

RJV GAS FIELD SERVICES LTD.**4901 - 47 STREET****VEGREVILLE AB T9C 1C3**

WELDING PROCEDURE SPECIFICATION NO.

RJV106

PROCEDURE QUALIFICATION RECORD NO.

RJV106(PQR)**QUALIFIED FOR:**BASE METAL (TYPICAL): AISI 4130 "TO" P1-GROUP1PROCESS(ES): SMAW WELD TYPE(S): MANUALPOSITION(S): ALLFILLER METAL(S): E8010G, E10018-D2BASE METAL THICKNESS RANGE(S) QUALIFIED: .0625" TO .674"PROCEDURAL DETAILS: PREHEAT = 400°F MINIMUMPWHT = 1225F (+/-) 25F
(1 HOUR PER INCH)BRINELL HARDNESS SURVEY

Application-

Weld Procedure #RJV 106 to be used on
Nutron N1 angle body chokes
CRN# 0C0078.2

ALBERTA BOILERS SAFETY ASSOCIATION

PROVINCE OF ALBERTA

SAFETY CODES ACT

WELDING PROCEDURE

RESTRICTED APPLICATION *

Reg. No. WP 1312.2 Spec. No. RJV 106Weld Process SMAWMatl. No. AISI 4130 to Matl. No. P1Elec. Gr. F No. 3+4 A No. 1Th. Qual. For 17.1 mm P.W.H.T. YES* Limited To: NUTRON N1 ANGLE BODY
CHOKES (CRN # 0C0078.2)Yr. 02 Mo. 02 Day 22 Signed [Signature]

BOILER BRANCH REGISTRATION

Company Name: RJV GAS FIELD SERVICES LTD. **By:** DALE LANIUK
Welding Proc. Spec. No.: RJV106 **Date:** 23-SEPT-94 **PQR(s):** RJV106(PQR)
Revision No.: Rev. 1 **Date:** 06-Feb.-02
Welding Process(es): SMAW **Type(s):** MANUAL
 (Automatic, Manual, Machine, or Semi-Auto.)

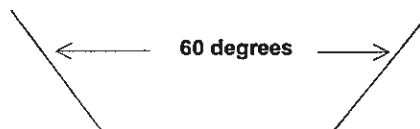
JOINTS: (QW-402)

(ASME JOINT DESIGNS)

Joint Design GROOVE, FILLET, REPAIR
Backing (Yes) X (No) X
Backing Material Type WELD METAL WHERE APPLICABLE
 (Refer to both backing and retainers)

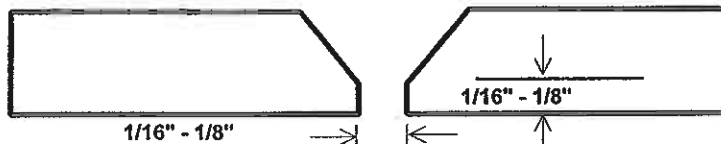
For Joint Details: See attached sheet.

☒ Metal ☐ Nonfusing Metal
☐ Nonmetallic ☐ Other

NO RETAINERS

Sketches, Production Drawings, Weld Symbols or Written Description should show the general arrangement of the parts to be welded. Where applicable, the root spacing and the details of the weld groove may be specified.

(At the option of the Manufacturer, sketches may be attached to illustrate joint design, weld layers and bead sequence, e.g. for notch toughness procedures, for multiple process procedures, etc.)

**BASE METALS: (QW-403)**

P - No. UNASSIGNED **Group No.** AISI 4130 **"TO"** P1 **Group No.** 1

OR

Specification type and grade
 to Specification type and grade

OR

Chem. Analysis and Mech. Prop.
 to Chem. Analysis and Mech. Prop.

