Issued: 4-23-2021 **Revised:** _____ **Number:** FP 12-12 **Page:** _____

STANDARD WELDING PROCEDURE SPECIFICATION #: FP 12-12

A. Process: Manual Electric Arc
B. Material: Branch and Header A thru X52 grade material
C. Diameter and Wall Thickness: Branch and Header 4" 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, 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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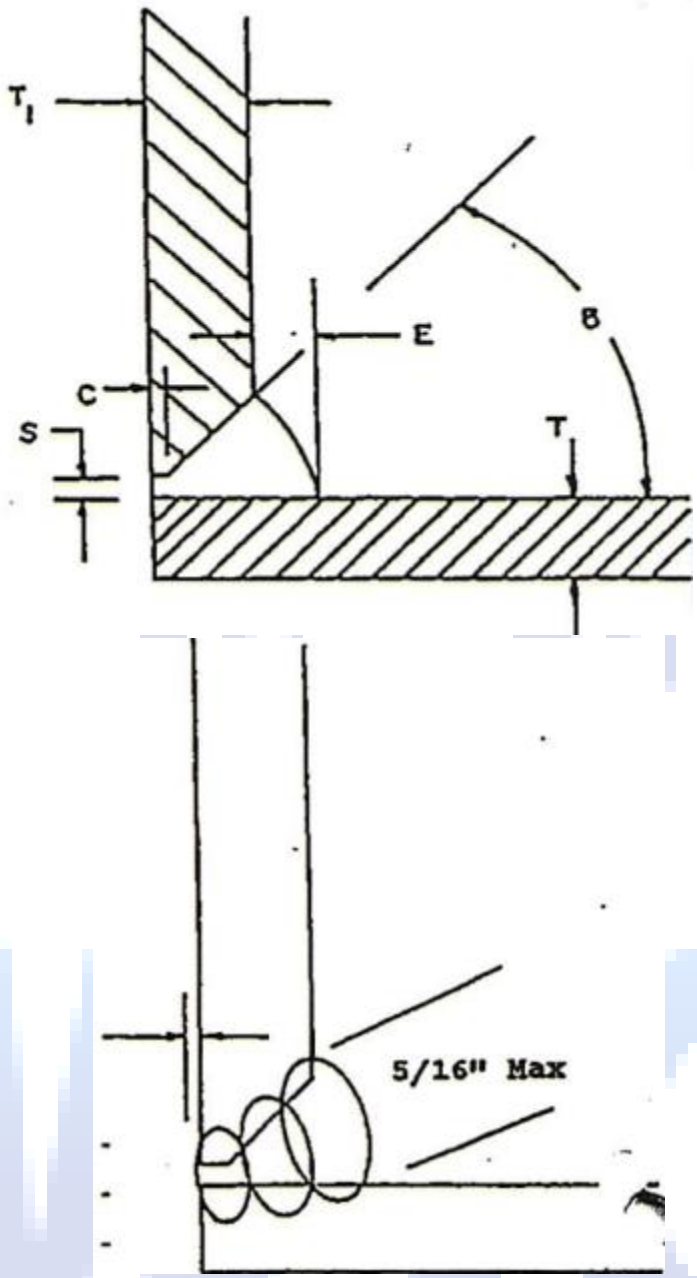
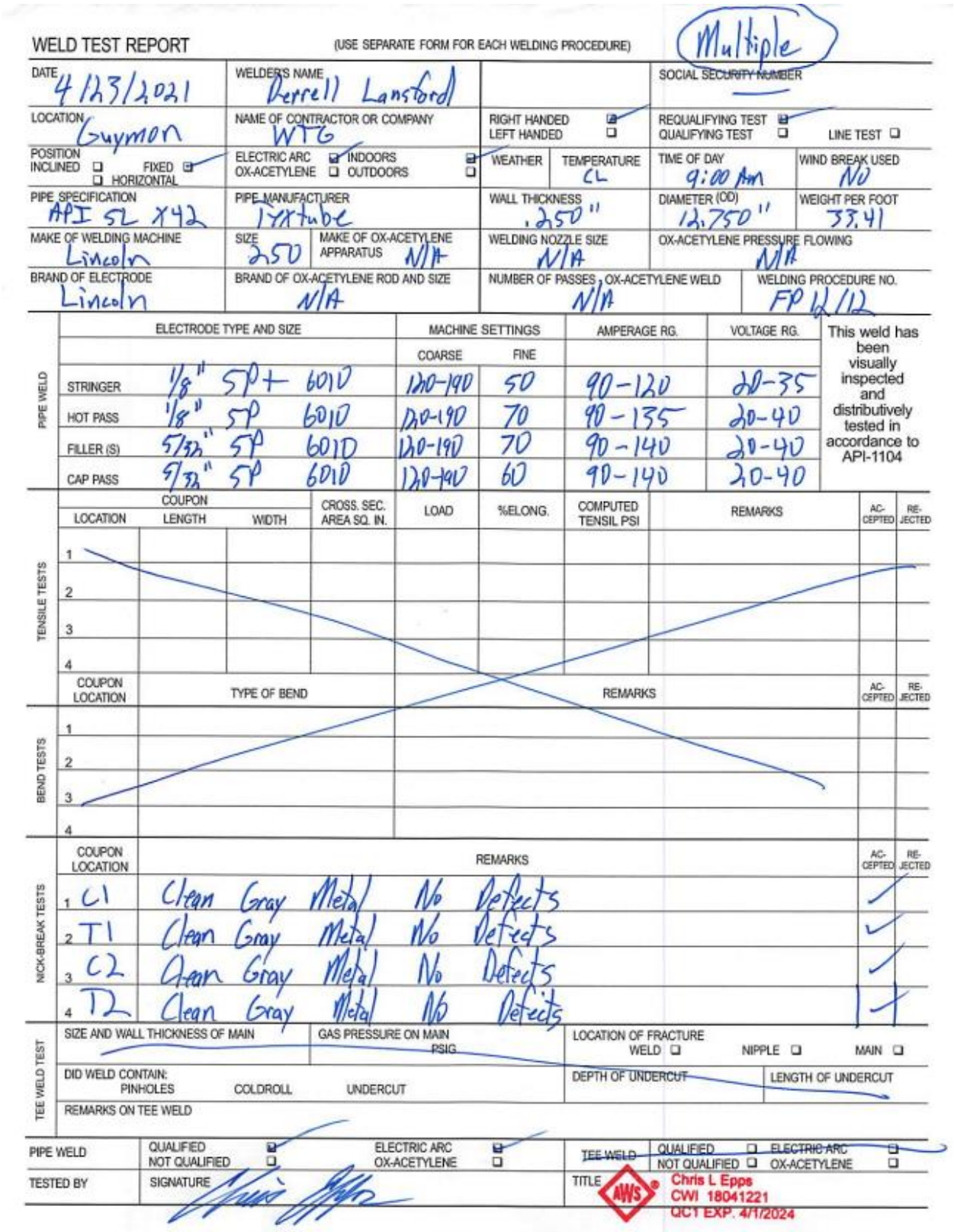


