

Brown & Root Inc. HOUSTON, TEXAS

WELDING PROCEDURE NO.
WPS - 88021
REVISION 7
PAGE 1 OF 2

WELDING CODE

ASME B & PV
SECTION IXFOR OFFICE AND
ENGINEERING USE ONLY

INDEXED

SUPPORTING PQR(S)

*0808AA204 Rev 6

*0808AA114 Rev 4

WELDING PROCESS(ES) 1. Gas Tungsten Arc TYPE Manual
2. N/A TYPE N/A

BASE METALS (QW-403)

P No. 8 Gr. No. 1 to P No. 8 Gr. No. 1
Thickness Range .062 thru 3.5 IN.
Pipe Dia. Range Unlimited IN.
Range for Fillet. Thk. All Dia. Unlimited IN.

POSTWELD HEAT TREATMENT (QW-407)

Type N/A
Temperature N/A
Time Range N/A

FILLER METALS (QW-404)

F No. 1. 6 2. N/A
A No. 1. 8 2. N/A
SFA Spec. No. 1. 5.9 2. N/A
AWS Class. No. 1. ERTXX 2. N/A
Size of Electrode 1. N/A 2. N/A IN.
Size of Filler 1. 1/16-1/8 2. N/A IN.
Electrode - Flux Class N/A
Consumable insert See below
Type K - 1/8" x 1/16" or 5/32" x 1/8"
Type J - 1/8" x 3/64" or 5/32" x 1/16"

GAS (QW-408)

Shielding Gas 1. Argon
Percent Comp. 100
Shielding Gas Flow Rate 15 CFH (min.)
Purge Gas: ARGON (6) Flow Rate 5 CFH (min.)
Trailing Shielding Gas Composition N/A

ELECTRICAL CHARACTERISTICS (QW-409)

Current 1. DCSP 2. N/A
Amps Range 1. 50-150 2. N/A
Volts Range 1. 8-14 2. N/A
Tungsten Elec. Size/Type 1/16"-1/8"/EWth-1or2

POSITION (QW-405)

Welding Position All
Welding Progression Upward

TECHNIQUE (QW-410)

Stringer or Weave Bead 1. Stringer 2. N/A
Bead Width See Page 2
Orifice or Gas Cup Size 1/4 IN. (min.)
Initial and Interpass cleaning: Welding surfaces shall be wire brushed
or ground as required to remove slag, scale or other contaminants.
Method of back gouging N/A

PREHEAT (QW-406)

Preheat Temp. 60 °F (Min.)
Interpass Temp. Range 60-350 °F
Preheat Maint. N/A

Oscillation 1. N/A 2. N/A IN. (max.)

Contact Tube to work distance N/A IN.

Multiple or Single Layer 1. Multiple

(Per Side) 2. N/A

Multiple or single electrode Single

Travel Speed (Range) 1. N/A 2. N/A IPM

Peening: Not allowed

REMARKS

*This PQR includes Supplemental Test Results.

Prior to the start of welding, the exiting gas shall be checked for oxygen content. It must be 2% or lower before welding can commence. Maintain purge for at least two layers (i.e., root and one fill). Westinghouse supplied components require purge maintenance for at least three layers (root and two fills).