Thickness Range:

Base MetalGroove	<u>.0625" TO .674"</u>	Fillet	<u>ALL</u>
Pipe Dia. RangeGroove	<u>ALL</u>	Fillet	<u>ALL</u>
Other	<u>No single pass to exceed 1/2".</u>		

FILLER METALS: (QW-404)

Spec. No. (SFA)	<u>5.1</u>	<u>5.5</u>
AWS No. (Class)	<u>E8010G</u>	<u>E10018-D2</u>
F - No.	<u>F3</u>	<u>F4</u>
A - No.	<u>A1</u>	<u>A11</u>
Size of Filler Metal	<u>3/32", 1/8"</u>	<u>3/32", 1/8", 5/32"</u>
Weld Metal		
Thickness:		
Groove	<u>.250" Max.</u>	<u>.424" Max.</u>
Fillet	<u>ALL</u>	<u>ALL</u>
Electrode Flux (Class)	<u>NA</u>	<u>NA</u>
Flux Trade Name	<u>NA</u>	<u>NA</u>
Consumable Insert	<u>NA</u>	<u>NA</u>
Other	<u>NA</u>	<u>NA</u>

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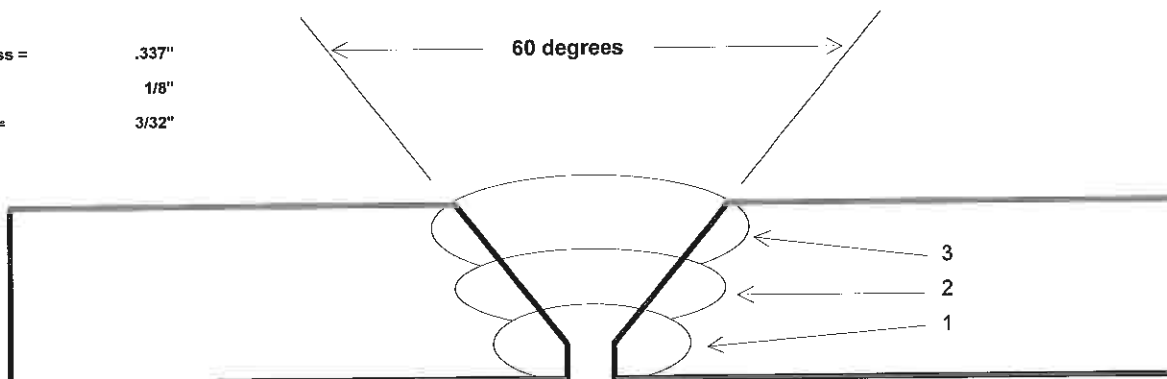
PROCEDURE QUALIFICATION RECORD (PQR)

PG: 3

Company Name: RJV GAS FIELD SERVICES LTD.
Procedure Qualification Record No.: RJV106(PQR) **Date:** 23-SEPT-94
WPS No.: RJV106
Welding Process(es): SMAW
Type(s): (Manual, Automatic, Machine, or Semi-Auto.) MANUAL

JOINTS: (QW-402)

Coupon Thickness = .337"
Root Opening = 1/8"
Land Thickness = 3/32"



Groove Design of the First Coupon

(For combination qualification, the deposit weld metal thickness will be recorded for each filler metal or process used.)

BASE METALS: (QW-403)

Material Spec. AISI 4130 TO SA106-gr.B
Type and Grade _____
P - No. AISI 4130 **"TO"** P - No. P1 - Gr.1
Thickness of Test Coupon .337"
Diameter of Test Coupon 4.50" OD
Carbon Equivalent NA
Heat Number NA
Other No single pass exceed 1/2"

POSTWELD HEAT TREATMENT: (QW-407)

Temperature 1225F (+/-) 25F
Time 1 HR SOAK MINIMUM
Other _____

FILLER METAL: (QW-404)

SFA Spec.	<u>5.1</u>	<u>5.5</u>
AWS Class.	<u>E8010G</u>	<u>E10018-D2</u>
F - No.	<u>F3</u>	<u>F4</u>
A - No.	<u>A1</u>	<u>A11</u>
Filler Metal Size	<u>1/8"</u>	<u>3/32", 1/8", 5/32"</u>
Other	_____	_____
Thickness of		
Weld Metal	<u>.125"</u>	<u>.212"</u>

GAS: (QW-408)

