**Issued:** 02-10-15 **Revised:** 2-2-2024 **Number:** F-12/12 **Page:** _____

## STANDARD WELDING PROCEDURE SPECIFICATION #: F-12/12

A. Process: Manual Electric Arc
B. Material: Branch and Header 5L grade A thru X52 grade material
C. Diameter and Wall Thickness: Branch and Header 8" thru 12" 0.250 thru 0.500 WT
D. Joint Design: Standard Vee Groove FILLET WELD
E. Filler Metal and Number of Beads: Electrode Classification Electrode E6010 and E8010, AWS Class A5.1 – A5.5, Minimum of 3 Passes
F. Electrical or Flame Characteristics: D.C. Reverse Polarity, Electrode Positive
G. Position: Header on Horizontal-Branch 90 degree and downward
H. Direction of Welding: Down
I. Number of Welders: 1
J. Time Lapse Between Passes: Maximum of 5 minutes between stringer and hot pass; 3 minutes maximum when temperature is below 35° F
K. Type of Line-up Clamp: None
L. Removal of Line-up Clamp: None
M. Cleaning: Taper grind starts and craters and flatten crown by grinding stringer bead, power buff all remaining passes
N. Speed of Travel: String bead 10 inches per minute maximum
O. *Preheat, Stress Relief: Maximum of 300°F, Minimum of 150°F Preheating shall be done with device or equipment which will heat entire circumference(s) in single application 2" back from pipe ends
P Notes: Tracks may be made with the branch in an upward position from the header and in an area where samples will not be taken.
* X-rated pipe must be stress relief if the carbon content exceeds 30% or C+1/4 Mn exceeds 65%. Heating of X-rated pipe is limited to 600°F.