PREPARATION APPROVAL

DATE

Welding Engineering

Materials Engineering

Quality Assurance

Fab. Codes: ASME Section III, ANSI B31.1

Project: CPSES

Job No. CR-0172

B606040147 B60527
PDR FOIA
GARDEB5-59 PDR

DATE

4-1-80

WELDING TECHNIQUE SHEET									WELDING PROCEDURE NO.		
P.N.O. <u>8</u> GROUP <u>1</u> TO P.N.O. <u>8</u> GROUP <u>1</u> THK. RANGE <u>.062 thru 3.5</u> IN.							WPS - <u>88021</u> REVISION <u>7</u> PAGE <u>2</u> OF <u>2</u>				
TYPICAL JOINT DESIGNS PERMITTED V-bevel, V-groove, J-bevel, Flare-V, Flare-bevel, Double-V or any combination of these and fillets.							ROOT OPENING O.S. <u>N/A</u> IN. S.S. <u>N/A</u> IN.				
WELDING PARAMETERS							*SINGLE VALUES ARE MINIMUM				
LAYER	WELDING PROCESS	FILLER METAL		GAS		ELECTRICAL DATA			TRAVEL SPEED (IPM)	MAX. BEAD WIDTH (IN.)	
		SIZE (IN.)	AWS CLASS	TYPE	FLOW RATE (CFH) SHIELD (PURGE)	TYPE/ POLAR.	AMPERAGE RANGE	VOLTS RANGE			
1	GTA	N/A	Insert (4)	Argon	15	5	DCSP	50-150	8-14	N/A	N/A
2-3	GTA	1/16	See Note 5	Argon	15	5	DCSP	50-150	8-14	N/A	3/8
	GTA	3/32	See Note 5	Argon	15	5	DCSP	50-150	8-14	N/A	3/8
	GTA	1/8	See Note 5	Argon	15	5	DCSP	50-150	8-14	N/A	3/8
ALT	GTA	3/32	See Note 5	Argon	15	N/A	DCSP	50-150	8-14	N/A	3/8
3&on	GTA	1/8	See Note 5	Argon	15	N/A	DCSP	50-150	8-14	N/A	3/8
Fillet Weld Parameters											
1 & On	GTA	.045	See Note 5	Argon	15	N/A	DCSP	40-100	8-14	N/A	3/8
PREHEAT TEMP. <u>60</u> °F (Min.) INTERPASS TEMP. <u>60-350</u> °F PREHEAT MAINT. <u>N/A</u> TUNGSTEN ELECT. SIZE & TYPE <u>1/16-1/8</u> IN. EWTH. <u>lor2</u>					BACK GOUGING METHOD <u>N/A</u> CONTACT TUBE TO WORK DIST. <u>N/A</u> IN. (min.) ORIFICE OR CUP SIZE <u>1/4</u> IN. (min.) WELDING PROGRESSION <u>Upward</u>						
INSTRUCTIONS											
1. Preheat and interpass temperature (above 150°F) shall be checked using temperature indicating crayons or an approved equal. 2. Tack welds which are used at the root of joints may or may not be complete penetration. 3. All welding shall utilize stringer beads. 4. Grade ER3XX (same nominal composition as filler): Type K - 1/8" x 1/16" or 5/32" x 1/8" Type J - 1/8" x 3/64" or 5/32" x 1/16" 5. Bare wire selected for the base metal to be welded shall be as follows:											
BASE METAL TYPE						BARE WIRE TO BE USED					
304 or 304L to 304 or 304L 316 or 316L to 316 or 316L 304 or 304L to 316 or 316L						ER308 or ER308L ER316 or ER316L ER316 or ER316L					
For Westinghouse supplied Reactor Coolant Piping, ER308 will be used for base metal type 304 or 304L to 316 or 316L.											
6. Purge requirement may be deleted by the Project Welding Engineer for fillet welds.											

WPS 88021

ARMED
INDEXED

JOB NO. 35-1195

RECEIVE

Gibson & P.W. Inc.

MAY 30 1980

DATE: Interoffice Memorandum

CPPA-5205

RECEIVE

TO: J. T. Merritt, Jr.

DATE: May 29, 1980

FROM: R. E. Heim

JOB NO:

SUBJECT: B&R Welding Procedure

REF. NO: BRF-1061

Specification WPS-88021, Rev. 7

STD
TEST
SC

By copy of this letter we are advising Brown & Root that the subject Welding Procedure Specification is approved for arrangement only proceed with fabrication subject to compliance with all contract requirements, drawings and specifications."

GTAW
upward progression

WITH
CONSUMABLE
INSERT

ICN #1
ICN #2

REH:RCB:kss

cc: HIMS

R. E. Heim
Resident Engineer

W. G. B. COO DIST.

FOIA-85-59

DELETED	
PERMITTING	
CONTRACT	
PERMITTING	
TWO	
PERMITTING	
ARMED	
Weld Eng.	

K-44

-ADMS

INDEXED

WELD PROCEDURE SPECIFICATION - INTERIM CHANGE NOTICE

LATEST ICN No. 2 to WPS 88021 Rev. 7 DATE

The following Interim Change Notice is being submitted at this time in order to expedite the revision of a non-essential variable in a Brown & Root, Inc. Weld Procedure Specification.

ICN No. 1 Changes/Additions:

6-10-80

1. Austenitic Stainless Steel type 316 to type 304 weldments shall employ either type 316 or type 308 filler material per G&H DCA's 7135, 7136 & 7137. Except for Westinghouse supplied Reactor Coolant Piping.

Date

PWE

2. The use of .045 filler metal is for Fillet Welds on all instrumentation tube field welding.

PQAM

PDM and/or P NSSS DM

ICN No. 2 Changes/Additions:

12-3-80

Date

On page 2 of 2, orifice or cup size is stated as 1/4" minimum. Change this to 1/4" minimum, 1/2" maximum.

PWE

PQAM

PDM and/or P NSSS DM

ICN No. Changes/Additions:

Date

PWE

PQAM

PDM and/or P NSSS DM

ICN No. Changes/Additions:

Date

PWE

PQAM

PDM and/or P NSSS DM

