WELDING PROCEDURE SPECIFICATION PAGE 1 OF 3

WPS No. CCC-009 Revision: 5 Date: 5/31/2019
Ref: ASME IX with or without CVN, No PWHT
CVN's Qualified: -20°C @ 20 ft/lbs. minimum

COMPANY NAME: **TRIPLE C INDUSTRIES**	BY: **Chris Carlton**	
WELDING PROCEDURE NO: **CCC-009**	REVISION: **5**	DATE: **05/31/2019**
SUPPORTING PQR: **15-0428-34**	REVISION: **4**	DATE: **05/31/2019**
SCOPE: **Welding of P-1 G-1 to P-1 G-1 per ASME IX – No PWHT**		

JOINTS:
Joint Design: **SINGLE/DOUBLE V, J, U**
BUTT OR FILLET
Backing: **WITH BACK GOUGING**
Backing Material (Type): **WELD METAL OR BASE METAL**
Note: **BACKING NOT REQUIRED FOR FILLET WELDS**
Other: **No Retainers to be used**

DETAILS: Typical
ROOT SPACING: .06" - .15"

BASE METALS INFORMATION:					
ASME IX Without CVN = P-1 Group-1 **ASME IX With CVN = P-1 Group-1**		TO	**ASME IX P-1 Group-1** **ASME IX P-1 Group-1**		
THICKNESS RANGE:	Base metal		Pipe diameter range		Fillet sizes
ASME IX with CVN's	**5/8" – 8"**				**≥ 5/8"**
ASME IX without CVN's	**3/16" – 8"**				**UNLIMITED**
Other: **No single pass shall exceed ½" thickness**					
PREHEAT AND INTERPASS					
Preheat Temperature: **150°F Minimum**					
Interpass Temperature: **450°F Maximum**					
Preheat Maintenance: **Maintain preheat while welding**					
WELDING PROCESSES	**FCAW**				
PROCESS TYPE	**SEMI AUTOMATIC**				
FILLER METALS					
Spec No. (SFA)	**5.20**				
AWS No.(Class)	**E71T-1M**				
F-No.	**6**				
A-No.	**1**				
Weld Metal Thickness					
Groove	**8" Max**				
Fillet	**1/8" - UNLIMITED**				
Electrode-Flux (Class)	**N/A**				
Electrode/filler trade name	**Kobelco DW-50**				
Type	**N/A**				
Flux Trade Name	**N/A**				
Electrode/filler diameter	**.045"**				
Product Form	**FLUX CORED**				
Supplemental Filler	**NONE ALLOWED**				
Alloy Element	**NONE ALLOWED**				
Consumable Insert	**N/A**				
Recrushed slag or flux	**N/A**				

WELDING PROCEDURE SPECIFICATION PAGE 2 OF 3

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TECHNIQUE					
Stringer or Weave	**STRINGER**				
Oscillation	**Slight**				
Multiple / SinglePass	**MULTIPLE**				
Multiple / Single Electrode	**SINGLE**				
Gas Cup Size	**5/8"**				
Contact Tube to Work	**1/2" – 3/4"**				
Initial Cleaning	**REMOVE OIL, GREASE, MILL SCALE & RUST WITHIN 1" OF WELD ZONE**				
Interpass Cleaning	**CHIP, BRUSH, AND/OR GRIND IF NECESSARY**				
Back Gouging Method	**AIR CARBON ARC & GRIND**				
Electrode Spacing	**N/A**				
Peening	**NONE**				
Chamber (IN or Out)	**N/A**				
Other:	**NO PASS SHALL EXCEED ½" THICKNESS**				
POSITIONS					
Position of Weld	**All**				
Welding Progression	**Vertical Up**				
GAS					
Gas Mixture and Comp	**ARGON CO2 75 % 25%**				
Shielding Flow Rate	**40-45 CFH**				
Trailing Flow Rate	**NONE**				
Backing gas:	**NONE**				
Mixture and comp.	**N/A**				
Backing Flow Rate	**N/A**				
Special notes:					
ELECTRICAL CHARACTERISTICS					
Tungsten Size and type:	**N/A**				
Pulsing:	**N/A**				
Metal Transfer Mode:	**SPRAY**				

Layer/ Pass	Weld Process	Filler Metal	Filler Metal Dia.	Current Type & Polarity	Amp Range	Volt Range	Travel Speed
Root (1-2)	**FCAW**	**E71T-1M**	**.045"**	**DCEP**	**150-160**	**22-25**	**8-11 IPM**
FILL & COVER	**FCAW**	**E71T-1M**	**.045"**	**DCEP**	**185-200**	**23-29**	**10-15 IPM**

