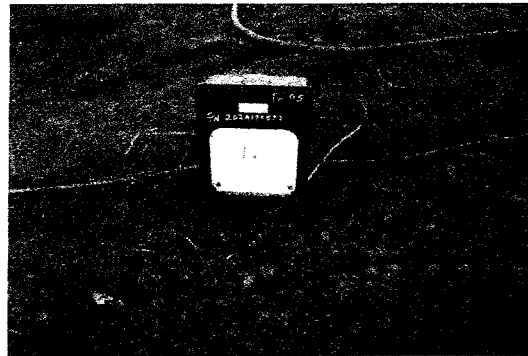
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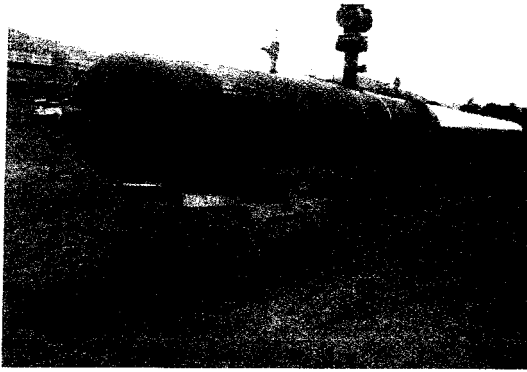
Test T-65B Deadweight



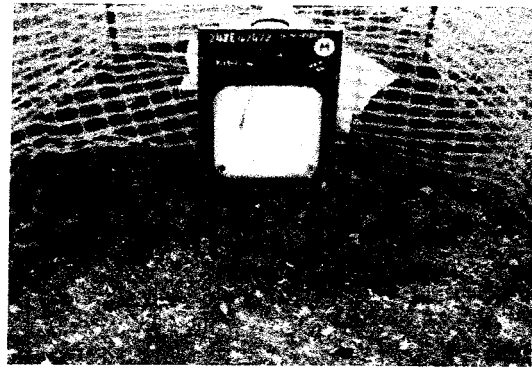
Test T-65B Pump Truck



Test T-65B Pressure Gauge



Test T-65B Test End



Test T-65B Restrained Temp. Rec.