	% Composition		
	Gas(es)	Mixture	Flow Rate
Shielding	<u>NA</u>	<u>NA</u>	<u>NA</u>
Trailing	<u>NA</u>	<u>NA</u>	<u>NA</u>
Backing	<u>NA</u>	<u>NA</u>	<u>NA</u>

ELECTRICAL CHARACTERISTICS: (QW-409)

Current DC
Polarity REVERSE
Amps SEE PAGE 5 **Volts** SEE PAGE 5
Tungsten Electrode Size NA
Other NA

POSITION: (QW-405)

Position of Groove 1G
Weld Progression (Uphill, Downhill) UPHILL
Other _____

PREHEAT: (QW-406)

Preheat Temperature 400F MINIMUM
Interpass Temperature 650F MAXIMUM
Other ALLOW TO COOL AS REQUIRED

TECHNIQUE: (QW-410)

Travel Speed 2-10 IPM
String or Weave Bead STRING
Oscillation NA
Multipass or Single Pass (per side) MULTIPASS
Multiple or Single Electrodes SINGLE
Other _____

TENSILE TEST: (QW-150)

Specimen No.	Width (in)	Thickness (in)	Area (sq.in.)	Ultimate Total Load (lb)	Ultimate Unit Stress (psi)	Type and Location of Failure
1	0.740	0.324	0.240	19,000	79,200	Ductile in parent A106
2	0.743	0.309	0.230	18,400	80,100	Ductile in parent A106

GUIDED BEND TESTS: (QW-160)

Type and Figure No.	Results
2 Face Bends	Both passed.
2 Root Bends	Both passed.

TOUGHNESS TESTS: (QW-170)

Specimen No.	Notch Location	Notch Type	Test Temperature	Impact Values	Lateral Expansion		Drop Weight	
					% Shear	Mils	Break	No Break

FILLET - WELD TEST: (QW-180)

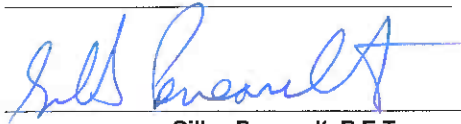
Satisfactory Results: Yes _____ No _____ Penetration: Yes _____ No _____
Macro - Results: _____

OTHER TESTS

Type(s) of Test(s): _____ Hardness Survey - See attached report #94-09-2178
Deposit Analysis: _____
Other: _____

Welder's Name: Mark Reithmeyer Clock No. W11550 Stamp No. _____

Test Conducted by: CANSPEC GROUP INC. Laboratory Test No. 94-09-2178



Gilles Perreault, R.E.T.
Manager, Laboratory Services

Manufacturer: RJV GAS FIELD SERVICES LTD.

By: 

Date: SEP 26 1994

PG: 5

Date: SEPT 22/94

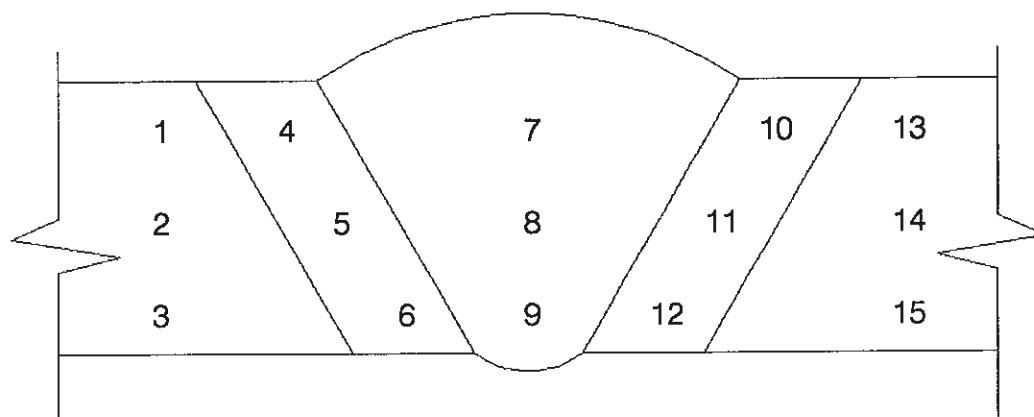
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Name of Witness

