WELD PROCEDURE SPECIFICATION - INTERIM CHANGE NOTICE

LATEST ICN No. 1 to WPS 11032 Rev. 11

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:

On page 2 of 2 add the following to Note 1 under the ANSI B31.1 thickness range:

.0625" thru 1.50" - Structural welds (Does not include pressure parts or attachments to pressure parts).

4/13/84
Date

PWE

PQAM 4/14/84

PDM and/or P NSSS DM 4/16/84

ICN No. ____ Changes/Additions:

Date

PWE

PQAM

PDM and/or P NSSS DM

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Date

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Brown & Root, Inc. HOUSTON, TEXAS

WELDING PROCEDURE NO.
WPS – 11032
REVISION 11
PAGE 1 OF 2

WELDING CODE
ASME B & PV SECTION IX

ICN#1

WELDING PROCEDURE SPECIFICATION

SUPPORTING PQR(S)
*0101AB138 Rev.4
*0101AB212 Rev.3
*0112BB101 Rev.4
0112BB112 Rev.0
CP0112BB301 Rev.0

WELDING PROCESS(ES) 1. Shielded Metal Arc TYPE Manual
2. N/A TYPE N/A

BASE METALS (QW-403)
P No. 1** Gr. No. 1&2 to P No. 1 Gr. No. 1&2
Thickness Range .0625" thru 2.00" (1) IN.
Pipe Dia. Range Unlimited IN.
Range for Fillet. Thk. (1) Dia. Unlimited IN.
**A588 Gr. A or B to P1
**A570 Gr. D or A120 to P1-Fillets only

FILLER METALS (QW-404)

F No. 1.	4	2. N/A
A No. 1.	1	2. N/A
SFA Spec. No. 1.	5.1	2. N/A
AWS Class. No. 1.	E7018	2. N/A
Size of Electrode 1.	3/32 - 5/32	2. N/A IN.
Size of Filler 1.	N/A	2. N/A IN.

Electrode – Flux Class N/A
Consumable insert N/A

POSITION (QW-405)
Welding Position All
Welding Progression Upward

PREHEAT (QW-406)
Preheat Temp. 60 (2) °F (Min.)
Interpass - Temp. Range 60 - 500 (2)(3)(8) °F
Preheat Maint. N/A °F

JOINT DESIGN (QW-402)
Groove Design Single V or U, Flare Bevel
Joint Type OB Yes CI N/A BS Yes
Backing Matl Type Similar to base material

POSTWELD HEAT TREATMENT (QW-407)
Type N/A
Temperature N/A °F
Time Range N/A

GAS (QW-408)
Shielding Gas 1. N/A
Percent Comp. N/A
Shielding Gas Flow Rate N/A CFH (min.)
Purge Gas N/A Flow Rate N/A CFH (min.)
Trailing Shielding Gas Composition N/A

ELECTRICAL CHARACTERISTICS (QW-409)

Current 1.	DCRP	2. N/A
Amps Range 1.	70 - 195	2. N/A
Volts Range 1.	18 - 27	2. N/A

Tungsten Elec. Size/Type N/A

TECHNIQUE (QW-410)
Stringer or Weave Bead 1. Stringer 2. N/A
Bead Width: See Page 2
Orifice or Gas Cup Size N/A IN.
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 Air carbon arc and/or grinder
Oscillation 1. N/A 2. N/A IN.
Contact Tube to work distance N/A IN.
Multiple or Single Layer 1. Multiple
(Per Side) 2. N/A
Multiple or single electrodes Single
Travel Speed (Range) 1. 2.6 - 7.2 2. N/A IPM
Peening: Not Allowed

REMARKS

* This PQR includes Supplemental Test Results

FOR OFFICE AND ENGINEERING USE ONLY

PREPARATION APPROVAL	DATE
Welding Engineering	9-27-83
Project Welding Engineer	9-28-83
Quality Assurance	9/29/83