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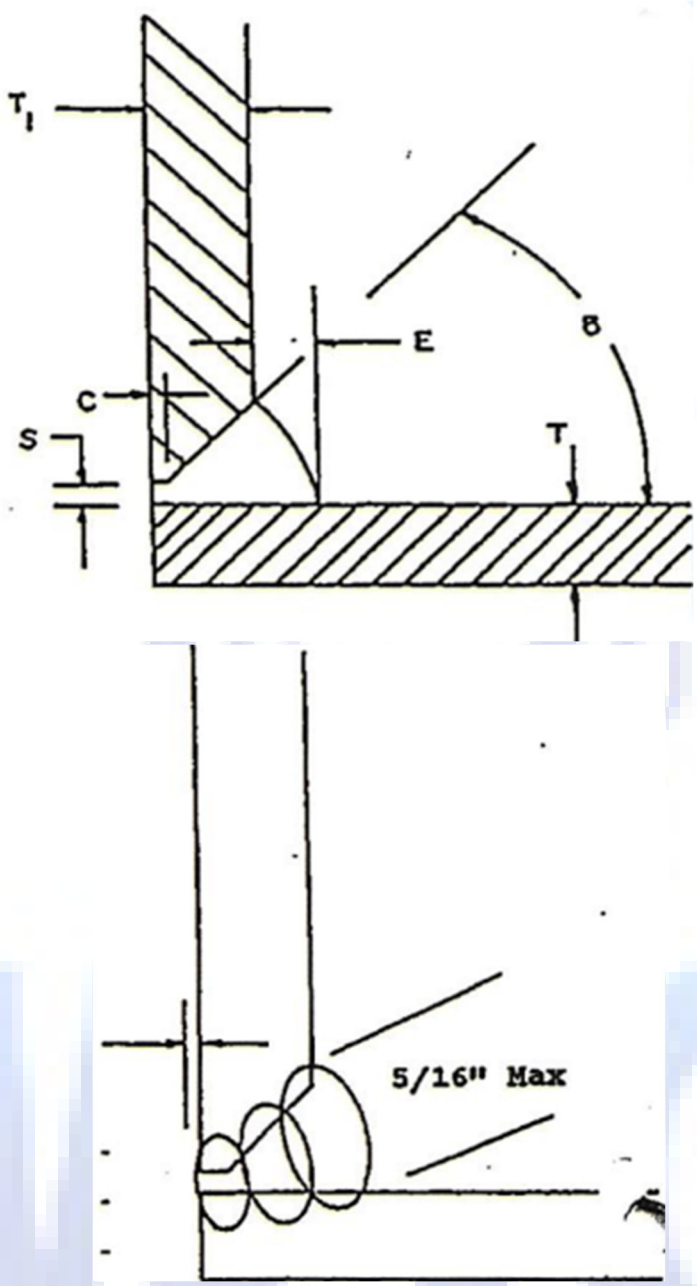
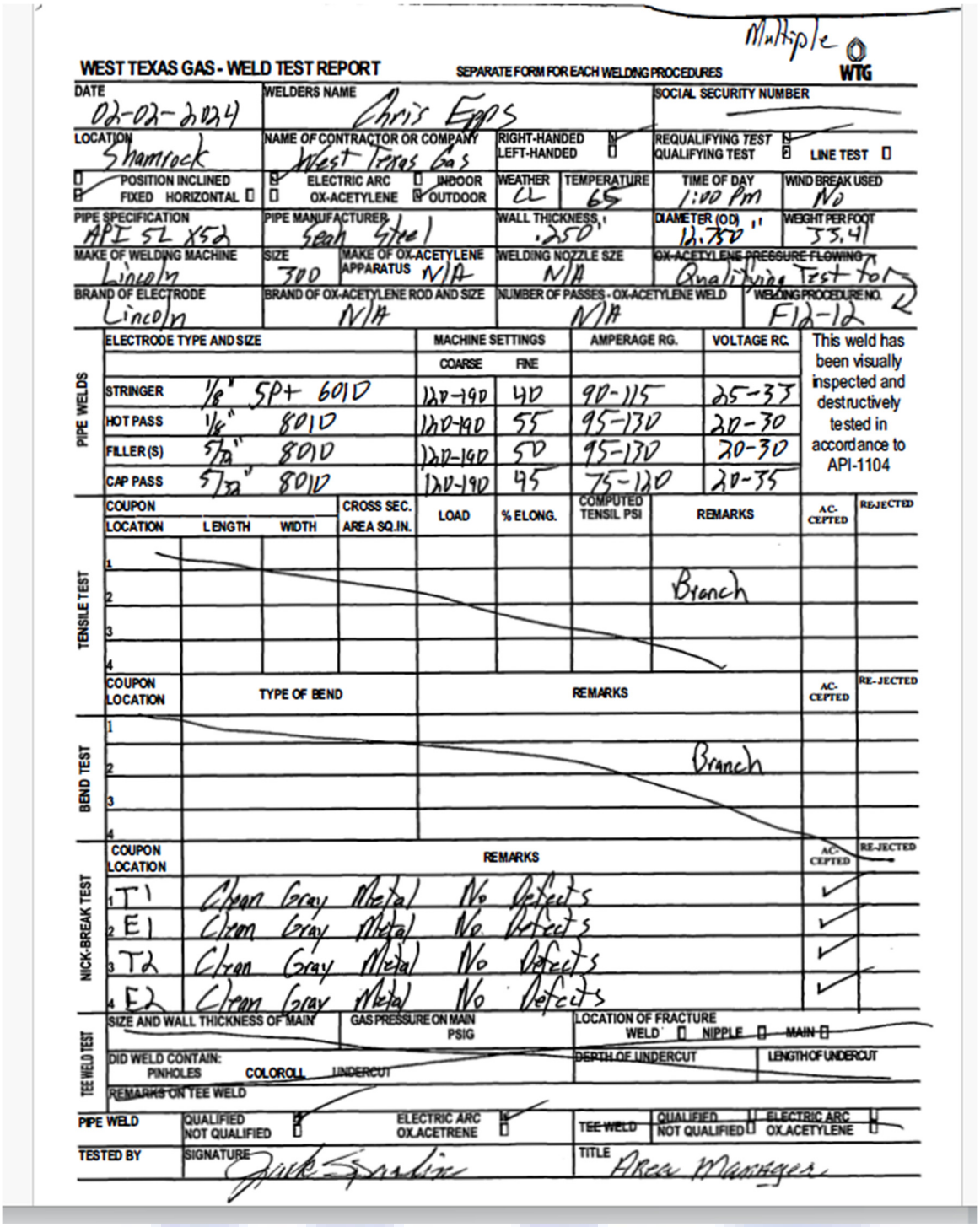



| | | | |
|---|---|---|---|
| **Main Wall Thickness** | **T 0.250 – 0.500** | **Spacing** | **S 1/32 - 3/32** |
| **Branch Wall Thickness** | **T 0.250 – 0.500** | **Root Face** | **C 1/16 +- 1/32** |
| **Bevel** | **B 35° +/- 5°** | **Toe Extention** | **E 1/4 - 5/16** |

| Bead No. | Electrode Diameter | Amperage Range | Voltage Range | Type Rod | Notes |
|---|---|---|---|---|---|
| **1** | 1/8 5P+ | 90-115 | 25-33 | E6010 | |
| **2** | 1/8 | 95-130 | 20-30 | E8010 | |
| **3** | 5/32 | 95-130 | 20-30 | E8010 | |
| **4** | 5/32 | 75-120 | 20-35 | E8010 | |
| **5*** | | | | | |

| Bead No. | Notes |
|---|---|
| **1** | Electrodes may be substituted within rod group 1&2 of AWS A5.1 – A5.5 |
| ***** | Additional passes may be made at same setting as bead #4 |
| | |
| | |
| | |



