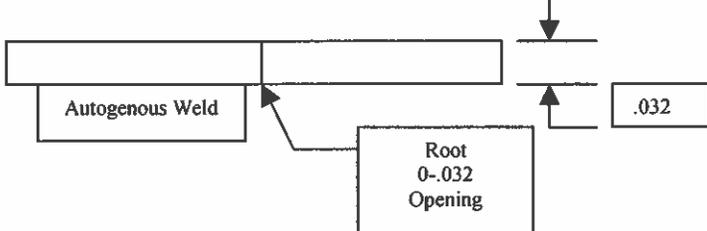


Welding Procedure Specification

Welding Procedure Specification No.:		<i>Fermi WPS SS-1-001</i>		Date:	<i>1/10/2010</i>
Revision No.:	Revision Date:	Remarks:	Supporting PQR No.(s): <i>Fermi PQR SS-1-001</i>		
Welding Processes:		(1)Type: <i>GTAW/Manual</i> (2)Type:			
<small>(Manual, Automatic, Machine, Semi-automatic)</small>					

Joints (QW-402):			
Joint Design: <i>Square Groove</i>	Backing: <i>Gas</i>	Backing Material (Type) Root: <i>Argon Gas</i>	Remainder: <i>Deposited Material</i>
Retainer: Yes *** No	Type: Non-Metallic *** Metallic (Non-fusing)		
Joint Details:			
SA 240 .032 plate			
			

Base Metals (QW403):	P-No.: 8	Group 1	To	P-No.: 8	Group 1
Specification Type and Grade:	SA 240 Type 304				
TO Specification Type and Grade:	SA 240 Type 304				
OR Chemical Analysis and Mechanical Properties:					
TO Chemical Analysis and Mechanical properties:					
Thickness Range:	Process 1			Process 2	
Base Metal:	Groove: <i>.032"-.064"</i>	Fillet: <i>Unlimited</i>	Groove:	Fillet:	
Deposited Weld Metal:	Groove: <i>.032"-.064"</i>	Fillet: <i>Unlimited</i>	Groove:	Fillet:	
Pipe Diameter Range:	Groove: <i>2.875" Min.</i>	Fillet: <i>Unlimited</i>	Groove:	Fillet:	
Other:					

Filler Metals (QW-404)	Process 1		Process 2	
Specification No. (SFA):				
AWS No, (Class):				
F-No.:				
A No.:	8			
Size of Filler Metals:				
Deposited Weld Metal Thickness Range:	Groove: <i>.032"-.064"</i>	Fillet: <i>Unlimited</i>	Groove:	Fillet:
Electrode-Flux (Class):				
Flux Trade Name:				
Consumable Insert:				
Other:				

Each Base Metal-Filler Metal Combination should be recorded individually

Use of Fermilab Welding Procedures and Welder Qualifications for non-Fermilab work shall be at the sole risk and responsibility of the Subcontractor, and the Subcontractor shall indemnify and save Fermilab and the government harmless from any and all claims, demands, actions or causes of action, and for any expense or loss by reason of Subcontractor's and their employees possession and use of Fermilab procedures and qualifications.

Welding Procedure Specification

Positions (QW-405)		Post Heat Treatment (QW-407)	
Positions of Groove:	1G	Temperature Range:	None
Welding Progression	N/A	Time Range	N/A
Positions of Fillet	1F		

Preheat (QW-408)		Gas (QW-408)			
Preheat Temperature:	Minimum 50°F			% Composition	
Interpass Temperature:	Maximum-Not Recorded		Gases	Mixture	Flow Rate
Preheat Maintenance:	None	Shielding	Argon	99.9%	15-20 CFH
Minimum Welding Temperature	50°F	Trailing	None	***	***
		Backing	Argon	99.9%	15-20CFH

Electrical Characteristics (QW-409)				
Current – AC or DC:	Direct Current	Polarity: <i>Straight</i>	Characteristics	Non-Pulsing
Tungsten Electrode:	Size: 3/32Ø	EWTh-2		
Mode of Metal Transfer for GMAW:	N/A			
Electrode Wire Feed Speed Range:	N/A			

Technique (QW-410)	
String or Weave Bead:	<i>String</i>
Orifice or Gas Cup Size:	#5 or #6 Gas Lens
Initial Interpass Cleaning (Brushing, Grinding, etc.):	<i>Initial Solvent Clean***Wire brush between passes</i>
Method of Back Gouging:	<i>None</i>
Oscillation:	<i>None</i>
Contact Tube to Work Distance:	<i>N/A</i>
Multiple or Single Pass (per side):	<i>Single</i>
Multiple or Single Electrode(s):	<i>Single</i>
Travel Speed (Range):	<i>As Required</i>
Peening:	<i>None</i>
Other:	

Sequence Chart:								
Weld Layers	Processes	Filler Metal		Current		Voltage Range	Travel Speed Range	Other (Power Source) (Special Requirement)
		Class	Ø	Type Polarity	Amperage Range			
<i>1 Final</i>	<i>GTAW</i>	<i>Autogenous</i>		<i>DCEP</i>	<i>20-40</i>	<i>8-12</i>	<i>As Required</i>	<i>Autogenous No Filler</i>

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