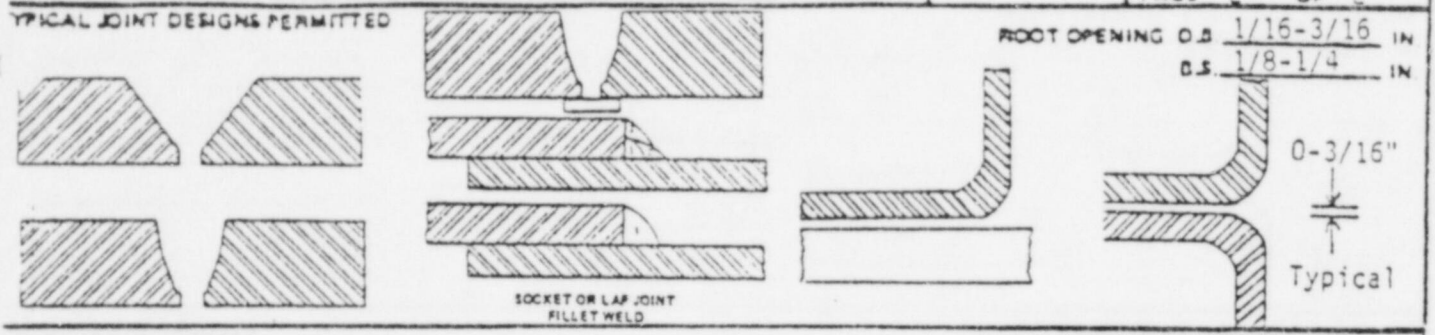
Fab. Codes: ASME Section III, ANSE B31.1
Project: CPSES
Job No. CR-0172

WELDING TECHNIQUE SHEET

P NO. 1(9) GROUP 1&2 TO P NO. 1 GROUP 1&2
THK. RANGE .0625" thru 2.00" (1) IN.

WELDING PROCEDURE NO.
WPS - 11032
REVISION 11
PAGE 2 OF 2

TYPICAL JOINT DESIGNS PERMITTED



WELDING PARAMETERS *SINGLE VALUES ARE MINIMUM

TYPE	WELDING PROCESS	FILLER METAL SIZE (IN.)	FILLER METAL AWS CLASS	GAS TYPE	GAS FLOW RATE (CFH) SHIELD	GAS FLOW RATE (CFH) PURGE	ELECTRICAL DATA TYPE/ POLAR.	ELECTRICAL DATA AMPERAGE RANGE	ELECTRICAL DATA VOLTS RANGE	TRAVEL SPEED (IPM)	MAX. BEAD WIDTH (IN.)
11	SMA or	3/32	E7018	N/A	N/A	N/A	DCRP	70-120	18-27	2.6-7.2	3/8
	SMA or	1/8	E7018	N/A	N/A	N/A	DCRP	90-160	18-27	2.6-7.2	1/2
	SMA or	5/32	E7018	N/A	N/A	N/A	DCRP	110-195	18-27	2.6-7.2	5/8
	Maximum thickness of any single deposited layer shall not exceed 1/2".										

PREHEAT TEMP. 60 (2) °F (Min.)
INTERPASS TEMP. 60-500 (2) (3) (8) °F
PREHEAT MAINT. N/A
TUNGSTEN ELECT. SIZE & TYPE N/A IN.
EWTh - N/A

PEENING Not Allowed
BACK GOUGING METHOD Air carbon arc; grinding
CONTACT TUBE TO WORK DIST. N/A IN.
ORIFICE OR CUP SIZE N/A IN.
WELDING PROGRESSION Upward

INSTRUCTIONS

1. Qualified thickness range:
   ASME III - .0625" thru 1.50" - Full penetration buttwelds.
   .0625" thru 2.00" - Partial penetration with depth of preparation 3/4" or less
   All thickness - Fillet welds with maximum throat of 3/4".
   ANSI B31.1-.0625" thru .750" - Full penetration buttwelds.
   .0625" thru 2.00" - Partial penetration attachments with depth of preparation 1/2" or less.
   All thickness - Fillet welds with throat thickness 1/2" or less.
2. Preheat Temperatures:
   200°F min. - P1 material over 1.250" thickness.
   150°F min. - A588 material.
   250°F min. - 588 material over 1 1/2" thickness.
   175°F min. - For B31.1 when attaching non-pressure parts to pressure parts over 3/4" in thickness.
3. Preheat and interpass temperature (above 150°F) shall be checked using temperature indicating crayons or an approved equal.
4. Tack welds shall employ the parameters for the root pass.
5. Tack welds shall be complete fusion; the starts and stops shall be tapered by grinding so that the initial pass can properly consume the tack.
6. Full penetration welds not utilizing a backing strip shall be back gouged and/or ground to sound metal before welding the second side using the welding parameters shown.
7. Variation in joint geometrics shown above is permitted provided the specified root opening is maintained.
8. Maximum interpass temperature for concrete embeded base plates shall be 250°F when under 3/4" thickness and 350°F for thickness 3/4" and over.
9. A588 Gr. A or B or A570 Gr. D or A120 to P1 also qualified. A570 Gr. D and A120 to be welded using only fillet welds.