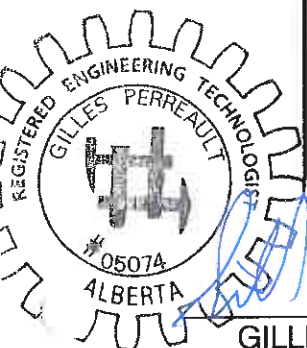
HARDNESS TEST REPORT**CUSTOMER:** RJV Gas Field Services Ltd.**ADDRESS:** 4901 - 47 Street, Vegreville, AB**ATTENTION:** Dale Laniuk**MATERIAL DESCRIPTION:** Weld Procedure RJV-106

4" OD STD Welded Pipe, PWHT at 1225°F for 1 hour

ASME SA106 Grade B to AISI 4130

PURCHASE ORDER NO.: N/A**DATE TESTED:** September 23, 1994**CANSPEC JOB NO.:** 94-09-2178

LOCATION	HRB	LOCATION	HRB
1	89.0	9	90.0
2	91.5	10	75.0
3	91.0	11	78.0
4	97.0	12	75.0
5	98.5	13	73.0
6	95.0	14	75.0
7	98.0	15	75.0
8	98.5		



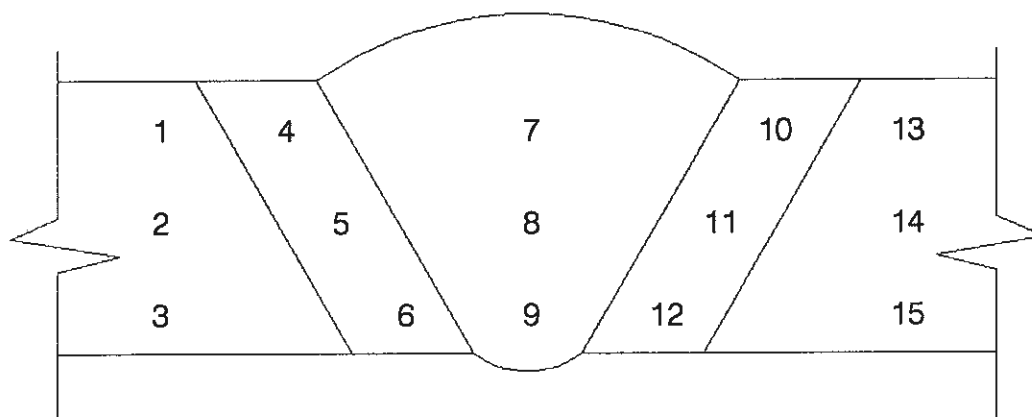
GILLES PERREAULT, R.E.T.
MANAGER, LABORATORY SERVICES

CANSPEC GROUP INC.

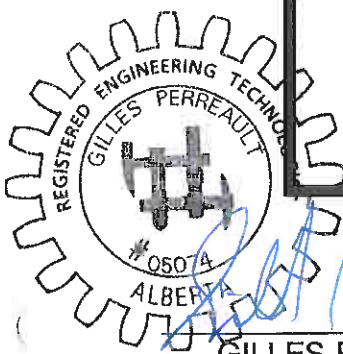
HARDNESS TEST REPORT**CUSTOMER:** RJV Gas Field Services Ltd.**ADDRESS:** 4901 - 47 Street, Vegreville, AB**ATTENTION:** Dale Laniuk**MATERIAL DESCRIPTION:** Weld Procedure RJV-106

4" OD STD Welded Pipe, PWHT at 1225°F for 1 hour

ASME SA106 Grade B to AISI 4130

PURCHASE ORDER NO.: N/A**DATE TESTED:** September 23, 1994**CANSPEC JOB NO.:** 94-09-2178

LOCATION	HRB	LOCATION	HRB
1	89.0	9	90.0
2	91.5	10	75.0
3	91.0	11	78.0
4	97.0	12	75.0
5	98.5	13	73.0
6	95.0	14	75.0
7	98.0	15	75.0
8	98.5		



Gilles Perreault
GILLES PERREULT, R.E.T.
MANAGER, LABORATORY SERVICES

CANSPEC GROUP INC.