

Welding Procedure Number Followed MANGO Welding Procedure NO. 2 - LH Rev. 11/5/15 All Diameters · All Wall Thicknesses · ≤ X65 and Vintage Pipe									
Date:	11/9/2015	Welder's I.D. Mark:		MR					
Welder:	Michael Ruiz	Employee # :		6626					
Contractor/Company:	JF Construction	Test Location:		DBI Shop, Overland Park, KS					
Certifying Company:	DBI, Inc.								
Test Pipe/Fitting Material and Test Conditions for Welder Qualification									
Ambient Test Temp.:	60 deg. F	Weather condition	Indoors	Type of Machine:	Lincoln SAE 300				
Test Pipe Material Grade:	UNS1021			Sleeve Material Grade:	UNS1021				
Test Pipe Dia. / W. T.:	12" / 0.250"			Sleeve Material WT.:	0.250"				
Direction of Welding:	Uphill			Direct Current Reverse Polarity /EP					
Position of Test Weld Sample:	45° Angle Seam @ 1:30 & 7:30								
Initial Qualification Test Conducted with Water Flowing Through Test Pipe : Yes/ .75 Gallons per minute									
Welding Parameters and Electrical Characteristics									
Pass No.	Process	Filler Material		Electrical Characteristics		Minimum Heat Input (kJ/in)	Time Between Passes	Travel Speed (IPM)	Cleaning Method
		Size	Classification	Amperage Range	Voltage Range				
Seam Weld Side 1 (7:30)									
1	SMAW	3/32"	E7018	21-29	78-97	14	1 min	3-8	Power Grind
2	SMAW	3/32"	E7018	21-28	77-97	14	1 min	3-8	Power Brush
3	SMAW	3/32"	E7018	21-27	77-105	14		3-8	Power Brush
4									
5									
Top Fillet Weld Side 1									
1	SMAW	3/32"	E7018	21-31	88-109	14	1 min	3-8	Power Grind
2	SMAW	3/32"	E7018	20-31	84-113	14	1 min	3-8	Power Brush
3	SMAW	1/8"	E7018	19-28	111-133	14		3-8	Power Brush
4									
5									
Bottom Fillet Weld Side 1									
1	SMAW	3/32"	E7018	21-31	88-109	14	1 min	3-8	Power Grind
2	SMAW	3/32"	E7018	20-31	84-113	14	1 min	3-8	Power Brush
3	SMAW	1/8"	E7018	19-28	111-133	14		3-8	Power Brush
4									
5									

Preheat:_____None_____ Postheat:_____None_____

☐ Check here if voltage is measure across the terminals of welding machine

Note: Heat Input (kJ/in) = (Amps x Volts x 60) / [Travel Speed (in/Min) x 1000]

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Welder:	Michael Ruiz	Employee # :		6626					
Contractor/Company:	JF Construction	Test Location:		DBI Shop Overland Park KS					
Certifying Company:	DBI Inc.								
Test Pipe/Fitting Material and Test Conditions for Welder Qualification									
Ambient Test Temp.:	Weather condition			Type of Machine: Lincoln SAE 300					
Test Pipe Material Grade:	UNS1021 Vintage			Sleeve Material Grade: UNS1021 Vintage					
Test Pipe Dia. / W. T.:	12" x .250"			Sleeve Material WT.:.0.250"					
Direction of Welding:	Uphill			Direct Current Reverse Polarity /EP					
Position of Test Weld Sample:	45° Angle Seam @ 1:30 & 7:30								
Initial Qualification Test Conducted with Water Flowing Through Test Pipe : Yes/.75 Gallons per minute									
Welding Parameters and Electrical Characteristics									
Pass No.	Process	Filler Material		Electrical Characteristics		Minimum Heat Input (kJ/in)	Time Between Passes	Travel Speed (IPM)	Cleaning Method
		Size	Classification	Amperage Range	Voltage Range				
Seam Weld Side 2									
1	SMAW	3/32"	E7018	21-29	78-97	14	1 min	3-8	Power Grind
2	SMAW	3/32"	E7018	21-28	77-97	14	1 min	3-8	Power Brush
3	SMAW	3/32"	E7018	21-27	77-105	14		3-8	Power Brush
4									
5									
Top Fillet Weld Side 2									
1	SMAW	3/32"	E7018	21-31	88-109	14	1 min	3-8	Power Grind
2	SMAW	3/32"	E7018	20-31	84-113	14	1 min	3-8	Power Brush
3	SMAW	1/8"	E7018	19-28	111-133	14		3-8	Power Brush
4									
5									
Bottom Fillet Weld Side 2									
1	SMAW	3/32"	E7018	21-31	88-109	14	1 min	3-8	Power Grind
2	SMAW	3/32"	E7018	20-31	84-113	14	1 min	3-8	Power Brush
3	SMAW	1/8"	E7018	19-28	111-133	14		3-8	Power Brush
4									
5									

Preheat:_____None_____

Postheat:_____None_____

☐ Check here if voltage is measure across the terminals of welding machine

Note: Heat Input (kJ/in) = (Amps x Volts x 60) / [Travel Speed (in/Min) x 1000]

Welding Procedure Number Followed

MANGO Welding Procedure NO. 2 - LH Rev. 11/5/15

All Diameters · All Wall Thicknesses · ≤ X65 and Vintage Pipe

Date: 11/9/2015 Welder's I.D. Mark: MR
Welder: Michael Ruiz Employee #: 6626
Contractor/Company: JF Construction Test Location: DBI Shop Overland Park KS
Certifying Company: DBI, Inc.

Test Pipe/Fitting Material and Test Conditions for Welder Qualification

Ambient Test Temp.: Weather condition Type of Machine: Lincoln SAE 300
Test Pipe Material Grade: Vintage Pipe (Pre 1973) Sleeve Material Grade: Vintage Pipe (Pre 1973)
Test Pipe Dia. / W. T.: 12-3/4" OD / .250" Sleeve Material WT.: .250"
Direction of Welding: Uphill Direct Current Reverse Polarity /EP
Position of Test Weld Sample: 45° Angle Seam @ 1:30 & 7:30
Qualification Test Conducted with Water Flowing Through Test Pipe : Yes/ .75 Gallons per minute

Destructive Test Results per API 1104, Twentieth Edition, Appendix B

Seam Weld

Tensile Tests

Specimen	Width	Thickness	Area	Max Load (Lbs.)	U.T.S.	Fracture Location
T-1	0.995	0.221	0.219	16,000	73,059	Ductile Base Metal
T-2	0.936	0.214	0.200	16,000	80,000	Ductile Base Metal

Face Bend Tests

Root Bend Test

Nick-Break Tests

Specimen	Results	Specimen	Results	Specimen	Results
FB-1	Accept	RB-1	Accept	NB-1	Accept
FB-2	Accept	RB-2	Accept	NB-2	Accept

Fillet Weld Nick-Break Tests

Macro Test

(24 Hour)Face Bend Tests

Specimen	Results	Specimen	Results	Specimen	Results
NB-1	Accept	MT-1	Accept	FB-1	Accept
NB-2	Accept	MT-2	Accept	FB-2	Accept
NB-3	Accept	MT-3	Accept	FB-3	Accept
NB-4	Accept	MT-4	Accept	FB-4	Accept

All of the above tests were conducted in accordance with and meet the requirements of API 1104, Twentieth Edition, and DOT Part 192 and Part 195

Tested by:

Max Kendall

See Additional Page for Hardness Results

Acceptable Date: **11/10/2015**

Unacceptable Date: _____