Main Wall Thickness	**T 0.250 – 0.500**	**Spacing**	**S 1/32 - 3/32**
Branch Wall Thickness	**T 0.250 – 0.500**	**Root Face**	**C 1/16 +- 1/32**
Bevel	**B 35° +/- 5°**	**Toe Extention**	**E 1/4 - 5/16**

Bead No.	Electrode Diameter	Amperage Range	Voltage Range	Type Rod	Notes
1	1/8 5P+	90-120	20-35	E6010	
2	1/8 5P	90-135	20-40	E6010	
3	5/32 5P	90-140	20-40	E6010	
4	5/32 5P	90-140	20-40	E6010	
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



WELD TEST REPORT (USE SEPARATE FORM FOR EACH WELDING PROCEDURE) Multiple

DATE 4/23/2021	WELDER'S NAME Derrell Lansford		SOCIAL SECURITY NUMBER	
LOCATION Guymon	NAME OF CONTRACTOR OR COMPANY WTG	RIGHT HANDED ☑ LEFT HANDED ☐	REQUALIFYING TEST ☑ QUALIFYING TEST ☐	LINE TEST ☐
POSITION INCLINED ☐ FIXED ☑ HORIZONTAL ☐	ELECTRIC ARC ☑ INDOORS ☑ OX-ACETYLENE ☐ OUTDOORS ☐	WEATHER / TEMPERATURE CL	TIME OF DAY 9:00 AM	WIND BREAK USED NO
PIPE SPECIFICATION API 5L X42	PIPE MANUFACTURER IYX tube	WALL THICKNESS .250"	DIAMETER (OD) 12.750"	WEIGHT PER FOOT 33.41
MAKE OF WELDING MACHINE Lincoln	SIZE 250 / MAKE OF OX-ACETYLENE APPARATUS N/A	WELDING NOZZLE SIZE N/A	OX-ACETYLENE PRESSURE FLOWING N/A	
BRAND OF ELECTRODE Lincoln	BRAND OF OX-ACETYLENE ROD AND SIZE N/A	NUMBER OF PASSES, OX-ACETYLENE WELD N/A	WELDING PROCEDURE NO. FP 12/12	

PIPE WELD

	ELECTRODE TYPE AND SIZE	MACHINE SETTINGS COARSE	MACHINE SETTINGS FINE	AMPERAGE RG.	VOLTAGE RG.
STRINGER	1/8" 5P+ 6010	120-190	50	90-120	20-35
HOT PASS	1/8" 5P 6010	120-190	70	90-135	20-40
FILLER (S)	5/32" 5P 6010	120-190	70	90-140	20-40
CAP PASS	5/32" 5P 6010	120-190	60	90-140	20-40

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

TENSILE TESTS

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

BEND TESTS

COUPON LOCATION	TYPE OF BEND	REMARKS	ACCEPTED	REJECTED
1				
2				
3				
4				

NICK-BREAK TESTS

COUPON LOCATION	REMARKS	ACCEPTED	REJECTED
1 C1	Clean Gray Metal No Defects	✓	
2 T1	Clean Gray Metal No Defects	✓	
3 C2	Clean Gray Metal No Defects	✓	
4 T2	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-ACETYLENE ☐	TEE WELD	QUALIFIED ☐ NOT QUALIFIED ☐	ELECTRIC ARC ☐ OX-ACETYLENE ☐
TESTED BY	SIGNATURE		TITLE	AWS Chris L Epps CWI 18041221 QC1 EXP. 4/1/2024	

CONSTRUCTION: JOINING OF PIPES BY WELDING