Notes: **Heat Input for FCAW shall not exceed 30,000 J/in for root & hot passes**
Heat Input for FCAW shall not exceed 34,800 J/in for fill & cap passes

WPS No. CCC-009 Revision: 5 Date: 5/31/2019
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POSTWELD HEAT TREATMENT:

Temperature Range: **None**

Time Range: **None**

Back gouging shall be done by air arc, grinding, or machining
Non metallic retainers shall not be used
Maximum thickness of any layer shall not exceed ½" in thickness

Approved By

5-31-2019
Date

9/24/2015 Revision 1 = Changed position of weld from All to 1G, 2G, 3G
9/24/2015 Revision 1 = Added "Group 2 per AWS D1.1" to scope of WPS
9/24/2015 Revision 1 = Changed root spacing to .06" - .15"
9/24/2015 Revision 1 = Changed backing to "with back gouging"
9/24/2015 Revision 1 = Added bevel diagram to page 1

9/13/2016 Revision 2 = Changed Scope to Group II to Group II per AWS D1.1
9/13/2016 Revision 2 = Changed Base Metal details for better clarity
9/13/2016 Revision 2 = Changed Thickness Range details to include AWS D1.1
9/13/2016 Revision 2 = Added Pipe Diameter size for AWS D1.1
9/13/2016 Revision 2 = Added Heat Input for Root & Hot Pass

9/28/2016 Revision 3 = Changed Base metal info to:
ASME IX without CVN = P1 Group 1 (added group 1)

10/26/2016 Revision 4 = Added Charpy temperature & values to header section

5/31/2019 Revision 5 = Removed AWS D1.1 and associated limitations.
5/31/2019 Revision 5 = Changed progression of vertical welding to up.
5/31/2019 Revision 5 = Addition of orifice, cup, or nozzle size.
5/31/2019 Revision 5 =Addition of CTTWD.

Triple C Industries
Welder or Welding Operator Performance Qualification

Welders Name: Reynaldo Ardon Number: TC18 Date: 09-11-2015
Test Weld Procedure No.: CCC-009
PQR No.: 15-0428-34
Welding Process(es) /type used: FCAW / Semi Auto
Type of Joint welded: Plate Butt weld
Joint Type(s) qualified: Groove and Fillet welds
Base material(s) welded: SA572-50 to SA572-50

Welder Variables (QW-350)	Actual Variables	Range Qualified
P- number to P- number	P-1	P-1 thru P-11, P-34 and P-41 thru P-47
Base Metal Thickness (in.)	5/8"	wps limits
Pipe Diameter (in.)	N/A	2.875" minimum

Actual

	FCAW / Semiautomatic
Backing**	Weld Metal
AWS Classification	E71T-1
Filler Metal Specification (SFA)	**5.20**
Filler Metal F-No.	6
Filler metal product form	Cored wire
Consumable Insert	N/A
Deposit Thickness (in.)	5/8"
Welding Position	3G
Backing Gas	N/A

Range Qualified

	FCAW/Semiautomatic
Backing**	with or without backing
AWS Classification	E71T-1
Filler Metal Specification (SFA)	5.20
Filler Metal F-No.	6
Filler metal product form	cored wire
Consumable Insert	N/A
Deposit Thickness (in.)	WPS Limits
Welding Position	All
Backing Gas	N/A
Transfer Mode	N/A

Fillet Welds: Qualified to make fillet welds of any size on all material thickness and pipe diameters of any size in the flat, horizontal, and vertical position.

Visual examination Results: Accceptable
Guided Bend test: Acceptable
Welding test conducted by: Triple C Industries.
Tests conducted by: WH Labs **Lab#:** 15-0910-11

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME code.

Organization: Triple C Industries

Certified By: _____ **Date:** 09-11-2015

W H LABORATORIES 8450 Rayson • Houston, Texas 77080 • 713/895-7504 • FAX 713/895-8906

Company:	Triple C Industries	Date:	09-11-2015
		Lab Report #:	15-0910-11
Attention:	Chris Carlton	PO #:	15-674
Identification:	Welder qualification		
Procedure:	WPS #CCC-009	5/8" A572-50 plate welded to same	
Process:			
Filler:			
Lab Letter:	J		
Qualification:	Procedure: N/A		
	Welder: √		
Welder's Name:	Reynaldo Ardon	As welded	
Welder's Stamp:	TC18		

BEND TEST
ASME SECTION IX

Test performed in accordance with ASME Section IX, 2013 Edition and WH Laboratories Quality Assurance Manual.

Test specimen is retained for one (1) week maximum. Unused material is retained for one (1) month.

Visual examination per QW 302.4 & QW 194 - Satisfactory.

2 side bends per QW 462.2 & QW 163 - Satisfactory.

Approved by: _____

Bobby E. Conley II