Brown & Root, Inc. Post Office Box 1001, Glen Rose, Texas 76043

BRF #11281

September 27, 1983

ICN-1

Mr. J.T. Merritt, Jr.
Texas Utilities Services, Inc.
P.O. Box 1002
Glen Rose, Texas 76043

Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station
Approval of Welding Procedure Specification

Dear Mr. Merritt:

Attached is a copy of Welding Procedure Specification WPS 11032, Rev.11 for review and approval by Texas Utilities Services, Inc.

This Welding Procedure Specification is to be used in conjunction with the following Brown & Root Specifications:

CP-CPM 6.9
WES-031

Please review/approve subject procedure at your earliest convenience.

Very truly yours,

BROWN & ROOT, INC.

D.C. Frankum
Project Manager

DCF/WEB/JEH/tln
Attachment
cc:
J.T. Merritt
ARMS (O)
M. Smith

APPROVED:

for J.T. Merritt Jr.
J.T. Merritt, Jr. Date
Engr. & Const. Mgr.

K-110

Brown & Root, Inc.

INTEROFFICE MEMO

IM - 26235 September 27, 1983

TO: G.R. Purdy

FROM: W.E. Baker

SUBJECT: Approval of Welding Procedure

Attached is a copy of Welding Procedure Specification WPS 11032 Rev. 11 for your review and approval.

This Welding Procedure Specification is to be used in conjunction with the following Brown & Root Specifications:

CP-CPM 6.9
WES-031

Please review/approve subject procedure at your earliest convenience.

W.E. Baker
Sr. Project Welding Engineer

APPROVED:

R. [signature] 9/29/83
Project QA Manager Date

WEB/JEH/tln
cc:
File

Brown & Root, Inc. HOUSTON, TEXAS		WPS NO. 11032

WELDING PROCEDURE SPECIFICATION CHANGE NOTICE

CURRENT REVISIONS ARE INDICATED BY CHANGE BARS.

REV.	DATE	ORIGINATOR	APPROVAL*
1	6- 8-77	E. J. Hotko	R P Culbertson
2	8-26-77	E. J. Hotko	R P Culbertson
3	9-27-78	J. F. Bronicki	R P Culbertson
4	12-12-78	J. F. Bronicki	R P Culbertson
5	3-30-79	J. F. Bronicki	R P Culbertson
6	8-22-79	J. F. Bronicki	R P Culbertson
7	3-20-80	C. Wainwright	R P Culbertson
8	2-23-82	W.E. Baker	C Wainwright
9	5-19-82	W.E. Baker	C Wainwright
10	2-23-83	Jimmy Hite	W E Baker

REVISION NO.	DESCRIBE THE CHANGE
1	Added PQR 0101BB113 REV.2 to increase minimum thickness range qualified. Added additional joint details.
2	Deleted PQR 0101BB113 and revised minimum thickness qualified.
3	Deleted PQR 0101AB119 and added PQRs 0101AB137, 0101AB138 and 0101AB140 to allow impact welding on Group 2 materials. Revised preheat requirements. Increased voltage range. Added joint details.
4	Deleted reference to travel speed and double bevel joint detail. Revised voltage range.
5	Retyped on new form. Added the following information: fillet weld thickness and diameter, electrode - flux classification, preheat maintenance, joint description, trailing shielding gas, tungsten size and type, bead type, initial and interpass cleaning, back gouging method, oscillation and root spacing. Noted PQR revision and deleted PQRs 0101AB137 and 0101AB140 and added PQR 0101AB212, Rev. 1. Revised amperage and voltage ranges.
6	Noted PQR revisions. Added preheat maintenance, peening, root spacing, notes 7, 8 and9 and layer thickness limitation. Added joint details. Revised fillet range thicknesses.
7	This document has been reviewed for typographical and technical errors and corrected where necessary. The document meets all requirements of the code of record at the date of qualification. Revisions of technical nature listed below are highlighted by change bar(s).

* REVISIONS MUST BE APPROVED BY THE MANAGER OF MATERIALS ENGINEERING OR HIS DESIGNEE

Brown & Root, Inc. HOUSTON, TEXAS		WPS/PQR NO. 11032

WPS/PQR. REVISION NO.	DESCRIBE THE CHANGE
8.	Add travel speed. Add partial penetration Flare bevel configuration. Delete preheat maintainence requirement. Reduced thickness qualified for ASME Section III. Add embeded plate interpass restrictions.
9.	Add PQR 0112BB101 to allow use of additional base metals.
10.	Added PQR 0112BB112 to allow use of ASTM A570 Gr. D material. Lowered thickness range. Incorporated ICN's. Revised notes to clarify thickness range and preheat temperature. Add note 9.
11.	Added PQR CP-0112BB301 Rev.0 to allow use of ASTM A120 material. Added notation that A570 Gr. D. and A120 to be welded using only fillet welds.