Multiple

**WEST TEXAS GAS - WELD TEST REPORT** SEPARATE FORM FOR EACH WELDING PROCEDURES WTG

| | | | | |
|---|---|---|---|---|
| DATE 02-02-2024 | WELDERS NAME Chris Epps | | | SOCIAL SECURITY NUMBER |
| LOCATION Shamrock | NAME OF CONTRACTOR OR COMPANY West Texas Gas | RIGHT-HANDED ☒ LEFT-HANDED ☐ | | REQUALIFYING TEST ☐ QUALIFYING TEST ☒ LINE TEST ☐ |
| ☐ POSITION INCLINED ☒ FIXED HORIZONTAL ☐ | ☒ ELECTRIC ARC ☐ OX-ACETYLENE | ☐ INDOOR ☒ OUTDOOR | WEATHER CL / TEMPERATURE 65 | TIME OF DAY 1:00 PM | WIND BREAK USED No |
| PIPE SPECIFICATION API 5L X52 | PIPE MANUFACTURER Seah Steel | | WALL THICKNESS .250" | DIAMETER (OD) 12.750" | WEIGHT PER FOOT 53.41 |
| MAKE OF WELDING MACHINE Lincoln | SIZE 300 / MAKE OF OX-ACETYLENE APPARATUS N/A | | WELDING NOZZLE SIZE N/A | OX-ACETYLENE PRESSURE FLOWING Qualifying Test for |
| BRAND OF ELECTRODE Lincoln | BRAND OF OX-ACETYLENE ROD AND SIZE N/A | | NUMBER OF PASSES - OX-ACETYLENE WELD N/A | WELDING PROCEDURE NO. F12-12 |

**PIPE WELDS**

| | ELECTRODE TYPE AND SIZE | MACHINE SETTINGS COARSE | MACHINE SETTINGS FINE | AMPERAGE RG. | VOLTAGE RG. |
|---|---|---|---|---|---|
| STRINGER | 1/8" 5P+ 6010 | 120-190 | 40 | 90-115 | 25-35 |
| HOT PASS | 1/8" 8010 | 120-190 | 55 | 95-130 | 20-30 |
| FILLER(S) | 5/32" 8010 | 120-190 | 50 | 95-130 | 20-30 |
| CAP PASS | 5/32" 8010 | 120-190 | 45 | 75-120 | 20-35 |

This weld has been visually inspected and destructively tested in accordance to API-1104

**TENSILE TEST**

| COUPON LOCATION | LENGTH | WIDTH | CROSS SEC. AREA SQ.IN. | LOAD | % ELONG. | COMPUTED TENSIL PSI | REMARKS | ACCEPTED | REJECTED |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | |
| 2 | | | | | | | Branch | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |

**BEND TEST**

| COUPON LOCATION | TYPE OF BEND | REMARKS | ACCEPTED | RE-JECTED |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | Branch | | |
| 3 | | | | |
| 4 | | | | |

**NICK-BREAK TEST**

| COUPON LOCATION | REMARKS | ACCEPTED | RE-JECTED |
|---|---|---|---|
| 1 T1 | Clean Gray Metal No Defects | ✓ | |
| 2 E1 | Clean Gray Metal No Defects | ✓ | |
| 3 T2 | Clean Gray Metal No Defects | ✓ | |
| 4 E2 | Clean Gray Metal No Defects | ✓ | |

**TEE WELD TEST**

| | | | |
|---|---|---|---|
| SIZE AND WALL THICKNESS OF MAIN | GAS PRESSURE ON MAIN PSIG | LOCATION OF FRACTURE WELD ☐ NIPPLE ☐ MAIN ☐ | |
| DID WELD CONTAIN: PINHOLES COLDROLL UNDERCUT | | DEPTH OF UNDERCUT | LENGTH OF UNDERCUT |
| REMARKS ON TEE WELD | | | |

| | | | | | |
|---|---|---|---|---|---|
| PIPE WELD | QUALIFIED ☒ NOT QUALIFIED ☐ | ELECTRIC ARC ☒ OX.ACETRENE ☐ | TEE WELD | QUALIFIED ☐ NOT QUALIFIED ☐ | ELECTRIC ARC ☐ OX.ACETYLENE ☐ |
| TESTED BY | SIGNATURE Jack Gradin | | TITLE Area Manager | | |